

The United States of America's  
Nomination of



# Papahānaumokuākea

Marine National Monument



for Inscription  
on the World Heritage List

January 2009



### Zone 3

*Mālamalama kā lā nui a Kāne puka i Ha'eha'e*  
 Reef coral growth  
*Arakan ke kukuna i ka 'ili kai o nā kai 'ewalu*  
 ceases, continued  
*He 'ōhe makaniwela kāu e 'ano 'i nei*  
 subsidence, atolls drown  
*O nā au 'ālu o Kānaloa Haunawela noho i ka moana nui*  
 to form guyots

### Zone 2

Barrier reefs  
 become atolls,  
 continued  
 subsidence

### Zone 1

Subaerial  
 subsidenc  
 and barrier

*He Hu'akai ka makani o Lehua 'au i ke kai*

Darwin Point

29° N

28° N

*Kū'ono'ono ka lua o Kūhaimoana i ke kapa 'ehukai o Ka'ula*

*'O Kū i ka loulou, ulu a'e ke aloha no Nihoa moku manu*

*Manu o kū i ka 'āhui, he alaka'i na ka lāhui*

*'O Hinapūke'ā*

*'O Hinapūhalako'a*

*'O Hina Kūpukūpu*

*'O Hinaikamalama*

*Hua kā 'ōhua, lu'u ke kanohi*

*Aloha kahi limu kala, kia'i 'ia e ka 'ākala noho i uka*

*Hānau ka pe'a, puka ka pe'ape'a i ke kai*

*He 'ina'i ka 'ina, 'ono i ka huna o ka pa'akai*

*Manomano ka 'ike li'u o ka houpo o Kānaloa*

*Koiko'i lua ho'i no ka lehulehu, 'o kū'u lūhi ia*

*Hanohano wale ka 'āina kūpuna, 'o nā moku lē'ia*

*No Papahānaumokuākea lā he inoa*

Darwin Point

+0.05

-0.025

Subsidence

U

30°

Latitude – North Pacific

PACIFIC LITHOSPHERIC PLATE

ASTHENOSPHERE

4

28

11.7



The United States of America's

Nomination of



# Papahānaumokuākea

Marine National Monument



for Inscription  
on the  
World Heritage List

January 2009





Photo credits in text

Cover and Layout: Garcia and Associates, Rad Smith

Papahānaumokuākea Marine National Monument

6600 Kalaniana'ole Highway, Suite 300 - Honolulu, Hawai'i - USA 96825

State of Hawai'i, National Oceanic and Atmospheric Administration, Office of Hawaiian Affairs, and U.S. Fish and Wildlife Service. 2008. Nomination of Papahānaumokuākea Marine National Monument for Inscription on the World Heritage List. Honolulu, Hawai'i. 280 pages





EXECUTIVE CHAMBERS  
HONOLULU

LINDA LINGLE  
GOVERNOR

December 5, 2008

The Honorable Dirk Kempthorne, Secretary  
United States Department of Interior  
Washington, DC 20240

Dear Mr. Secretary:

It is with great honor that the State of Hawaii recommends that the Papahānaumokuākea Marine National Monument be nominated as a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage site. The nomination of this site has been a key goal of my administration and I enthusiastically support it. Covering a vast area in one of the world's most isolated archipelagos, the protected islands and atolls of Papahānaumokuākea offer a unique seascape dotted with islets that are rich in ecological, geological and cultural heritage. Hawaii recognizes the significance of Papahānaumokuākea's consideration as a mixed natural and cultural site with an associative cultural landscape administered under provisions of the Convention Concerning the Protection of the World Cultural and Natural Heritage (Convention).

On June 15, 2006, President George W. Bush issued Presidential Proclamation 8031 establishing the Northwestern Hawaiian Islands Marine National Monument under the authority of the Antiquities Act of 1906 (AA)(16 U.S.C. 431). The site was later renamed by Presidential Proclamation 8112 as the Papahānaumokuākea Marine National Monument to reflect its Native Hawaiian cultural significance. The Monument protects natural, cultural and historic resources encompassed within an area of approximately 139,793 square miles (362,075 square kilometers) around the Northwestern Hawaiian Islands, a place that has seen increasing levels of protection since 1909.

In recognition of the obligation under Article 5 of the Convention, and in coordination with the federal Co-Trustees, the National Oceanic and Atmospheric Administration and the U.S. Fish and Wildlife Service, Hawaii shall, insofar as possible, take all appropriate measures including legal, scientific, technical, and administrative, necessary for the protection, conservation, and preservation of the outstanding universal value of the Monument and its resources. This obligation is satisfied through the protective measures taken in the President's Proclamations, State and federal implementing regulations, and the management plan.

Hawaii fully supports the United States' efforts to nominate Papahānaumokuākea Marine National Monument to the UNESCO World Heritage List, and offers any needed assistance to ensure the nomination successfully navigates the approval process through the U.S. and UNESCO.

Sincerely,

A handwritten signature in black ink, appearing to read "Linda Lingle".

LINDA LINGLE



UNITED STATES DEPARTMENT OF COMMERCE  
The Under Secretary of Commerce  
for Oceans and Atmosphere  
Washington, D.C. 20230

DEC - 5 2008

The Honorable Dirk Kempthorne  
Secretary  
U.S. Department of the Interior  
Washington, D.C. 20240

Dear Mr. Secretary:

It is with great enthusiasm that the National Oceanic and Atmospheric Administration (NOAA) recommends the Papahānaumokuākea Marine National Monument be nominated as a United Nations Educational, Scientific, and Cultural Organization (UNESCO) World Heritage site. Covering a vast area in one of the world's most isolated archipelagos, the protected islands and atolls of Papahānaumokuākea offer a unique seascape dotted with islets rich in ecological, geological, and cultural heritage. NOAA recognizes the honor of Papahānaumokuākea's consideration as a mixed natural and cultural site with an associative cultural landscape administered under provisions of the Convention Concerning the Protection of the World Cultural and Natural Heritage (Convention).

On June 15, 2006, President George W. Bush issued Presidential Proclamation 8031 establishing the Northwestern Hawaiian Islands Marine National Monument under the authority of the Antiquities Act of 1906 (AA)(16 U.S.C. 431). The site was later renamed by Presidential Proclamation 8112 as the Papahānaumokuākea Marine National Monument to reflect its Native Hawaiian cultural significance. The Monument protects natural, cultural, and historic resources encompassed within an area of approximately 139,793 square miles around the Northwestern Hawaiian Islands, a place that has been given increasing levels of protection since 1909.

In recognition of the obligation under Article 5 of the Convention, and in coordination with its Co-Trustees: the State of Hawaii, the U.S. Fish and Wildlife Service, and NOAA, shall take all appropriate measures including legal, scientific, technical, and administrative necessary for the protection, conservation, and preservation of the outstanding universal value of the Monument and its resources. This obligation is satisfied through the protective measures taken in the President's Proclamations, implementing regulations, and the management plan.

NOAA supports the United States' efforts to nominate Papahānaumokuākea Marine National Monument to the UNESCO World Heritage List, and offers any needed assistance to ensure the nomination successfully navigates the approval process through the United States and UNESCO.

Sincerely,

William J. Brennan, Ph.D.  
Acting Under Secretary of Commerce  
for Oceans and Atmosphere

THE ADMINISTRATOR







## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Washington, D.C. 20240



December 5, 2008

Honorable Dirk Kempthorne  
Secretary, U.S. Department of the Interior  
Washington, DC 20240

Dear Mr. Secretary:

The U.S. Fish and Wildlife Service (Service) heartily endorses the nomination of Papahānaumokuākea Marine National Monument as a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage site. As recognized both by President Theodore Roosevelt some 100 years ago and by President George W. Bush in 2006, these remote islets, reefs, and waters offer a wealth of natural, cultural, and historic resources that truly deserve not only national but international acknowledgment. It is an honor for the Service to support consideration of Papahānaumokuākea as a mixed natural and cultural site with an associative cultural landscape administered under provisions of the Convention Concerning the Protection of the World Cultural and Natural Heritage (Convention).

Numerous natural treasures of international significance are found within Papahānaumokuākea, including the clearest illustration of "hotspot" island progression in the world, the largest tropical seabird rookery in the world, numerous threatened and endangered species, literally thousands of endemic species found nowhere else in the world, and one of the few remaining predator-dominated coral reef ecosystems in the world. Equally significant are Papahānaumokuākea's cultural resources, including unique archaeological sites on Nihoa and Mokumanamana, the strong association of the seascape with the cosmology and oral traditions of Native Hawaiians, and its continuing opportunities to allow Native Hawaiian practitioners to perpetuate customary practices such as wayfinding.

In recognition of the obligation under Article 5 of the Convention, and in coordination with its Co-Trustees, the State of Hawai'i and the National Oceanic and Atmospheric Administration, the U.S. Fish and Wildlife Service will, insofar as possible, take all appropriate measures including legal, scientific, technical, and administrative, necessary for the protection, conservation, and preservation of the outstanding universal value of the Monument and its resources. This obligation will continue to be met through the protective measures required by the National Wildlife Refuge System for the two National Wildlife Refuges within Monument boundaries and by the Presidential Proclamation establishing Papahānaumokuākea Marine National Monument, its implementing regulations, and its management plan.

Thank you for your efforts to recognize this unique natural and cultural treasure. If we can provide any further assistance during the nomination's consideration by the United States and UNESCO, please contact Barry W. Stieglitz, Project Leader, Hawaiian and Pacific Islands NWRC at (808) 792-9540.

Sincerely,

DIRECTOR



# Table of Contents

<b>List of Figures and Tables</b>	<b>viii</b>
<b>Acronyms and Abbreviations</b>	<b>xi</b>
<b>Executive Summary</b>	<b>2</b>
<b>1. Identification of the Property</b>	<b>10</b>
1.a Country .....	10
1.b State, Province or Region .....	10
1.c Name of Property .....	10
1.d Geographical Coordinates to the Nearest Second.....	11
1.e Maps Showing Boundaries and Management of the Nominated Property .....	11
1.f Area of Nominated Property.....	15
<b>Introduction: Native Hawaiian Culture and Papahānaumokuākea</b>	<b>19</b>
<b>2. Description and History of the Property</b>	<b>25</b>
2.a Description of the Property.....	26
2.b History and Development of the Property .....	89
<b>3. Justification for Inscription on the World Heritage List</b>	<b>105</b>
3.a Criteria Under Which Inscription is Proposed.....	106
3.b Statement of Outstanding Universal Value .....	124
3.c Comparative Analysis.....	126
3.d Integrity and Authenticity .....	143
<b>4. State of Conservation and Factors Affecting the Property</b>	<b>151</b>
4.a Present State of Conservation of the Property .....	152
4.b Factors Affecting the Property.....	166
4.b (i) Development Pressures .....	166
4.b (ii) Environmental Pressures.....	166
4.b (iii) Natural Disasters and Risk Preparedness .....	172
4.b (iv) Visitor/Tourism Pressures.....	173
4.b (v) Number of Inhabitants within the Property and the Buffer Zone .....	174



<b>5. Protection and Management</b>	<b>175</b>
5.a Ownership .....	176
5.b Protective Designations .....	178
5.c Implementation of Protective Measures .....	192
5.d Existing Plans .....	195
5.e Monument Management Plan .....	199
5.f Sources and Levels of Finance.....	202
5.g Expertise and Training.....	203
5.h Visitor Facilities and Statistics.....	204
5.i Property Promotion and Presentation .....	205
5.j Staffing Levels .....	211
<b>6. Monitoring</b>	<b>213</b>
6.a Key Indicators for Measuring State of Conservation .....	214
6.b Administrative Arrangements for Monitoring Property .....	217
6.c Results of Previous Reporting Exercises .....	219
<b>7. Documentation</b>	<b>223</b>
7.a Photographs, Image Inventory and Other Audiovisual Materials	224
7.b Texts Relating to Protective Designation and Management Plans .....	229
7.c Form and Date of Most Recent Records or Inventory of Property.....	232
7.d Locations of Inventory, Records and Archives .....	232
7.e Reference List.....	232
<b>8. Contact Information of Responsible Authorities</b>	<b>263</b>
8.a Preparers.....	264
8.b Official Local Institution/Agency .....	265
8.c Other Local Institutions .....	265
8.d Official Web Address .....	265
<b>9. Signature on Behalf of the State Party</b>	<b>267</b>
<b>Glossary</b>	<b>270</b>
<b>Line Art Glossary</b>	<b>279</b>

## LIST OF FIGURES AND TABLES

Figure 1.1a	Proposed nominated area: Papahānaumokuākea Marine National Monument geographic coordinates .....	3
Figure 1.1b	Proposed nominated area: Papahānaumokuākea Marine National Monument geographic coordinates (inclusive) .....	11
Figure 1.2	Proposed nominated area: Papahānaumokuākea Marine National Monument overview .....	4, 12
Figure 1.3	Management Area of Papahānaumokuākea .....	13
Figure 1.4	Proposed nominated area: Papahānaumokuākea Marine National Monument and Particularly Sensitive Sea Area (PSSA) .....	15
Figure 2.1a	Biomass comparisons between the Northwestern Hawaiian Islands (NWHI) and the main Hawaiian Islands (MHI) by trophic group .....	32
Figure 2.1b	Geographic pattern of apex predator biomass density (tons/ha) in the NWHI .....	33
Figure 2.2	Percent fish endemism at each of ten emergent Papahānaumokuākea reefs .....	36
Figure 2.3	Mean coral cover by site, within Papahānaumokuākea .....	37
Figure 2.4	Relative abundance of coral taxa genera throughout Papahānaumokuākea .....	38
Figure 2.5	Unique morphospecies collected at FFS by phylum in 2006 surveys .....	39
Figure 2.6	Comparison of biomass in major trophic guilds between the Northwestern Hawaiian Islands and the main Hawaiian Islands .....	40
Figure 2.7	Population sizes and nesting sites of rare seabird species, Green Turtles, and monk seals in the Pacific Island region .....	43
Figure 2.8	Number of endemic and indigenous species at Nihoa .....	65
Figure 2.9	Number of endemic and indigenous species at Mokumanamana .....	67
Figure 2.10	Number of endemic and indigenous species at French Frigate Shoals .....	70
Figure 2.11	Number of endemic and indigenous species at Gardner Pinnacles .....	73
Figure 2.12	Number of endemic and indigenous species at Maro Reef .....	75
Figure 2.13	Number of endemic and indigenous species at Laysan Island .....	77
Figure 2.14	Number of endemic and indigenous species at Lisianski Island .....	80
Figure 2.15	Number of endemic and indigenous species at Pearl & Hermes Atoll .....	82
Figure 2.16	Number of endemic and indigenous species at Midway Atoll .....	84
Figure 2.17	Number of endemic and indigenous species at Kure Atoll .....	87
Figure 3.1	Age of volcanoes within the Hawaiian Archipelago .....	114
Figure 3.2	Various measures of percent endemism at each of 10 Papahānaumokuākea islands and atolls, illustrating patterns of endemism with latitude .....	117
Figure 3.3	Comparative biomass of large predators, lower carnivores and herbivores among coral reef ecosystems of the world .....	118
Figure 3.4	Top 10 coral reef hotspots, based on percentage of endemic reef fishes of the total fish fauna .....	128
Figure 3.5	Comparison of World Heritage Site reef fish endemism rates .....	128
Figure 3.6	Total and endemic species of stony coral in Papahānaumokuākea by location .....	129

Figure 4.1	Mean coral cover at permanent transects by location .....	154
Figure 4.2	Fish biomass and trophic guilds from 2000–2005 .....	156
Figure 4.3	Long-term trend in the abundance of female nesting Green Turtles at French Frigate Shoals .....	157
Figure 4.4	Historical trend in non-pup beach counts of Hawaiian Monk Seals at the six main reproductive subpopulations .....	158
Figure 4.5	Estimated abundance of monk seals at six breeding sites .....	158
Figure 4.6	Quantity of marine debris removal in the NWHI .....	167

## List of Tables

Table 1.1	Other popular or historic placenames for the property .....	10
Table 1.2	Names of individual islands, reefs, shoals (from SE to NW) .....	10
Table 1.3	Papahānaumokuākea Marine National Monument perimeter estimates .....	15
Table 1.4	Area of lands and waters in Papahānaumokuākea Marine National Monument .....	15
Table 2.1	Seabird species known to breed in Papahānaumokuākea Marine National Monument .....	46
Table 2.2	Number of terrestrial arthropod species in Papahānaumokuākea summarized by order and island .....	47
Table 2.3	Biogeographic description of land plants of Papahānaumokuākea Marine National Monument .....	48
Table 2.4	Nihoa: Archaeological sites and postulated functions .....	59
Table 2.5	Mokumanamana: Archaeological sites and postulated functions .....	61
Table 2.6	Island-by-island comparisons of land and reef areas (hectares) .....	62
Table 3.1	IUCN Red-Listed Species found within Papahānaumokuākea .....	120
Table 3.2	Comparable World Heritage Sites to Papahānaumokuākea and summary of their cultural significance .....	136-137
Table 3.3	Comparison of Papahānaumokuākea to relevant cultural landscape World Heritage Sites .....	138
Table 4.1	Overview of seabird monitoring efforts .....	159
Table 4.2	Marine alien species in the Papahānaumokuākea .....	169
Table 4.3	Anticipated staff on each island/atoll under Monument Management Plan .....	174
Table 5.1	Protections in Papahānaumokuākea Marine National Monument .....	179
Table 5.2	Monument vision, mission, guiding principles, and goals .....	201
Table 5.3	Visitation at Midway Atoll, 2005-present .....	205
Table 6.1a	Indicators of conservation for natural resources .....	214-215
Table 6.1b	Indicators of conservation for cultural resources .....	216-217
Table 6.2	Relationship between management and monitoring .....	218
Table 7.1	Image inventory and authorization .....	224-228

## List of Text Boxes & Illustrations

A Historic Moment.....	16-17
The Naming of Papahānaumokuākea .....	28
Endemic Sea Life.....	34-35
Language .....	52
Papahānaumokuākea Marine National Monument Relative Biogeographic Comparison .....	44-45
Cultural Heritage Sites within Papahānaumokuākea .....	50-51
Hawaiian Wayfinding (non-instrument navigation) .....	54-55
Nihoa’s Archaeological Sites.....	59
Mokumanamana’s Archaeological Sites .....	61
Nihoa: benthic habitat, bathymetry and satellite imagery .....	64
Mokumanamana: benthic habitat, bathymetry and satellite imagery.....	67
French Frigate Shoals: benthic habitat, bathymetry and satellite imagery.....	70
Gardner Pinnacles: benthic habitat, bathymetry and satellite imagery .....	73
Maro Reef: benthic habitat, bathymetry and satellite imagery.....	75
Laysan Island: benthic habitat, bathymetry and satellite imagery .....	77
Lisianski Island: benthic habitat, bathymetry and satellite imagery .....	80
Pearl & Hermes Atoll: benthic habitat, bathymetry and satellite imagery .....	82
Midway Atoll: benthic habitat, bathymetry and satellite imagery.....	84
Kure Atoll: benthic habitat, bathymetry and satellite imagery .....	87
Timeline of Events: Official Hawaiian presence in NWHI following Western Contact .....	91
Laysan Duck .....	103
Predator-Dominated Coral Reefs .....	118
Seabird Species .....	123
Exploring the Unknown: Diving Deep into Papahānaumokuākea Waters.....	155
Bringing the Place to the People: Navigating Change .....	164
From the Blog: Papahānaumokuākea Marine Educators’ and Cultural Practitioners’ Cruise .....	190-191
Day 3: Images from the Nihoa Expedition .....	194-195
Our Sea of Islands .....	206

## ACRONYMS AND ABBREVIATIONS

AAUS	American Academy of Underwater Sciences	MOA	Memorandum of Agreement
ATBA	Areas to be Avoided	MOU	Memorandum of Understanding
BRAC	Base Realignment and Closure	NCCOS	National Center for Coastal Ocean Science
CFR	Code of Federal Regulations	NHPA	National Historic Preservation Act
COPPS	Community Oriented Policing and Problem Solving	NMFS	National Marine Fisheries Service
CoRIS	NOAA Coral Reef Information System	NOAA	National Oceanic and Atmospheric Administration
CPUE	Catch-per-unit-effort	NRC	National Research Council
CRED	PIFCS Coral Reef Ecosystem Division	NRDA	Natural Resource Damage Assessment
CRER	Coral Reef Ecosystem Reserve	NRSP	Natural Resources Science Plan
DLNR	State of Hawai'i Department of Land and Natural Resources	NWHI	Northwestern Hawaiian Islands
DOC	U.S. Department of Commerce	NWR	National Wildlife Refuge
DOD	U.S. Department of Defense	OHA	Office of Hawaiian Affairs
DOI	U.S. Department of the Interior	OLE	Office of Law Enforcement
EPA	U.S. Environmental Protection Agency	ONMS	Office of National Marine Sanctuaries
ESA	Endangered Species Act	OPA	Oil Pollution Act
FAA	Federal Aviation Administration	PCB	Polychlorinated Biphenyls
FAD	Fish Aggregation Device	PIFSC	NMFS Pacific Islands Fisheries Science Center
FWS	U.S. Fish and Wildlife Service	PISCO	Partnership for Interdisciplinary Studies of Coastal Oceans
FFS	French Frigate Shoals	PMNM	Papahānaumokuākea Marine National Monument
GIS	Geographic Information System	PSSA	Particularly Sensitive Sea Area
HAR	Hawaii Administrative Rule	RAC	Reserve Advisory Council
HAZWOPR	Hazardous Waste Operations and Emergency Response	ROP	Reserve Operations Plan
HIMB	Hawai'i Institute of Marine Biology	R/V	Research Vessel
HINWR	Hawaiian Islands National Wildlife Refuge	SCUBA	Self-Contained Underwater Breathing Apparatus
HRS	Hawaii Revised Statutes	SEB	Senior Executive Board
HURL	Hawai'i Undersea Research Lab	SHIELDS	Sanctuaries Hazardous Incident Emergency Logistics Database System
ICC	Interagency Coordinating Committee	SMA	Special Management Area
IMO	International Maritime Organization	SOU	Special Ocean Use
IPCC	Intergovernmental Panel on Climate Change	SPA	Special Preservation Area
LORAN	Long Range Aids to Navigation	SST	Scientific Support Team
MARPOL	International Convention for the Prevention of Pollution from Ships	UNESCO	United Nations Educational, Scientific, and Cultural Organization
MBTA	Migratory Bird Treaty Act	UXO	Unexploded Ordnance
MHI	Main Hawaiian Islands	USCG	United States Coast Guard
MMB	Monument Management Board	VMS	Vessel Monitoring System
MMPA	Marine Mammal Protection Act		
MMP	Monument Management Plan		





*Harlequin Crab*  
(Photo: Susan Middleton & David Liittschwager)



# Papahānaumokuākea

## Marine National Monument

### *No Papahānaumokuākea*

Mālamalama ka lā nui a Kāne puka i Ha'eha'e  
'Apakau ke kukuna i ka 'ili kai o nā kai 'ewalu  
He 'ike makawalu ka'u e 'ano'i nei,  
'O nā au walu o Kanaloa Haunawela noho i ka moana nui  
He Hu'akai ka makani o Lehua 'au i ke kai  
Kū'ono'ono ka lua o Kūhaimoana i ke kapa 'ehukai o Ka'ula  
'O Kū i ka loulu, ulu a'e ke aloha no Nihoa moku manu  
Manu o kū i ka 'āhui, he alaka'i na ka lāhui  
'O Hinapūko'a  
'O Hinapūhalako'a  
'O Hina kupukupu  
'O Hinaikamalama  
Hua ka 'ōhua, lu'u ke koholā  
Aloha kahi limu kala, kia'i 'ia e ka 'ākala noho i uka  
Hānau ka pe'a, puka ka pe'ape'a i ke kai  
He 'īna'i ka 'īna, 'ono i ka huna o ka pa'akai  
Manomano ka 'ike li'u o ka houpō o Kanaloa  
Koiko'i lua ho'i na ka lehulehu, 'o ku'u luhi ia  
Hanohano wale ka 'āina kūpuna, 'o nā moku lē'ia  
No Papahānaumokuākea lā he inoa

- Na Kainani Kahaunaele a me Halealoha Ayau

The sunrise of Kāne at Ha'eha'e shines bright  
The rays of the sun spread throughout Hawai'i  
I yearn for the deep knowledge  
The knowledge of Kanaloa who lives in the ocean  
The Hu'akai wind is of Lehua that swims in the sea  
Rich is the pit of Kūhaimoana in the seaspray of Ka'ula  
Kū is of the loulu (endemic fan palm) and our respect grows for  
Nihoa, isle of birds  
Manu o kū (white tern) flies in a bunch and leads the nation  
The multiple forms of Hina of coral and moon  
The 'ōhua (juvenile wrasse, tang, unicorn, parrot fish) spawns,  
the whale dives  
Love for the limu kala (Sargassum seaweed), whose land  
counterpart is the 'ākala (Hawaiian raspberry)  
The pe'a (Hawaiian bat) gives birth to the pe'ape'a (starfish) in  
the sea  
The 'īna (endemic sea urchin) is the seasoning, delicious with salt  
The deep knowledge of our Kūpuna lies in the depths  
Extremely important for us to grasp, it is my passion  
Honored of the land of my ancestors, the abundant islands  
A name song for Papahānaumokuākea

- by Kainani Kahaunaele and Halealoha Ayau

Cultural practitioners Kainani Kahaunaele and Halealoha Ayau made a gift of this *mele* (name song), *No Papahānaumokuākea*, to the Papahānaumokuākea Marine National Monument in November 2007. This *mele* celebrates Papahānaumokuākea's outstanding natural, historical, and cultural resources, and exemplifies the way in which the site's natural and cultural significances are intertwined. When chanted, such as in opening public meetings, the *mele* is offered in honor of and to give thanks to the place and to the *kūpuna* (elders). An audio recording of practitioners chanting the *mele*, *No Papahānaumokuākea*, is included (see Appendix P).



## Executive Summary

### Country

United States of America.

### State, Province, or Region

Papahānaumokuākea Marine National Monument is comprised of lands and waters under the management, control and jurisdiction of the United States of America, and also includes lands and waters of the State of Hawai'i.

### Name of Property

"Papahānaumokuākea Marine National Monument"

Papahānaumokuākea (pronounced Pa-pa-HAH-nou-mo-koo-AH-keh-ah) comes from an ancient Hawaiian traditional chant concerning the genealogy and formation

of the Hawaiian Islands. An explanation of the meaning and process for naming Papahānaumokuākea is found at the beginning of Section 2.a.

### Geographical Coordinates (See Figure 1.1a)

The center point for the geographic coordinates is:

N 25°20'56.652" W 170°8'44.952"

The outer boundaries include:

N 22°53'35.016" W 161°2'9.456"

N 28°37'41.196" W 179°14'43.764"



*Nesting Great Frigatebirds (Iwa) and aquamarine lagoons link the land and sea in this vast seascape*  
(Photo: James Watt)



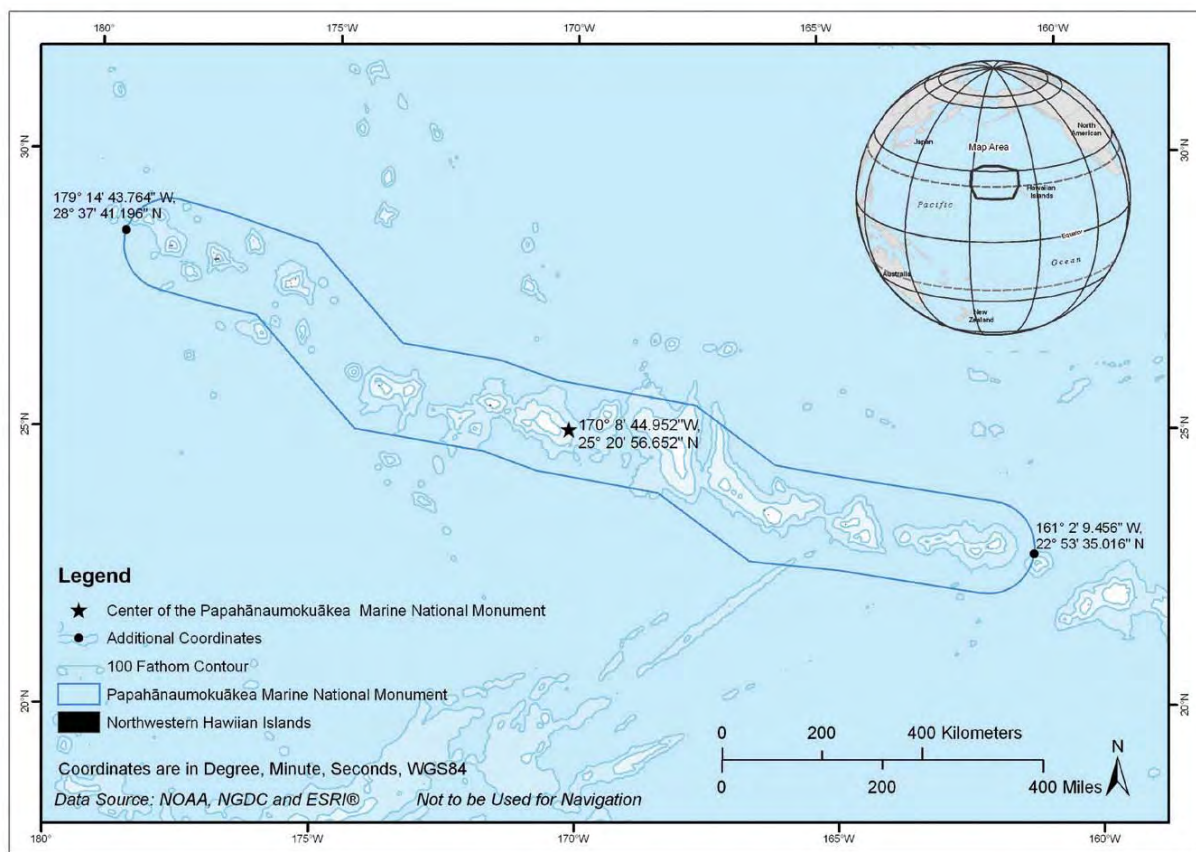
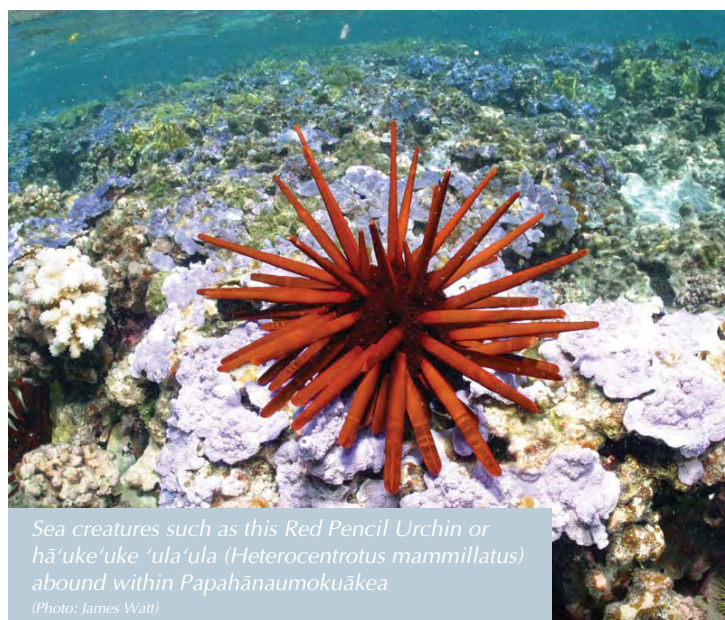


Figure 1.1a Proposed Nominated Area: Papahānaumokuākea Marine National Monument geographic coordinates



### Textual Description of the Boundaries of the Nominated Property

Papahānaumokuākea is situated in the northwestern portion of the Hawaiian Archipelago, located northwest of the Island of Kaua’i. It encompasses an area of approximately 36,207,499 hectares (362,075 square kilometers or 139,797 square miles). Spanning a distance of approximately 1,931 kilometers (1,200 miles or 1,041 nautical miles), the region, 185 kilometers wide (115 miles or 100 nautical miles), is dotted with small islands, islets, reefs, shoals, submerged banks, and atolls that extend from subtropical latitudes to near the northern limit of coral reef development (see Figure 1.2).



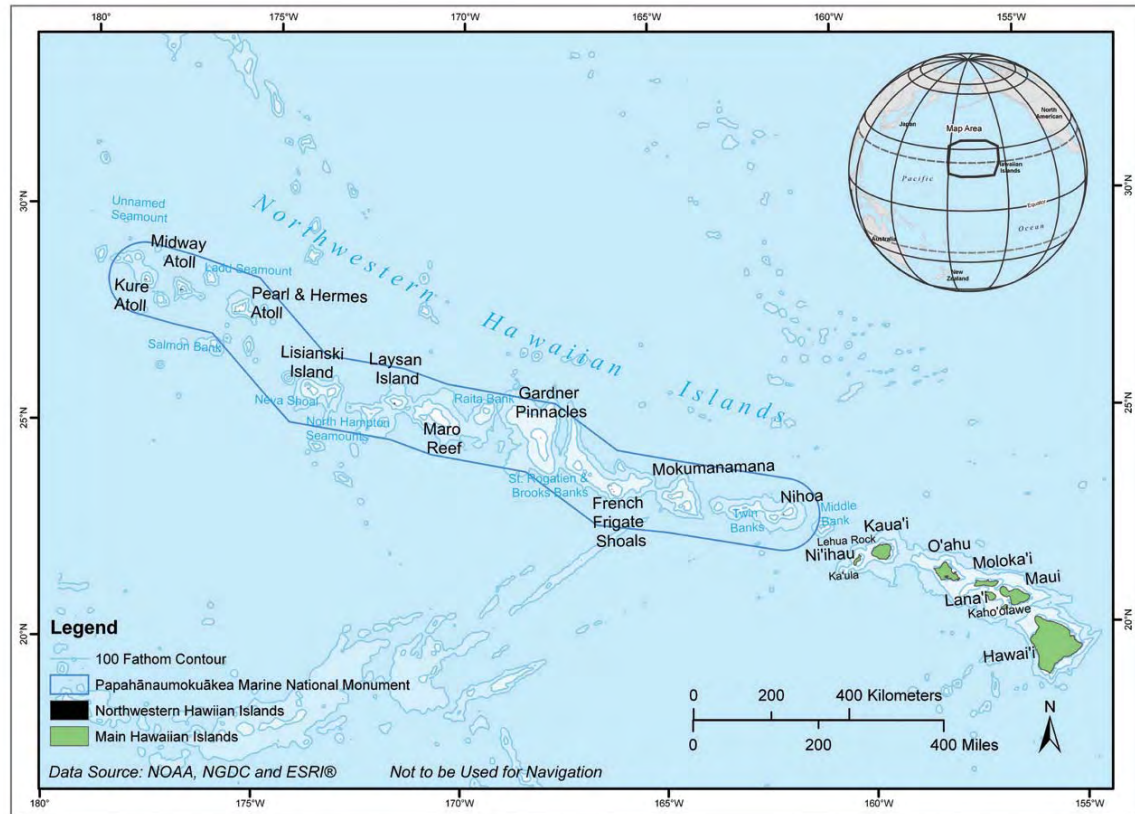
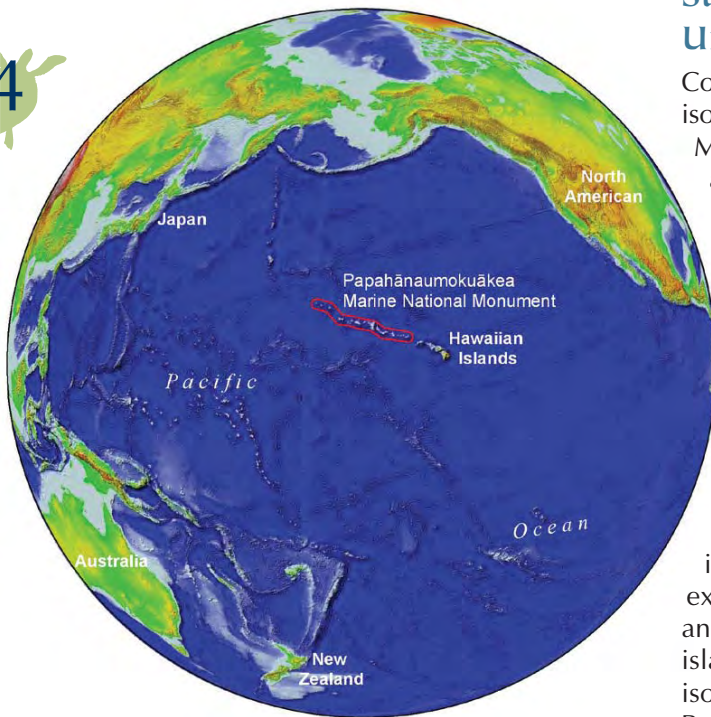


Figure 1.2 Proposed Nominated Area: Papahānaumokuākea Marine National Monument overview

4



Location of proposed nominated property in the Pacific Ocean

## Statement of Outstanding Universal Value

Covering a vast area in one of the world's most isolated archipelagos, Papahānaumokuākea Marine National Monument encompasses a significant expanse of low-lying islands and atolls, predator dominated coral reef ecosystems, and marine and terrestrial flora and fauna that show significant patterns of enhanced speciation with numerous endemic and endangered species. It is a unique seascape, rich in ecological, geological and cultural heritage.

The islands and atolls of Papahānaumokuākea comprise an important prototype and outstanding example of ongoing geologic processes and the clearest illustration of 'hotspot' island progression in the world. The sheer isolation of these islands and waters causes Papahānaumokuākea to function as an intact miniature evolutionary universe. It contains innumerable excellent examples



of ecological and biological evolutionary processes (such as dramatic examples of adaptive radiation) that continue undisturbed, resulting in very high rates of endemism. The region provides a crucially important habitat for the conservation of many endangered or threatened species of global concern. Papahānaumokuākea is also a sacred cultural landscape, a region of deep cosmological and traditional significance to the living Native Hawaiian culture that contains a host of intact and significant archaeological sites. The entire region provides a largely undisturbed ancestral environment, whose preservation both illuminates and embodies the Hawaiian concept of the literal and spiritual kinship of all things in the natural world, including man, and represents the site where life originates and the place where spirits return after death.

#### Criteria Under Which Property is Nominated

Papahānaumokuākea is nominated for inscription to the World Heritage List as a mixed site for its natural and cultural values and as an associative cultural landscape under the following criteria:



*Native Hawaiian people consider Papahānaumokuākea as one of Hawai'i's last-remaining places of abundance, or 'āina momona (Photo: James Watt)*

#### Criterion iii: "to bear a unique or at least exceptional testimony to a cultural tradition or to a civilization, which is living or which has disappeared"

Papahānaumokuākea's remarkable archaeology and significant ritual sites (*heiau*) bear exceptional testimony to the shared historical origins of all Polynesian societies, and to the growth and expression



*The Hawaiian Monk Seal is one of 22 IUCN-listed endangered species dependent on Papahānaumokuākea for survival (Photo: James Watt)*



Over 90% of the threatened Green Turtle nestings in Hawai'i occur within Papahānaumokuākea (Photo: James Watt)



of a culture that evolved from the last and most difficult wave of cross-Pacific Polynesian migration. As the only Mystery Islands (once-inhabited but now abandoned outposts at the farthest reaches of Polynesian migration) that continue a cultural association with their indigenous people, the islands of Nihoa and Mokumanamana can reveal much about cultural resilience in a changing environment.

**Criterion vi: “to be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance”**

Papahānaumokuākea, as an associative cultural landscape, represents core elements of Native Hawaiian cosmology and tradition. The islands northwest of the Tropic of Cancer are believed to lie within the region of primordial darkness from which life originates and to which it returns. For a culture that considers nature and civilization to be part of a genealogical whole, Papahānaumokuākea

offers a “place of abundance” to reconnect with an ancestral environment, and its seas are also a traditional and contemporary testing ground for the revitalized art of Polynesian wayfinding.

**Criterion viii: “be outstanding examples representing major stages of earth’s history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features”**

The string of islands in Papahānaumokuākea, 1,931 kilometers long, comprise a classic, important and unparalleled example of later stages of island and atoll evolution. The archipelago has provided some of the most compelling confirmation of current theories of global plate tectonic movements.



**Criterion ix: “be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals”**

Papahānaumokuākea is a spectacular example of evolution in isolation, which results in enhanced speciation and a phenomenally high degree of endemism in both the marine and terrestrial flora and fauna. The coral reef ecosystems of Papahānaumokuākea also represent one of the world’s last apex predator dominated ecosystems, a community structure characteristic of coral reefs prior to significant human exploitation.

**Criterion x: “contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation”**

The region is home to, and a crucial refuge for, many endangered, threatened, and endemic species, including critically endangered marine mammal, bird, and plant species for whom it is the last or only refuge anywhere on earth. Papahānaumokuākea is also the largest tropical seabird rookery in the world.

#### **Integrity**

Papahānaumokuākea is a pristine marine ecosystem, which allows biological and ecological processes and systems to continue undisturbed, to a degree seen in few other places on earth. It includes all key areas and ecosystems that are needed to maintain ecological integrity and the long-term conservation of its unique diversity. Papahānaumokuākea is also a complete and intact cultural and maritime landscape that is in continuous use by its cultural



*(Photo: James Watt)*

*Laysan Albatross (below) and Masked Boobies (above), members of the largest tropical seabird rookery in the world*



*(Photo: Rob Shallenberger)*





*Schooling lauiliwili, the endemic Milletseed Butterflyfish (Chaetodon miliaris) (Photo: James Watt)*

descendants, Native Hawaiians. Its densely scattered, well-preserved and varied archaeological sites have been subject to very few human disturbances.

### Authenticity

The authenticity of Papahānaumokuākea lies in the continuing strong association of the landscape with the cosmology and oral traditions of Native Hawaiians, the embodiment of an ancestrally pristine and spiritually meaningful marine environment, and the perpetuation of customary practices such as wayfinding.

### Requirements for Protection and Management

Papahānaumokuākea is protected by a significant federal and state legal regime, including an extensive management plan; enforcement, surveillance, and monitoring activities; and severe restrictions on access. Tourism is restricted to limited numbers at only one site, on Midway Atoll. The area is managed to provide opportunity for significant input and advice from key stakeholders and has a long history of public engagement.

### Name and Contact Information of Official Local Institute/Agency

Papahānaumokuākea Marine National Monument  
6600 Kalaniana'ole Highway  
Suite 300  
Honolulu, HI 96825  
USA

Telephone: (001) 808-397-2660  
Fax: (001) 808-397-2662  
E-mail: [hawaiiireef@noaa.gov](mailto:hawaiiireef@noaa.gov)  
Web address: [www.papahanaumokuakea.gov](http://www.papahanaumokuakea.gov)

Chief, Office of International Affairs  
National Park Service  
U.S. Department of the Interior  
1201 Eye Street NW (0050)  
Washington, D.C. 20005  
USA

Telephone: (001) 202-354-1800







## Native Hawaiian Culture and Papahānaumokuākea

**“You only know where you are on the ocean by memorizing where you came from.”**

– *Nainoa Thompson, Master Hawaiian Navigator*

### Sailing to Papahānaumokuākea

The vast seascapes and tiny islands of Papahānaumokuākea, found uninhabited or abandoned at the time of Western contact in the 18th century, represent the outer limits of the story of Pacific voyaging and settlement—an epic migration that began more than 6,000 years ago, when groups of seafarers left the islands of Southeast Asia and voyaged east into the Pacific Ocean. By 1200 BC, their descendents had reached the islands of Tonga and Sāmoa in the mid-Pacific, now known as western Polynesia. Navigating using only natural signs and knowledge as they journeyed across vast expanses of open ocean, over the next two millennia these Pacific voyagers would explore and populate a 10-million-square-mile area of the Pacific bounded by the points of the Polynesian Triangle: Hawai’i in the north, tiny Rapa Nui (Easter Island) in the South, and the islands of Aotearoa (New Zealand) in the southwest. It was one of the greatest human migrations ever undertaken. Polynesia (“many islands”) now comprises an area strongly related in culture, in landscapes and in seascapes,

yet abounding in distinct cultural heritages uniquely adapted to the environment of each place.

Polynesian voyagers arrived in the isolated Hawaiian Archipelago around 300 AD. They found islands with fertile soils, abundant water, and reefs rich with marine life. In relative isolation from their ancestral origins, the Native Hawaiian culture evolved into a culture finely attuned to its immediate and unique natural surroundings. They created agricultural terraces along the hillsides; extensive water paddies for their staple food, *kalo* (taro), in the valleys; fishponds over the shallow reefs; and sustainable nearshore and pelagic fisheries management.

Where resources and land are obviously limited, as on an island, highly skilled resource management often evolves out of necessity. Native Hawaiians developed complex resource management systems and specialized skill sets to ensure that the fertile soils and rich reef and pelagic environments they found could be sustained for future generations. Traditional, sustainable practices, such as the Hawaiian system of *ahupua’a* (land divisions inclusive of the deep sea through mountain peaks), utilized seasonal patterns in weather and their effects on species abundance and distribution, ecological zonation, and land-sea connectivity to manage resources effectively. The foundation of this culture was a nuanced awareness of, and responsive intimacy with, the patterns and processes of their specific natural environment.

Native Hawaiians explored and settled the archipelago, inhabiting the main Hawaiian Islands and venturing into the region to the northwest, now known as Papahānaumokuākea. This chain of far-flung islands and atolls, and the waters surrounding them, continue to be respected as a sacred zone, a place containing the boundary between Ao, the world of light and





the living, and Pō, the world of the gods and spirits, of primordial darkness, from which all life comes and to which it returns after death.

Papahānaumokuākea is as much a spiritual as a physical geography, rooted deep in Native Hawaiian creation and settlement stories. Many oral traditions say that Native Hawaiians are genealogically related not only to the living creatures that make up the land and ocean ecosystems, but to the islands and atolls themselves. In relatively recent times, the islands of Papahānaumokuākea have become known as the Kūpuna (Revered Elders or Ancestors) Islands, in part because they are geologically older than the main Hawaiian Islands, and because, according to Hawaiian oral tradition, these islands themselves are ancestors to Native Hawaiians. Thus, Hawaiians not only look to their Kūpuna

Islands for *‘ike* (knowledge), but they also have a deeply embedded *kuleana* (privilege and responsibility) to care for their *kūpuna*. Each island is a teacher; each island has its own, unique message to impart.

### Where Nature and Culture Are One

The most famous Hawaiian creation chant, the Kumulipo, tells of the birth of the world from the darkness of Pō, beginning with the simplest known form of life, the coral polyp, and progressing to the more complex forms (see Appendix B for more text from the Kumulipo). As time passes, life begins to be created in sibling pairs, a land creature or plant for every sea creature or plant. These twins almost always share similar names; they are often also linked in real-life cycles, with one blooming on land as the other becomes fertile or abundant in the sea.

O ke au i kāhuli wela ka honua  
 O ke au i kahuli lole ka lani  
 O ke au i Kūka‘iaka ka lā  
 E ho‘omāmalama i ka mālama  
 O ke au o Makali‘i ka pō  
 O ka walewale ho‘okumu honua ‘ia  
 O ke kumu o ka lipo, i lipo ai  
 O ke kumu o ka Pō, i pō ai  
 O ka lipolipo, o ka lipolipo  
 O ka lipo o ka lā, o ka lipo o ka pō  
 Pō wale ho-‘i  
 Hānau ka pō

At the time when the earth became hot  
 At the time when the heavens turned about  
 At the time when the sun was darkened  
 To cause the moon to shine  
 The time of the rise of the Pleiades  
 The slime, this was the source of the earth  
 The source of the darkness that made darkness  
 The source of the Pō that made night  
 The intense darkness, the deep darkness  
 Darkness of the sun, darkness of the night  
 Nothing but night  
 The night gave birth

– From the beginning of the Kumulipo: A Hawaiian Creation Chant

Hānau ka Manauea noho i kai  
 Kia‘i ‘ia e ke Kalo-manauea noho i uka  
 He pō uhe‘e i ka wāwā...  
 Hānau ka Puakī noho i kai  
 Kia‘i ‘ia e ka Lauaki noho i uka  
 He pō uhe‘e i ka wāwā...

Born was the *Manauea* moss living in the sea  
 Guarded by the *Manauea* taro plant living on land  
 Darkness slips into light...  
 Born was the *Puakī* seaweed living in the sea  
 Guarded by the ‘*Aki ‘aki* rush living on land  
 Darkness slips into light



Polynesian origins and distinctive adaptations to the archipelago; it is also a last remaining “place of abundance” for oceanic apex predators and migratory birds, where a uniquely Hawaiian natural world continues in its entirety.

Biologists speak of Papahānaumokuākea’s ecosystem, dominated by apex predators, as a rare benchmark for an intact marine system. Native Hawaiians experience this as a natural environment

The intense observation of the complex kinship of all things in the natural world, on which Hawaiians depend for their physical sustenance and voyaging prowess, is also coded into the Hawaiian creation story. The strong interweaving of these natural elements are the roots of the Hawaiian culture, language and spiritual understanding.

that hews to ancestral behaviors, rhythms, and proportions, where the ecological and spiritual links have not been frayed or broken. Native Hawaiians who have been to Papahānaumokuākea note that *ulu*, or hunting jackfish, behave more boldly in Papahānaumokuākea than they do in the main Hawaiian Islands. Along with sharks, they own the waters. They attack birds sitting on – and flying immediately above – the water, and will look swimmers directly in the eye in the form of a challenge to one’s ability in, and responsibility to, those waters.

These and other natural encounters can often be considered *hō’ailona*, natural signs communicated by ancestors and gods who manifest themselves in nature. These signs occur most clearly in a place like Papahānaumokuākea, where nature has not been subjugated. Atmospheric activities, too, such as rainbows, rain, wind and cloud formations, can express either godly or ancestral approval of proposed actions in this sacred place or provide warning. (When a group of Native Hawaiian cultural practitioners voyaged from Kaua’i in the main Hawaiian Islands to Mokumanamana—an island of paramount spiritual importance—in Papahānaumokuākea for the summer solstice in 2007, they reported having seen clouds in very unusual formations: “They appear

## 22

Papahānaumokuākea is an expansive Hawaiian natural and cultural seascape, encompassing both land and sea, in which these relationships are vibrant and largely unfettered by human development. It is an immense associative cultural seascape – a Hawaiian place where man is, as in the Kumulipo, the little brother of the land and sea. And it is a place where Hawaiians can go to immerse themselves in this foundational understanding, ensuring the continuity of the generational bond and commitment to this sacred place.

Today, Papahānaumokuākea’s pristine habitats are valued in part because they are a baseline for what a marine environment would look like without human exploitation. For Native Hawaiians, Papahānaumokuākea is a baseline for the culture. Nihoa and Mokumanamana, the two islands closest to the main Hawaiian Islands, possess intact archaeological sites that illuminate shared





almost human in form and resemble people walking toward the Northwest. These cloud formations are all signs that help the expedition members prepare mentally, physically and spiritually for the journey. (Tsuha 2007).

Today, we praise Papahānaumokuākea's high rates of marine endemism in a world where ecological diversity is imperiled. For Native Hawaiians, each endemic species occupies an induplicable place in the spiritual as well as physical universe. It is not only a member of the family of nature, but a path to meaning and understanding. When a species is lost, that understanding is lost forever.

Native Hawaiian resource management, which relies heavily on the interconnectedness of land and sea (and is reflected in spiritual and artistic works such as the Kumulipo) informs the current management of the Papahānaumokuākea Marine National Monument. Across the globe, very few natural sites, however well protected, blend the management of terrestrial, marine, and cultural resources in this way. In an age that realizes that our planet is small and our resources finite, Native Hawaiian cultural knowledge, as seen through the current management of Papahānaumokuākea, can provide a fine example. The dualistic pairing of land and sea organisms in the Kumulipo maintains "the theme of survival, urgency for life and preservation of the species with procreation and evolution as the sinew.... The dichotomy of land-ocean pairing strengthened the notation for procreation and survival of the species" (Kanahele, 1997).

The Native Hawaiian relationship to Papahānaumokuākea has evolved along with the living Hawaiian culture, but Papahānaumokuākea continues to be considered a sacred region, and its people have maintained a vital connection with it. William Ailā, a member of the Papahānaumokuākea Native Hawaiian Cultural Working Group, says, "Access to the Northwestern Hawaiian Islands allows

Hawaiians to make connections with the land, the ocean, the fish, the sharks, the monk seals – and the spirits and our ancestors that are still there. The Monument region is not strictly a scientific laboratory; it's a place that has its own life force."

### Navigating Into the Future

Ancient Polynesians navigated by the art of wayfinding, using natural observations often missed by modern sailors, such as the stars, ocean swells, clouds, sun, seabirds and reflections in the sky of distant, aquamarine waters in atolls. Today, after 600 years without traditional inter-archipelagic voyaging, there is a Pacific-wide resurgence of the ancient art and skill of wayfinding (non-instrument navigation), spurred by the journeys of *Hōkūleʻa*, an 18-meter, double-hulled sailing canoe built in Hawaiʻi to test the voyaging capabilities of such canoes and their navigators.

As in generations past, the contemporary apprentice Hawaiian wayfinder's first open-ocean training ground takes them from the main Hawaiian Islands into Papahānaumokuākea, the Kūpuna Islands. A Native Hawaiian saying, "*Nānā i ke kumu*," means "Look to the source." It contains a subtle double meaning: while *kumu* means source, it also means teacher. This saying offers insight into the important role that *kūpuna*, who are also teachers, play in traditional Hawaiian society. Hawaiians are exhorted to turn to their *kūpuna* for knowledge, and to in turn respect and care for those *kūpuna*, as we must all learn from Papahānaumokuākea and respect and care for this unique place.

Papahānaumokuākea is a truly mixed site, where not only nature and culture are one, but where two seemingly opposite ways of thinking—spiritual and scientific, indigenous and western—can learn to coexist, to find common cause, to witness and care for the earth, and to navigate into the future.

24

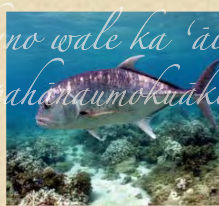
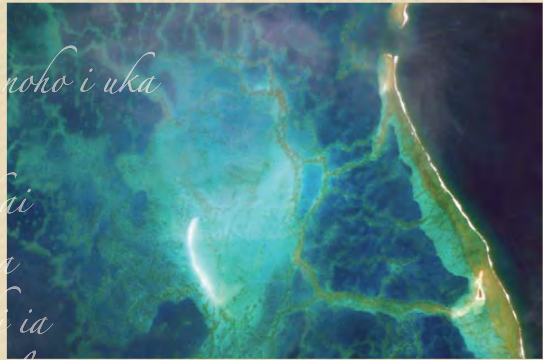


*Calf Cowry or leho*  
*(Photo: Susan Middleton & David Liittschwager)*



Malamalama ka lā nui a Kamehameha i Hā'aha'a  
 Apakau he kukūna i ka 'ili kai o na kai 'ewalu  
 He 'ike makawalu ka'u e 'ano'i nei,  
 'O na au walu o Kanaloa Haunawela noho i ka moana nui  
 He Hu'akai ka makani o Lehua 'au i ke kai  
 Ku'ono'ono ka lua o Kūhaimoana i ke kapa 'ehukai o Ka'ula  
 'O Ku i ka loulū, ulu a'e ke aloha no Nihoa moku manu  
 Manu o ku i ka 'āhui, he alaka'i na ka lāhui  
 'O Hinapūko'a  
 'O Hinapūhalako'a  
 'O Hina kapukapu  
 'O Hinaikamalamu

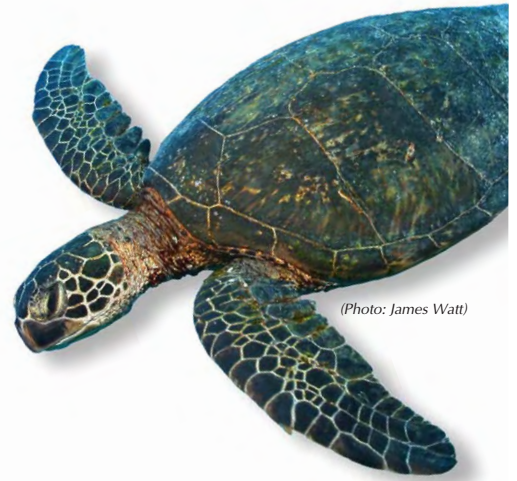
Hana ka 'ohua, lu'u ke koholā  
 Aloha kahi limu kala, kia'i 'ia e ka 'ākala noho i uka  
 Hānau ka pe'a, puka ka pe'ape'a i ke kai  
 He 'inu i ka 'ina, 'ono i ke hāna i ke 'ā'akai  
 Aianomano ka 'ike li'u o ka hō'ou o Kanaloa  
 Koiko'ua ho'i no ka lehulehu o ku'u lūka'ia  
 Hanohano wale ka 'āina pūpū, 'o na moku le'ia  
 No Papahānaumokuākea lā he inoa



*Identification of the Property*



# 1. Identification of the Property



(Photo: James Watt)

## 1.a Country

United States of America.

## 1.b State, Province or Region

Papahānaumokuākea Marine National Monument is comprised of lands and waters under the management, control and jurisdiction of the United States of America, and also includes lands and waters of the State of Hawai‘i.

## 1.c Name of Property

“Papahānaumokuākea Marine National Monument”

Papahānaumokuākea (pronounced Pa-pa HAH-nou-mo-koo-AH-keh-ah) comes from an ancient Hawaiian traditional chant concerning the genealogy and formation of the Hawaiian Islands, and a deep honoring of the dualisms of life. An explanation of the meaning and process for naming the property is found at the beginning of Section 2.a.

### Popular and Historic Names

Table 1.1: Other popular or historic place names for the property

The Northwestern Hawaiian Islands (NWHI)
The Kūpuna (Elder) Islands
The Leeward Islands
Nā Moku Manamana
Nā Moku Papapa

Throughout this document, several placenames are used. In general, “Papahānaumokuākea” sufficiently refers to the place, although the terms “Northwestern Hawaiian Islands” or “NWHI” are used when referencing biogeography or when quoting publications employing these placenames. When referring to management authorities and the like, this document applies the term “the Monument”.

### Names of Individual Islands/Reefs/Shoals

Table 1.2: Names of individual islands, reefs, shoals (from SE to NW)  
(\* indicates primary name used today)

Native Hawaiian Name(s)	English Name(s)
*Nihoa, Moku Manu	Nihoa Island, Bird Island
*Mokumanamana	Necker Island
Kānemiloa‘i, Mokupāpapa	*French Frigate Shoals
Pūhāhonu	*Gardner Pinnacles
Ko‘anako‘a, Nalukākala	*Maro Reef
Kauō	*Laysan Island, Moller Island
Papa‘āpoho	*Lisianski Island
Holoikauaua	*Pearl and Hermes Atoll
Pihemanu	*Midway Atoll, Brook Island, Middlebrook Islands
Mokupāpapa, Kānemiloa‘i	*Kure Atoll

\*For a more detailed treatment of these names, an explanation of their history and meaning, please see Section 2

### 1.d Geographical Coordinates to the Nearest Second

The geographic center point for Papahānaumokuākea is:

N 25°20'56.652" W 170°8'44.952"

The geographic coordinates are listed below. All are depicted on Figure 1.1:

- N 22°53'35.016" W 161°2'9.456"
- N 22°14'22.740" W 162°5'53.736"
- N 23°52'49.512" W 161°44'32.748"
- N 22°57'25.092" W 166°36'0.000"
- N 24°12'41.868" W 168°22'51.024"
- N 25°47'5.892" W 167°36'43.200"
- N 24°36'17.892" W 170°47'34.836"
- N 24°40'55.092" W 166°3'21.600"
- N 26°14'15.342" W 170°23'2.580"
- N 24°56'14.244" W 171°50'11.436"
- N 26° 35' 5.892" W 171°30'50.436"
- N 26°50'53.592" W 173°30'47.556"
- N 25°16'37.092" W 174°24'50.436"

- N 27°14'45.960" W 176°29'52.620"
- N 28°34'55.092" W 175°19'44.436"
- N 27°35'52.188" W 178°29'54.384"
- N 29°14'26.124" W 178°8'46.932"
- N 28°37'41.196" W 179°14'43.764"

### 1.e Maps Showing the Boundaries and Management of the Nominated Property

#### (i) Bathymetric Map

Please see Appendix A for a map of the property printed on a National Oceanic and Atmospheric Administration (NOAA) nautical chart, which also includes bathymetric references.

#### (ii) Location Map

Please refer to Figures 1.2 and 1.3, for an overview map and management area map, respectively.

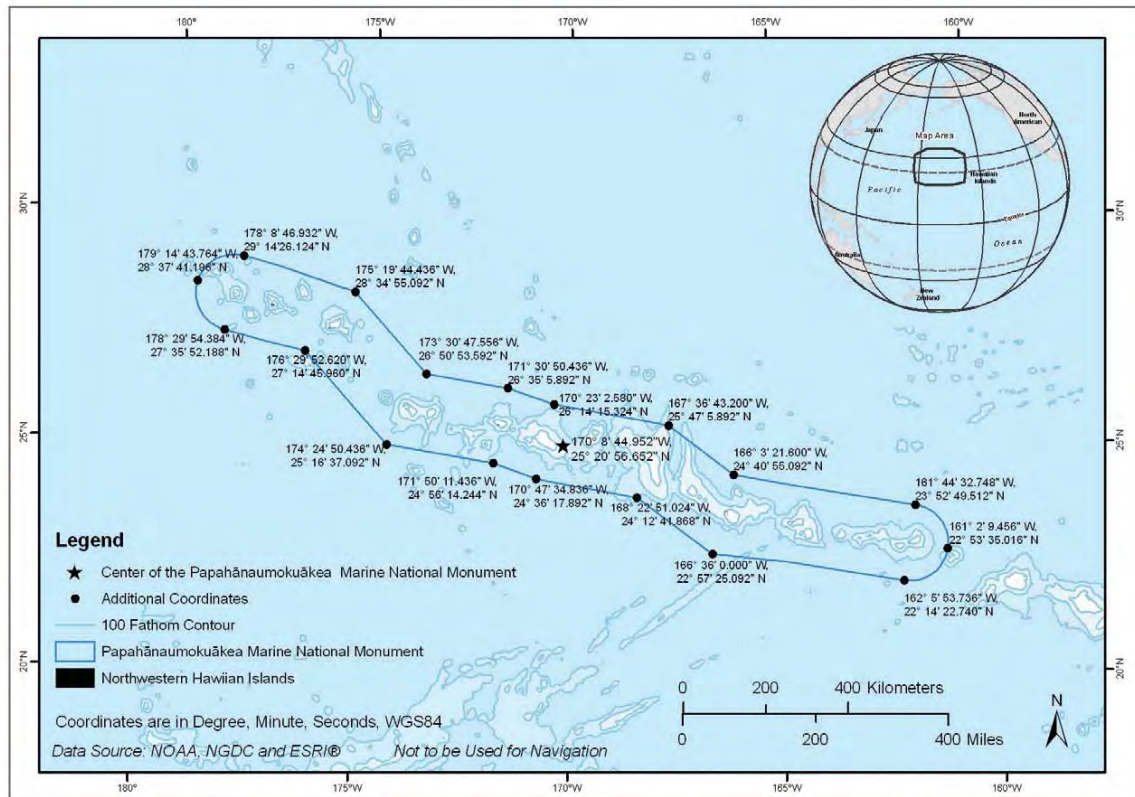


Figure 1.1b Proposed nominated area: Papahānaumokuākea Marine National Monument geographic coordinates (inclusive)



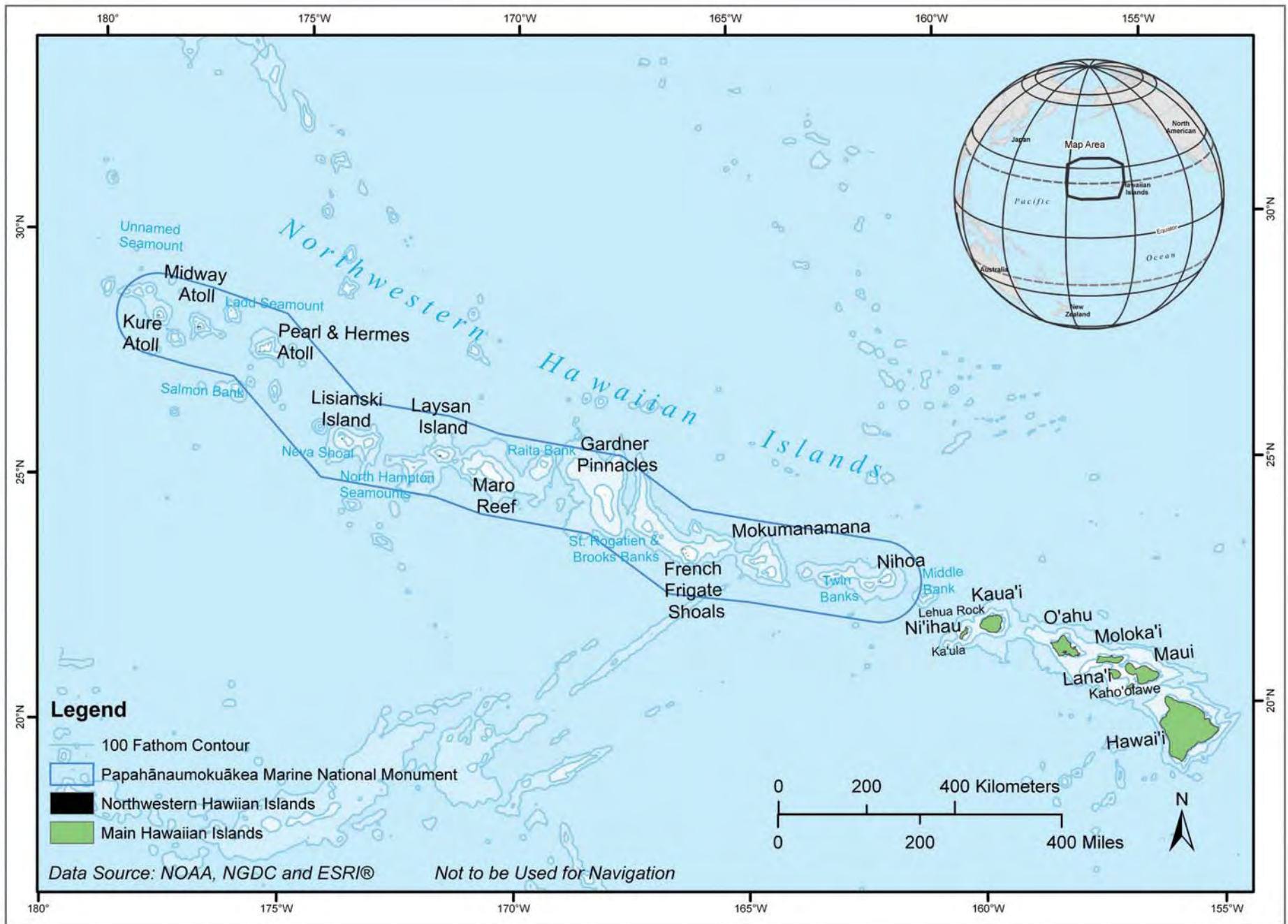


Figure 1.2: Proposed nominated area: Papahānaumokuākea Marine National Monument overview



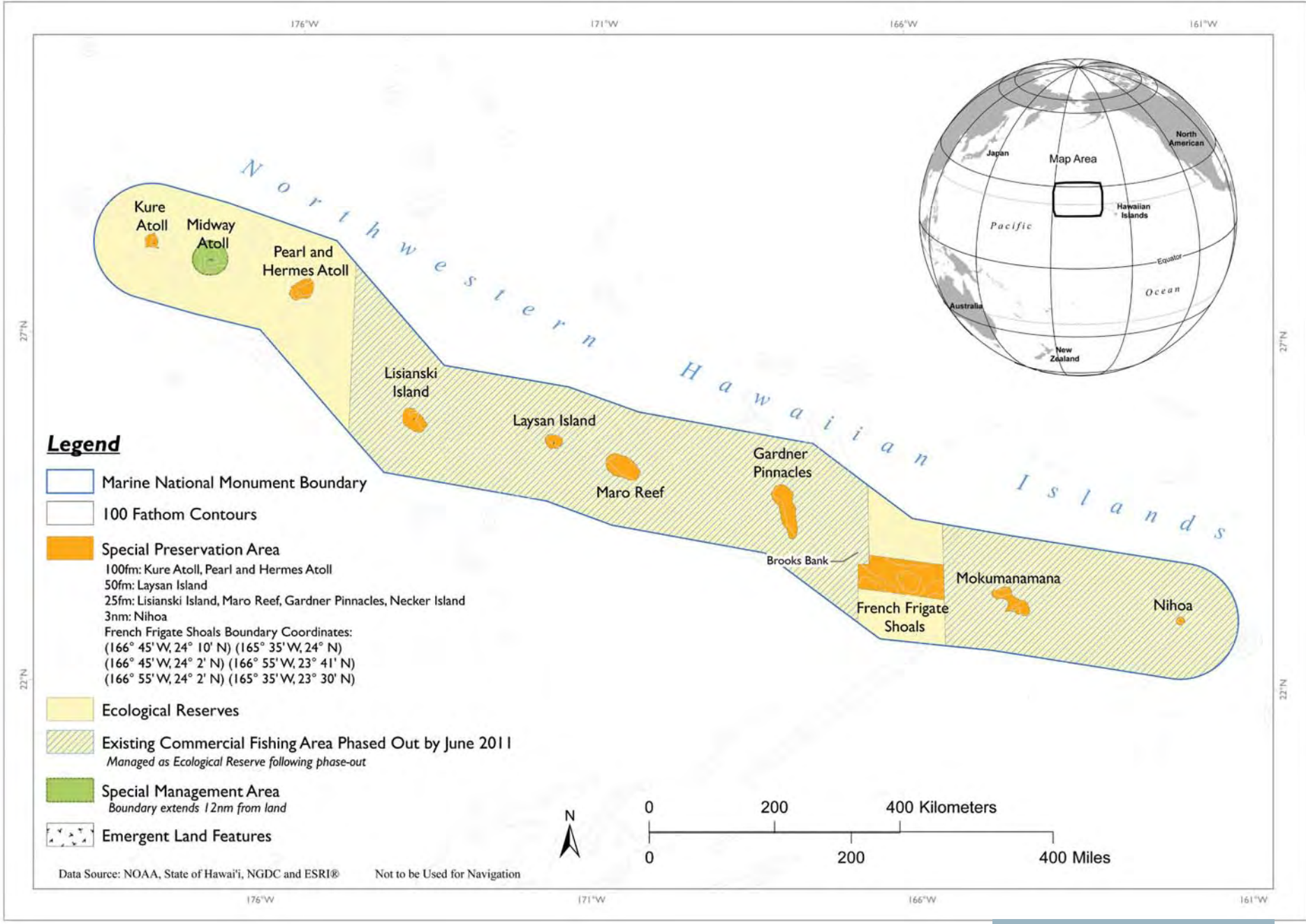


Figure 1.3: Management area of Papahānaumokuākea

**(iii) Other Maps and Buffer Zone Discussion**

Upon review of the Report of the International Expert Meeting on World Heritage and Buffer Zones, WHC-08/32.COM/7.1 (22 May 2008), and the underlying Operational Guideline paragraphs 103-107 and Recommendation 11.b., it has been determined that a Buffer Zone is not necessary for the conservation of the natural and cultural heritage of outstanding universal value in Papahānaumokuākea Marine National Monument. Papahānaumokuākea has one of the largest marine protected area boundaries in the world. The areas around the boundary of Papahānaumokuākea do not contain any land or land-based sources of pollution.

One potential threat to the natural and cultural heritage in the area surrounding the boundary of Papahānaumokuākea would be from vessel traffic. This threat has been addressed in protective measures authorized by the International Maritime Organization (IMO).

Papahānaumokuākea’s boundary is approximately 50 nm from the coral reefs. There are six (6) Areas to Be Avoided (ATBA) that have been adopted by the IMO to protect eight of the coral reef areas of the NWHI from ship traffic. Each of the ATBAs extends



*Remains of the Kaiyo Maru No. 25 shipwreck on Laysan Island (Photo: James Watt)*

out 50 nm (92.6 km) from the center of the islands or atolls, to keep ships well away from the coral reef ecosystem and resources.

Additionally, the IMO has designated Papahānaumokuākea Marine National Monument as a Particularly Sensitive Sea Area (PSSA). The PSSA boundary coincides exactly with the boundary of Papahānaumokuākea. An IMO authorized recommendatory ship reporting area has also been established. This ship reporting area is a band 10 nautical miles (18.5 km) wide, surrounding the Papahānaumokuākea Marine National Monument boundary and PSSA. This reporting requirement reminds vessels of the existence of this area and its navigational hazards well before they enter the boundary of Papahānaumokuākea and PSSA. The ship reporting system is mandatory for ships 300 gross tons and greater, fishing vessels, and for all vessels, in the event of a developing emergency situation, that are in transit through the reporting area. In addition, Papahānaumokuākea’s boundary, management plan and regulations were originally developed to protect monk seals, sea turtles, and seabirds from fishing operations.

In sum, the boundary of Papahānaumokuākea and PSSA, along with the management plan and regulations, provide adequate protection of the natural and cultural heritage in Papahānaumokuākea. Figure 1.4 below provides details on the PSSA boundary designated by IMO, and defines the six Areas to be Avoided (ATBAs).



*Life ring from a passing vessel. Threats from vessel traffic include objects washed overboard while in transit (Photo: James Watt)*



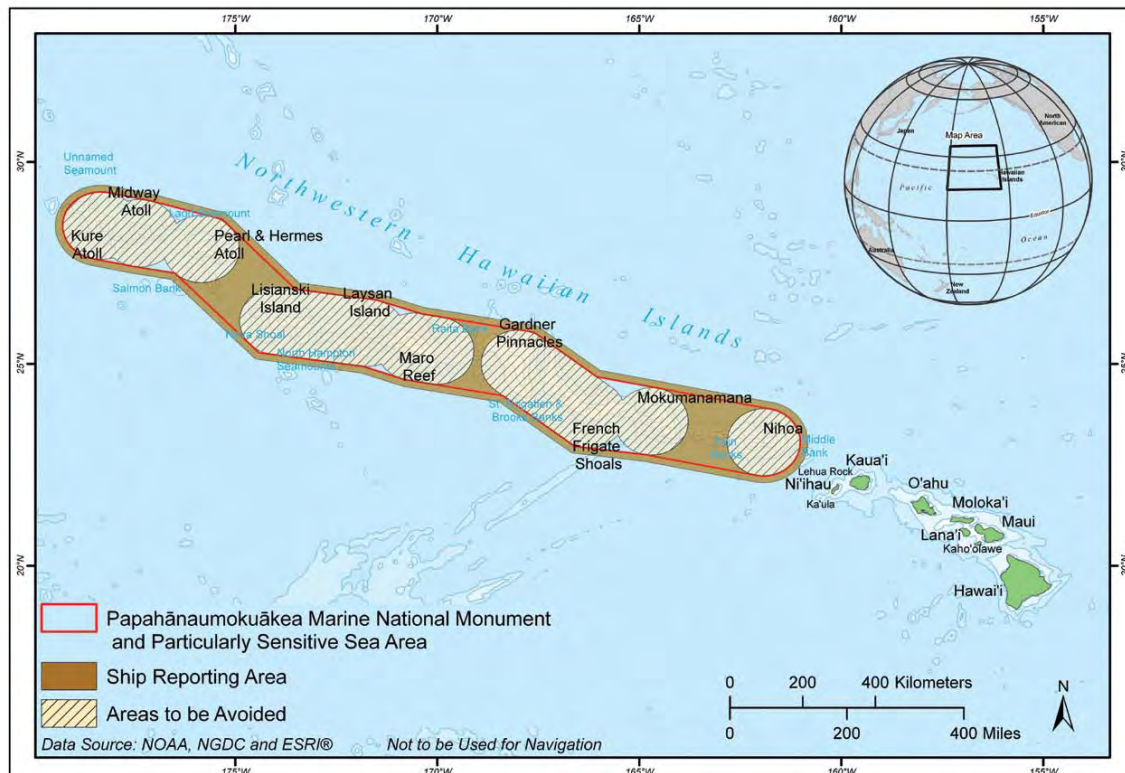


Figure 1.4 Proposed nominated area: Papahānaumokuākea Marine National Monument and Particularly Sensitive Sea Area (PSSA)

### 1.f Area of Nominated Property

The area of the nominated property is 36,207,499 hectares. No buffer zone is proposed for inscription. The area and perimeter of the property are also expressed in various formats below:



Table 1.3: Papahānaumokuākea Marine National Monument perimeter estimates

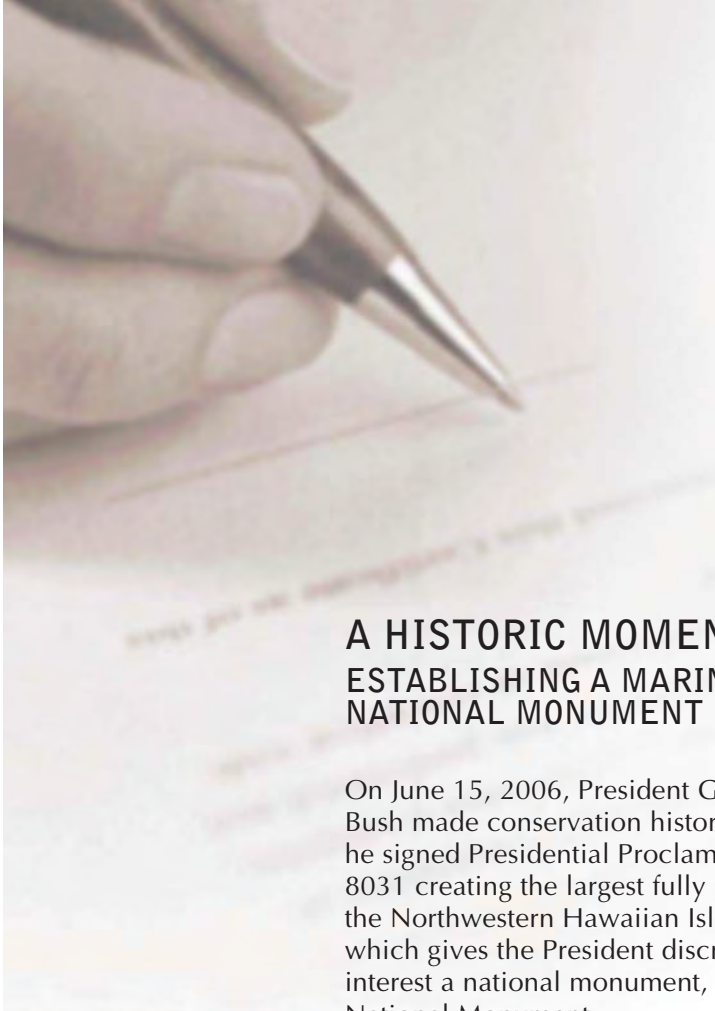
	Statute Miles	Kilometers	Nautical Miles
Length	1,200	1,931	1,041
Width	115	185	100

The following table describes the total area of the property and also details how little of the property is actually terrestrial versus marine.

Table 1.4: Area of lands and waters in Papahānaumokuākea Marine National Monument

Area in question	Sq. Stat. Mi	Sq. Km	Acres	Hectares
Marine waters	139,792	362,061	89,467,228	36,206,099
Emergent land	5	14	3,459	1,400
Total Area	139,797	362,075	89,470,688	36,207,499





## A HISTORIC MOMENT: ESTABLISHING A MARINE NATIONAL MONUMENT

On June 15, 2006, President George W. Bush made conservation history when he signed Presidential Proclamation 8031 creating the largest fully protected marine conservation area on the planet in the Northwestern Hawaiian Islands. By applying the authority of the Antiquities Act, which gives the President discretion to declare objects or places of scientific or historic interest a national monument, he created the Northwestern Hawaiian Islands Marine National Monument.



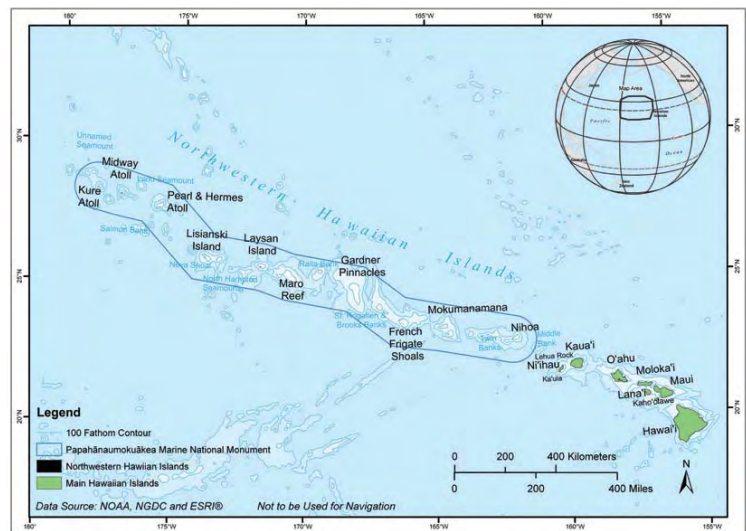
President George W. Bush signs Proclamation 8031 at the White House, joined by Mrs. Laura Bush and (left to right) Hawai'i congressional delegates U.S. Rep. Neil Abercrombie, U.S. Rep. Ed Case, U.S. Sen. Daniel Akaka; U.S. Commerce Secretary Carlos Gutierrez; Hawai'i Gov. Linda Lingle; filmmaker Jean-Michel Cousteau; oceanographer Dr. Sylvia Earle and U.S. Interior Secretary Dirk Kempthorne. White House photo by Eric Draper.

# *A Historic Moment*

"Our duty is to use the land and seas wisely, or sometimes not use them at all. Good stewardship of the environment is not just a personal responsibility, it is a public value," said the President in his proclamation speech explaining why it was necessary to close off such a large area for the sake of conservation.



The region is so vast that if laid atop the continental United States it would cover the approximate distance from Las Vegas, NV to Dallas, TX.





*"To put this area in context, this national monument is more than 100 times larger than Yosemite National Park, larger than 46 of our 50 states, and more than seven times larger than all our national marine sanctuaries combined. This is a big deal."*

*~ President George W. Bush*

Support for the protection and preservation of the Northwestern Hawaiian Islands was overwhelming, with more than 52,000 public comments submitted during the 5 years of the proposed national marine sanctuary designation process, the majority in favor of strong protection. This public sentiment was part of what inspired the President to issue the Proclamation.

By creating a marine national monument President Bush immediately granted the waters of the Northwestern Hawaiian Islands our nation's highest form of marine environmental protection. "The Northwestern Hawaiian Islands are a beautiful place," he said, "and with the designation of the Northwestern Hawaiian Islands Marine National Monument, we are making a choice that will leave a precious legacy."



## Overview of the Proclamation

The President's proclamation creating the Northwestern Hawaiian Islands Marine National Monument has given nearly 140,000 square miles of land and ocean our nation's highest form of marine environmental protection. It honors our commitment to be good stewards of America's natural resources, shows what cooperative conservation can accomplish, and creates a new opportunity for ocean education and research for decades to come. The national monument will:

- Prohibit unauthorized access to the monument;
- Provide for carefully regulated educational and scientific activities;
- Preserve access for Native Hawaiian cultural activities;
- Enhance visitation in a special area around Midway Atoll;
- Phase out commercial fishing over a 5 year period; and
- Ban other types of resource extraction and dumping of waste.

Protection was effective immediately and includes requiring permits for access into the monument. Permits may be issued for activities related to research, education, conservation and management, Native Hawaiian practices, non-extractive special ocean uses, and recreation. Protections also include the prohibition of commercial and recreational harvest of precious coral, crustaceans and coral reef species in monument waters; the prohibition of oil, gas and mineral exploration and extraction anywhere in the monument; the prohibition of waste dumping; and the phase out of commercial fishing in monument waters over a 5-year period.

A Hawaiian Monk Seal, 'iliihoholoikauaua, (*Monachus schauinslandi*) sleeps the day away at Pearl and Hermes Atoll.  
Photo: James Watt.

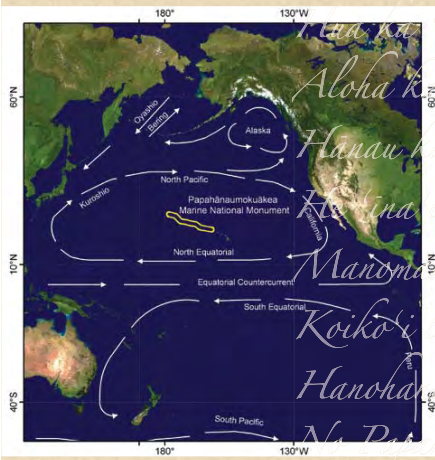




*Lipspot Moray Eel weaving in limu (seaweed)*  
*(Photo: Susan Middleton and David Liittschwager)*



Malanalahou ka la nei u Kani puka i He'e'ia  
 Apakau ke kukana i ka 'ili kai o na kai 'ewalu  
 He 'ike makawalu ka'u e 'ano'i nei,  
 O na au walu o Kanaloa Hannawela noho i ka moana nui  
 He Hu'akai ka makani o Lehua 'au i ke kai  
 Ku'ono'ono ka lua o Kahaimoana i ke kupa 'ehukai o Ku'ula  
 O Ku i ka loulu, ulu a'e ke aloha no Nihou moku manu  
 Manu o ku i ka 'ahui, he alaka'i na ka lakui  
 O Hinapuko'a  
 O Hinapukalako'a  
 O Hina kupukupu  
 O Hinaikamalama



*Description and History of Property*



## 2. Description and History of the Property

### 2.a Description of the Property

#### Introduction

As one of the world's largest protected marine areas, Papahānaumokuākea Marine National Monument includes a vast area of the Pacific. Extending for a distance of roughly 1,930 kilometers by 185 kilometers, the property covers an area of approximately 362,075 square kilometers (140,000 square miles) (see Section 1 for maps of the property.) At both the regional and global levels, Papahānaumokuākea is a rich natural and cultural reserve of outstanding spiritual, scientific, conservation and aesthetic value. As a nomination for a mixed natural-cultural World Heritage site, this section addresses the property's natural and cultural aspects in turn.



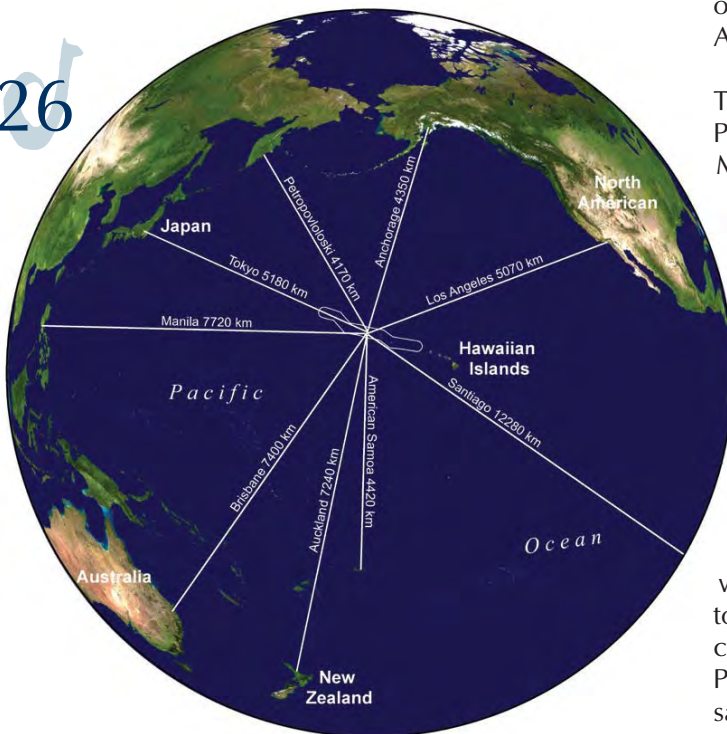
Threatened Green Turtles basking on East Island, French Frigate Shoals (Photo: George Balazs)

Papahānaumokuākea Marine National Monument is located between approximately 22° N and 30° N latitude and 161° W and 180° W longitude within the north central Pacific Ocean. When overlain on the continental United States, this property would cover the distance from Washington, D.C. to the midwest, or within Europe, the distance from Amsterdam to Moscow.

The islands and atolls of Papahānaumokuākea Marine National Monument constitute the northwestern three quarters of the one of the world's longest and most remote island chains. This expansive stretch of islands is referred to as the Northwestern Hawaiian Islands (NWHI), in past decades as the Leeward or Kūpuna Islands (Islands of the Revered Elders or Ancestors), and now as Papahānaumokuākea (see box). The area has played and continues to play a significant role in the culture and traditions of Native Hawaiians. From the time of the first Polynesian voyagers who peopled the Hawaiian Archipelago to the present renaissance of Hawaiian culture, Native Hawaiians have considered Papahānaumokuākea a profoundly sacred place.

Significant archaeological sites, strong oral traditions, and the living culture's continuing

26



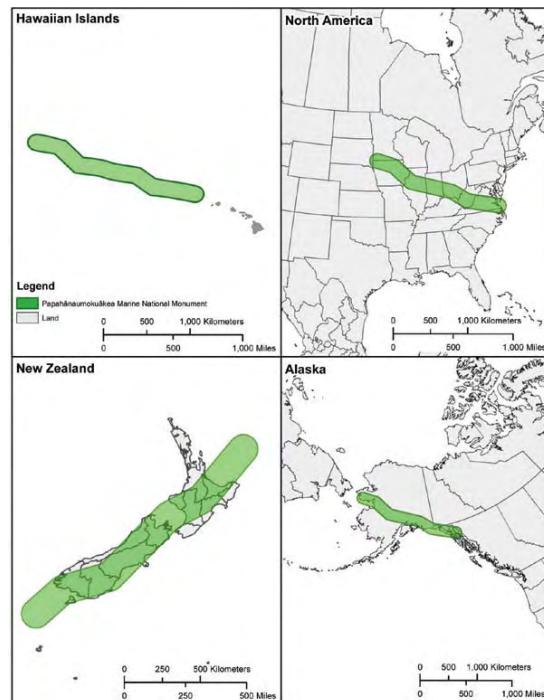
Papahānaumokuākea Marine National Monument's distance from major metropolitan areas

association with the region confirm a deep relationship between the Hawaiian people and Papahānaumokuākea. Today, the region's exceptional natural integrity is fundamental to the perpetuation of the Hawaiian culture; Papahānaumokuākea is known as one of the last "places of abundance," where Native Hawaiians can interact with and experience an intact and abundant natural world similar to the world of their ancestors. All archipelagic wildlife are regarded as ancestors to Native Hawaiians (Malo 1951); the region itself is revered as the place from where spirits come and to which they return after death. The geological and natural life forms defined in this section are inhabitants of the NWHI and referred to in the Kumulipo, a genealogical *oli* (chant) that frames the evolution of life from the simplest of creatures to the most complex. In the Native Hawaiian worldview, the interface between natural and cultural resources is seamless. Hence, Papahānaumokuākea is a longstanding site of outstanding associative value to the living Hawaiian culture, and ultimately the global community.

### Hānau Moku – The Birth of the Islands

Birth—creation—is a central pillar of traditional cultures across the globe. In Native Hawaiian culture, human life comes not only from two biological parents, but from a complex spiritual and literal genealogy that ties humans with a bond of kinship to everything else, both living and non-living, in the natural world. Pō, the primordial female darkness from which all life springs and to which it returns after death, is seen as giving birth to the world, its natural components, all of the Hawaiian gods, and humans. The union of her progeny, Kumulipo and Pō'ele, gives rise to all the creatures of the world, beginning in the oceans with the coral polyp—a genealogy that, like current theories of evolution, starts with the simplest known life form and moves to the more complex.

Native Hawaiians view the rising of magma from deep within the earth as the birthing of the islands—the physical manifestation of the union between the earth mother,



*Papahānaumokuākea Marine National Monument superimposed over other land masses*

Papahānaumoku (literally, "goddess who gives birth to the islands"), and the sky father, Wākea. The symbolism of this union is also the foundation for the name of the property: Papahānaumokuākea.

In the Native Hawaiian culture, *kūpuna* (elders, or ancestors) are accorded reverence and respect, and are looked to as teachers by right of their greater experience. Native Hawaiians consider the islands of Papahānaumokuākea (also called the Kūpuna Islands in recent times) to be their *kūpuna*. Each island is a teacher, and each island has its own unique story and message. As the younger generation, humans are tasked to *mālama* (care for) the *kūpuna*. It is also humankind's *kuleana* (responsibility) to take the time to listen to their wisdom.

The following box describes how the property received its name. Native Hawaiian practitioners undertook a deliberative and thoughtful process to give the region a name reflective of both its natural and cultural heritage, as well as its future as a vast and sacred protected place.



# The Naming of Papahānaumokuākea



Native Hawaiian artist Solomon Enos renders deities Papa and Wakea's creation of the Hawaiian Islands  
<http://www.solomonenosgallery.com/>

For Native Hawaiians, place names are an important way to preserve information about an area's geology, its history, natural and supernatural phenomenon specific to it, or its uses by gods and men. As a place changes over time, so may its name. Historically, Native Hawaiians referred to the Northwestern Hawaiian Islands as Nā Moku Manamana (Branching Islands), Nā Moku Papapa (Flat Islands) and nā papa kahakukea o Lono (the low white-marked isles of Lono (one of the four principal Hawaiian gods)) (Kepā Maly 2 November 2008, personal communication; Fornander 1918). In recent times, Native Hawaiians have called the isles of this region the Kūpuna (Revered Elder) Islands.

Hawaiian cultural practitioners and *kūpuna* when the area was designated as a federal monument. The name specifically relates to one of the stories contained within the Kumulipo: the *mo'olelo* which tells the story of Papahānaumoku (a mother figure who is personified in the earth) and Wākea (a father figure who is personified in the expansive sky). These two figures, either together or separately, are responsible for the creation or birthing of the entire archipelago, and they are the most recognized ancestors of the Native Hawaiian people (Beckwith 1951, Malo 1951, Fornander 1918). The name Papahānaumokuākea is reflective of the region's natural and cultural heritage and its future as a vast, sacred, protected and procreative place.

The preservation of these names, together, as Papahānaumokuākea, strengthens Hawai'i's cultural foundation and grounds Hawaiians to an important part of their historical past. Taken apart, "Papa" (earth mother), "hānau" (birth), "moku" (small island or land division), and "ākea" (wide) bespeak a fertile woman giving birth to a wide stretch of islands beneath a benevolent sky, the dramatic imagery of which is on full display in the region.

Papahānaumokuākea describes a hope for regeneration, which Hawaiians hope to see not only in their Kūpuna Islands, but in the main Hawaiian Islands and their culture as well. Papahānaumokuākea is a name that will encourage abundance and energize the continued procreative forces of earth, sea and sky. It reminds everyone that spiritual inspiration supports the physical world. Papahānaumokuākea will help to continue life for everything that procreates and gives birth; it is a continuum and everything that is part and parcel of Native Hawaiians' home world, the Hawaiian Archipelago.

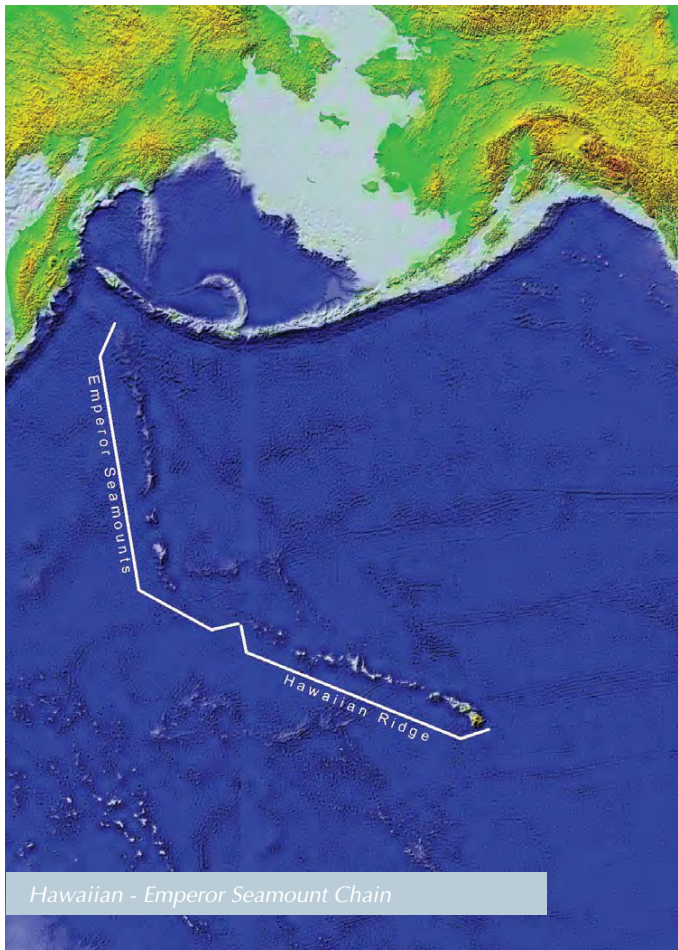


Dr. Pualani Kanahela at the podium during the cultural bestowing of the NWHI's new placename, Papahānaumokuākea (Photo: PMNMI)

### Natural Processes and Systems in Papahānaumokuākea

#### Geology

Beginning 250 kilometers northwest of the main Hawaiian Island of Niʻihau, the ten islands and atolls of this Pacific chain extend for 1,931 kilometers. None of the included islands is more than five square kilometers in size, and all but four have an average mean height less than ten meters above sea level. As a group, these islands represent a classic geomorphological sequence, consisting of highly eroded high islands, near-atolls with volcanic pinnacles jutting from surrounding lagoons, true ring-shaped atolls with roughly circular rims and central lagoons, and secondarily raised atolls, one of which has an interior hypersaline lake. In addition, more than 30 submerged ancillary banks and seamounts have been discovered around these islands.



Hawaiian - Emperor Seamount Chain

The geological progression along the Hawaiian Ridge continues northwestward beyond the last emergent island, Kure Atoll, as a chain of submerged platforms that makes a sudden northward bend to become the Emperor Seamounts, which extend across the entire North Pacific to the base of the Kamchatka Peninsula in Russia. This unbroken chain of progressively more senescent volcanic structures essentially tracks the movement of the Pacific tectonic plate over the past 80 million years, and has provided some of the strongest evidence upon which current theories of hotspot-mediated island formation and global plate tectonic movements have been based.

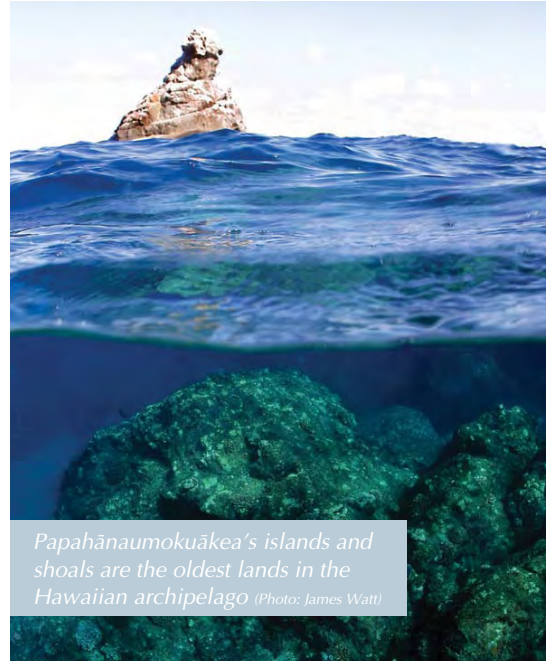
Formed millions of years ago, these islands were created by a deep-sea volcanic “hotspot” now located south of the island of Hawaiʻi, which formed a sequential series of underwater shield volcanoes that became islands as they rose above the ocean’s surface. These once-lofty

islands have been transported northwest by the movements of the Pacific Plate to their current locations (Dalrymple et al. 1974). Due to the pervasive and unrelenting forces of subsidence and erosion, all that remains today are small patches of ancient land, shoals and reefs that lie where significant mountains once loomed. Nowhere else in the world is this progression illustrated in such an unambiguous and linear fashion. Papahānaumokuākea also includes a unique example of an atoll at the critical “Darwin Point,” the northernmost threshold for coral reef existence. Kure Atoll is the northernmost coral reef in the world, and has reached the latitude at which coral growth rates, which decrease in cooler temperatures, are matched by the rate of subsidence of the island.



*Oceanography*

Among the dominant natural controls over the ecosystems of Papahānaumokuākea Marine National Monument are climatic and oceanographic forces. The area lies at the northern edge of the oligotrophic tropical Pacific, near the 18 °C sea surface isotherm, a major ecological transition zone in the northern Pacific. This boundary, also known as the “Transition Zone Chlorophyll Front,” varies in position both seasonally and annually, and periodically moves across the property boundary surrounding the northern atolls of Kure and Midway. This, in turn, influences overall ocean productivity, and the resultant recruitment success of many species such as Hawaiian Monk Seals and ocean-feeding seabirds (Polovina et al. 2008; Baker, Polovina and Howell 2007). The northernmost atolls are also in a position where they are occasionally affected by an episodic eastward extension of the Western Pacific warm pool, which can lead to higher summer ocean temperatures at Kure than are found in the more “tropical” waters of the main Hawaiian Islands further to the south. This can cause greater temperature fluxes that

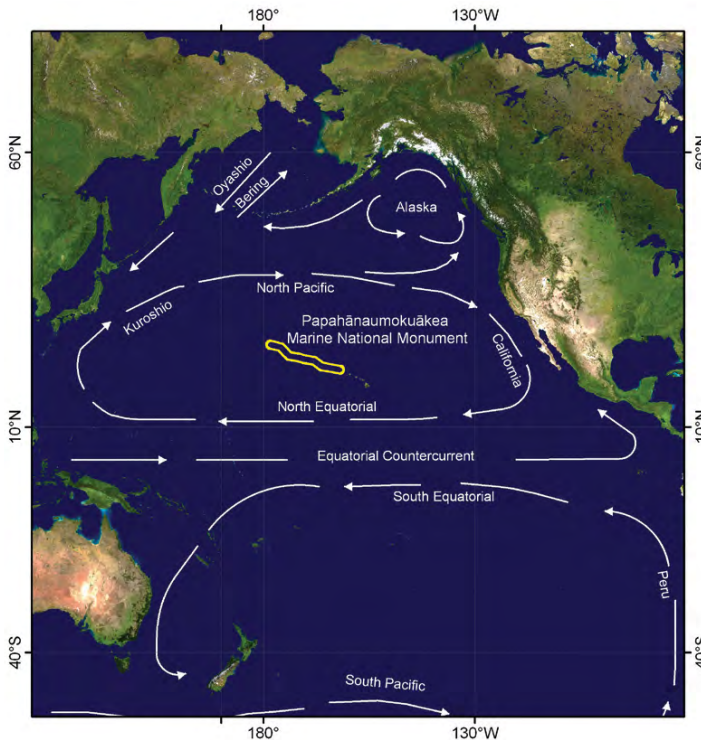


*Papahānaumokuākea’s islands and shoals are the oldest lands in the Hawaiian archipelago (Photo: James Watt)*

can in turn influence the home ranges and diversity of many species. This interplay of oceanography and climate is not fully understood, but adds a level of dynamics not seen in most other tropical atoll ecosystems and is a useful natural laboratory for understanding phenomena such as periodic coral bleaching and the effects of the Pacific Decadal Oscillation, El Niño and La Niña ocean circulation patterns.

Ocean currents, waves, temperature, nutrients, and other oceanographic parameters and conditions influence ecosystem composition, structure, and function in Papahānaumokuākea on both temporal and spatial scales. Spatial variability in oceanographic conditions ranges from a localized temperature regime that may affect a small portion of a reef to a temperature regime that influences Papahānaumokuākea as a whole. Temporal variability in ocean conditions may range from hourly and daily changes to seasonal, annual, or decadal cycles in nutrient inputs, sea level heights, current patterns, and other large-scale

30



*Major circulation patterns of the Pacific Ocean*





*Papahānaumokuākea encompasses intact reef and pelagic ecosystems (Photo: PMNM)*

oceanographic processes (Polovina et al. 1994). Currents play an important role in the dispersal and recruitment of marine life in Papahānaumokuākea on both scales.

Surface currents in the NWHI are highly variable in both speed and direction (Firing and Brainard 2006), with long-term average surface flow being from east to west in response to the prevailing northeast trade wind conditions. The direction

of surface water flow also accounts for certain unusual biogeographic relationships between Papahānaumokuākea and other allochthonous areas, such as Johnston Atoll to the south (Grigg 1981), as well as patterns of endemism, population structure, and density of reef fish within the archipelago itself (DeMartini and Friedlander 2006) (Figure 2.1). The highly variable nature of the surface currents is due in large part to eddies created by

local island effects on large-scale circulation. The distribution of corals and other shallow-water organisms is also influenced by exposure to ocean waves. The size and strength of ocean wave events have annual, interannual, and decadal time scales. Annual extratropical storms (storms that originate outside of tropical latitudes) create high waves during the winter, greatly affecting marine and terrestrial areas, as the elevation of a large portion of terrestrial habitat is less than the height of some of the waves that pass through.



*Tinker's Butterflyfish (Chaetodon tinkeri) is found at Johnston Atoll and in the Hawaiian Islands; illustrating the oceanographic and biodiversity links between the two regions. (Photo: L.A. Rocha, HIMB)*

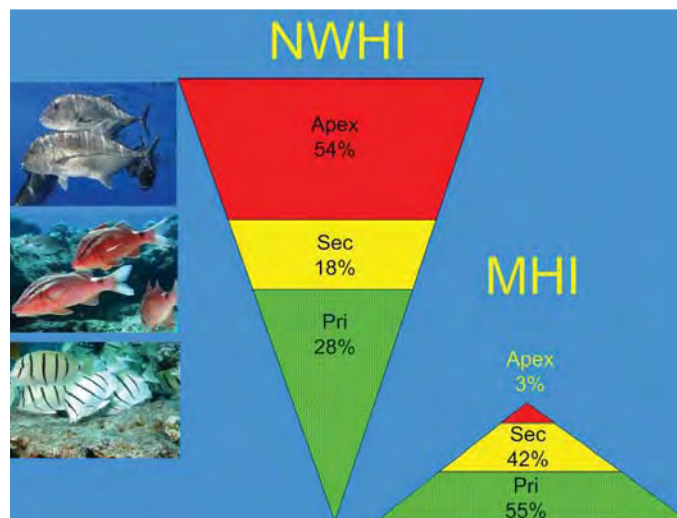
*Natural Habitats*

Papahānaumokuākea also supports a diverse and unique array of both marine and terrestrial flora and fauna. With a spectrum of elevations ranging from abyssal ocean basins at depths of more than 4,600 meters below sea level to rugged hill slopes and cliff tops on Nihoa and Mokumanamana at elevations up to 275 meters above sea level, the property represents a complete holistic cross section of a Pacific archipelagic ecosystem. Habitats encompassed within the property include deep pelagic basins, submarine escarpments, deep and shallow coral reefs, shallow lagoons, littoral shores, dunes, and dry grasslands and shrublands. Twenty-five percent of the nearly 7,000 known marine species found in the region are found nowhere else on earth, and a significant number of the terrestrial plants, birds and insects are endemic. Papahānaumokuākea also provides habitat for 23 plant and animal species formally listed under the Endangered Species Act (ESA) as threatened and endangered. Papahānaumokuākea’s isolation from continental land masses and minimal human footprint allow the study of natural habitats and ecosystem dynamics, including the response to climatic variability and global climate change, in a relatively undisturbed setting. The protective measures in place contain the necessary elements to support the key ecological processes that are essential for the long-term conservation of the ecosystems and the biological diversity they contain throughout Papahānaumokuākea.

The terrestrial and marine habitats of the Northwestern Hawaiian Islands are integrally linked, particularly on the atolls. It is through the synergistic process of terrestrial erosion and coral growth that atolls are formed. The islands of an atoll are a part of the reef. Shallow-water habitats range from exposed boulders and large underwater banks formed from the basaltic remnants of former high islands at Nihoa, Mokumanamana and Gardner Pinnacles, to the extensive coral reef habitats in the protected lagoons of the atolls. The shallow-water habitat includes

intricate and reticulated reefs that form a complex network of reef crest, back reef, patch reef, and lagoons with high coral cover. Outer reef habitat is exposed to much higher wave energy and includes fore-reef and reef slope environments with spur and groove channels and varying percentages of coral cover directly related to wave exposure.

The total land area of the NWHI is extremely small at 1,400 hectares, but crucially important for the survival of both marine and terrestrial species, many that spend part or most of the year at sea and come ashore to breed, nest or pup such as turtles, seabirds and monk seals. All the low islands are mostly arid with no fresh water resources, except during seasonal rains. Nihoa, Mokumanamana and Laysan have small fresh water seeps. Only the higher and larger islands of Nihoa, Laysan, Lisianski, and Midway support year-round vegetation; many of the smaller and lower islands are periodically overwashed by seawater.



*Figure 2.1a: Biomass comparisons between the Northwestern Hawaiian Islands (NWHI) and the main Hawaiian Islands (MHI) by trophic group. (Apex = apex predators, Sec = secondary consumers, Pri = primary consumers)*  
 (Photo: James Watt, Figure: Alan Friedlander)



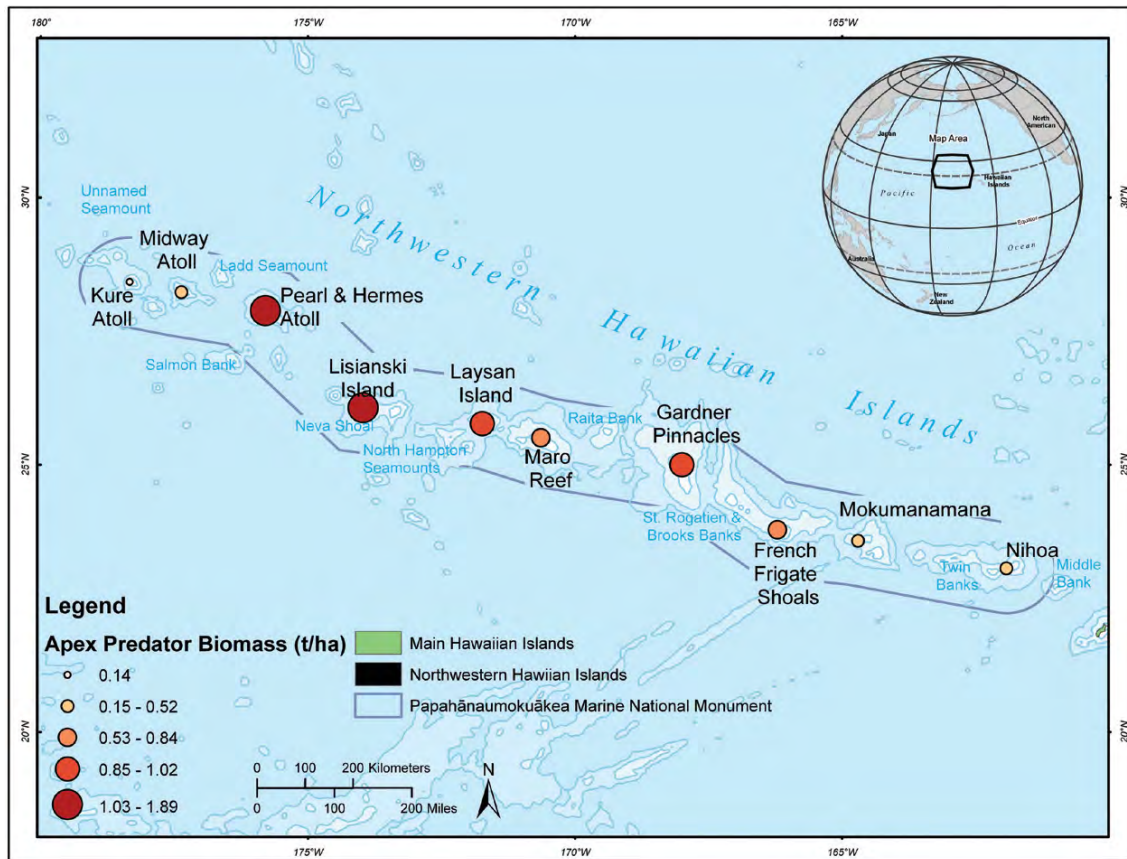


Figure 2.1b: Geographic pattern of apex predator biomass density (tons/ha) in the NWHI (data from surveys conducted 2000-2002).

### Top Predator Dominated Ecosystem

The shallow marine component of the property is nearly pristine, and has been described as a “top predator dominated ecosystem,” an increasingly rare phenomenon in the world’s oceans (Friedlander and DeMartini 2002). Recent research suggests that the global oceans have lost more than 90% of large predatory fishes (Meyers and Worm 2003). Large, predatory fish such as sharks, Giant Trevally, and groupers that are heavily depleted by fishing and therefore rarely seen in populated areas of the world are extremely abundant in the waters of Papahānaumokuākea. With low fishing pressure and physical isolation from human impacts, the average biomass of fish in Papahānaumokuākea is three times greater than in the main Hawaiian Islands. More than 54% of the total biomass consists of apex predators such as large jacks or trevally, sharks and other species (Figures 2.1a and 2.1b).


### Marine Endemism

Papahānaumokuākea is characterized by a high degree of endemism in reef fish species, particularly at the northern end of the chain, with endemics comprising over 50% of the population in terms of numerical abundance (DeMartini and Friedlander 2004) (Figure 2.2). Endemism of corals is also high, with 30% of species being found only in the Hawaiian Archipelago. These endemics also account for 37%–53% of visible stony corals found in Papahānaumokuākea in all shallow reef areas surveyed (Friedlander et al. 2005). Fifteen of the 17 endemic species are in the genera *Montipora*, *Porites*, or *Pocillopora*. Due to Papahānaumokuākea’s remoteness, studies of small benthic or cryptic species are sparse, but with the inception of National Monument status, there have been increased efforts to document these groups. Preliminary faunal inventories indicate that many constituent species remain undocumented, and even new coral species are still being discovered




# Endemic Sea Life

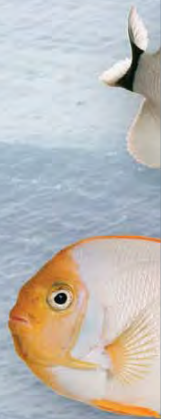
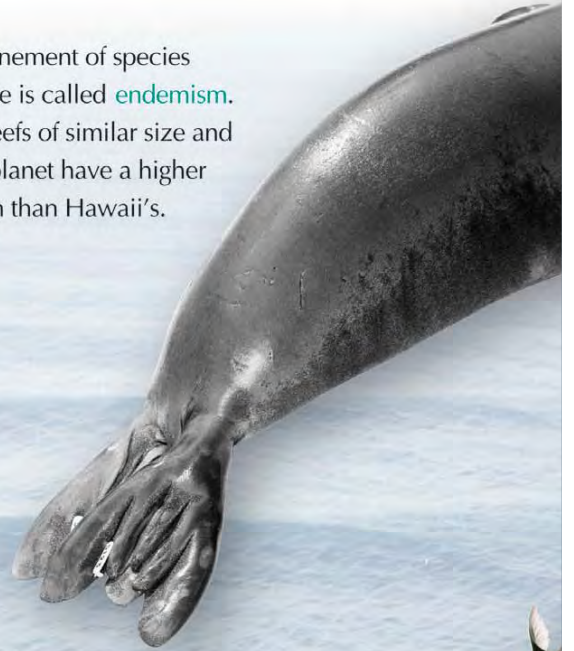
This tailored attunement of species to a specific place is called **endemism**. No other coral reefs of similar size and expanse on the planet have a higher rate of endemism than Hawaii's.



◀ SADDLE WRASSE  
hinālea lauwiki,  
*Thalassoma duperreyi*



◀ CHOCOLATE CHIP  
SEA CUCUMBER  
loli, *Holothuria* sp.







◀ HAWAIIAN  
MONK SEAL  
'Īlio holoikauaʻua,  
*Monachus schauinslandi*

BANDIT  
ANGELFISH  
*Apolemichthys arcuatus*



The downside of Hawaii's endemism is that there is no replacement pool should our corals and marine life perish. This vulnerability underscores one of nature's hard-won lessons: that the rarest of creatures are sometimes the most valuable.



◀ MASKED  
ANGELFISH  
(female above, male below)  
*Genicanthus personatus*



◀ BANDED SPINY  
LOBSTER  
ula, ula poni, ula hiwa,  
*Panulirus marginatus*



Species photos  
© David Liittschwager  
and Susan Middleton

Papahānaumokuākea contains countless endemics, and is home to many rare, threatened and endangered species, including 22 IUCN Red-Listed species, many for whom it is the last or only refuge anywhere on earth.



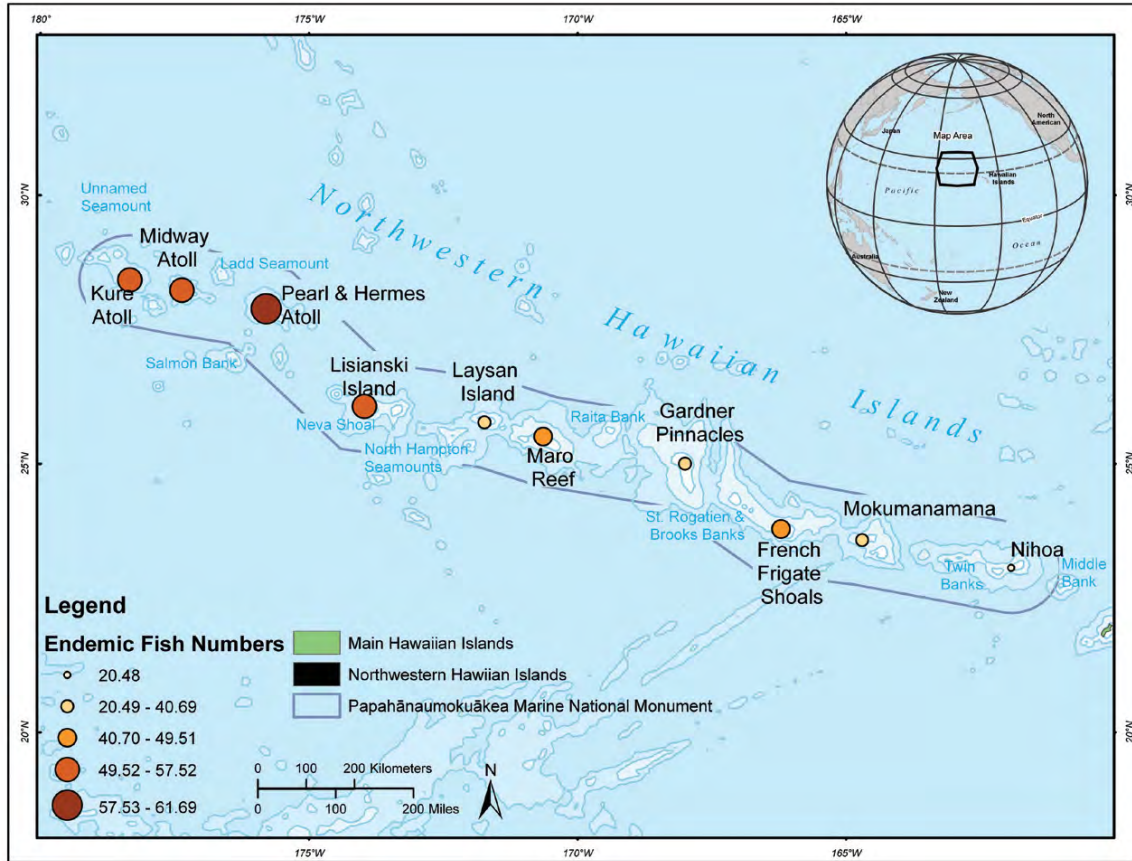


Figure 2.2: Percent fish endemism at each of ten emergent Papahānaumokuākea reefs (data from surveys conducted 2000–2002)

36

(Waddell and Clarke 2008). Given this, it is expected that the marine species lists of Papahānaumokuākea will continue to expand as improving funding, technology and research tools allow exploration and documentation of the region’s reefs.

*Marine and Bird Life in Papahānaumokuākea*

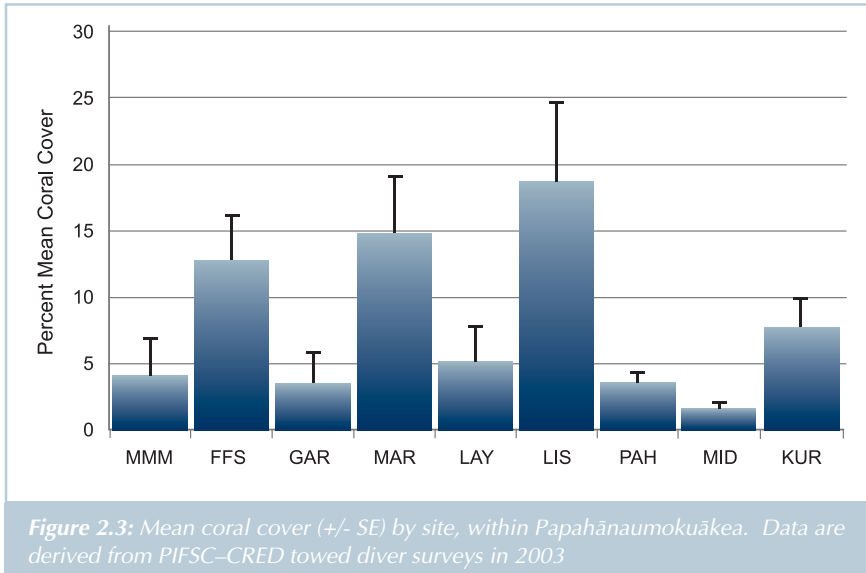
**Algae**

The marine algal flora in Papahānaumokuākea are diverse and abundant, although community dynamics are poorly understood. There are 353 species of macroalgae and two seagrass species known in Papahānaumokuākea (McDermid and Abbott 2006). Large numbers of Indo-Pacific algal species have been documented here that are not present in the main Hawaiian Islands, such as the green calcareous alga (*Halimeda velasquezii*). The species composition of the macroalgae community is relatively similar throughout

Papahānaumokuākea, with representatives of the Chlorophyta, Rhodophyta, Phaeophyta, branched coralline, crustose coralline, Cyanophyta, and turf algae occurring in varying combinations, with green algae having the largest biomass and area coverage (Vroom and Page 2006). Green algae in the genus *Halimeda*, which contributes greatly to sand formation, was found in more than 70%



Healthy native algal species abound in Papahānaumokuākea (Photo: Amy Baco-Taylor)



Live coral cover is highest in the middle of the chain, with Lisianski Island and Maro Reef having 59.3% and 64.1% of their respective available substrate covered with living corals (Maragos et al. 2004) (Figure 2.3). Coral cover varies significantly across Papahānaumokuākea from these high rates at Maro and at Lisianski to minimal coverage at most of the other reef sites. Coral species richness is also highest

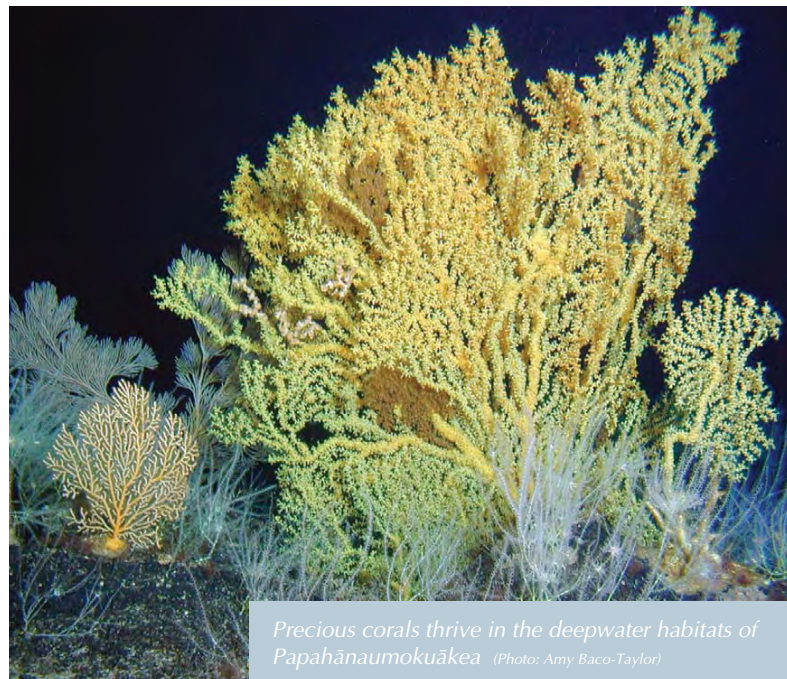
of all quadrates during area-wide surveys in 2004 (Vroom and Page 2006). An island-specific checklist of the nonvascular plants of Papahānaumokuākea can be found in Eldredge (2002). In contrast to the main Hawaiian Islands, where alien species and invasive algae have overgrown many coral reefs, the reefs of Papahānaumokuākea are largely free of alien algae, and high natural herbivory results in natural algal assemblages.

### Corals

Fifty-seven species of stony corals are known in the shallow subtropical waters (depths of less than 33 meters) of Papahānaumokuākea, with an additional 28 species that are currently either undetermined or undescribed (Miller et al. 2004, 2006; Waddell and Clarke 2008). Despite Papahānaumokuākea's high latitudes (which makes coral growth progressively more difficult), a similar number of species of coral have been reported for the NWHI as the main Hawaiian Islands, with 59 recorded species (Friedlander et al. 2005).

in the middle of the chain, reaching a maximum of 41 reported coral species at French Frigate Shoals (Maragos et al. 2004).

Stony corals are less abundant and diverse at the northern end of the archipelago (Kure, Midway, and Pearl and Hermes), and off the exposed basalt islands to the southeast (Nihoa, Mokumanamana, La Pérouse, and Gardner) (Figure 2.4). At these sites, soft corals such as *Sinularia* and *Palythoa* are more abundant. Table coral in the genus *Acropora* is not found anywhere in the main





Hawaiian Islands, but seven species are recorded for Mokumanamana, Gardner, Pearl and Hermes, Neva, French Frigate Shoals, Maro, and Laysan, with the highest number of species and colonies at French Frigate Shoals. These colonies of coral may have been established from larvae traveling in currents or eddies from Johnston Atoll, 724.2 kilometers to the south (Grigg 1981; Maragos and Jokiel 1986).

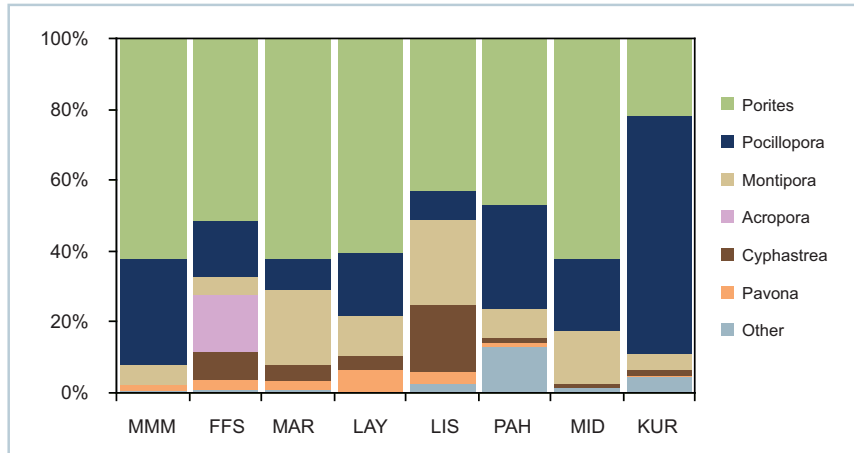


Figure 2.4: Relative abundance of coral taxa genera throughout Papahānaumokuākea (Data are derived from colony counts within belt transects during 2006 surveys)

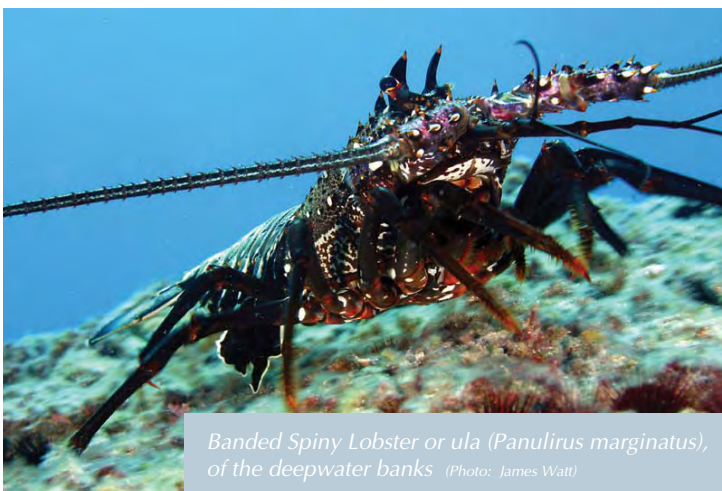
### Benthic shallow-water invertebrates

With the exception of coral and lobster species, the marine invertebrates of Papahānaumokuākea are very poorly known. Only two comprehensive collections of these groups of animals were conducted prior to 2000: the 1902 *Albatross Expedition*, in which the collected organisms were deposited at the Smithsonian Institution, and the 1923 *Tanager Expedition*, in which the collection was deposited at the Bishop Museum. In 2000, the NWHI Reef Assessment and Monitoring Program was established, and it continues to the present to assess the biota of all ten emergent reef areas and shallow waters (<20 meters) in Papahānaumokuākea (Friedlander et al. 2005). While this work is ongoing, a number of new species have already been recorded for Hawai'i, some of which may turn out to be endemic to Papahānaumokuākea (DeFelice et al. 2002).



Other-worldly texture of mushroom corals; shown here, *Fungia scutaria* (Photo: James Watt)

By 2005, a total of 838 species from 12 orders had been identified. Many species are still being worked on by taxonomic experts around the world and have yet to be identified (Friedlander et al. 2005). In 2006, a Census of Marine Life research expedition explored the biodiversity of small, understudied, or lesser known invertebrate, algal, and microbial species at French Frigate Shoals. Although thorough taxonomic identifications and molecular analyses of the samples collected will take many years to complete, preliminary findings suggest that approximately 2,300 unique morphospecies were collected and photographed during the 16 days of sampling (Fig 2.5). An estimated 30–50 collected specimens are thought to be species new to science, including new species of crabs, corals, sea cucumbers, sea squirts, worms, sea stars, snails and clams. From this expedition, well over a hundred new species records, including



Banded Spiny Lobster or ula (*Panulirus marginatus*), of the deepwater banks (Photo: James Watt)

sponges, corals, anemones, flatworms, segmented worms, hermit crabs, crabs, sea slugs, bivalves, gastropods, octopus, sea cucumbers, sea stars, and sea squirts, will likely be identified for French Frigate Shoals. Relatively high diversity was found for sponges, bryozoans, eulimid gastropods, hermit crabs, echinoderms, and ascidians, but other invertebrates, including corallimorph anemones, galatheid squat lobsters, porcellanid crabs, pea crabs, and coral barnacles, had strikingly low diversity or were absent. Interestingly, about one third of all invertebrate morphospecies collected were either found only once or found at only one site. A possible new family of ascidian (sea squirt) for Papahānaumokuākea, Mogulidae, was collected. Likewise, a new species of coral that could not even be identified to family level was found and photographed. An estimated 48 new species records of Opisthobranch mollusks for French Frigate Shoals were collected, 27 of which appear to be new records for Papahānaumokuākea.

### Reef fish

The extreme isolation of Papahānaumokuākea and its distance from the diverse fish population centers of the Western Pacific contribute to a lower fish species richness relative to other sites (Mac et al. 1998). A total of 258 species have been documented from Midway Atoll (Randall et al. 1993). Total species richness observed on surveys show a positive linear relationship with the total area of reef in shallow waters, a relationship that is consistent with most theories of island biogeography and likely reflects the greater diversity of habitats at larger islands or atolls (Waddell and Clarke 2008). Although part of one continuous chain, fish assemblages differ among reef types. The three true atolls



A Stocky Hawkfish or po'ō pa'a (*Cirrhitis pinnulatus*) peers from Kure Atoll's reefs (Photo: James Watt)

(Kure, Midway and Pearl and Hermes) as well as the partial atoll French Frigate Shoals, contain fish assemblages that are different from the basalt islands of Mokumanamana, Gardner Pinnacles and Nihoa. In addition to fish species differing with various island types, species also differ among latitudinal gradients. Many species of wrasses and damselfish exhibit a higher latitudinal bias; they are found significantly more often at northern sites (Kure and Midway Atolls) than at more southern locations.

Papahānaumokuākea's long-term protection from fishing pressure has resulted in high standing stocks of fish that are more than 260% greater than the main Hawaiian Islands. As mentioned above, the fish community of the coral reef ecosystem of

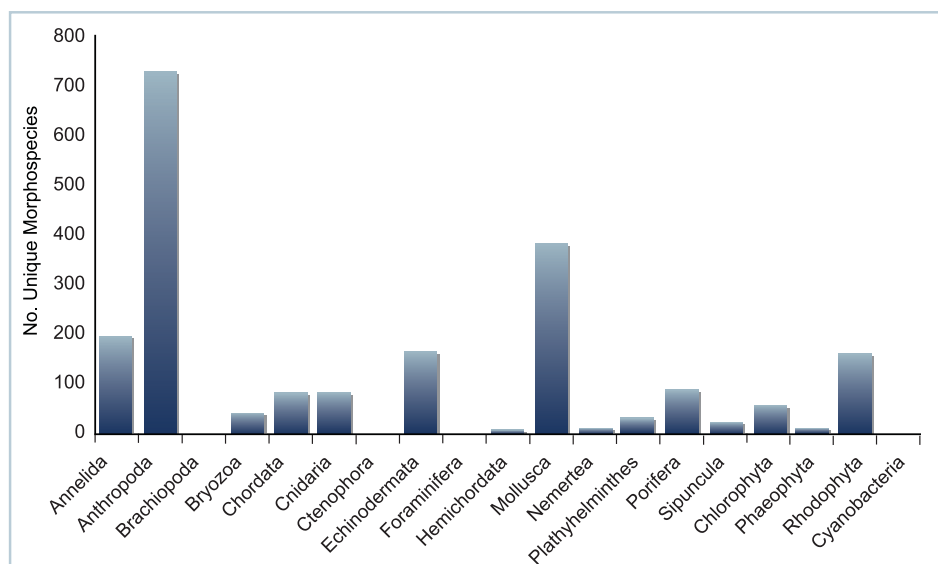
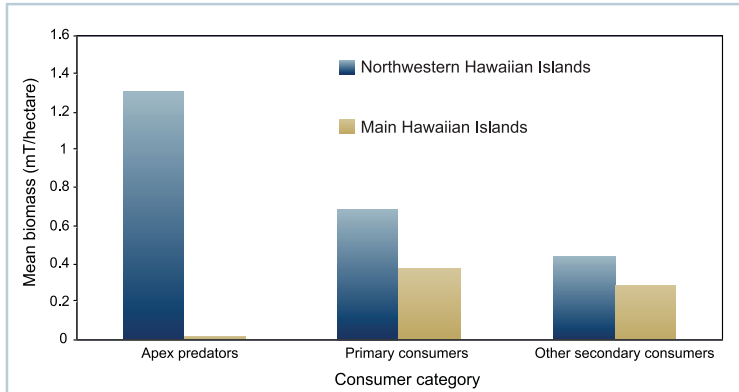


Figure 2.5: Unique morphospecies collected at FFS by phylum in 2006 surveys



Papahānaumokuākea also shows a very different structure than the main Hawaiian Islands and most other places in the world. The shallow-reef fish community is remarkable in the abundance and size of fish in the highest trophic levels. Apex predator biomass on fore-reef habitats in Papahānaumokuākea is 1.3 metric tons per hectare, compared to less than 0.05 metric tons per hectare on fore-reef habitats in the main Hawaiian Islands (Fig 2.6).



**Figure 2.6:** Comparison of biomass in major trophic guilds between the Northwestern Hawaiian Islands and the main Hawaiian Islands  
 (Source: Friedlander and DeMartini 2002 Data are derived from colony counts within belt transects during 2006 surveys)

Areas with the highest apex predator biomass include Pearl and Hermes Atoll, followed by Lisianski and Laysan Islands.

**Biota of deeper bank habitats**

The property also contains a significant component of deeper waters that surround the island platforms, an ecosystem type typically lacking in most of the world’s marine reserves. There are at least 15 banks at depths of 30 to 400 meters within Papahānaumokuākea, providing important habitat for bottomfish and lobster species, although only a few of these banks have been studied in any detail (Kelley and Ikehara 2006). These waters represent critical deepwater foraging grounds for Hawaiian Monk Seals (Parrish et al. 2002), important habitat for bottomfish and lobster species, and a spatial refuge for pelagic fishes such as tunas and their allies, which have been declared overfished in other regions throughout the world (Myers and Worm 2003). Surveys using deep-diving submersibles have established the presence of deepwater precious coral beds at depths of 365–406 meters; these include ancient

gold corals whose growth rate is now estimated to be only a few centimeters every hundred years, and whose ages may exceed 2,500 years (Roark et al. 2006). At depths below 500 meters, a diverse community of octocorals and sponges flourishes; these deepwater sessile animals prefer hard substrates devoid of sediments (Baco-Taylor et al. 2006). Deeper still, the abyssal depths of Papahānaumokuākea, while harboring limited biomass, are home to numerous scantily documented fishes and invertebrates, many with remarkable adaptations to this extreme environment.

**Biota of pelagic habitats**

Most of Papahānaumokuākea can be considered pelagic, or deep-water, habitat. The estimated area of all parts of Papahānaumokuākea with depths greater than 1,000 fathoms (1.8 kilometers) is 304,000 square kilometers (Miller et al. 2006). The deep waters are important insofar as they support an offshore mesopelagic boundary

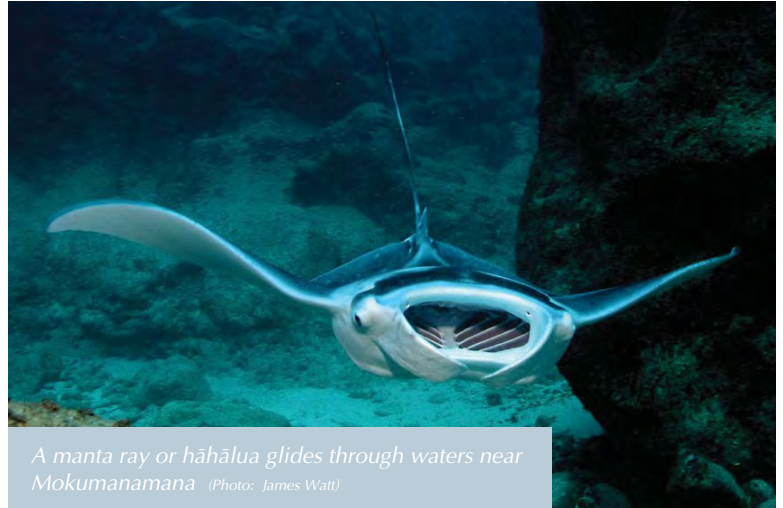
community (Benoit-Bird et al. 2002), a thick layer of pelagic organisms that rests in the deep ocean (400–700 meters) during the day, then migrates up to shallower depths (surface to 400 meters) at night, providing a critical source of nutrition for open-ocean fishes, seabirds and marine mammals. These organisms that inhabit the upper layers of the mesopelagic zone have been surveyed at French Frigate Shoals, Lisianski, Pearl and Hermes, Midway, and Kure using echosounding technology (Lammers et al. 2006). This work confirmed the presence of a community of vertical migrators, consisting of fish, squid, and shrimp. This



(Photo: PMNM)

temporal variability in the structure of the biotic community is important to understand as the spatial patterns are studied. Mesopelagic fishes, in particular, are important prey for bigeye tuna, which tend to live at greater depths than the other tuna species. Overall, the fauna of Papahānaumokuākea's waters below standard SCUBA diving depths remains minimally surveyed and documented, representing an enormous opportunity for future scientific research in a system largely undisturbed by trawling or other forms of resource extraction.

The estimated millions of seabirds breeding in Papahānaumokuākea also depend on this pelagic habitat. They are primarily pelagic feeders that obtain the fish and squid they consume by associating with schools of large open-water predatory fish such as tuna and billfish (Fefer et al. 1984, Au and Pitman 1986). These fish—Yellowfin Tuna (*Thunnus albacares*), Skipjack Tuna (*Katsuwonus pelamis*), Mahimahi (*Coryphaena hippurus*), Wahoo (*Acanthocybium solandri*), Rainbow Runner (*Elagatis bipinnulatus*), Broadbilled Swordfish (*Xiphias gladius*), and Blue Marlin (*Makaira indica*)—are apex predators of a food web existing primarily in the epipelagic zone and found within the waters of Papahānaumokuākea. While both the predatory fish and the birds are capable of foraging throughout their pelagic ranges (which encompass the entire property and



A manta ray or hāhālua glides through waters near Mokumanamana (Photo: James Watt)

tropical Pacific Ocean), the birds are most successful at feeding their young when they can find schools of predatory fish within easy commuting range of the breeding colonies (Ashmole 1963; Feare 1976; Flint 1991). Recently fledged birds, inexperienced in this complex and demanding style of foraging, rely on abundant and local food resources to survive while they learn to locate and capture prey.

### Marine mammals

The marine and littoral ecosystems of the property are designated critical habitat for the Hawaiian Monk Seal, the world's second most endangered pinniped. Only 1,200–1,400 individuals exist, and models predict that the population will fall below 1,000 individuals within the next five years. While a few Hawaiian Monk Seals co-exist with humans in the main Hawaiian Islands, the great majority of the population lives among the remote islands and atolls of Papahānaumokuākea Marine National Monument. Their range generally consists of the islands, banks and marine corridors within Papahānaumokuākea, although individual animals may be found beyond this extensive area, sometimes farther than 90 kilometers from shore.

Studies of the movements and diving patterns of 147 Hawaiian Monk Seals in Papahānaumokuākea (consisting of 41 adult males, 35 adult females, 29 juvenile males, 15

Deep water habitats comprise over 90% of this protected area (Photo: PMNM)







Hawaiian Monk Seals and Green Turtles cohabitating on the beaches of Papahānaumokuākea  
(Photo: George Balazs)

juvenile females, 12 weaned male pups, and 15 weaned female pups) using satellite-linked depth recorders have determined that Monk Seal foraging range covers an area of approximately 48,156 square kilometers, or almost 14% of the total area of Papahānaumokuākea. Seals forage extensively at or near their breeding sites and breeding subpopulations, and haulout sites;

95% forage within 12 km of these sites. Several banks located northwest of Kure Atoll represent the northern extent of the monk seal foraging range (Stewart 2004a). (Recent research conducted with submersibles and remotely operated vehicles by NOAA's Office of Ocean Exploration has identified these areas as important habitat for precious corals (NOAA 2003).) The main terrestrial habitat requirements include haulout areas for pupping, nursing, molting and resting. These are primarily sandy beaches, but virtually all substrates are used at various islands in Papahānaumokuākea. The waters of Papahānaumokuākea are also home to more than 20 cetacean species, six of them federally and internationally recognized as endangered, although comparatively little is known about the distributions and ecologies of these whales and dolphins. Recent research by Johnston and others (2007) reveals that Papahānaumokuākea also may host many more humpback whales than originally thought.

### Marine reptiles

In addition to the important habitat for marine mammals within Papahānaumokuākea, the islands and atolls are also crucial breeding, nesting, and basking habitat for the Hawaiian population of Green Turtles. More than 450 nesting sites have been observed in Papahānaumokuākea, incorporating over 90% of the total nesting area for Green Turtles. The five species of sea turtles that occur in the NWHI are the Loggerhead (*Caretta caretta*), the Green (*Chelonia mydas*), the Olive Ridley (*Lepidochelys olivacea*), the Leatherback (*Dermochelys coriacea*), and the Hawksbill (*Eretmochelys imbricata*) (Figure 2.7). Section 4 provides additional information on population trends for these species, especially the Green Turtle.



More than 450 Green Turtle nesting sites have been documented in Papahānaumokuākea (Photo: James Watt)

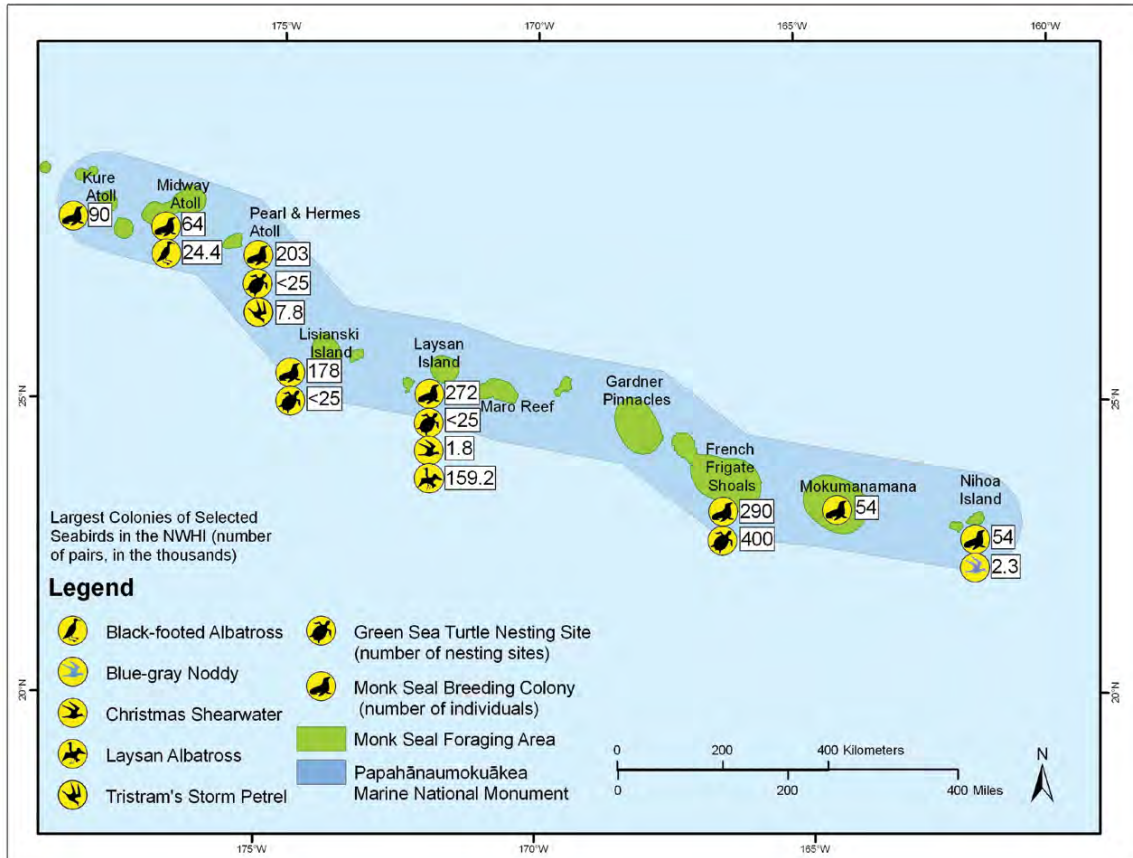


Figure 2.7: Population sizes and nesting sites of rare seabird species, Green Turtles and Hawaiian Monk Seals in the Pacific Island region (Sources: Stewart 2004a; Balazs and Ellis 2000; Kushlan et al. 2002; Fefer et al. 1984)

### Seabirds

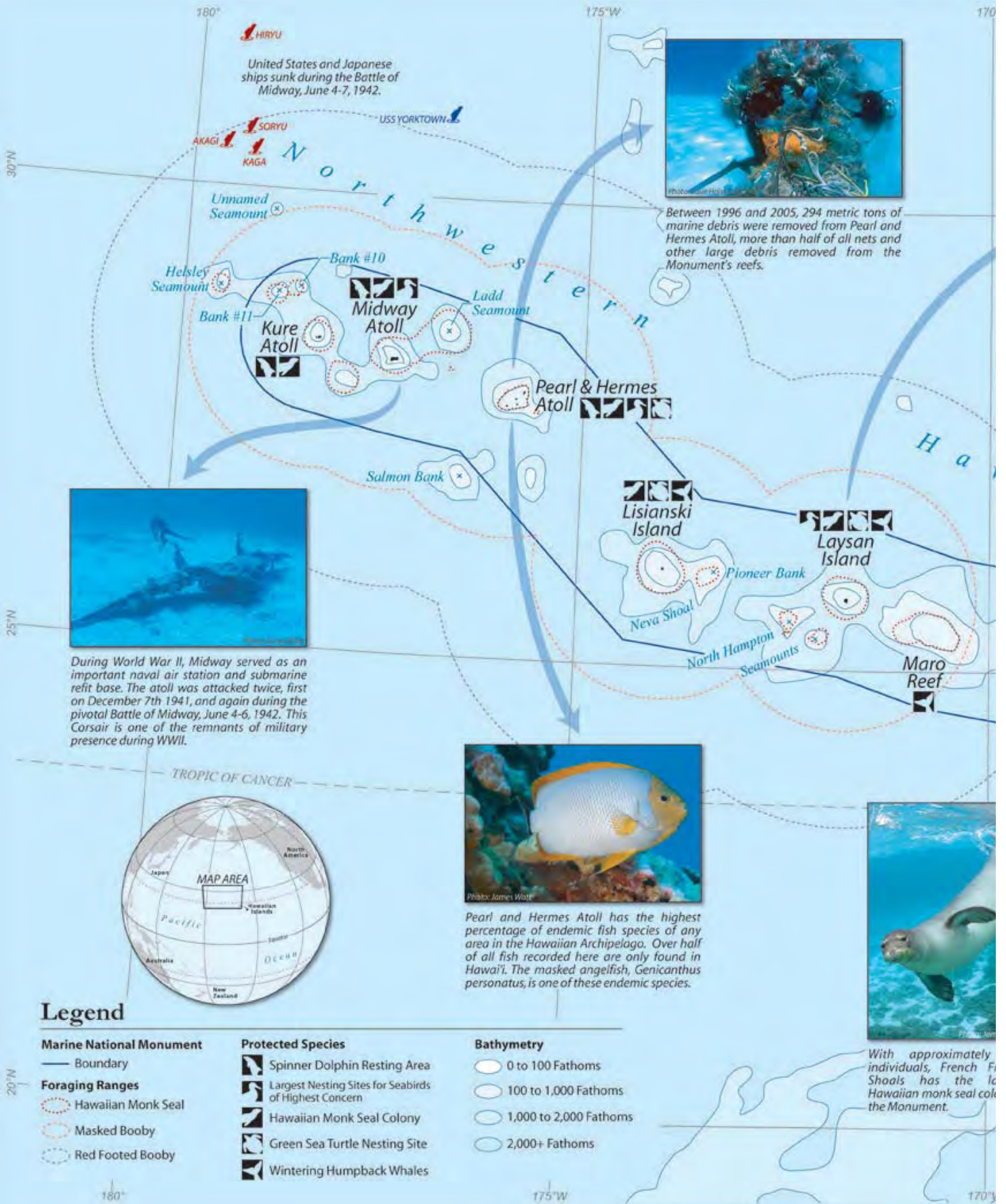
In addition to the purely terrestrial biota, more than 14 million seabirds rely on the tiny islets in the chain, 5.5 million of which nest annually. This includes 99% of the world's Laysan Albatrosses (listed as vulnerable by the International Union for Conservation of Nature (IUCN), 98% of the world's Black-footed Albatrosses (listed as endangered by the IUCN), and important populations of the Short-tailed Albatross (listed as endangered by the IUCN). The small islands and atolls of the property thus form a major portion of the current total tropical seabird nesting habitat of the United States as a whole. Eleven of the 21 species were classified as highly imperiled or of high conservation concern at the broad scale of the North American Waterbird Conservation

Plan (eastern north Pacific, western north Atlantic, and Caribbean) (Table 2.1). At the regional scale (Pacific Islands), six species were included in these highest-concern categories: Laysan, Black-footed, and Short-tailed Albatrosses; Christmas Shearwater; Tristram's Storm-Petrel; and Blue-gray Noddy. The importance of Papahānaumokuākea to seabirds is further discussed in Section 3.



Papahānaumokuākea protects colonies of global significance for 14 million seabirds, representing 21 species (Photo: James Watt)





**HIRYU**  
United States and Japanese ships sunk during the Battle of Midway, June 4-7, 1942.



Between 1996 and 2005, 294 metric tons of marine debris were removed from Pearl and Hermes Atoll, more than half of all nets and other large debris removed from the Monument's reefs.



During World War II, Midway served as an important naval air station and submarine refit base. The atoll was attacked twice, first on December 7th 1941, and again during the pivotal Battle of Midway, June 4-6, 1942. This Corsair is one of the remnants of military presence during WWII.



Pearl and Hermes Atoll has the highest percentage of endemic fish species of any area in the Hawaiian Archipelago. Over half of all fish recorded here are only found in Hawai'i. The masked angelfish, *Genicanthus personatus*, is one of these endemic species.



With approximately 100 individuals, French Frigate Shoals has the largest Hawaiian monk seal colony in the Monument.

### Legend

#### Marine National Monument

— Boundary

#### Foraging Ranges

- Hawaiian Monk Seal
- Masked Booby
- Red Footed Booby

#### Protected Species

- Spinner Dolphin Resting Area
- Largest Nesting Sites for Seabirds of Highest Concern
- Hawaiian Monk Seal Colony
- Green Sea Turtle Nesting Site
- Wintering Humpback Whales

#### Bathymetry

- 0 to 100 Fathoms
- 100 to 1,000 Fathoms
- 1,000 to 2,000 Fathoms
- 2,000+ Fathoms



# PAPAHĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT

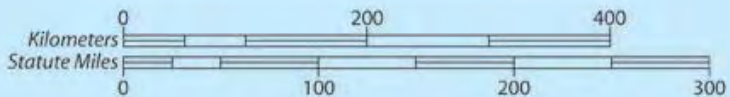


Photo: James Watt

Over 14 million seabirds nest in the Monument and many forage in the waters surrounding the breeding colonies. Laysan Island has the greatest diversity of bird species in the Monument.



Produced by NOAA's National Marine Sanctuaries Program



## Relative Biogeographic Comparison

Data Classified as Quantiles; Friedlander and Wedding, 2006

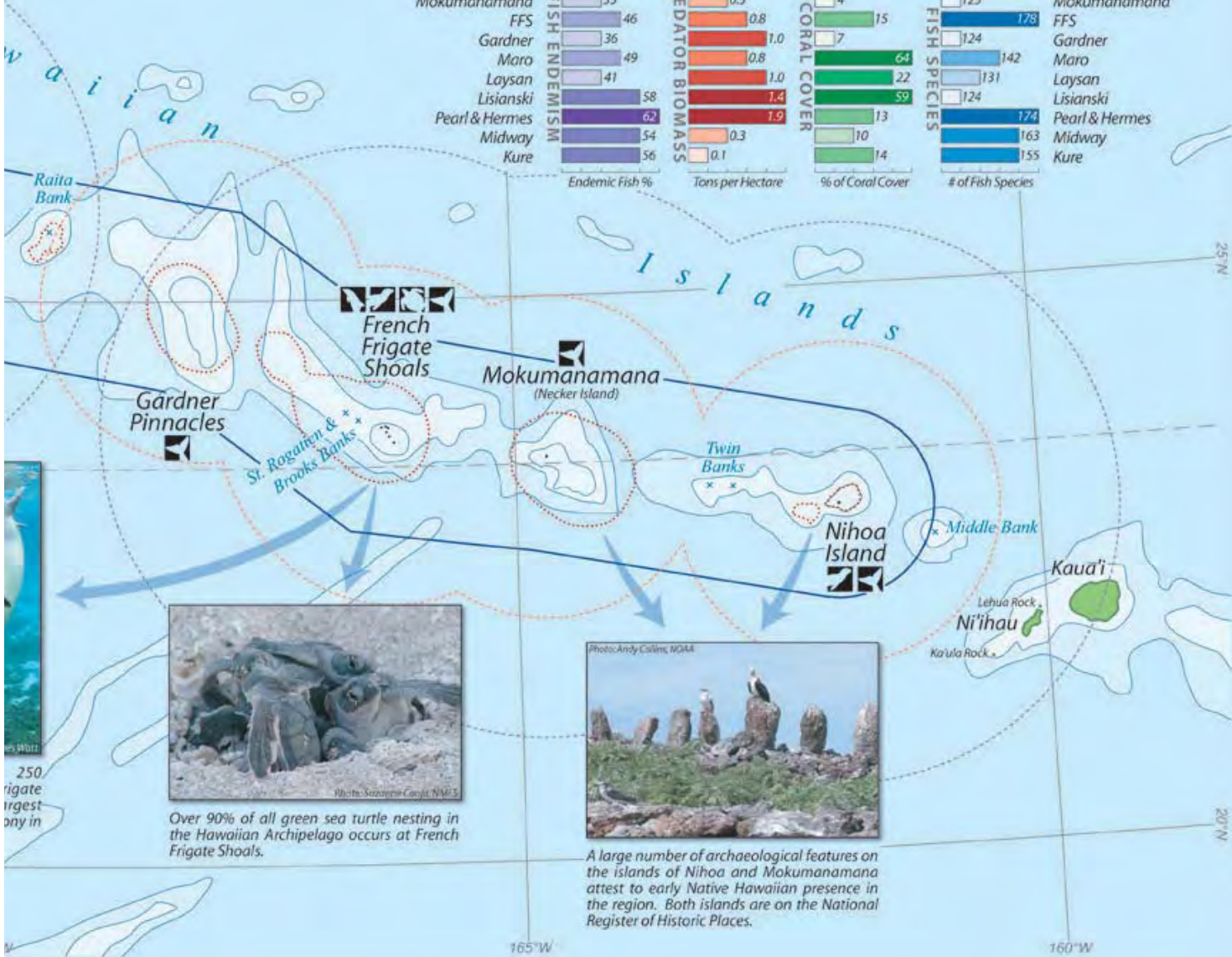
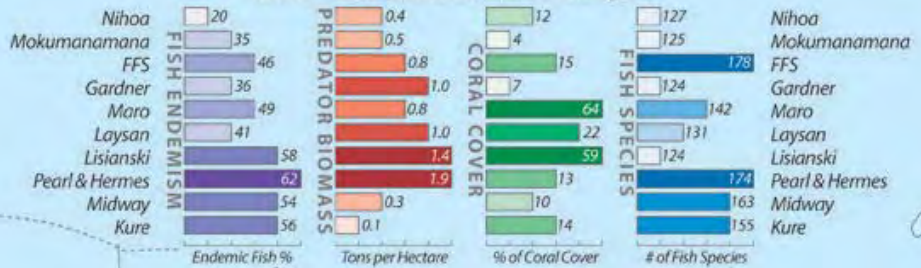


Photo: Suzanne Condit, NMFS

Over 90% of all green sea turtle nesting in the Hawaiian Archipelago occurs at French Frigate Shoals.



Photo: Andy Collins, NOAA

A large number of archaeological features on the islands of Niihau and Mokumanamana attest to early Native Hawaiian presence in the region. Both islands are on the National Register of Historic Places.

250 frigatebird colony in

165°W

160°W

30°N

25°N

20°N



Table 2.1: Seabird species known to breed in Papahānaumokuākea Marine National Monument (FWS data)<sup>1</sup>

Common Name	Species	Estimated Number of Breeding Birds
Black-footed Albatross	<i>Phoebastria nigripes</i>	111,800
Laysan Albatross	<i>Phoebastria immutabilis</i>	1,234,000
Bonin Petrel	<i>Pterodroma hypoleuca</i>	630,000
Bulwer’s Petrel	<i>Bulweria bulwerii</i>	180,000
Wedge-tailed Shearwater	<i>Puffinus pacificus</i>	450,000
Christmas Shearwater	<i>Puffinus nativitatis</i>	5,400
Tristram’s Storm-Petrel	<i>Oceanodroma tristrami</i>	11,000
Red-tailed Tropicbird	<i>Phaethon rubricauda</i>	18,400
White-tailed Tropicbird	<i>Phaethon lepturus</i>	8
Masked Booby	<i>Sula lepturus</i>	3,400
Red-footed Booby	<i>Sula sula</i>	15,800
Brown Booby	<i>Sula leucogaster</i>	800
Great Frigatebird	<i>Fregata minor</i>	19,800
Little Tern	<i>Sternula albifrons</i>	20
Gray-backed Tern	<i>Onychoprion lunatus</i>	86,000
Sooty Tern	<i>Onychoprion fuscatus</i>	3,000,000
Blue-gray Noddy	<i>Procelsterna cerulean</i>	7,000
Brown Noddy	<i>Anous stolidus</i>	150,000
Black Noddy	<i>Anous minutus</i>	26,000
White Tern	<i>Gygis alba</i>	22,000
<b>Total</b>		<b>5,971,428</b>

1 - Laysan and Black-footed Albatrosses, Christmas Shearwater, Tristram’s Storm-Petrel, and Blue-gray Noddy are on the Birds of Conservation Concern list for the Hawaiian Bird Conservation Region; Black-footed Albatrosses are on the national list.

46

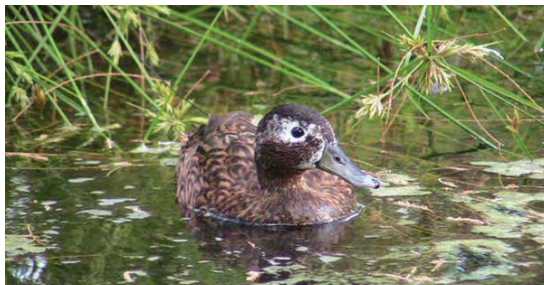
**Shorebirds**

Forty-seven species of shorebirds have been recorded in Papahānaumokuākea. Most of these are classified as infrequent visitors or transients, but Papahānaumokuākea does support regionally significant populations of four migrants: Pacific Golden-Plovers (*Pluvialis fulva*), Bristle-thighed Curlews (*Numenius tahitiensis*), Wandering Tattlers (*Tringa incana*), and Ruddy Turnstones (*Arenaria interpres*). Most of these birds arrive in July and August and return to the Arctic to breed in May, but some of the younger individuals may skip breeding their first summer and remain in Papahānaumokuākea. While there, these species use all the habitats available for foraging and sometimes concentrate in large numbers in the hypersaline lake at Laysan and in the artificial water catchment pond on Sand Island at Midway Atoll. The rat-free islands of Papahānaumokuākea provide important wintering sites for the

rare Bristle-thighed Curlew, because they are flightless during molt and require predator-free sites. This species and Pacific Golden-Plovers are listed as species of high conservation concern in the National and Regional Shorebird Conservation Plans (Engilis and Naughton 2004) and are designated Birds of Conservation Concern by the FWS at the regional and national scale (FWS 2002).



Bristle-thighed Curlews or kioea are listed as species of high conservation concern (Photo: James Watt)



The worldwide population of Laysan Ducks (*Anas laysanensis*) lives within Papahānaumokuākea  
(Photo: Jimmy Breeden)

### Terrestrial Life in Papahānaumokuākea

#### Terrestrial biota

In contrast to the marine systems of Papahānaumokuākea, the terrestrial area of the property is comparatively small, but supports significant endemic biodiversity. This includes 145 species of endemic arthropods, six species of endangered endemic plants, including an endemic palm, and four species of endemic birds, including remarkably isolated species such as the Nihoa Finch, Nihoa Millerbird, Laysan Finch, and Laysan Duck, one of the world's rarest ducks. Three of these species (Nihoa Finch, Nihoa Millerbird, and Laysan Duck) are deemed critically endangered by IUCN, and the Laysan Finch is listed as vulnerable. In addition, millions of seabirds use the area for breeding and foraging, and numerous shorebird species overwinter on the islands or transit through during their migrations to the north and south. At least six species of terrestrial plants found only in the region are listed under the U.S. Endangered Species Act, some so rare that due to the difficulty of surveying these remote islands, they have not

been documented for many years. IUCN lists *Cenchrus agrimonioides* var. *laysanensis* from Laysan as extinct, though biologists hold hope that it may still exist. *Amaranthus brownii*, endemic to Nihoa, is deemed critically endangered by IUCN, while *Pritchardia remota* is considered endangered. Although still poorly documented, the terrestrial invertebrate fauna shows significant patterns of precinctive speciation, with endemic species described from Nihoa, Mokumanamana, French Frigate Shoals, Laysan, Lisianski, Pearl and Hermes, and Kure.

#### Terrestrial invertebrates

The native terrestrial arthropods and land snail communities of Papahānaumokuākea are the least-well-studied of the animal groups (Table 2.2), but are perhaps the most seriously affected by human activities and introductions. In particular, the many species of ants that have accidentally reached all the islands of the archipelago except Gardner Pinnacles have had enormous effects on these native terrestrial invertebrates. The entomofauna of Papahānaumokuākea includes some groups of insects that demonstrate dramatic adaptive radiations. One such group is the seedbugs, specifically the genus *Nysius*, which shows the complete range of feeding types: from host-specific plant feeders, to diverse plant hosts, to omnivorous feeding, and finally to predator/scavengers. It is a rare occurrence to find herbivory and carnivory occurring within the same genus. Nowhere else in the world is there a lineage like the Hawaiian *Nysius* in which to explore the evolution of carnivory in Heteroptera. Some of these species are single-island endemics and of particular conservation concern because of their limited ranges.

Table 2.2: Number of terrestrial arthropod species in Papahānaumokuākea summarized by order and island  
(Source: Nishida 1998; Nishida 2001)

Terrestrial Arthropod Species	Nihoa	Mokumanamana	French Frigate Shoals	Gardner Pinnacles	Laysan Island	Lisianski Island	Pearl and Hermes	Midway Atoll	Kure Atoll
<b>Anthropoda</b>	<b>221</b>	<b>84</b>	<b>108</b>	<b>11</b>	<b>234</b>	<b>59</b>	<b>109</b>	<b>507</b>	<b>155</b>
Arachnida	42	10	10	4	34	6	16	85	35
Insecta	174	69	94	7	195	49	87	412	115
Chilopoda	2	2	1		1		1	1	2
Anostraca					1				
Isopoda	3	3	3		3	3	5	9	3
Amphipoda						1			



### Terrestrial plants

The land plants of Papahānaumokuākea are typically salt-tolerant and drought-resistant species of the beach strand and coastal scrub. The number of native species found at each site is positively correlated with island size but negatively influenced by the number of alien species occurring at the site (Table 2.3). The three sites with airstrips and a longer history of year-round human habitation have much larger populations of alien species of land plants. At least three species of Papahānaumokuākea endemic plants (*Achyranthes atollensis*, *Phyllostegia*

*variabilis*, and *Pritchardia* species, all of Laysan Island) are believed to have gone extinct since European contact. Other native species and genera have found refuge in areas of Papahānaumokuākea where rats were never introduced, and now occur at much greater densities than they do in the main Hawaiian Islands (e.g., *Pritchardia remota* and *Sesbania tomentosa*, commonly known as ‘ōhai).

At least six species of terrestrial plants found only in the region are listed under the U.S. Endangered Species Act.

Table 2.3: Biogeographic description of land plants of Papahānaumokuākea Marine National Monument (number of species that have been observed at each site in previous 20 years)

Island	Emergent Land Area (ha)	Island endemic	Indigenous to Hawai‘i and other Pacific Islands	Alien	Total no. of Species
Nihoa	69	3	14	3	20
Mokumanamana	19	0	5	0	5
French Frigate Shoals	38	0	10	27	37
Gardner Pinnacles	2	0	1	0	1
Laysan Island	414	1	22	11	34
Lisianski Island	148	0	15	5	20
Pearl and Hermes Atoll	39	0	15	10	25
Midway Atoll	592	0	14	249	263
Kure Atoll	89	0	12	36	48

48

### New Species Discovery

As further described in Section 3, the rates of marine endemism in Papahānaumokuākea are unparalleled in the Pacific and most

of the world. In addition, the sheer mass of apex predators in the marine system is simply not seen in areas subject to higher levels of human impact. Overall, the property represents one of the last unspoiled marine wilderness areas remaining on the planet, and virtually every scientific exploration to the area is a voyage of discovery. In the course of one three-week research cruise in the fall of 2006, conducted as part of the global Census of Marine Life project, more than 100 cryptic species new to science were discovered at French Frigate Shoals alone. Many more such voyages are necessary in order to gain a more comprehensive understanding of insular patterns of speciation and endemism within Papahānaumokuākea as a whole, but even the data in hand strongly support international recognition of this unique ecosystem.



The endangered ‘ohau, or *Sesbania tomentosa*  
(Photo: Barbara Maxfield)



*Papahānaumokuākea exemplifies how nature and culture are one (Photo: James Watt)*

### *Papahānaumokuākea's Associative Cultural Landscape*

This section describes Papahānaumokuākea's Native Hawaiian cultural heritage, specifically the elements that make the property a significant associative cultural landscape.

### *The World of Gods and Spirits*

Papahānaumokuākea is a sacred area, which contains the boundary Pō, a place of darkness that is reserved for their many revered gods and ancestral spirits. The best-known genealogical and creation chant of Hawai'i, the Kumulipo, describes the Hawaiian universe as being comprised of two worlds: Pō and Ao, the realm of light where Native Hawaiians and the rest of Hawai'i's living creatures reside. Native Hawaiians believe that Mokumanamana, in southeastern Papahānaumokuākea, represents the boundary between these two worlds.

Hawaiians know the waters of the tropics as the safest for navigation, and they mark the sacredness of that multi-dimensional realm with celestial gods. The sun's path, which Hawaiians mark as the sequential points on the horizon at which it rises and sets throughout the year, is bordered by the points at which it travels furthest north (*Ke ala nui polohiwa a Kāne* – The long, black shining road of Kāne) and furthest south (*Ke ala nui polohiwa a Kanaloa* – The long, black shining road of Kanaloa). These two gods are considered

major gods of Tahiti, Tuamotu, O'ahu and Kaua'i (Lilikalā Kame'eiehiwa 22 November 2008, personal communication). The boundary of Kāne crosses Mokumanamana ("island of great spiritual power").

The name *Ke ala nui polohiwa a Kāne* refers to death, or the westward road of the ancestral spirits. Native Hawaiians believe that when a person's physical body dies, their spirit travels to *leina*, or portals found on each island. If the individual had lived a *pono* (righteous) life, they would be transported from the *leina* westward to Pō (Beckwith 1970). This spirit realm is represented by the islands and surrounding waters to the northwest of the island of Mokumanamana.




Most of Mokumanamana's *heiau* (shrines) follow the crest of the island, tracking the sun, and it is believed that the solar solstice hits the carefully placed upright stones of these *heiau* at a significant angle (Pualani Kanahale 2 July 2008, personal communication). This line of massive stones may be a physical manifestation of the celestial and spiritual significance of this island as a representation of a crossing between Pō and Ao. "The stone heiau are clues left behind by our ancestors, and are so precious because we don't know everything the ancestors knew, with their superior understanding of direction and the stars" (Lilikalā Kame'eiehiwa 21 November, 2008, personal communication).

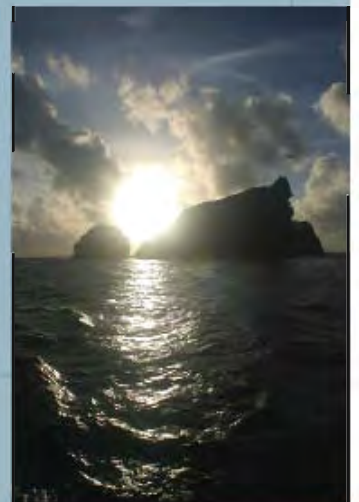


# Cultural Heritage Sites Within Papahānaumokuākea



Partly because Mokumanamana is crossed by the Tropic of Cancer, it is considered the sacred boundary between Pō and Ao.

-  Tropic of Cancer - Ke ala nui polohiwa a Kane - The long black shining road of Kane.
-  Papahānaumokuākea Marine National Monument Boundary
-  Voyagers from mythical, ancient, and modern times have traversed Papahānaumokuākea's seascape, as recounted in myriad oral traditions



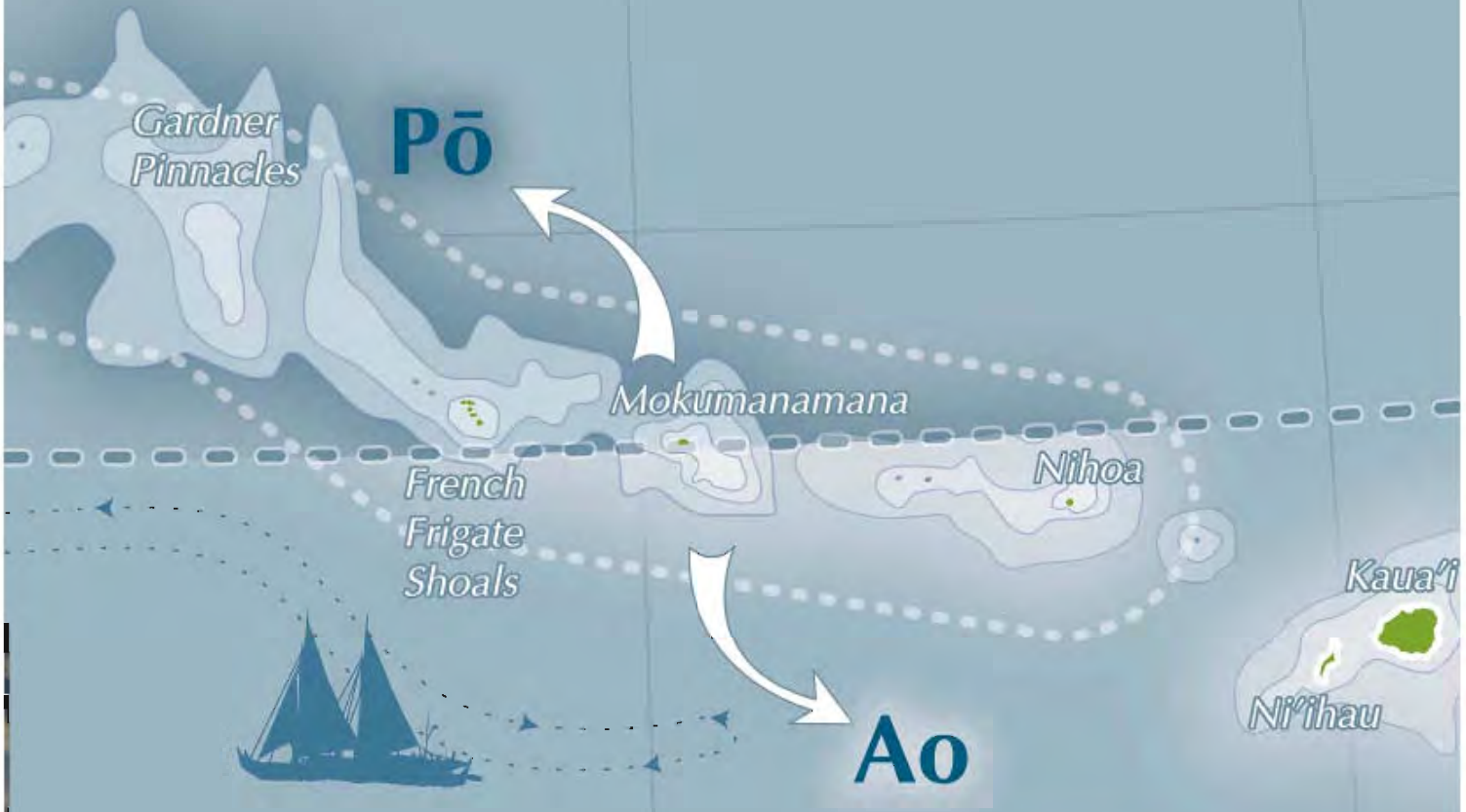
# *hānaumokuākea*



Upright stones are oriented to sun's angle on the summer solstice. Spanning the length of Mokumanamana's kua (spine, crest), the upright stones are part of the highest concentration of ceremonial sites in the archipelago.



Pre-contact native Hawaiian archaeological sites at Nihoa.





Mokumanamana, with its many *heiau*, is believed to play a critical role in Native Hawaiian rituals because of its position on the Tropic of Cancer. Native Hawaiians believe that a person's shadow is the physical manifestation of their spirit, and therefore, that a person has the most *mana* (spiritual power) when they have no shadow, such as at midday, because the spirit is considered to be united with the body. This is the time when rituals and prayers are conducted, as priests are at the peak of their spiritual powers. Nowhere else in Hawai'i does the sun hang overhead longer than on the summer solstice at Mokumanamana. It is believed that Mokumanamana is an important and powerful place to hold ceremonies, because on the summer solstice, a priest's shadow remains united with his or her body—and the priest's power remains concentrated—for the longest period at any time of the year, anywhere in the archipelago.

As the boundary between Pō and Ao, Mokumanamana today serves as a critical place for ongoing Native Hawaiian cultural research into celestial movements, particularly during major solar events. In 2007, renowned Native Hawaiian cultural practitioner and researcher Pualani Kanahale and a group of cultural practitioners called Ha'ae Wale Ka Hānauna Lolo visited Mokumanamana to study the relationship between the island's *heiau* and the path of the sun during the summer solstice.

Another famous Hawaiian *mo'olelo* (story, historical narrative) tells the story of how a family of important gods and goddesses followed the sun's path in an easterly direction, down the island chain. Pele, the fire or volcano goddess, accompanied by her sister Hi'iaka, sailed from Kahiki (Tahiti) to the Northwestern Hawaiian Islands, continuing on

to Lehua and the main Hawaiian Islands, all the way down the archipelago until she found her current home in the active volcano of Kīlauea, on Hawai'i Island.

The migration *mo'olelo* of Pele and Hi'iaka, two sisters from Tahiti, tells of them first landing in the NWHI on an island named Mokupāpapa, "some point northwest of Hawai'i, along that line of islets, reefs, and shoals which tail off from Hawai'i as does the train of a comet from its nucleus" (Emerson trans. 1915). Pele left her brother Kānemiloha'i on Mokupāpapa, with instructions to build it up for habitation because it was not much more than a reef. Pele and Hi'iaka sailed southeast from Mokupāpapa, landing at Nihoa, where they briefly left another brother.

These gods are considered to be part of a volcano clan that traveled overseas and underground, creating the volcanic hotspots of Hawai'i and following the sun's path, to the east (Pualani Kanahale 2 July 2008, personal communication).

### Hawaiian Voyaging and Wayfinding (Non-instrument Navigation)

Today, Papahānaumokuākea's cultural landscape, dominated by the ocean, plays a critical role in two major living traditions of Native Hawaiians: Hawaiian voyaging and wayfinding. The voyaging route between Kaua'i (in the main Hawaiian Islands) and Nihoa and Mokumanamana is used today as the best training ground for apprentices of Hawaiian wayfinding, non-instrument navigation, before undertaking a long, open-ocean voyage beyond the archipelago.

At Papahānaumokuākea, an array of attributes unique in the archipelago makes

52

### Ka huaka'i a Pele

...ʻO Nihoa ka ʻāina a mōkou i pae mua aku ai  
Lele a'e nei mākou, kau i uka o Nihoa  
ʻO ka hana nō a ko'u pōki'i, a Kāneapua,  
ʻO ka ho'oili i ka ihu o ka wa'a a nou i ke kai  
Waiho anei ʻo Kamohoali'i iā Kāneapua i uka o Nihoa  
No'iau ka hoe a Kamohoali'i  
A pae i ka ʻāina i kapa ʻia ʻo Lehua....

### Migration of Pele

...Nihoa is the island on which we first landed  
We climbed upward until the top of Nihoa  
The fault of my younger brother, Kāneapua,  
Weighing the prow of the canoe until it beat into the waves  
Kamohoali'i left Kāneapua on land at Nihoa  
Skillful was the steering of Kamohoali'i  
Until we landed on the island named Lehua....

the area “the ideal training platform” for novice Hawaiian wayfinders (Nainoa Thompson 4 October 2008, personal communication). Apprentice navigators are challenged to sail to Nihoa from Lehua, a small, crescent-shaped island near Kaua’i and Ni’ihau. Oral histories document that this navigational test was used in generations past; it is an ideal route for a novice navigator to prove new skills in reading the celestial and ocean environment (Maly 2003). The navigator must find an island that cannot be seen on the horizon, but is still within a relatively short sail from the safety and provisions of a larger island. Oral tradition tells that in fair weather, canoes would sail first from Kaua’i to Lehua, which is known as a navigational “pointer” to Nihoa.

On Nihoa, there is no artificial lighting to aid the apprentice navigator, and the island’s small physical size (0.68 square kilometers) and low-lying nature (the highest point measures 275 meters) require astute observations of the sun, stars, swells, seabirds and the Hawaiian wayfinder’s other signposts of navigation. Today, novice Hawaiian wayfinders are considered qualified to attempt to navigate a canoe on long-distance, trans-Pacific sails after they have successfully guided a voyage from Kaua’i to Nihoa. Once the voyages to Nihoa, and then Mokumanamana, have been made, the islands themselves contain archaeological sites that continue to be used to educate apprentice navigators and allow for direct communication with the elements and the gods who are personified in those elements (Pualani Kanahale 2 July 2008, personal communication).

Even apart from apprentice sails, Papahānaumokuākea is a major destination for traditional voyaging. Traditional double-hulled Hawaiian voyaging canoes have traveled throughout Papahānaumokuākea in recent years. In 2004, *Hōkūle’a* sailed from the main Hawaiian Islands to

## Language and Writing

Until relatively recently, Native Hawaiian culture relied exclusively on oral traditions (*oli* (chant); *mele* (song); *mo’olelo* (story); *mo’okū’auhau* (genealogy); and *hula* (dance)) to transmit knowledge. When reading and writing were introduced to Hawai’i after Western contact, Native Hawaiians took to them quickly, and by the 1860s—less than a century later—the Native Hawaiian community was almost universally literate (Silva 2004). As a result, many oral traditions were documented and preserved in books, journals and newspapers; however, many more were either lost or continued to be transmitted only orally, to trusted recipients, in accordance with Hawaiian custom. This application relies on oral sources—first-hand accounts of widely respected Hawaiian cultural practitioners, who are considered reputable sources of information in the Hawaiian culture—as well as on academic and historic references.

Throughout this document Hawaiian words are written with appropriate diacritical marks and defined in English. As with other languages that employ diacritical marks, such as French and Spanish, the Hawaiian language uses them as part of the alphabet and the language. Words can have very different meanings when diacriticals are missing or misplaced. (For example, *ka* means “your,” while *ka’u* means “mine;” *onaona* means “fragrant, sweet-smelling scent,” while *’ona’ona* means “drunk.”) The *kahakō* (macron) represents an emphasized or stressed vowel sound in a Hawaiian word, as exemplified by the word, *kūpuna* (revered elders, ancestors), as differentiated from *kupuna* (a singular elder or ancestor). The *’okina* (glottal stop), which indicates a consonant sound produced by closing and suddenly opening the glottis, occurs in many Pacific languages, and can be reproduced in English by saying any word that begins with a vowel, such as “open” or “above.” It is represented by the symbol ‘, as in the word Hawai’i.



# Hawaiian Wayfinding

(non-instrument navigation)



The ancient and modern training grounds for Hawaiian wayfinding (non-instrument navigation)  
(Photo: Polynesian Voyaging Society)

Kure Atoll, the farthest edge of the former Hawaiian Kingdom, and back. Moreover, the *ʻOhana Waʻa* (family of canoes) serve as the traditional vehicles that deliver cultural practitioners to Nihoa and Mokumanamana for religious ceremonies. In two separate voyages in 2003 and 2005, *Hōkūleʻa* and *Hōkūalakaʻi* brought the cultural group Nā Kupuʻeu Paemoku to Nihoa and Mokumanamana for ceremonial purposes.

Oral traditions reveal this seascape's place in Hawai'i's legendary voyaging traditions. *Kūpuna* (elders) from Niʻihau and Kauaʻi Islands (which are closest to Papahānaumokuākea and the people of which have traditionally had the most access to and relationship with the islands to the northwest) have shared knowledge passed down through generations about a voyaging "route" to Tahiti (Maly 2003). Although trans-Pacific voyaging is thought to have ceased in the 15th century (Kirch and Kahn 2007), some Niʻihau traditions state that Nihoa and/or Mokumanamana served as an embarkation and debarkation point for these voyages (Maly 2003). Traditions from Hawaiʻi Island support this,

Hawaiian wayfinding evolved from the system of non-instrument navigation used by Polynesians to routinely make long voyages across thousands of miles of open-ocean. Between 3,000 and 4,000 years ago—millennia before open-ocean sailing was undertaken elsewhere in the world—ancestors of the Native Hawaiians developed the world's first blue-water sailing technology, engineering sophisticated ocean-going vessels capable of ranging thousands of miles over open-ocean, and creating a reliable navigational system based on observations of the natural world. Navigators voyaged based on a lifetime of studying the motion, rising and setting of specific stars; the weather and times of travel; wildlife species (which congregate at particular positions); the directions of swells on the ocean; the colors of the sea and sky (clouds cluster and reflect at the locations of some islands); and the angles for approaching harbors. From the first peopling of the Hawaiian Archipelago through the 15th century, wayfinding enabled regular contact and trade between Hawaiʻi and Oceania.

All but lost for several generations, Hawaiian wayfinding has undergone a revival in recent decades, led by Nainoa Thompson, the first Hawaiian master wayfinder to navigate across the Pacific in several centuries. Thompson has developed a system of wayfinding, or non-instrument navigation, that synthesizes traditional principles of ancient Pacific navigation and modern scientific knowledge. Hawaiian wayfinding has contributed to a revival of traditional voyaging arts across Polynesia; it is now being taught in schools throughout Hawaiʻi and the Pacific. This science, art, and skill uses a plethora of environmental cues to navigate without instruments:



Master navigator Nainoa Thompson (left) instructing in the art and science of wayfinding.  
(Photo: Polynesian Voyaging Society)

**The sun:** The points on the horizon where the sun rises and sets represent the main guide for navigators without instruments. Says Thompson: "Sunrise is the most important part of the day. At sunrise you start to look at the shape of the ocean—the character of the sea. You memorize where the wind is coming from. The wind generates the swells. You determine the direction of the swells, and when the sun gets too high, you steer by them. And then at sunset we repeat the observations. The sun goes down—you look at the shape of the waves. Did the wind change? Did the swell pattern change?"



**The stars:** "The star compass is the basic mental construct for navigation," says Thompson. "We have Hawaiian names for the houses of the stars—the places where they come out of the ocean and go back into the ocean....If you can identify the stars, and if you have memorized where they come up and go down, you can find your direction. The star compass is also used to read the flight path of birds and the direction of waves. It does everything."

**Ocean swells:** On cloudy days or nights, when the sun and stars are not visible, an expert navigator (perhaps lying in the bow of the canoe) can sense up to five unique swell patterns at once. Listening to the patterns of waves slapping against the hull, and sensing the pitch and roll of the canoe, helps navigators to determine direction.

**Seamarks:** Navigators also rely on seamarks, which have been called "signposts in the ocean" for an experienced navigator: Seamarks, or distinctive natural occurrences that occur at predictable places along a sea route, are found along routes between islands and indicate to the navigator that he is at a certain point along his route. Examples of Pacific seamarks include a region where flying fish leaped in pairs, a zone of innumerable jellyfish, an area of numerous terns, and an area of sharks and numerous red-tailed tropic birds.

**The moon, the planets, winds, landmarks, and north and south pointers** are other aspects of the sky and sea that Hawaiian wayfinders use to set up a voyage strategy, hold a canoe's course while tracking position during the voyage, and finally find land after reaching the vicinity of the destination.



Hōkūle'a in the main Hawaiian Islands  
(Photo: Polynesian Voyaging Society)

*Papahānaumokuākea, the training grounds for  
ancient and modern Hawaiian wayfinders*





a human population center (and in distinct contrast to the degraded state of most of the main Hawaiian Island ecosystems), Papahānaumokuākea is relatively free of anthropogenic impacts, and remains one of the only places where Native Hawaiian practitioners have direct access to the living manifestation of oral traditions and can gain insights into the traditional relationships between man and nature.

suggesting that in recent centuries, Ni’ihau and Kaua’i were particularly known for deep-sea voyaging wisdom (ibid.). The late *kupuna* Eddie Ka’anā’anā spoke of Native Hawaiians voyaging from Hawai’i Island to join family members in Ni’ihau to sail from there to Papahānaumokuākea. His family told him that they did this to fish and to *holo moana*—to train to gain navigational knowledge (ibid.).

### Place of Abundance

Papahānaumokuākea’s nearly pristine marine natural resources (e.g., a predator-dominated ecosystem, high levels of endemism, crystalline waters, and unharvested marine resources) are of deep cultural significance to Native Hawaiian people. Since nature and culture are considered to be one and the same, the protection of one of the last nearly pristine, natural, marine ecosystems in the archipelago is seen as akin to preserving the living culture. Also, absent

For example, the apex predators that dominate the region’s nearly pristine marine ecosystem are seen by Native Hawaiians through a spiritual and cultural lens. Sharks are the most common *‘aumakua* (family guardian spirit) of fishing families; often honored as protectors of entire island districts; and represent the physical form of such highly revered gods as Kamohoali’i, who guided his sister Pele through Papahānaumokuākea when she arrived in Hawai’i, and Kūhaimoana, who lives in the waters between Nihoa and Ka’ula, near Ni’ihau (Beckwith 1970). Jacks are known to be larger, more abundant and to behave much more boldly in Papahānaumokuākea than they do in the main Hawaiian Islands. For Native Hawaiians, the visible dominance of these predators has a resonant spiritual significance.

Native Hawaiian practitioners today say that Papahānaumokuākea represents one of Hawai’i’s last-remaining *‘āina momona*, or “places of abundance” (Mahina Duarte 19 November 2008, personal communication), a point reiterated repeatedly across the state in focus groups facilitated by Monument managers. It is also one of the preminent locations for experiencing and

56



Native Hawaiian people call it one of the “last-remaining places of abundance”, or *‘āina momona* (Photos: James Watt)

understanding *hō'ailona* (signs, omens in nature) that occur in pristine environments. In addition, because environmental change occurred so quickly and profoundly in the main Hawaiian Islands' marine ecosystems, Papahānaumokuākea serves, for Native Hawaiians, as a “standard” (i.e., a pristine ecosystem akin to those their ancestors experienced) to contextualize and help traditional management skills evolve to modern-day settings.

### Papahānaumokuākea's Archaeological Resources

Nihoa and Mokumanamana feature an array of Native Hawaiian archaeological sites unique among known sites in the Hawaiian archipelago and Polynesia. Both islands are listed on the National Register of Historic Places (see Appendix C), and feature archaeological landscapes containing original materials that largely have not been subject to the anthropogenic disturbances (invasive species, development, etc.) that have commonly occurred at sites found in the main Hawaiian Islands. In addition, the view planes of the islands' religious sites—an element that is particularly critical in Hawaiian culture—are also undisturbed, an extremely rare condition in Hawai'i, where

development has altered most traditional Native Hawaiian religious sites and their surrounding environments.

The few radiocarbon dates from cultural materials found on Nihoa and Mokumanamana have been imprecise at best, estimating human colonization of the islands between 1000 and 1700 AD (Ckeghorn 1988). Oral traditions, historical ship logs and archaeological research point to periods of continuous activity in these islands for at least the past thousand years.

All documented Native Hawaiian archaeological sites in Papahānaumokuākea are on Nihoa and Mokumanamana, although a basalt artifact was found on Lisianski Island in 1991, and research on the region has not yet been completed (Kekuewa Kikilo'i 2008, personal communication). Although interest is not lacking, Papahānaumokuākea's isolation and regulatory protections mean that a scant 18 days of archaeological characterization of Mokumanamana's sites have been conducted between 1923 and the present. This is a meager baseline in comparison with most known archaeological sites. The first archaeological study of Nihoa, conducted by Kenneth P. Emory of the Bishop Museum in 1923 and 1924 (Emory 1928), remains its



*Nihoa's cultural sites and objects. Clockwise: shrine, residential site, terrace, religious site, and a rock bowl (Photos: Kehau Souza)*





Residential sites, burial sites, shelter caves and agricultural terraces of Nihoa (Photos: David Boynton)



most thorough. Emory recorded 66 of the now 89 known sites and collected approximately 130 artifacts that continue to be stored at Bishop Museum (see online database at <http://www2.bishopmuseum.org/nwhiobjects/index.asp>). Expeditions in the 1980s (Cleghorn), 1990s (Irwin), and 2000s (Graves, Kikiloi, Raymond) along with interviews with Native Hawaiian practitioners (e.g., Maly 2003), have contributed to site characterization and interpretation.

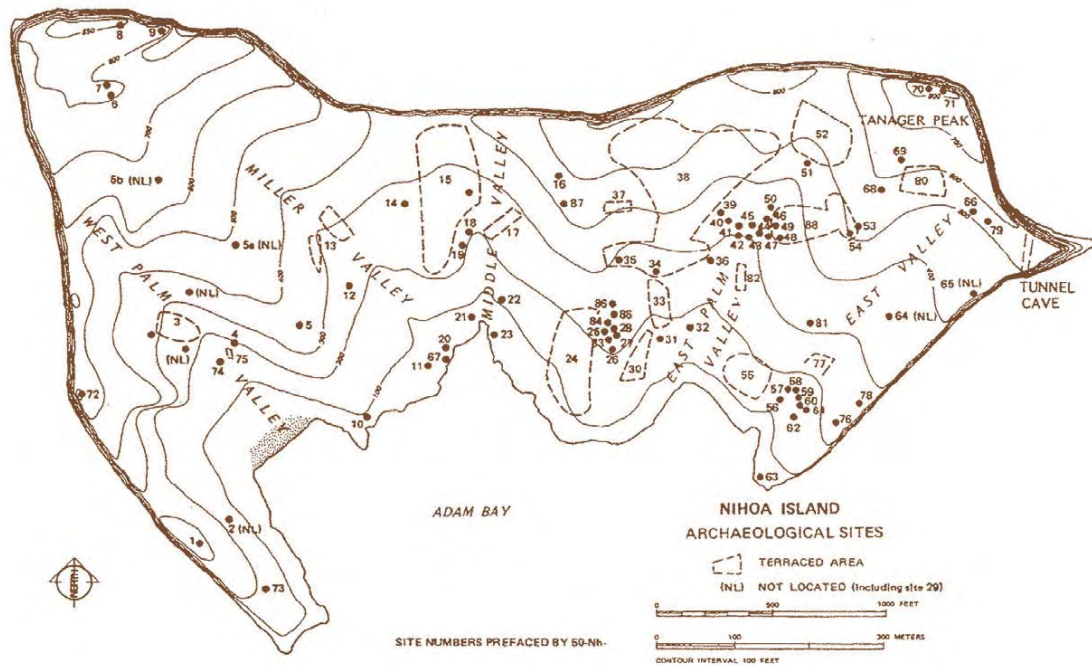
There are 89 identified archaeological sites on Nihoa and 52 on Mokumanamana, making them some of the densest scatters of prehistoric structural sites in Hawai'i. Nihoa and Mokumanamana hold 45 *heiau* (shrines) between them. These *heiau* are made of well-paved terraces and platforms with single, large, upright stones or, more commonly, rows of uprights. The two islands also feature rare, intact archaeological landscapes of a variety of ancient site types, including residential sites, habitation terraces for dryland agriculture and a plethora of ceremonial complexes. Survey and excavation have recovered other types of material culture, including exceptionally detailed stone human-like figures; evidence of cooking, food preparation and storage, manufacture of stone tools and fishing gear; evidence of subsistence activities such as

fishing and collecting other marine resources, and cultivating dryland crops such as sweet potato; and ritual activities, including burial of the dead. For example, Bowl Cave, the largest shelter on Mokumanamana, yielded artifacts that included bowls, adzes, fishing sinkers, an awl, a chisel and hammerstone, and a bit of *wiliwili*, the lightest Hawaiian wood, which was often used for building outriggers on Hawaiian canoes.

#### Nihoa's archaeological sites

It is posited that Native Hawaiians lived on Nihoa for a 700-year period, between 1000 and 1700 AD (Cleghorn 1988).

Exceptionally well-made terraces believed to be habitation sites feature dry-laid stone masonry walls, with one (Site 41) measuring some 8.5 meters long by 5.5 meters wide, and reaching 2.4 meters in height. Over 8.4 hectares—or 13% of Nihoa's landscape—is covered by agricultural terraces cut into rock slopes and carefully faced with stone walls. The island's inhabitants captured rainwater in catchments and from seeps in the three main valleys (Evenhuis and Eldredge 2004). These agricultural systems and the available potable water from seeps and rain collection may have sustained a population of up to 100 people (Cleghorn 1988)(Table 2.4). The residents



quarried local rocks to build landing areas for their canoes, enclosures, shelters, tools and containers.

Nihoa’s residential and agricultural sites are joined by burials, ceremonial terraces, platform foundations, and many rock shelters, which also may have served as habitation

sites, transformed by constructing walls, one (Site 58) as high as three meters, to create shelter from the harsh sea winds and storms. Artifacts recovered from Nihoa include finished and unfinished stone adzes, hammerstones, grindstones, finished and unfinished stone bowls, a bone fishhook, bone awls, and stone fishing weights (Cleghorn 1988).

Table 2.4: Nihoa: Archaeological sites (see above) and postulated functions (from Cleghorn 1988)

SITE NO.	POSTULATED FUNCTION	SITE NO.	POSTULATED FUNCTION	SITE NO.	POSTULATED FUNCTION	SITE NO.	POSTULATED FUNCTION
50-NH-1	SHRINE	50-NH-45	HABITATION	-23	HABITATION	-67	HABITATION
-2	BURIAL CAVE	-46	AGRICULTURE	-24	AGRICULTURE	-68	AGRICULTURE
-3	AGRICULTURE	-47	HABITATION	-25	HABITATION	-69	HABITATION
-4	HABITATION	-48	HABITATION	-26	HABITATION	-70	UNKNOWN
-5	SHELTER	-49	UNKNOWN	-27	HABITATION	-71	HABITATION (?)
-6	SHRINE	-50	SHRINE	-28	HABITATION	-72	UNKNOWN
-7	WATER CATCHMENT	-51	SHRINE	-29	UNKNOWN	-73	UNKNOWN
-8	SHRINE	-52	AGRICULTURE	-30	AGRICULTURE	-74	AGRICULTURE
-9	SHRINE	-53	UNKNOWN	-31	AGRICULTURE	-75	AGRICULTURE
-10	SHRINE	-54	UNKNOWN	-32	HABITATION	-76	UNKNOWN
-11	SHRINE	-55	AGRICULTURE	-33	AGRICULTURE	-77	AGRICULTURE
-12	HABITATION	-56	HABITATION	-34	HABITATION	-78	UNKNOWN
-13	AGRICULTURE	-57	HABITATION	-35	AGRICULTURE	-79	HABITATION
-14	AGRICULTURE	-58	HABITATION	-36	AGRICULTURE	-80	AGRICULTURE
-15	AGRICULTURE	-59	HABITATION	-37	AGRICULTURE	-81	UNKNOWN
-16	AGRICULTURE	-60	HABITATION	-38	AGRICULTURE	-82	AGRICULTURE
-17	AGRICULTURE	-61	HABITATION	-39	AGRICULTURE	-83	AGRICULTURE
-18	HABITATION	-62	UNKNOWN	-40	HABITATION	-84	SHELTER
-19	HABITATION	-63	SHRINE	-41	HABITATION	-85	SHELTER (?)
-20	SHRINE	-64	UNKNOWN	-42	HABITATION	-86	UNKNOWN
-21	SHRINE	-65	BURIAL CAVE	-43	HABITATION	-87	HABITATION
-22	SHRINE	-66	HABITATION	-44	HABITATION	-88	AGRICULTURE





Mokumanamana's upright stones are arranged to the orientation of the summer solstice sun  
(Photo: Andy Collins)

### Mokumanamana's archaeological sites

Featuring original and intact materials, Mokumanamana was never inhabited but served regularly and continuously as a ritual site and place of worship. With 52 known archaeological sites, Mokumanamana does not appear to have supported a permanent population. Instead, the island seems to have served a primarily religious function, as 33 ceremonial shrines (basaltic uprights, believed to be celestially oriented, rising from stone altars), span the *kua* (spine) or mountain crest of the island. These meticulously laid out shrines at Mokumanamana's ridge top are accentuated with exceptionally well-fitted stone pavings and upright stones, possibly representing the gods and ancestors in alignments; these sites served and continue to serve as impressive ritual points on the landscape.

With a nearly 2:1 ratio to other archaeological site types on the island, the ceremonial sites on Mokumanamana represent what is believed to be the highest concentration of *heiau* (shrines) in the entire archipelago (Emory 1928). These *heiau* vary slightly in design, but generally feature rectangular platforms, courts and upright stones. One of the largest of these ceremonial sites (Site 1) measures 18.6 meters by 8.2 meters, with about 11 uprights stones of what are believed to be the original 19 still standing. Emory notes that the largest

basaltic upright on the island was about 1.2 meters, with the average being 0.76 meters in height.

The *heiau* at Nihoa and Mokumanamana share common attributes with very few structures found in the main Hawaiian Islands; only at Mauna Kea on Hawai'i Island, and Haleakalā on Maui, were similar shrines found. These *heiau* are unique traditional Hawaiian architectural forms of stone masonry work and resemble those of inland Tahiti (called *marae*) and similar structures in the Marquesas (Emory 1928). They are some of the best preserved early temple designs in Hawai'i, and have played a critical role in understanding Hawai'i's strong cultural affiliation with Tahiti and the Marquesas, and Native Hawaiians' role in the migratory history and human colonization of the Pacific (Cleghorn 1988).

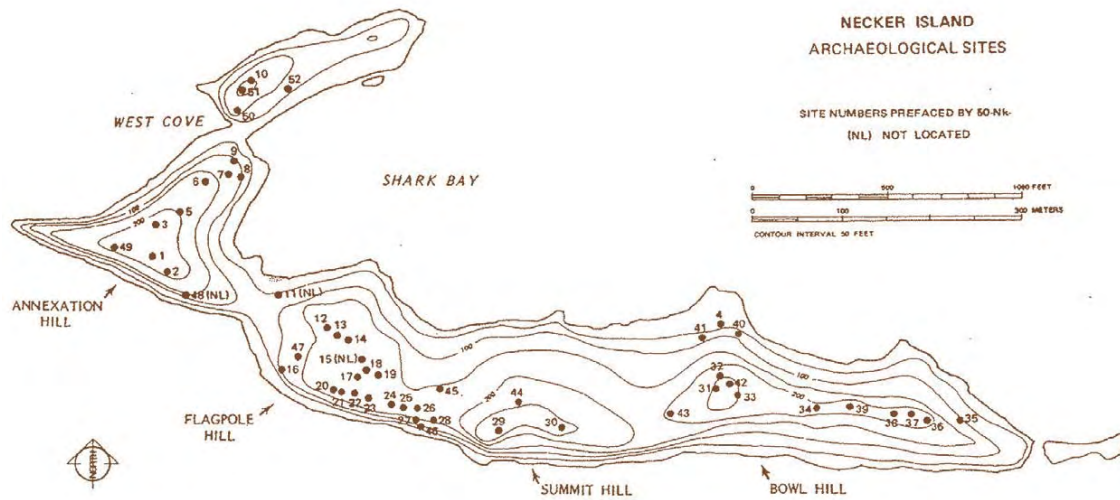
Stone figurines (*ki'i*) found at Mokumanamana provide another intriguing archaeological link between Hawaiians and Eastern Polynesian cultures. *Ki'i*, ranging from 20 to 45 centimeters tall, were found with a design and manner of carving that Emory believed posed a direct link to similar statues found in the Marquesas Islands. They have moon faces and large, male genitals. All of them were removed from the island by the Annexation Party in 1894, making it difficult to further study the archaeological links between Hawaiians and other Polynesians in situ (Table 2.5).

### Nihoa and Mokumanamana: Two "Mystery Islands in the Pacific"

The archaeology of Nihoa and Mokumanamana is even more remarkable in the context of their geographical isolation, the limited resources of the islands, and the



Mokumanamana's ceremonial structures (left) and stone male images (right) (Photos: Kikiloi and Emory, respectively)



constant sea voyaging to and from the main Hawaiian Islands required to establish and sustain these human presences.

Nihoa and Mokumanamana are “Mystery Islands,” a term used by archaeologists to describe islands scattered throughout the Pacific Ocean that exhibit signs of human settlement, but were mysteriously

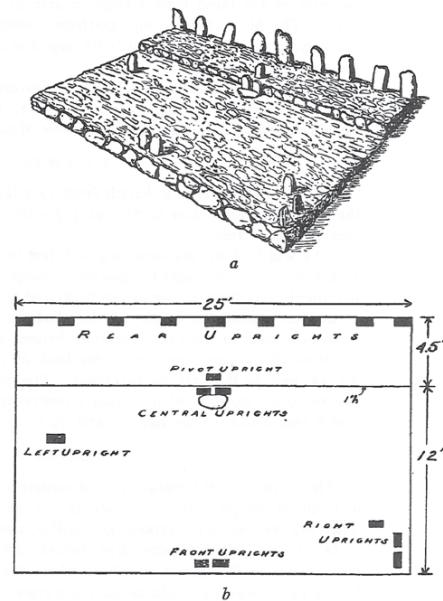
found abandoned by the time of Western contact (Kirch 1988; Irwin 1992). Mystery Islands share similar characteristics, such as stark isolation, limited marine and terrestrial resources, poorly developed soils, unpredictable weather patterns, and small geographic size (Kirch 1988a). Nihoa and Mokumanamana are the only Mystery Islands still associated with descendants of an original culture that continues to use and have strong ties to the islands’ oral and physical traditions as well as their natural and cultural resources.

Table 2.5: Mokumanamana: Archaeological sites (see above) and postulated functions (from Cleghorn 1988)

SITE NO.	POSTULATED FUNCTION	SITE NO.	POSTULATED FUNCTION
50-Nk-1	SHRINE	50-Nk-27	SHRINE
-2	SHRINE	-28	SHRINE
-3	SHRINE	-29	SHRINE
-4	HABITATION	-30	SHRINE
-5	SHRINE	-31	SHRINE
-6	SHRINE	-32	SHRINE
-7	SHRINE	-33	SHRINE
-8	SHRINE	-34	SHRINE
-9	SHRINE	-35	HABITATION
-10	SHRINE	-36	HABITATION
-11	SHRINE	-37	UNKNOWN
-12	SHRINE	-38	UNKNOWN
-13	SHRINE	-39	UNKNOWN
-14	SHRINE	-40	HABITATION
-15	SHRINE	-41	HABITATION
-16	SHRINE	-42	UNKNOWN
-17	SHRINE	-43	UNKNOWN
-18	SHRINE	-44	UNKNOWN
-19	SHRINE	-45	UNKNOWN
-20	SHRINE	-46	HABITATION
-21	SHRINE	-47	UNKNOWN
-22	SHRINE	-48	HABITATION
-23	SHRINE	-49	UNKNOWN
-24	SHRINE	-50	HABITATION
-25	SHRINE	-51	UNKNOWN
-26	SHRINE	-52	HABITATION

The archaeology and natural environments of these islands are providing integral insights into the timing and extent of human migration across the Pacific Ocean, the

Sketch showing the typical arrangements and most common dimensions of the heiau on Mokumanamana (from Emory 1928)





adaptation and evolution of Polynesian cultures to their individual environments, and the contribution of Polynesian voyaging skills and deep-sea canoe technology to this last and most difficult wave of human migrations in the Pacific (Howe 2006).

the Cook Islands; Raoul in the Kermadec Islands; Rose in Sāmoa; and Norfolk Island, among others (Di Piazza and Pearthree 2004; Irwin 1992). Nihoa and Mokumanamana are among the smallest Mystery Islands in terms of size, along with Suvarrow, Rose and McKean.

The Mystery Islands include Nihoa and Mokumanamana; Pitcairn and Henderson of the Pitcairn group; Howland, Manra, Orona, Kanton, Phoenix, Enderbury and McKean in the Phoenix Islands; Washington, Fanning, Christmas, Caroline, Flint and Malden in the Line Islands; Palmerston and Suvarrow in



*Individual Island Descriptions*

The following section contains brief descriptions of the individual islands within Papahānaumokuākea Marine National Monument, and their salient physical, biological, cultural and archaeological characteristics. The most commonly used name for each island is given first, with alternative names provided parenthetically. It should be noted that for the islands beyond Mokumanamana (Necker), the Hawaiian names provided are not yet in use on many modern maps. The Hawaiian placenames for Papahānaumokuākea’s islands and atolls derive from diverse historic sources (for instance, from ancient chants, historic newspapers, and others). Table 2.6 summarizes the emergent and shallow reef areas on each island; further information is provided in the island-by-island descriptions.

Table 2.6: Island-by-island comparisons of land and reef areas (hectares)

Island	Emergent Land	Reef Area <10 fathoms
Nihoa	69	55
Mokumanamana	19	213
French Frigate Shoals	38	46,921
Gardner Pinnacles	2	34
Maro Reef	1	18,762
Laysan Island	414	2,367
Lisianski Island	148	20,270
Pearl & Hermes Atoll	39	40,336
Midway Atoll	592	8,000
Kure Atoll	89	6,791



## Nihoa

23°03'N, 161°56'W

*“He pu’u kolo i Nihoa.”* (“Crawling up the cliffs of Nihoa.”) This traditional Hawaiian saying is a compliment to one who perseveres in a challenging situation (Pukui 1997). Nihoa has many craggy cliffs, and the rough surf in winter makes landing there even more difficult than during the trade wind swells of summer. Hawaiian names often have multiple connotations; “Nihoa” means jagged” or “toothed,” and probably refers to the island’s profile, which resembles a tooth.

Nihoa is located approximately 250 kilometers northwest of Ni’ihau, the closest of the main Hawaiian Islands. Measuring roughly 0.69 square kilometers, this island is the largest emergent volcanic island within Papahānaumokuākea and the tallest, reaching an elevation of 275 meters at Miller Peak. It is also Papahānaumokuākea’s geologically youngest island, with an age calculated at 7.3 million years (Clague 1996), only a little older than Ni’ihau.

Nihoa is a deeply eroded remnant of a once-large volcano, and the large basaltic shelf of which it is a part stretches 28.9 kilometers in a northeast-southwest direction and averages between 34 and 66 meters deep (NOAA 2003). The island’s two prominent steep, fortress-like sea cliffs are clearly visible from a



(Photos: David Boynton)

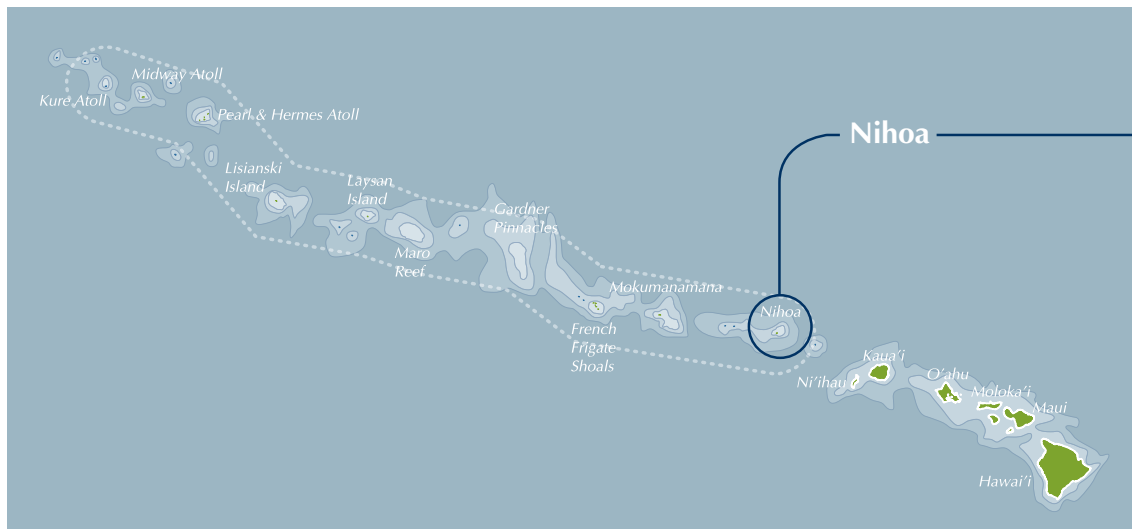


*On Nihoa’s stark landscape, the endemic Nihoa Finch resides among ancient heiau (temple) and 13th c. residential sites*

(Photo: James Watt)

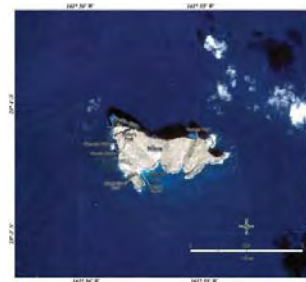
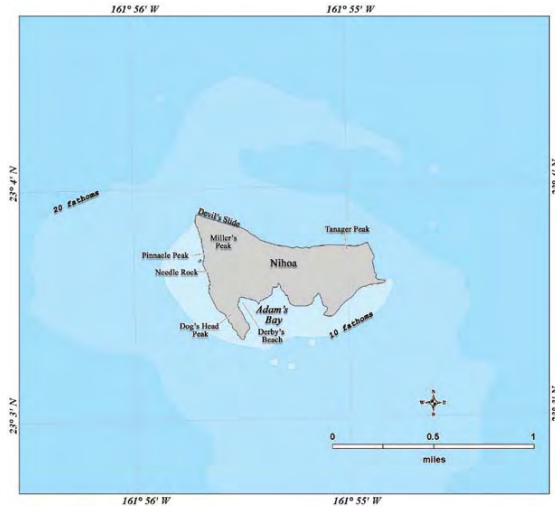
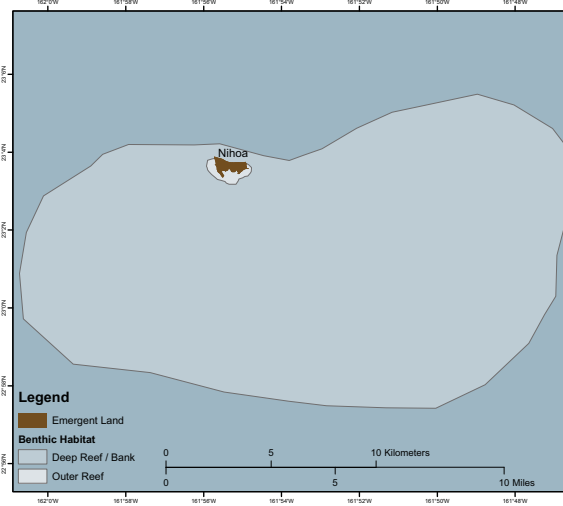
distance. Its northern face is a sheer cliff made up of successive layers of basaltic lava, within which numerous volcanic dikes are visible. From its high northern cliffs, the island declines southward, with an average slope of 23° (Johnson 2004).

The island’s surrounding submerged reef habitat totals approximately 575 square kilometers and is a combination of uncolonized hard bottom, macroalgae, pavement with sand channels and live coral, and uncolonized volcanic rock (NOAA 2003), supporting at least 127 species of reef fish and 17 species of corals.





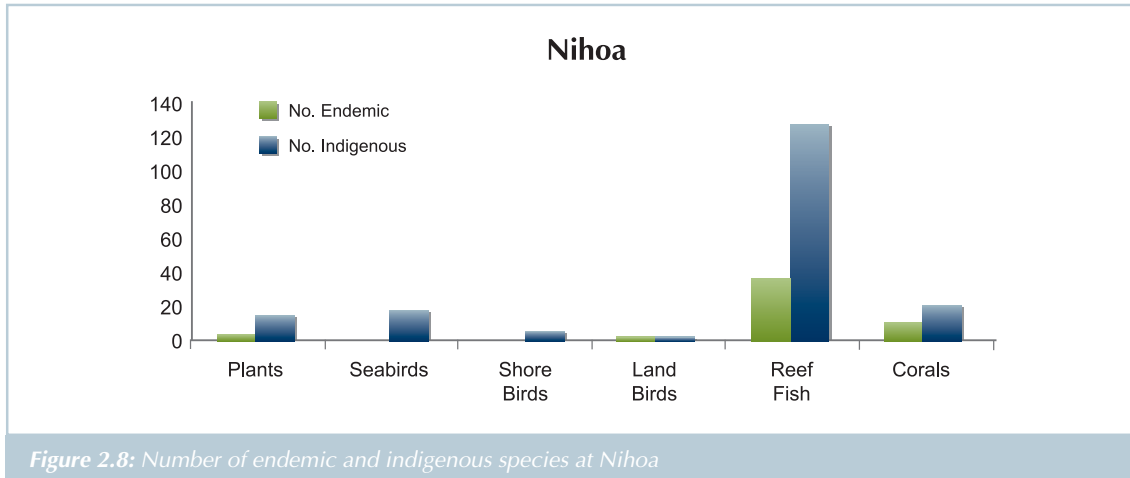
Nihoa: benthic habitat, bathymetry and satellite imagery



Another historical name for Nihoa is Moku Manu, or “Bird Island.” Nihoa’s seabird colony boasts one of the largest populations of Tristram’s Storm-Petrel, Bulwer’s Petrel, and Blue-gray Noddies in the Hawaiian Islands. The avifauna of the island includes two endemic passerine birds: the Nihoa Finch (*Telespiza ultima*) and the Nihoa Millerbird (*Acrocephalus familiaris kingii*), both listed as endangered under the federal ESA.

The island is a unique example of a lowland native coastal community, resembling lowland communities that once occurred commonly on the main Hawaiian Islands but are now almost completely eliminated due to the pressures of human population (Wagner et al. 1990). The island’s vegetation can be

classified as part coastal mixed community (*Sida* mixed shrub and grassland) and coastal dry shrubland dominated by ‘ilima (*Sida fallax*), ‘āweoweo (*Chenopodium oahuense*), and ‘ōhai (*Sesbania tomentosa*). The island supports 21 native plant species, including three endemics: a palm or loulou (*Pritchardia remota*), an amaranth (*Amaranthus brownii*), and an herb (*Schiedea verticillata*) (Wagner et al. 1999). The arthropod fauna of the island includes 33 species of mites, three species of spiders, and 182 species of insects, 17 of which are endemic, including a katydid (*Banza nihoa*), a giant tree cricket (*Thaumatogryllus conantae*), two species of seed bugs (*Nysius nihoae* and *Nysius suffusus*), and a trapdoor spider (*Nihoa mahina*) (Evenhuis and Eldredge 2004).



As was noted previously, Nihoa exhibits clear evidence of habitation in prehistoric times. Sites thought to date between the 13th and 15th centuries include 25 to 35 house terraces, 15 ceremonial structures, burial caves, bluff shelters, and agricultural terraces. Numerous artifacts found on Nihoa establish a close relationship with Native Hawaiian culture in the main Hawaiian Islands, and to the first settlers of Hawai'i who sailed through the Pacific on large voyaging canoes. Nihoa also has a rich cultural heritage, with at least 89 known *wahi kūpuna* (ancestral sites) constructed by the pre-contact Hawaiians

who inhabited the island for approximately 700 years (until 1700 AD); the island is listed on the National Register of Historic Places. This island also has significant soil development for agriculture along with constructed terraces, which suggests investment in agricultural food production. As many as 100 people are estimated to have lived on Nihoa at one time, but the relative shortage of fresh water was likely a limiting factor (Cleghorn 1988). Because fresh water and food could be found there, Nihoa may have been a good place for voyagers to stop and resupply their canoes.







**Mokumanamana  
(Necker Island)**

23°35'N, 164°42'W

Mokumanamana is often translated as a branching or pinnacled island, which is an apt description, but many people who have studied its high density of religious and cultural sites suggest that the repetition of the word “*mana*” (spiritual power) after the word “*moku*” (island) is likely to be even more significant, and related to the 33 shrines on the island that follow the *kua* (spine) of the island, and that the Hawaiian axes of life and death cross directly over Mokumanamana. On Mokumanamana, a total of 52 archaeological sites have been documented, including the 33 ceremonial features, the highest density of religious sites found anywhere in the Hawaiian archipelago.

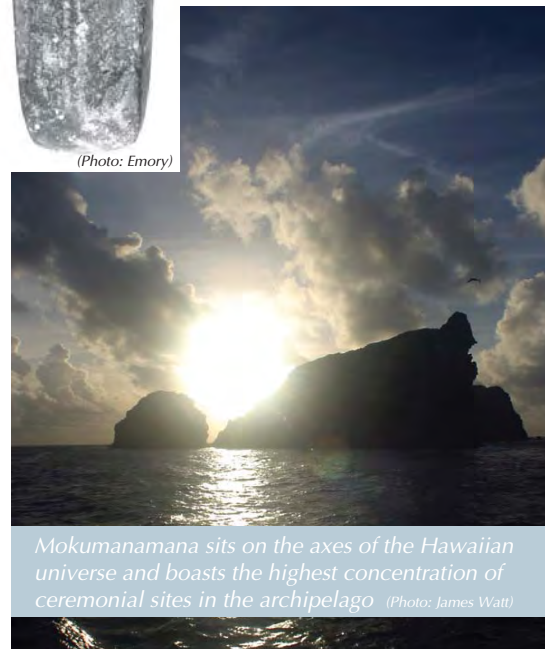
Mokumanamana is a dry volcanic island shaped like a fishhook, and includes approximately 0.19 square kilometers of land. Geologists believe the island, with an estimated age of 10.6 million years, was once the size of O’ahu in the main Hawaiian Islands, and attained a maximum elevation of 1,036 meters (Clague 1996); millennia of erosion have left its highest point, at Summit Hill, now only 84 meters above sea level. Wave action has eroded the remainder of the original island into a submerged shelf approximately 64 kilometers long and 24 kilometers wide.



(Photo: Emory)

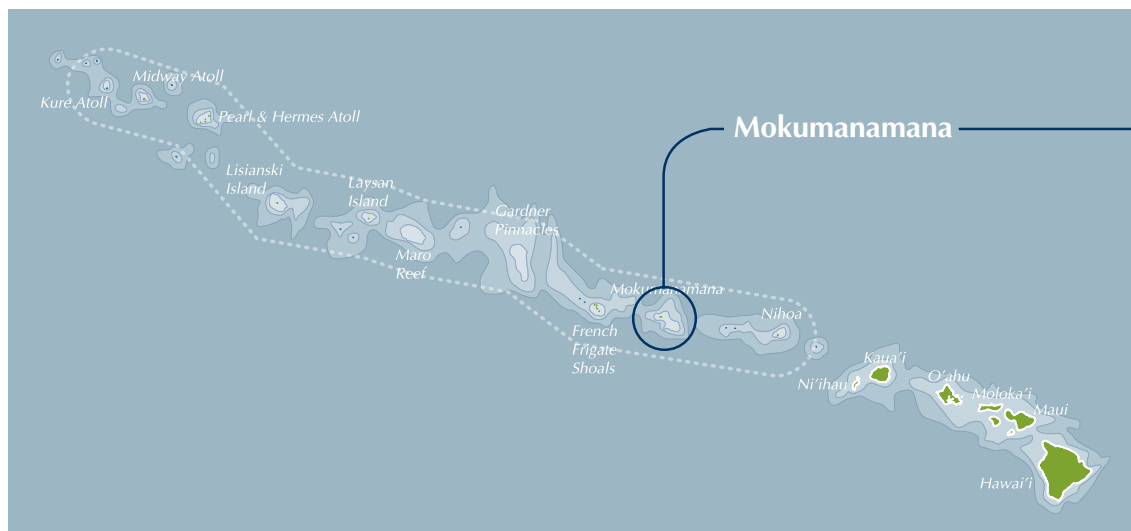


(Photo: US FWS)

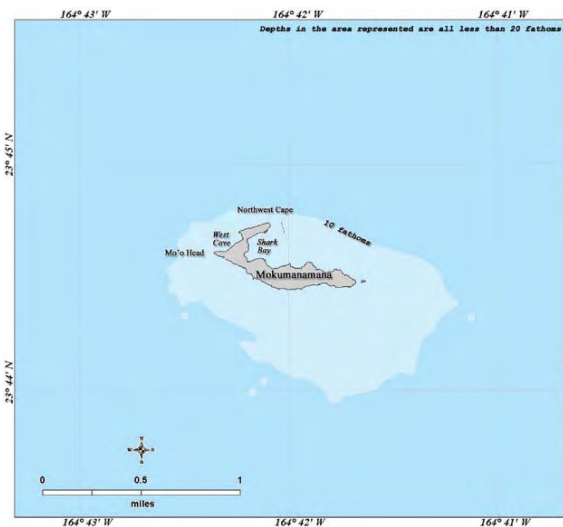
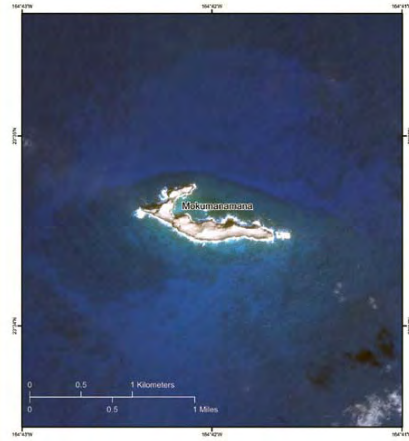
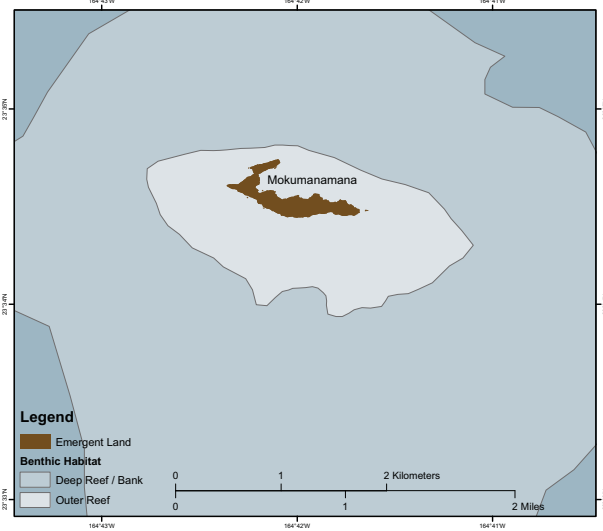


Mokumanamana sits on the axes of the Hawaiian universe and boasts the highest concentration of ceremonial sites in the archipelago (Photo: James Watt)

While this shelf supports more than 1,538 square kilometers of coral reef habitat (which, in turn, support 125 reef fish species and 18 coral species), severe wave action and currents in the exposed areas tend to inhibit coral growth. The bank provides excellent habitat for spiny lobsters (*Panulirus marginatus*) and slipper lobsters



Mokumanamana: benthic habitat, bathymetry and satellite imagery



(*Scyllarides squammosus*), especially in areas of variable intermediate relief (Parrish and Polovina 1994).

Because of its limited size, Mokumanamana supports only five indigenous plant species and no land birds, but does harbor three species of mites, two species of spiders, and 70 species of insects, of which 11 are endemic. These include a large weevil (*Rhycogonus biformis*), two species of seed bugs (*Nysius neckerensis* and *Nysius chenopodii*), and a trapdoor spider (*Nihoa hawaiiensis*) (Evenhuis and Eldredge 2004). Sixteen species of seabirds breed here, including the Black Noddy (*Anous minutus*), which historically was called the Necker Island Tern.

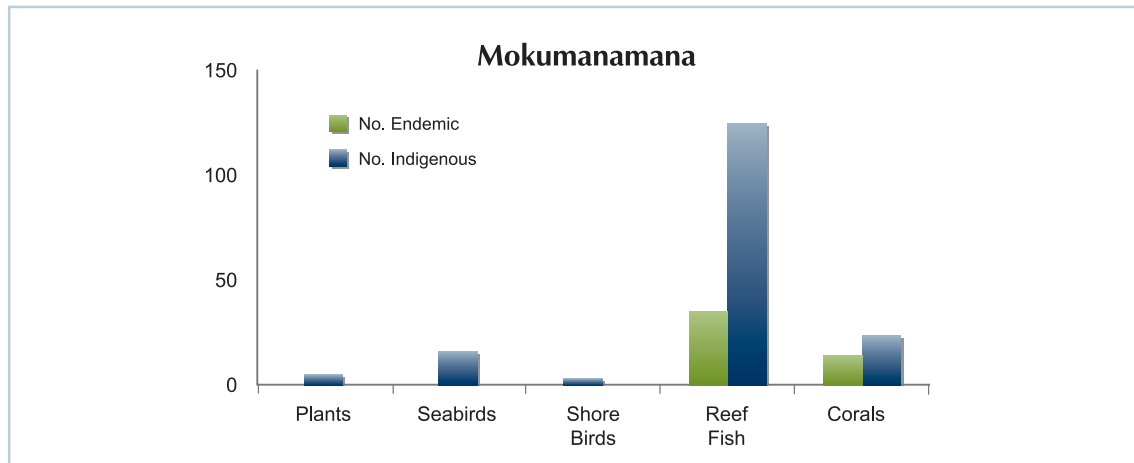


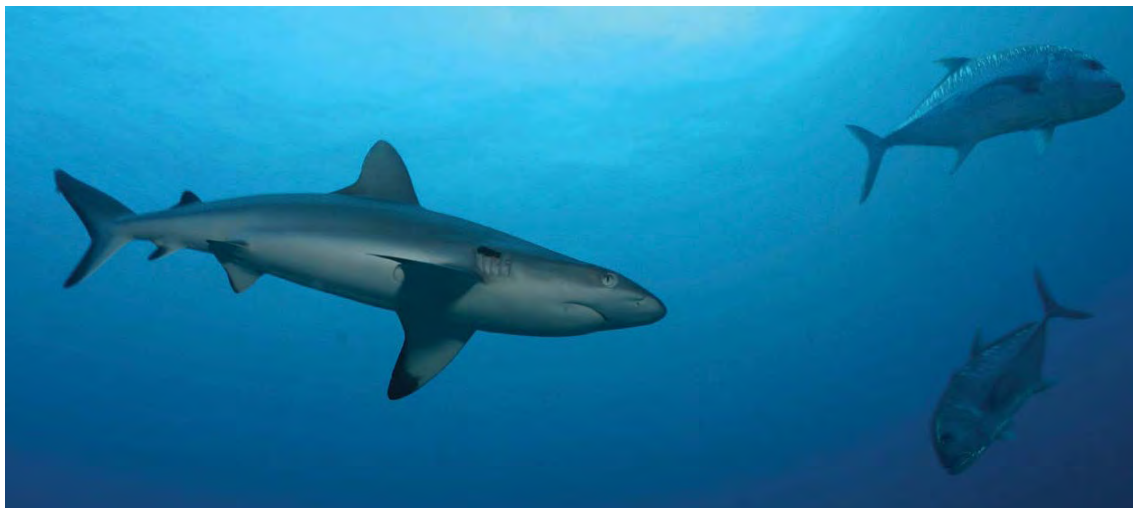
Figure 2.9: Number of endemic and indigenous species at Mokumanamana



Mokumanamana also occupies a special place in the Native Hawaiian world-view. It bears 33 *heiau* (ceremonial sites) with standing stones that stretch the length of the island's central spine, suggesting that it was visited by Native Hawaiians for spiritual and navigational purposes. It is believed that Mokumanamana played a central role in Hawaiian ceremonial rites and practices a thousand years ago because it is directly in line (23° 34.5' N latitude) with the rising and setting of the equinoctial sun along the Tropic of Cancer. Mokumanamana, like Nihoa, shows clear evidence of prehistoric Hawaiian visitation. With its numerous religious sites and no evidence of long-term settlement, the island appears to have been used primarily for worship by visitors from other Hawaiian Islands. Mokumanamana's ceremonial sites, which contain upright stone features, share

similarities with sites found on Mauna Loa and Mauna Kea, on Hawai'i Island, and on Haleakalā, on Maui. These ceremonial sites also closely resemble Tahitian temples, possibly establishing a link between this site and early Polynesian culture, as Emory first noted (1928). Moreover, Emory pointed out that the carved basalt human figurines found here exhibit similarities to those found in the Marquesas. Emory considered the sites of Mokumanamana to be a "pure sample of the culture prevailing in Hawai'i before the thirteenth century." Despite its dense concentration of religious sites, Mokumanamana is considered too small and dry to have supported human inhabitants for any length of time. Mokumanamana also is listed on the National Register of Historic Places as an Island Archaeological District.

68



Mokumanamana's wide banks support large pelagic fauna (Photos: James Watt)





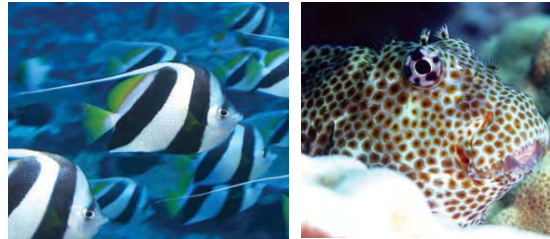
### French Frigate Shoals (Kānemilohaʻa and Mokupāpapa)

23°145'N, 166°10'W

The first atoll to the northwest of the main Hawaiian Islands, Kānemilohaʻi is also the midpoint of the archipelago and the largest coral reef area in Hawaiʻi. On this low, flat area, the volcano goddess Pele is said to have left one of her brothers, Kānemilohaʻi, as a guardian during her first journey to Hawaiʻi from Kahiki (Tahiti). Pele continued down the archipelago until finally settling in Kīlauea, Hawaiʻi Island, where she is said to reside today (Beckwith 1970).

Neither French Frigate Shoals, nor any of the other islands further to the northwest, bear Native Hawaiian archaeological sites, although there is plentiful evidence in oral traditions and historical documents (see Section 2.a) that Native Hawaiians not only knew of the islands and atolls beyond Mokumanamana, but created *moʻolelo* (stories, oral histories) that wove them into their foundational creation stories.

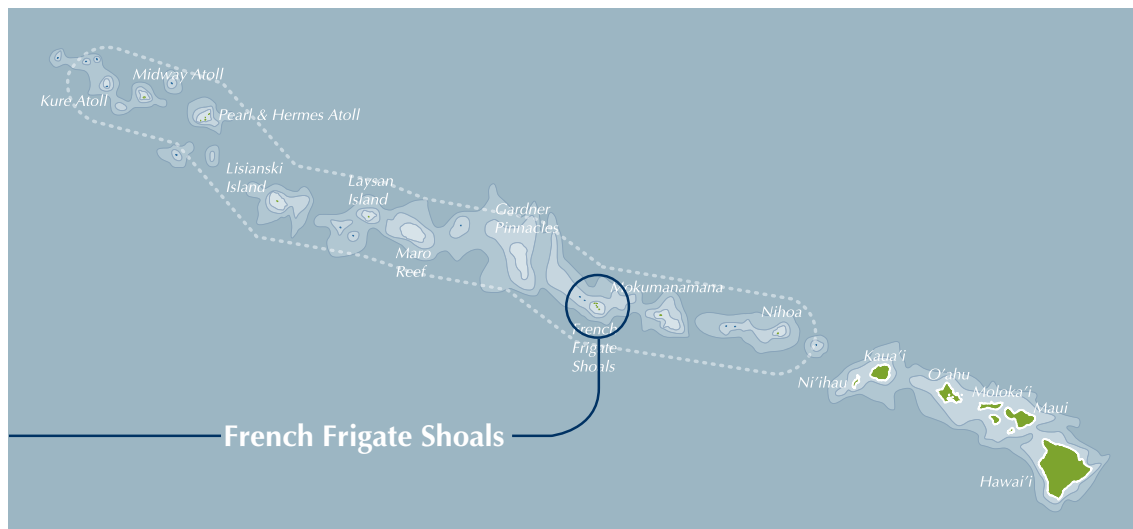
French Frigate Shoals is the largest atoll in the chain, taking the form of an 18-mile-long (28.9 kilometers) crescent. It is estimated to be 12.3 million years old (Clague 1996). The shoals consist of 0.38 square kilometers of total emergent land, surrounded by approximately 931 square kilometers of coral reef habitat, with a combination of sand, rubble, uncolonized hard bottom, and crustose coralline algae



*Pennant Banner Fish, Leopard Blenny, and Great Frigatebird of French Frigate Shoals* (Photos: James Watt)

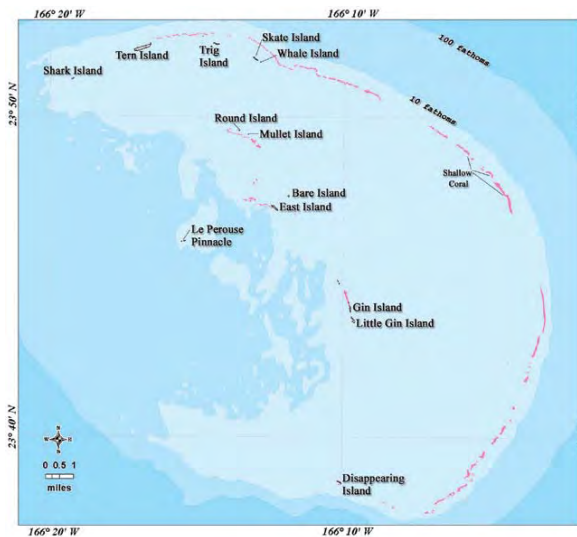
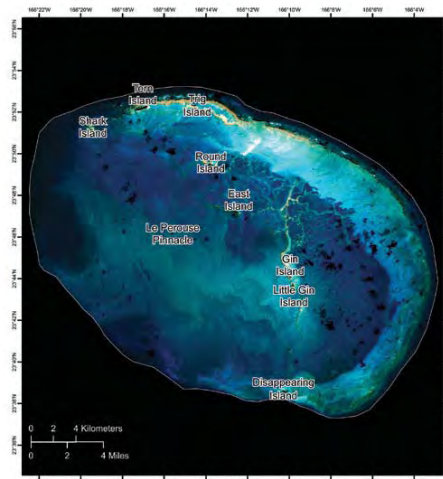
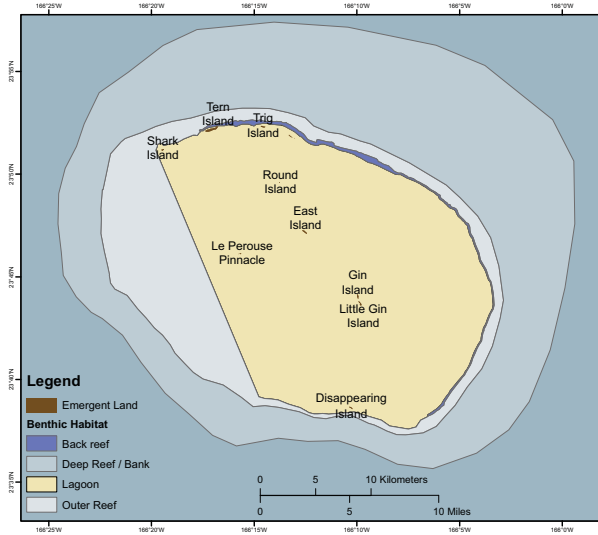
in the windward and exposed lagoon areas, and patch and linear coral reefs in more sheltered areas (NOAA 2003b). Tern Island in the atoll is the site of a FWS field station, which occupies a former U.S. Coast Guard Long-Range Aids to Navigation (LORAN) station that closed in 1979.

69





French Frigate Shoals: benthic habitat, bathymetry and satellite imagery



Within Papahānaumokuākea, French Frigate Shoals is the center of diversity for corals (more than 41 species, including the genus *Acropora*, which is all but absent elsewhere in Hawai'i) and reef fishes (178 species). A relatively deep (25 to 30 meters) coral reef at this atoll has been recently discovered to function as a spawning site for the Giant Trevally, *Caranx ignobilis* (Meyer et al. 2007), an important finding in relation to the population dynamics of top predators.

The lagoon is also unusual in that it contains two exposed volcanic pinnacles representing the last vestiges of the high

70

French Frigate Shoals

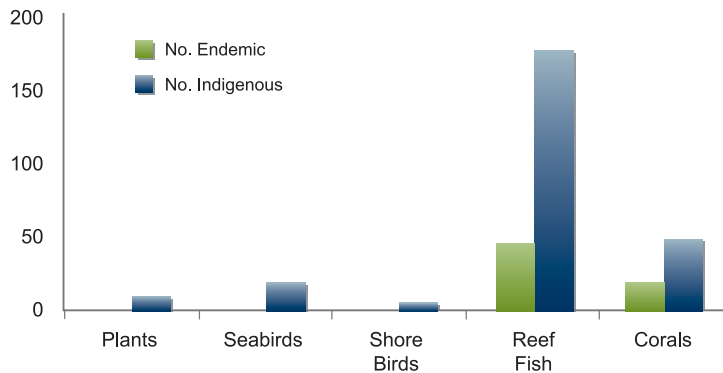


Figure 2.10: Number of endemic and indigenous species at French Frigate Shoals

island from which the atoll was derived, as well as nine low, sandy islets. The sand islets are small, and can shift position, disappear and reappear with seasonal changes. In 1923, the *Tanager Expedition* mapped 16 islets (Amerson 1971). In 1963, Whaleskate was a vegetated island of 0.068 square kilometers (Amerson 1971); by 1998, it had completely disappeared (Antonelis et al. 2006). These islets provide crucial habitat for the world's largest breeding colony of the imperiled Hawaiian Monk Seal, which is listed as endangered under the ESA and is also internationally

recognized as critically endangered by IUCN. The atoll's sandy islets also provide nesting sites for 90% of the threatened Green Turtle population breeding in the Hawaiian Archipelago. In addition, 19 of Hawai'i's 22 breeding seabird species are found on French Frigate Shoals, giving it the highest species richness of breeding seabirds within Papahānaumokuākea. The dry coastal shrublands of the larger islets within the atoll also support an endemic seed bug (*Nysius frigatensis*), a moth (*Agrotis kerri*), and a mite (*Phauloppia bryani*) (Usinger 1942; Nishida 2002).



Underwater vista of French Frigate Shoals (Photo: James Watt)





**Gardner Pinnacles  
(Pūhāhonu)**

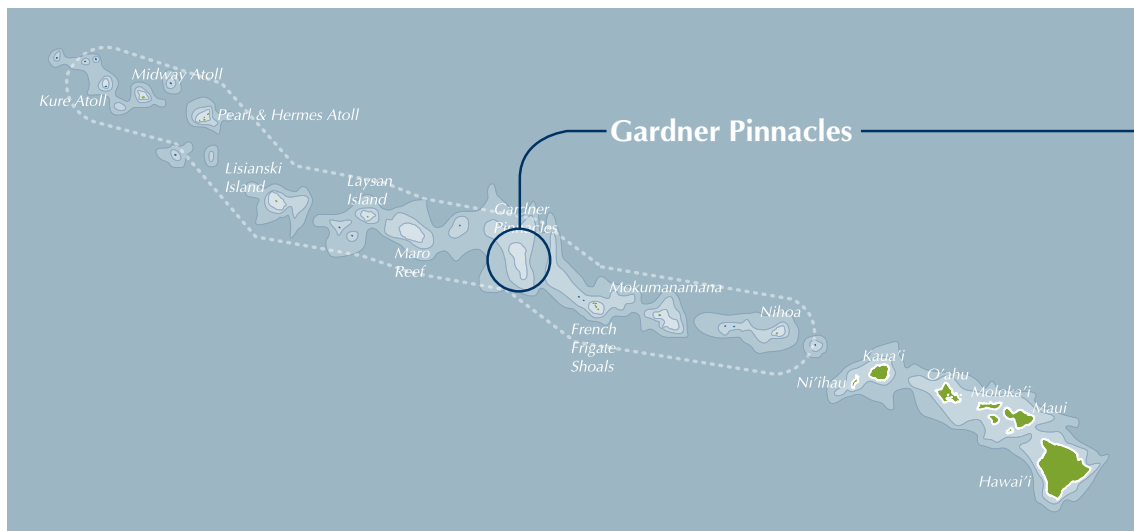
25°02'N, 168°05'W

“He pūko’a kū no ka moana.” (“A large rock standing in the sea.”) This traditional Hawaiian saying describes someone who is stubborn, unchangeable, or determined. It is also a suitable description for Pūhāhonu (surfacing of a sea turtle for air/breath), which looks a bit like a turtle’s beak coming up for air.

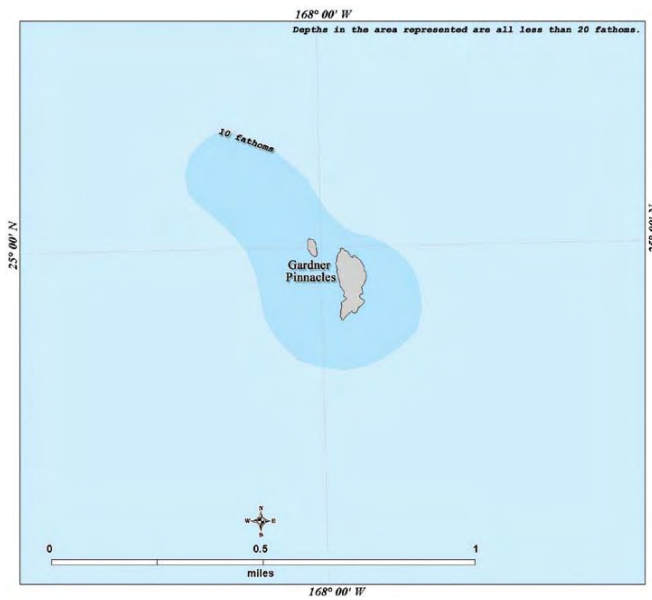
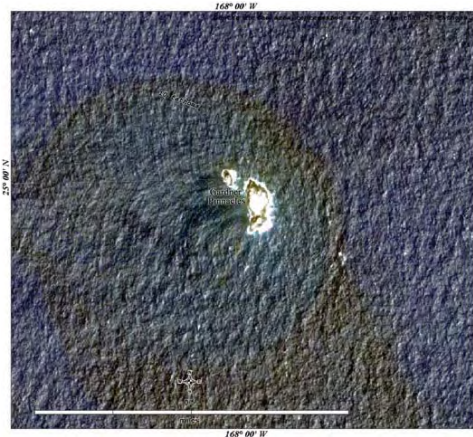
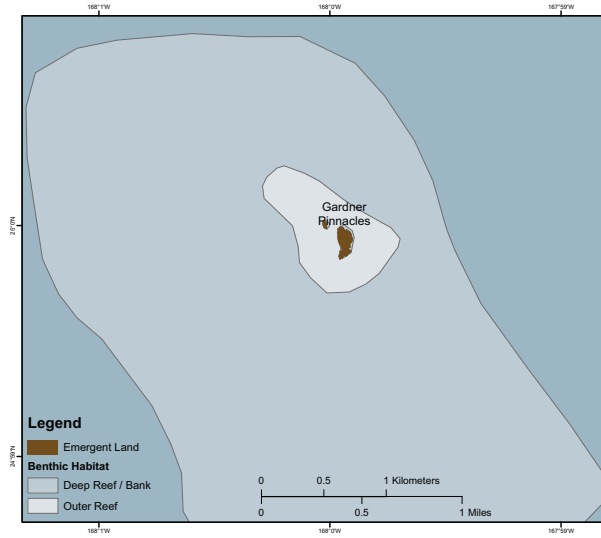
Gardner Pinnacles’ two emergent volcanic peaks are estimated to be 15.8 million years in age (Clague 1996). These are the oldest high islands in the Hawaiian chain. In scale, these pinnacles are small, the largest reaching only 55 meters high, with a diameter of approximately 180 meters. Because of their limited size, they support only a single species of land plant (*Portulaca lutea*) and a few terrestrial arthropod species, but they are an excellent, rat-free habitat for seabirds, which roost and breed there (Clapp 1972). Guano from at least 12 subtropical seabird species gives the peaks a “frosted” appearance. Landings and terrestrial surveys rarely take place due to the difficulty of getting ashore under all but the calmest ocean conditions.



Gardner Pinnacles, the oldest high islands in the Hawaiian Archipelago  
(Photos: James Watt)



Gardner Pinnacles: benthic habitat, bathymetry and satellite imagery



These remnant volcanic pinnacles are surrounded by approximately 2,425 square kilometers of coral reef habitat, most of which is in waters of greater than 20 meters in depth, harboring 124 reef fish species and 27 species of corals. The intertidal bases of the pinnacles are studded with large populations of 'opihi, endemic Hawaiian limpets that have been seriously depleted by overharvesting elsewhere in the main Hawaiian Islands.

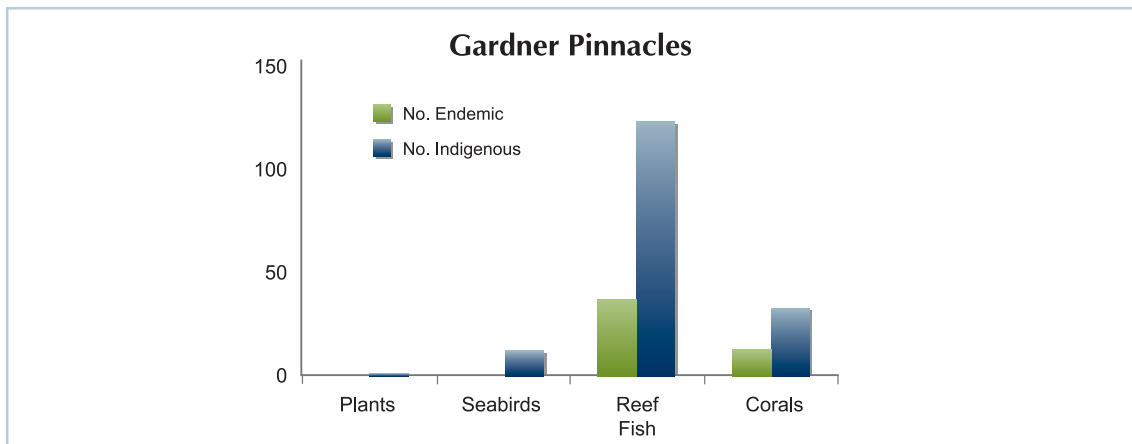


Figure 2.11: Number of endemic and indigenous species at Gardner Pinnacles





**Maro Reef**  
(Ko'anako'a and Nalukākala)

25°22'N, 170°35'W

The name Ko'anako'a literally means the settlement of coral, referring to Maro's expansive coral reefs. Another name for Maro, Nalukākala, describes surf that arrives in combers, such as the surf that froths over shallow reefs.

Maro Reef is a submerged open atoll, 19.7 million years old (Clague 1996). At very low tide, only a small coral rubble outcrop of a former island breaks above the surface; as a result, Maro supports no terrestrial biota. The shallow-water reef system, however, is extensive; covering nearly 2,023 square kilometers, Maro is the largest coral reef in Papahānaumokuākea. It is also one of the chain's most ecologically rich shallow-water marine ecosystems, with 64.1% coral cover over the entire area (which is among the highest coral-cover percentage observed in Papahānaumokuākea) (Maragos et al. 2004).

The documented marine biota at Maro Reef includes 37 species of corals and 142 species of reef fish, with endemic fish abundance making up half of all those recorded here. Maro's reefs are intricate

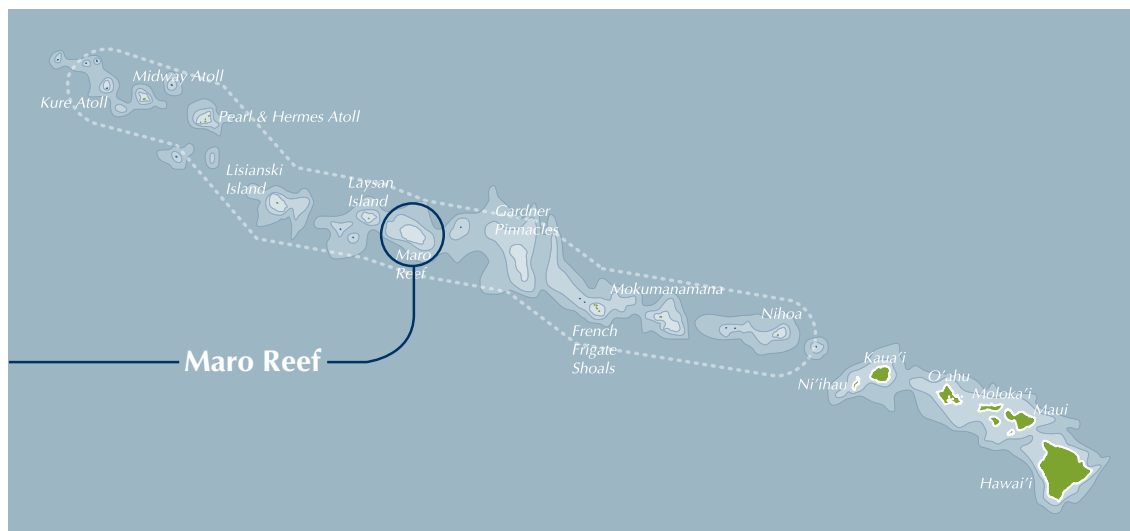


(Photo: James Watt)

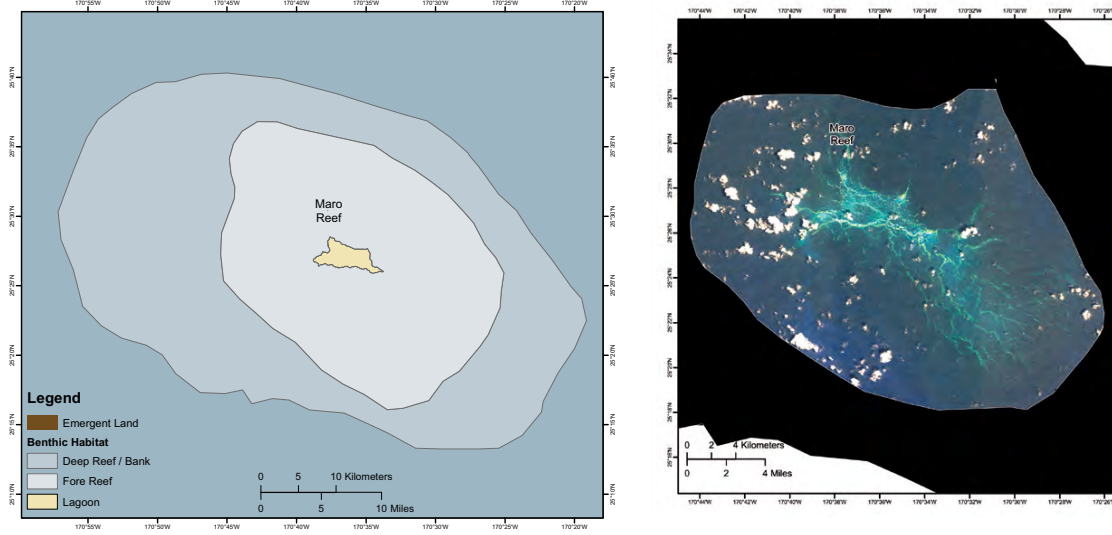


Maro Reef's sealife abounds with traditionally important fish, like the ulua (jacks) (Photo: USFWS)

and reticulated, forming a complex network of reef crests, patch reefs, and lagoons. Deepwater channels with irregular bottoms occur between these shallow reef structures, but navigation through them is difficult and hazardous. Cover types range from unconsolidated, with 10% or less macroalgae cover, to areas with greater than 10% coral or crustose coralline algae (NOAA 2003). Because the outermost reefs absorb the



Maro Reef: benthic habitat, bathymetry and satellite imagery



majority of the energy from the open ocean swells, the innermost reticulated reefs and aggregated patch reefs are sheltered and have the characteristics of a true lagoon. This platform's structural complexity means that its shallow reefs are still poorly charted and largely unexplored.

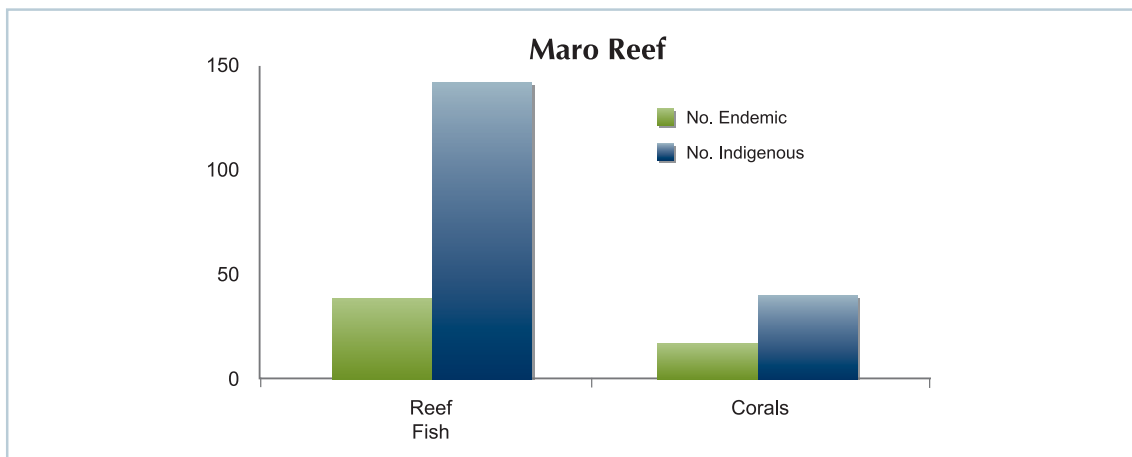
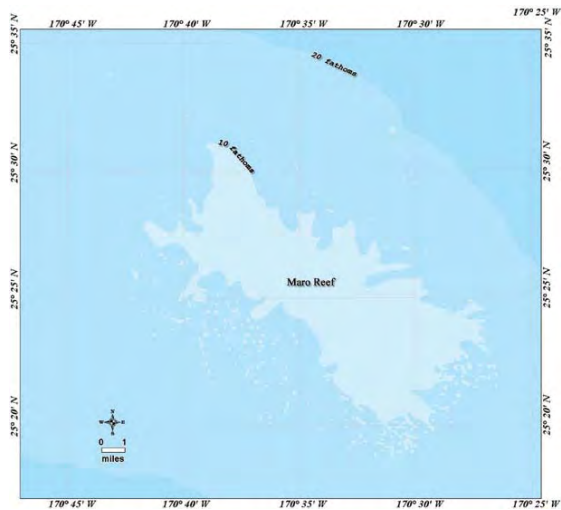


Figure 2.12: Number of endemic and indigenous species at Maro Reef





**Laysan Island  
(Kauō)**

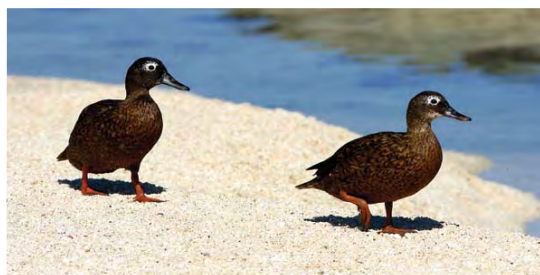
25°46'N, 171°45'W

Kauō (egg) describes both the shape of this island, and perhaps also refers to the abundant seabirds that nest here.

Laysan is a raised atoll, estimated to be 20.7 million years old (Clague 1996), with a maximum elevation of approximately 15 meters above sea level. It represents the second-largest island in Papahānaumokuākea, with a land area of approximately 4.1 square kilometers, surrounded by close to 405 square kilometers of coral reef.

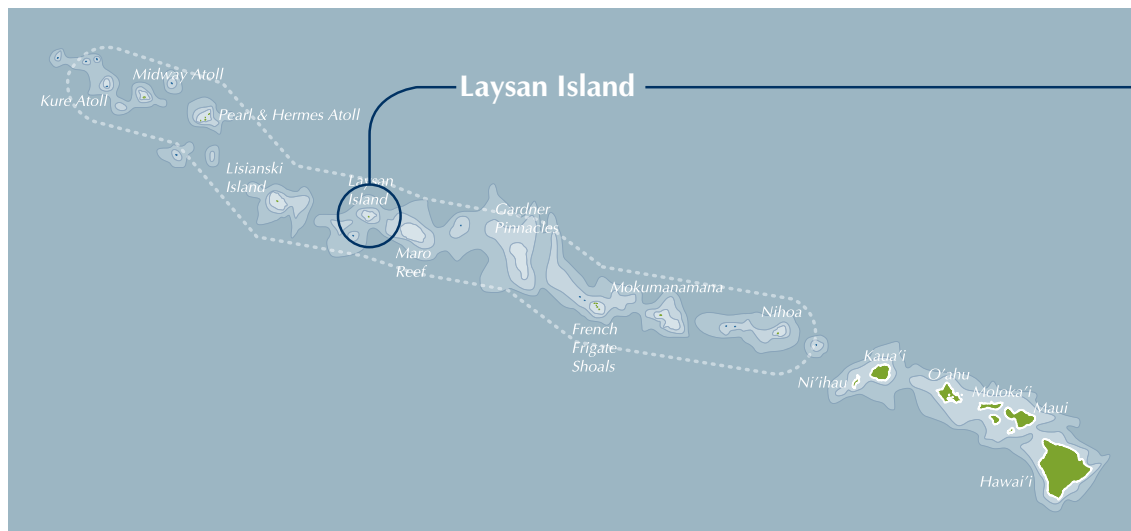
Most of the reef area at Laysan lies in deeper waters, with a small, shallow-water reef area in a bay off the southwest side of the island. The reef system as a whole supports 131 species of reef fishes and 27 species of corals.

Laysan is also home to a semi-permanent FWS field camp to support wildlife monitoring and habitat restoration. The island's ring of sandy dunes surrounds a 40-hectare hypersaline interior lake, a feature unique within the Hawaiian Archipelago and rare within the Pacific as a whole. Because of its average elevation of about 12 meters, Laysan is well vegetated, supporting at least 30 species of flowering plants. The original flora included five endemic subspecies prior to human contact (Athens et al. 2007), many of which were driven to extinction

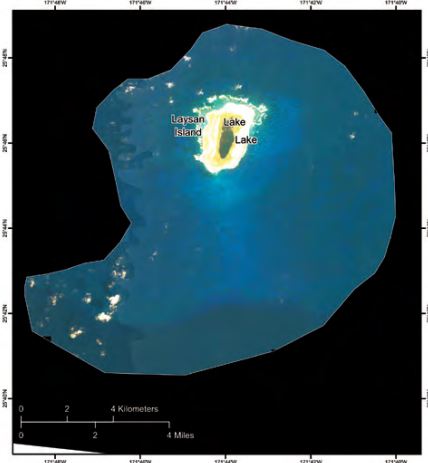
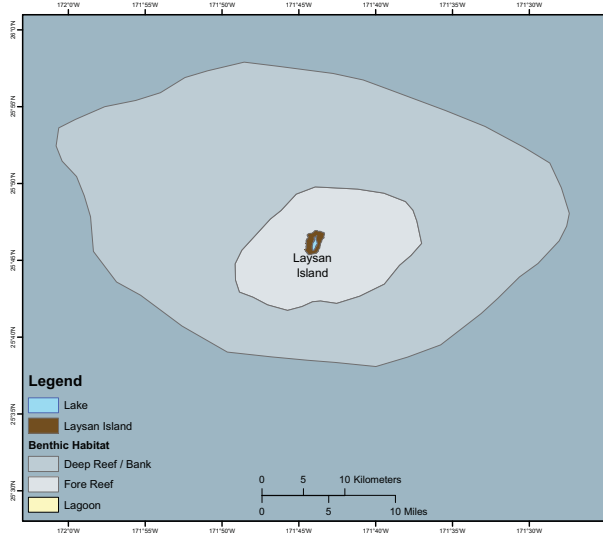


*Laysan's namesakes, the Laysan Duck and the Laysan Finch, grace this atoll's shores (Photos: James Watt)*

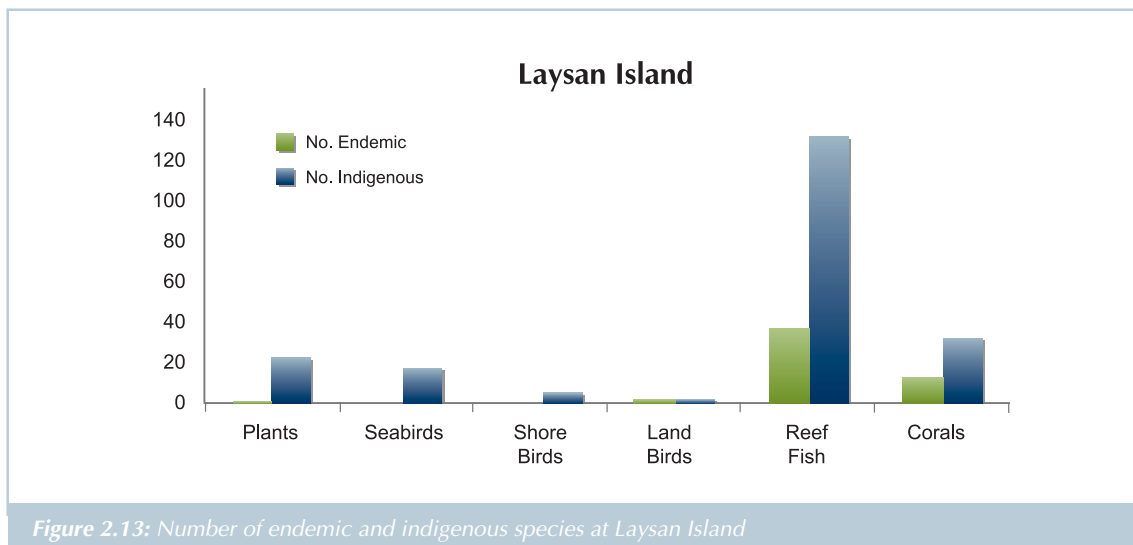
by the misguided introduction of rabbits in 1902 during the guano mining era (Ely and Clapp 1973). The plant community is divided into five different rings around the interior hypersaline lake: (1) coastal shrubs, (2) interior bunchgrass, (3) vines, (4) interior



## 2. Description and History of the Property



Laysan Island: benthic habitat, bathymetry and satellite imagery





shrubs, and (5) wetland vegetation (Newman 1988). The island also previously harbored five endemic birds, of which two, the Laysan Finch (*Telespiza cantans*) and the Laysan Duck (*Anas laysanensis*), still survive (Pratt et al. 1987). In addition, approximately two million seabirds nest here, including boobies, frigatebirds, terns, shearwaters, noddies, and the world's second-largest Black-footed and Laysan Albatross colonies.

The island also supports a relatively rich arthropod fauna, including a large endemic

weevil (*Rhyncogonus bryani*), four endemic moths, an endemic wasp, and three endemic mites. A successful 12-year eradication project to remove the invasive sandbur *Cenchrus echinatus*, a plant that had displaced native vegetation over 30% of the island, has been completed, and an active ecological restoration project is underway to bring back a number of other plants and animals that were lost after the introduction of rabbits (Morin and Conant 1998).



Aquamarine waters lap the shores of Laysan Island  
(Photo: James Watt)



### Lisianski Island (Papa'āpoho)

26°04'N, 173°58'W

“Papa'āpoho” describes a flat area with a depression or hollow, which is exactly how the raised atoll of Papa'āpoho (or Lisianski) is shaped. This 23.4-million-year-old island (Clague 1996), about 1.9 kilometers across, consists of an elevated rim surrounding a broad central depression, although unlike Laysan it does not enclose an interior saline lake. With approximately 1.6 square kilometers of emergent land, it is the third largest island within Papahānaumokuākea.

The coral cover on the platform around the island, called Neva Shoal, is extensive, totaling over 1,174 square kilometers with an average of almost 60% cover of the substrate. There are 24 coral species at Lisianski, and 124 species of reef fish, with fish species abundances endemic to the Hawaiian Archipelago making up 58% of all those recorded here.

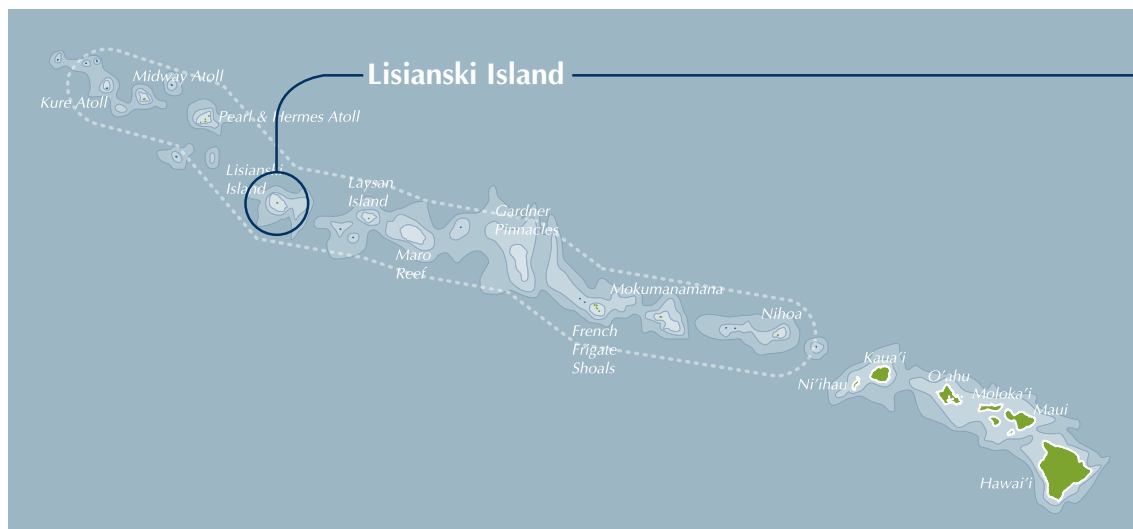
Lisianski suffered ecological perturbations similar to those on Laysan due to guano mining and the release of rabbits in 1903 (Tomich 1986). It supports no endemic land plant or bird species, although it does harbor an endemic seed bug (*Nysius fullawayi flavus*) and an endemic moth (*Helicoverpa minuta*) (Usinger 1942; Nishida 2002). The island also hosts large Bonin Petrel and Sooty Tern colonies, as well as a variety of other seabirds. Lisianski also has the only grove of



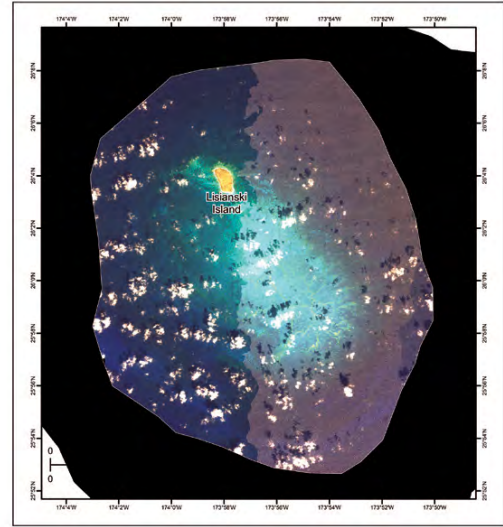
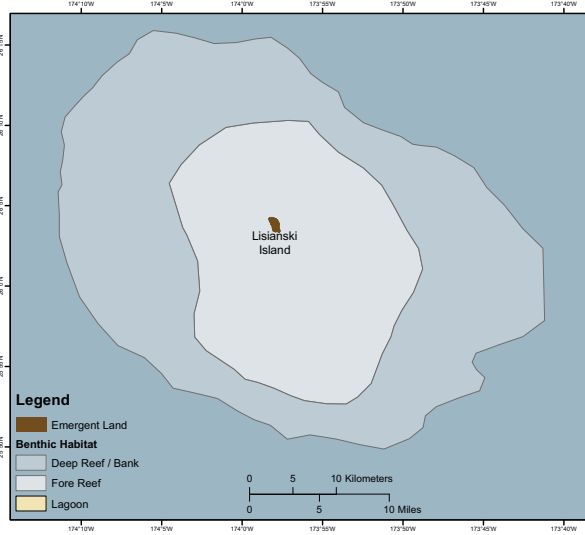
(Photo: Rob Shallenberger)



Lisianski Island is a popular breeding ground for Hawaiian Monk Seals (Photo: James Watt)



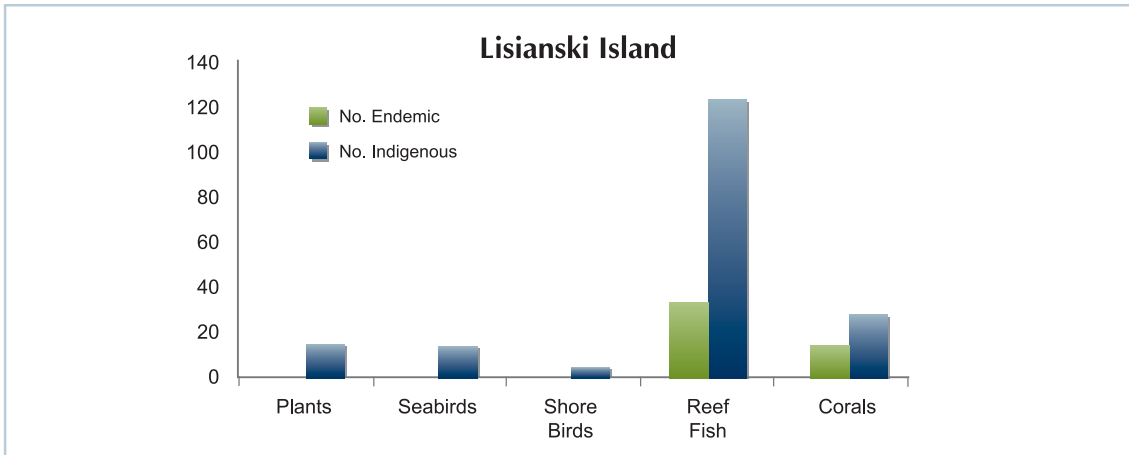
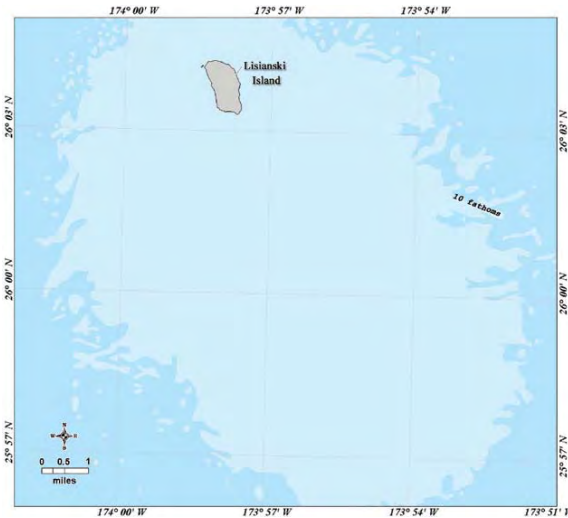




*Lisianski Island: benthic habitat, bathymetry and satellite imagery*

*Pisonia grandis* trees in the entire Hawaiian Archipelago; this tree is dispersed by seabirds and is favored as a nesting site for many tree-nesting seabird species

As part of a biological and paleontological study in the summer of 1990, an archaeologist conducted excavations and investigated the possibility of early Native Hawaiian occupation of Lisianski. Although wave action on the island had scoured any potential evidence of previous human habitation within the shoreline, the archaeologist did find “an unmodified fine-grained basalt flake as well as a polished granite pebble” that were foreign to the island (Ziegler 1990). Study continues on that material evidence, and a more thorough examination of the island has yet to occur.



*Figure 2.14: Number of endemic and indigenous species at Lisianski Island*



### Pearl & Hermes Atoll (Holoikauaua)

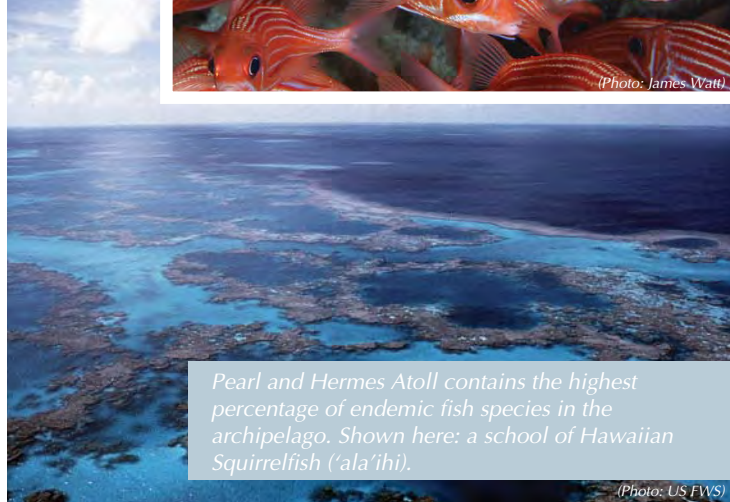
27°50'N, 175°50'W

The name Holoikauaua celebrates the Hawaiian Monk Seals that haul out and rest here. Holoikauaua relates to the word 'Īlioholoikauaua, which refers to a seal and literally means "the quadruped running in the rough seas."

Pearl and Hermes Atoll is a large atoll with several small islets. It covers 0.39 square kilometers of land and is surrounded by over 1,214 square kilometers of coral reef habitat. The atoll has an estimated age of 26.8 million years (Clague 1996) and in its entirety is more than 32 kilometers across and 19.3 kilometers wide, with dunes rising well above sea level. Unlike Lisianski and Laysan to the southeast, Pearl and Hermes Atoll is a true atoll, fringed with shoals, permanent emergent islands, and ephemeral sandy islets. These features provide vital dry land for Monk Seals, Green Turtles, and a multitude of seabirds, with 16 species breeding here. The islets are periodically washed over when winter storms pass through the area. The atoll boasts the highest rate of reef fish endemism in the Hawaiian Archipelago;



(Photo: James Watt)



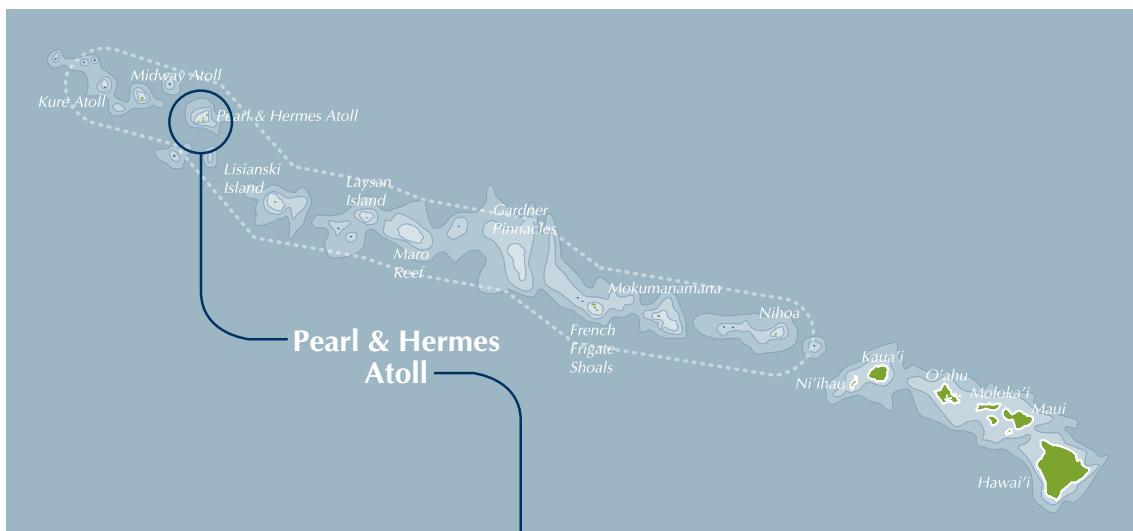
Pearl and Hermes Atoll contains the highest percentage of endemic fish species in the archipelago. Shown here: a school of Hawaiian Squirrelfish (ʻalaʻihi).

(Photo: US FWS)

endemic species represent 62% of the numerical density of reef fish present at Pearl and Hermes Atoll. Coral species richness is high as well, with 33 species present. The atoll also supports the second largest population of Hawaiian Monk Seals in the archipelago.

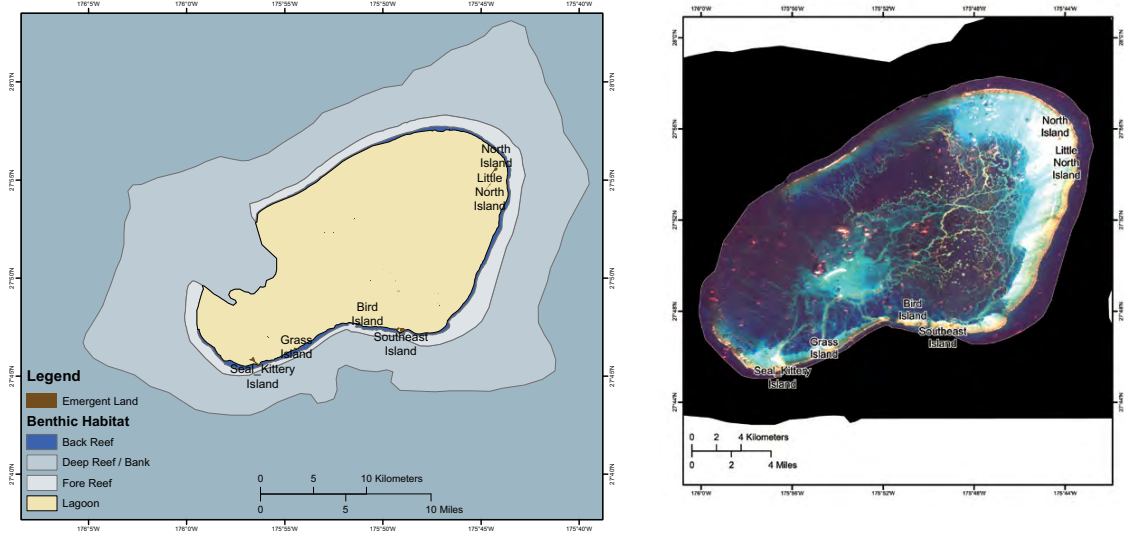
The permanent islands with higher dunes also support an endemic subspecies of native seed bug (*Nysius fullawayi* ssp. *infuscatus*) (Usinger 1942). Pearl and Hermes also hosts a small population of endangered Laysan Finches that were translocated here in the 1960s.

81

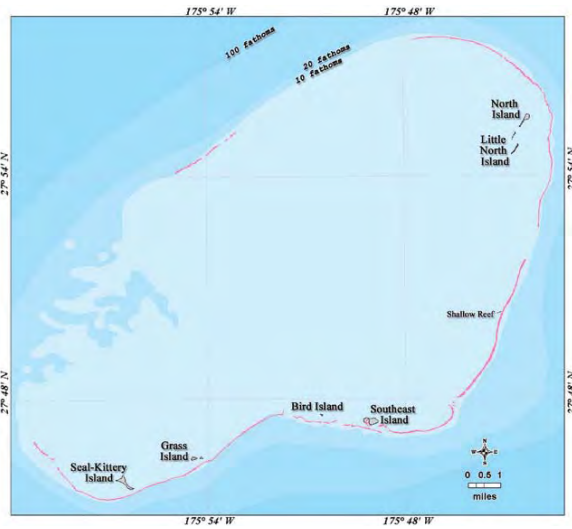




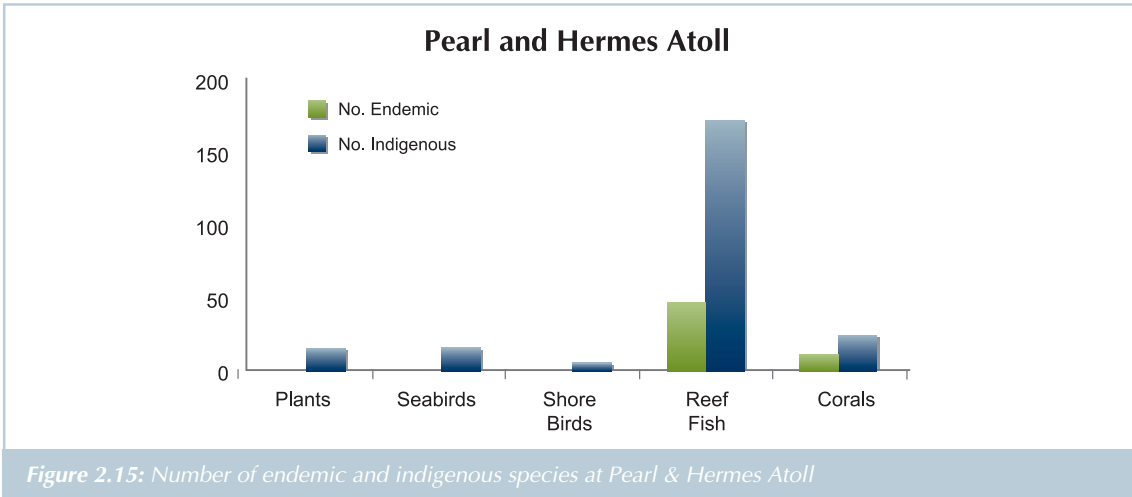
Pearl and Hermes Atoll: benthic habitat, bathymetry and satellite imagery



Reef scene from Pearl and Hermes Atoll  
(Photo: James Watt)



82





### Midway Atoll (Pihemanu, Brook Island, and Middlebrook Islands)

27°50'N, 175°50'W

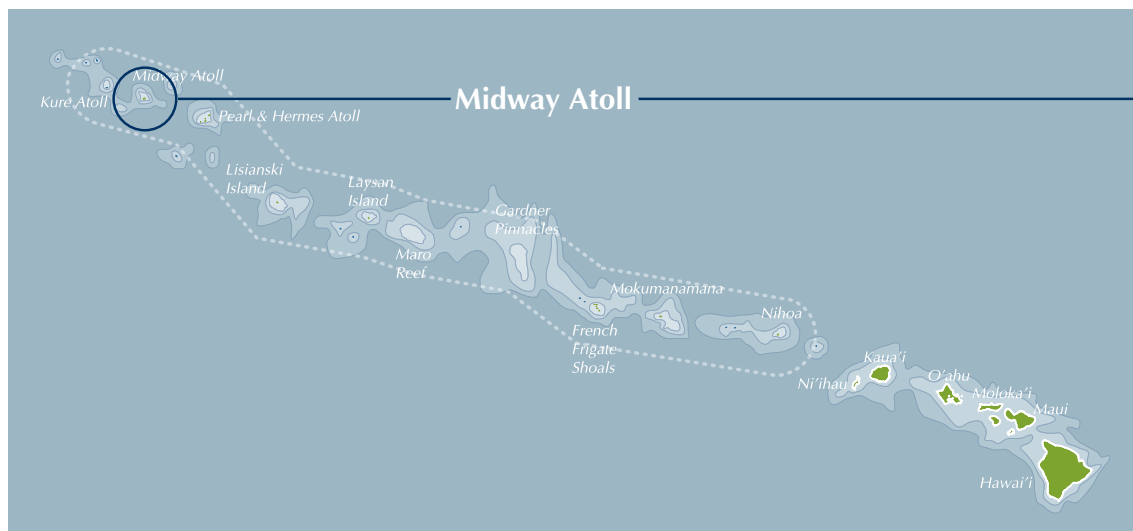
Midway Atoll's Hawaiian name, Pihemanu, evokes the loud din of birds that one hears on this atoll.

Midway Atoll consists of three sandy islets: Sand (4.56 square kilometers), Eastern (1.36 square kilometers), and Spit (0.05 square kilometers) for a total of 5.97 square kilometers in terrestrial area. These islets lie within a large, elliptical barrier reef measuring approximately 8 kilometers in diameter. The atoll, which is 28.7 million years old (Clague 1996), is surrounded by more than 356 square kilometers of coral reefs. In 1965, the U.S. Geological Survey tested Darwin's theory of atoll formation by drilling test bores at Midway, and hit solid basaltic rock 55 meters beneath Sand Island and 378 meters beneath the northern reef (Ladd et al 1967).

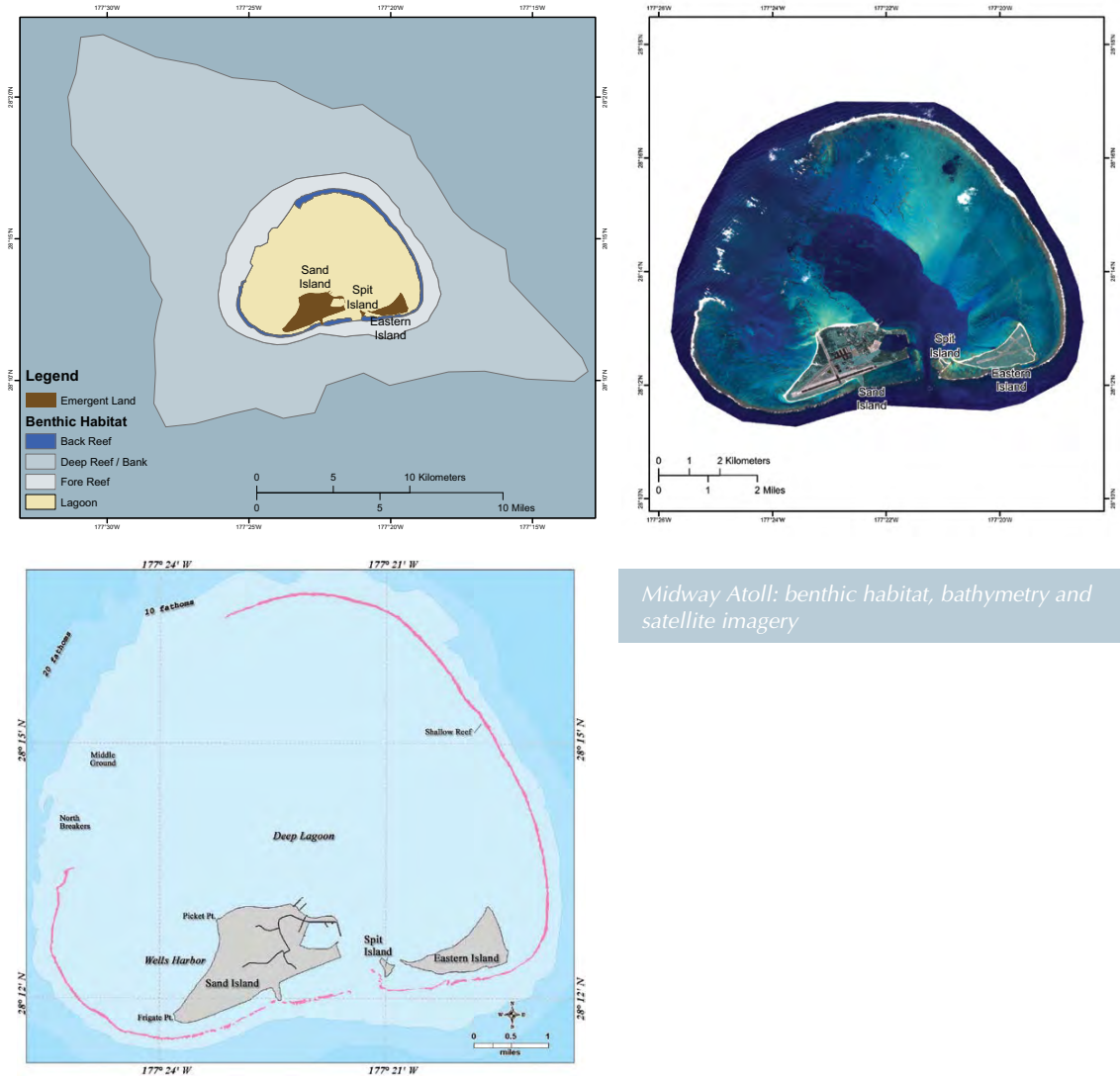
Numerous patch reefs dot the sandy-bottomed lagoon, supporting 163 species of reef fishes and 16 species of corals.



Although Midway's native vegetation and entomofauna have been greatly altered by more than a century of human occupation, the island boasts the largest nesting colonies of Laysan and Black-footed Albatrosses in the world, forming the largest combined colony of albatrosses on the planet. The Navy, FWS, and U.S. Department of Agriculture-Wildlife Services (USDA Wildlife Services) successfully eradicated rats from Midway in the 1990s, and







Midway Atoll: benthic habitat, bathymetry and satellite imagery

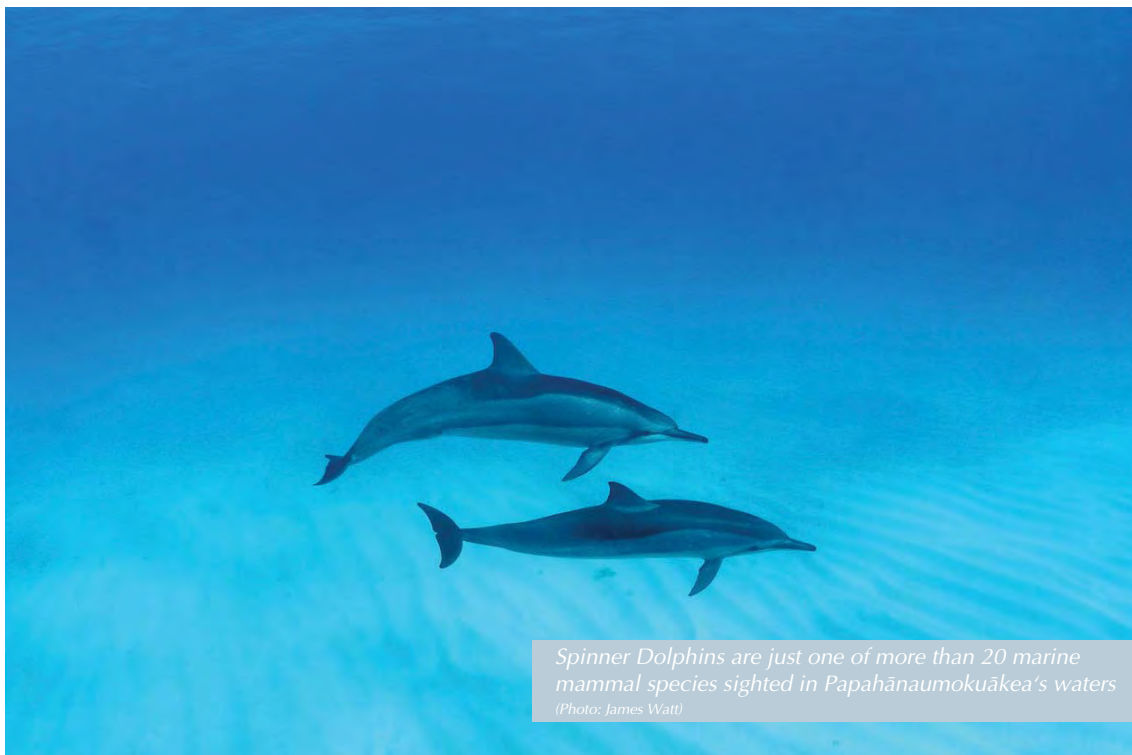
**Midway Atoll**

Category	No. Endemic	No. Indigenous
Plants	0	15
Seabirds	0	15
Shore Birds	0	5
Reef Fish	45	165
Corals	10	25

Figure 2.16: Number of endemic and indigenous species at Midway Atoll

invasive ironwood trees have been entirely removed from Eastern Island. Currently the cover on all of the islands at Midway is approximately 30% paved or structures, 23% grass and forbs, 18% woodland, 7% sand and bare ground, 22% shrublands, and <0.23% wetland. A translocated population of Laysan Ducks is supported by the introduced insect community at Midway, and a large program of invasive weed eradication and native plant propagation is ongoing.

Canaries introduced in 1910 still breed among the historic buildings that housed the beginning of cable communications across the Pacific in the early 20th century. The atoll and surrounding seas were also the site of a pivotal battle of World War II; Midway was also an active Navy installation during the Cold War.



*Spinner Dolphins are just one of more than 20 marine mammal species sighted in Papahānaumokuākea's waters*  
(Photo: James Watt)





**Kure Atoll**  
(Mokupāpapa and Kānemiloha'i)

23°03'N, 161°56'W

Mokupāpapa literally means flat island, and the name was ascribed to Kure Atoll by officials of the Hawaiian Kingdom in the 19th century, when King David Kalākaua disbursed an official envoy to the atoll to take “formal possession” of it. At the time, Kure was known in the kingdom as Ocean Island, but Hawaiian Kingdom officials indicated that Kure was “known to ancient Hawaiians, named by them Moku Papapa and recognized as part of the Hawaiian Domain” (Department of Hawaiian and Pacific Studies, Bishop Museum 2002).

Kure Atoll is the most northwestern island in the Hawaiian chain and occupies a singular position at the “Darwin Point”: the northern extent of coral reef development, beyond which coral growth cannot keep pace with the rate of geological subsidence. At present, Kure’s coral is still growing slightly faster than the island is subsiding, keeping the atoll above sea level. North of Kure, however, where growth rates are even slower, the drowned Emperor Seamounts foretell the future of Kure and all of the Hawaiian Archipelago. As Kure Atoll continues its slow migration atop the Pacific Plate and moves into slightly cooler waters, it too will cease to maintain sufficient coral growth, and will eventually slip below the surface.

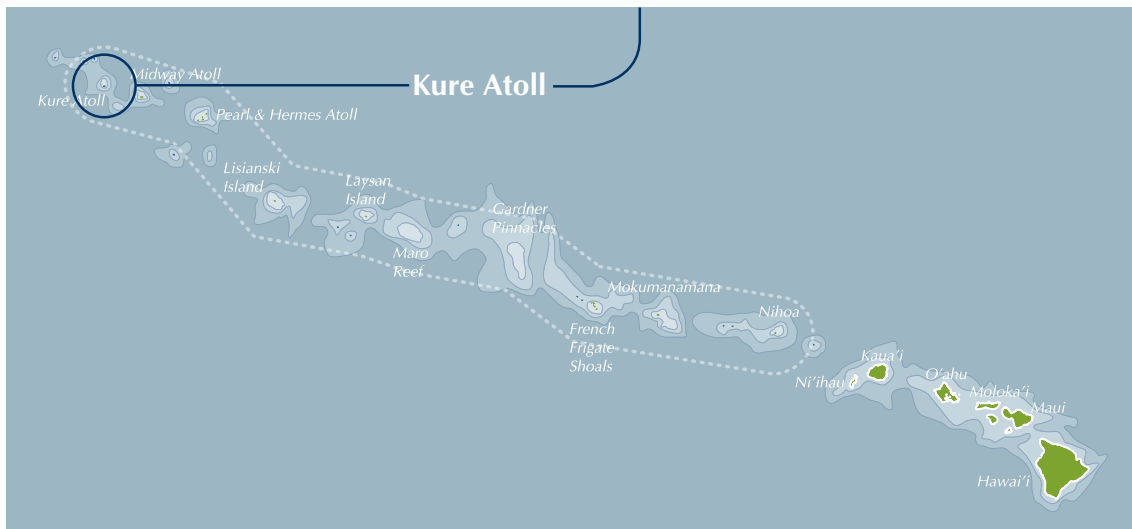
This 29.8 million year old atoll (Clague 1996) is nearly circular, with a reef 10 kilometers in



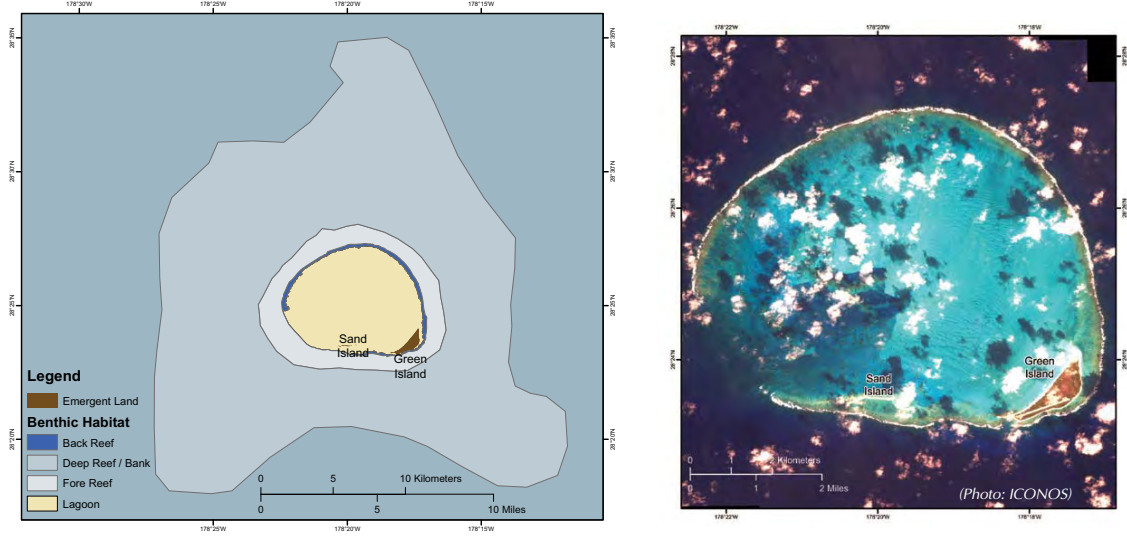
*Kure Atoll, the northernmost island in the chain, sits at the Darwin Point (Photo: James Watt)*



diameter enclosing a lagoon with two islets comprising over 0.89 square kilometers of emergent land, flanked by almost 324 square kilometers of coral reef habitat. The outer reef forms a nearly complete circular barrier around the lagoon, with the exception of passages to the southwest, and the associated marine habitats support 155 species of reef fishes and 27 species of coral. Abundance of fish species endemic to the Hawaiian Archipelago compose 56% of all fish abundance recorded here.



Kure Atoll: benthic habitat, bathymetry and satellite imagery



Of the two enclosed islets, the only permanent land is found on crescent-shaped Green Island, which rises to 6 meters above sea level and is located near the fringing reef in the southeastern quadrant of the lagoon. In addition to harboring an apparently endemic mite (*Hemicheyletia granula*), the atoll is also an important albatross breeding site, and the lagoon supports a population of Spinner Dolphins (*Stenella longirostris*).



87

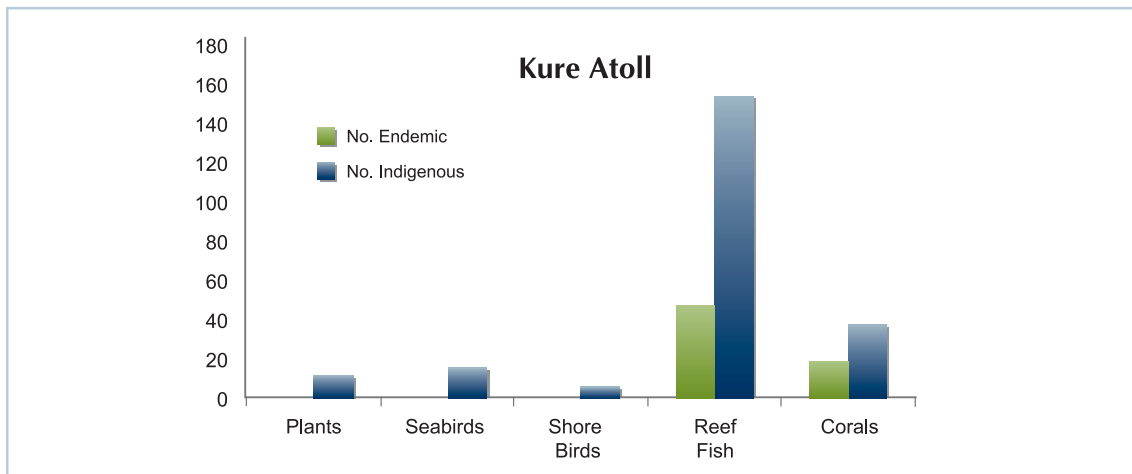


Figure 2.17: Number of endemic and indigenous species at Kure Atoll



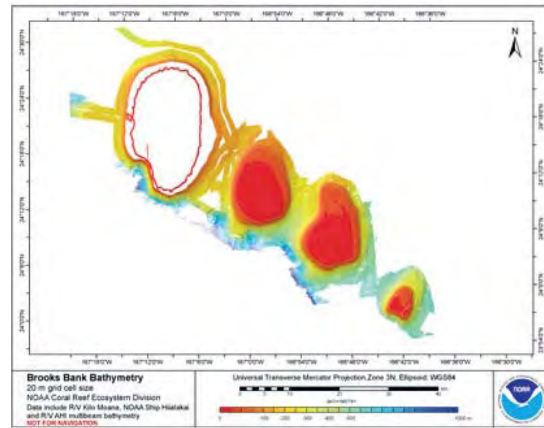


## Banks and Seamounts

Approximately 30 submerged banks lie within Papahānaumokuākea (Miller et al. 2004). Deepwater banks and seamounts are one of Papahānaumokuākea’s least-studied environments. Recent use of shipboard mapping technologies, submersibles, and remotely operated vehicles, however, has provided valuable information to characterize the physical and biological components of these ecosystems. Multibeam mapping expeditions have revealed dramatic geologic features, including knife-edge rift zones, seafloor calderas, sea-level terraces, submarine canyons, underwater landslide scars and debris fields, and previously unmapped seamounts (Smith et al. 2003; Smith et al. 2004).



(Photo: Amy Baco-Taylor)



Bathymetric mapping of an underwater seamount

Submersible surveys on South Pioneer Ridge (Pioneer Bank) and at two unnamed seamounts, one east of Laysan Island and the other east of Mokumanamana, have revealed the presence of various substrate types, deposited when these geologic features were at sea level (Smith et al. 2004). In some areas, dense communities of corals (ahermatypic) and sponges at depths approaching 1,000 fathoms (1,830 meters) obscure the underlying

substratum. The deepwater marine plants of the area are a mixture of tropical species, species with cold-temperature affinities, and species with disjunctive distributions, suggesting alternative biogeographical patterns and dispersal routes from the main Hawaiian Islands (McDermid and Abbott 2006).

All of these banks provide prime habitats for bottomfish and other associated fish species that are important food sources for Hawaiian Monk Seals. Such banks also support populations of Spiny and Slipper Lobsters, and colonies of precious gold, pink, and black corals that have been heavily disturbed in much of the remainder of the Pacific by the use of physically damaging harvest methods, such as trawling. These deep-living corals are unique in that they reside below the depth where enough light penetrates for photosynthesis, and derive their energy from the capture of plankton and small, organic particles from the water column with their tentacles, rather than relying on the symbiotic dinoflagellate algae, known as zooxanthellae, that virtually all shallow-water reef-building corals harbor in their cells.

88



A deepwater submersible prepares to dive  
(Photo: James Watt)

## 2.b History and Development of the Property

The human history of Papahānaumokuākea can be divided into two historical periods: Native Hawaiian history before Western contact (~300–1778 AD); and post-contact history (1778–present), including the Hawaiian Renaissance of the late 20th century to the present.

### *Native Hawaiian History Before Western Contact*

The Polynesian settlement of the Pacific Ocean began around 300 BC, when the first seafarers set off from Sāmoa and Tonga to explore the waters around them. Over the next 1,300 years, these voyagers would employ a sophisticated, non-instrument navigational system as they journeyed across the ocean, establishing their presence across a more than 10-million-square-mile triangle of the Pacific. They founded settlements on Aotearoa (New Zealand) in the west, on Rapa Nui (Easter Island) in the east, Hawai‘i in the north, and on hundreds of islands in between (Howe 2006). The epic journeys to these far-flung points were the last wave of migration in the Pacific, and represented the apex of Polynesian voyaging and navigation skills.

More than 1,500 years ago, Polynesian voyagers arrived in the Hawaiian Archipelago, the Polynesian Triangle’s northernmost point, where they found islands filled with abundant natural resources. Over the next millennia, Native Hawaiians, the descendents of the first Polynesians who discovered Hawai‘i, made the islands into a landscape that sustained both man and nature, creating agricultural terraces along the hillsides and extensive water paddies for their staple food, *kalo* (taro), in the valleys, constructing fishponds over the shallow reefs, and managing sustainable nearshore and pelagic fisheries.

While the majority of the populace lived in the main Hawaiian Islands (the eight volcanic islands from Hawai‘i Island in the south to Ni‘ihau in the north), the islands and atolls of Papahānaumokuākea were both considered deeply sacred and visited

regularly for cultural and subsistence resources. On Nihoa, Native Hawaiians established permanent and semi-permanent habitation sites, agricultural terraces, and burial grounds. It is believed that Hawaiians on Nihoa fished, raised crops, and staged the construction of sacred ritual sites on Mokumanamana. *Kūpuna* (elders) on Kaua‘i and Ni‘ihau say that their families visited Nihoa and Mokumanamana for weeks to months at a time, throughout the period of Western Contact, although after the United States’ annexation of Hawai‘i, much of this happened in secret (Maly 2003).

Papahānaumokuākea as a primary training ground for apprentice navigators, and Nihoa, Mokumanamana and French Frigate Shoals served as resource gathering places, as evidenced in Native Hawaiian oral histories and the journals of Captain James Cook. One of Captain Cook’s crewmembers, David Samwell, reported that while near Ni‘ihau, they planned to “set sail in the morning for Mokoopapappa [sic], a small, low Island uninhabited which the Indians tell us lies to the Westward of us at a distance of a day’s sail from here, where there are plenty of Turtle” (Beaglehole 1967).

### *Papahānaumokuākea in the Post-Contact Era*

When Europeans arrived in the Hawaiian Archipelago in the late 18th century, they found a thriving society of between 250,000 and one million Native Hawaiians (Stannard 1989), with a distinct culture and complex social and religious systems. Papahānaumokuākea was very much a part of Native Hawaiian geography and life; Captain James Cook’s crews encountered a Native Hawaiian canoe returning from the Northwest Hawaiian Islands with a vessel full of seabirds and turtles. Some of the highest-ranking Native Hawaiian chiefs of the 19th century, including Queen Ka‘ahumanu, King Kamehameha IV, King David Kalākaua and Queen Lydia Lili‘uokalani, visited Nihoa to reconnect with the island.

In 1898, five years after Queen Lili‘uokalani was overthrown by the self-



proclaimed Provisional Government of Hawai‘i, the archipelago (which included Papahānaumokuākea) was collectively acquired by the United States through a domestic resolution called the “Newlands Resolution.”

Through *mele* (song), *mo‘olelo* (story), *oli* (chant), *hula* (dance), *mo‘okū‘auhau* (genealogy) and archaeological resources, Hawaiians maintained continuous ties to the islands to the northwest. Using these cultural resources, Native Hawaiians recount the travels of seafaring ancestors between Papahānaumokuākea and the main Hawaiian Islands. Archival resources written in the Hawaiian language have played an important role in providing this documentation, through a large body of information published more than a hundred years ago in local newspapers (e.g., Kaunamano 1862; Manu 1899; Wise 1924). More recent ethnological studies have highlighted the continuity of Native Hawaiian traditional practices and histories in the Northwestern Hawaiian Islands. Only a fraction of these have been recorded, and many more exist only in memories and life histories.

Starting in the 1960s and 1970s, a scant lifetime after American annexation, Native Hawaiians launched a movement of resistance to Western assimilation by looking to their *kūpuna* (revered elders and ancestors) and other sources to reclaim their language, music, *hula* (traditional Hawaiian dance) and history. Part of this renaissance included the strengthening of bonds with sacred places and a return of traditional skills and knowledge to the center of cultural life; Papahānaumokuākea has played a pivotal role in both of these movements.

### Native Hawaiians and Papahānaumokuākea in the Modern Era

The *ea* (sovereignty and life), as well as the *kuleana* (responsibility), for the entire Hawaiian archipelago continues to exist in the central beliefs of many present-day Native Hawaiians—a perspective formally recognized by the U.S. Apology Resolution (U.S. Public Law 103-150), a joint resolution of Congress signed by President Clinton in 1993. The Apology Resolution states, in part, that “The Congress ... apologizes to Native Hawaiians on behalf of the people of the United States for the overthrow of the Kingdom of Hawaii on January 17, 1893 with the participation of agents and citizens of the United States, and the deprivation of the rights of Native Hawaiians to self-determination;...” (see Appendix D for full text of the Apology Resolution).

In 1997, an organization called Hui Mālama I Nā Kūpuna O Hawai‘i Nei repatriated sets of human remains to Nihoa that had been collected by archaeologists in the 1924–1925 Bishop Museum *Tanager* Expeditions (Ayau and Tengan 2002). Hui Mālama seeks to return the *mana* (life-force, spirit, and power) of the *kūpuna* (ancestors) to existing and future Native Hawaiian life.

90



Aboard the Hōkūle‘a, Hawaiian wayfinders navigate this seascape as their ancestors did 2,000 years ago  
(Photo: Na‘alehu Anthony)



The Hōkūleʻa, a modern-day replica of ancient double hulled sailing canoes, approaches Nihoa in 2005 (Photo: Naʻalehu Anthony)

This repatriation set the stage for a reawakened relationship between Native Hawaiians and the NWHI in 2000, when President Clinton signed the Executive Orders creating the NWHI Coral Reef Ecosystem Reserve. With new channels of access possible, the cultural group Nā Kupuʻeu Paemoku traveled to Nihoa on the traditional double-hulled voyaging canoe *Hōkūleʻa* in 2003 to conduct traditional ceremonies. The following year, in 2004, *Hōkūleʻa* sailed more than 1,200 miles (1,931 km) to the most distant end of the archipelago, visiting Kure Atoll as part of a statewide educational initiative called “Navigating Change.” Concurrently, the *ʻOhana Waʻa* (literally, family of canoes – an organization representing the Hawaiian voyaging community and their seven canoes, inclusive of those currently sailing and those under construction) recognized that the ancient sailing route between Kauaʻi and Nihoa was still an appropriate training route for the next generation of Native Hawaiians interested in reestablishing the traditional system of navigation practiced by their ancestors.

In 2005, Nā Kupuʻeu Paemoku again sailed to Papahānaumokuākea, this time to Mokumanamana, where they conducted protocol ceremonies on the summer solstice. During the 2007 solstice, as a follow-up to the 2005 access, the Hawaiian cultural group Haʻae Wale Hānauna Lolo ventured to Nihoa and Mokumanamana to conduct its own cultural research initiatives and to better understand the relationships between the *wahi kūpuna* (ancestral places) and the northern pathway-of-the-sun.

## Timeline of Events: Official Hawaiian presence in NWHI following Western Contact

### 1822

Queen Kaʻahumanu travels to Nihoa and claims it under the Kamehameha Monarchy.

### 1856

Nihoa is reaffirmed as part of the existing territory of Hawaiʻi by authority of Alexander Liholiho, Kamehameha IV.

### 1857

King Kamehameha IV voyages to Nihoa. He instructs Captain Paty on the *Manuokawai* to verify the existence of other lands in the northwest. Paty travels to Nihoa, Mokumanamana, Gardner, Laysan, Lisianski, and Pearl and Hermes.

### 1857

The islands of Laysan and Lisianski are declared as new territory under the domain of the Kingdom.

### 1885

Princess Lydia Liliʻuokalani and a scientific expedition visits Nihoa on the ship *Iwalani*.

### 1886

King David Kalākaua, through Special Commissioner Colonel James Harbottle-Boyd, claims possession of Kure Atoll (Ocean Island).

### 1893

The Hawaiian government is overthrown by the Provisional government, with the assistance of Minister John L. Stevens and the U. S. military.

### 1898

The archipelago, inclusive of the Northwestern Hawaiian Islands, are collectively ceded to the United States through a domestic resolution, called the “New Lands Resolution.”





Wreck of the *McCaw*. In August 2008, two 19th century shipwrecks were discovered in Papahānaumokuākea (Photo: Tane Casserly)

Reestablishing ceremonies and practices in Papahānaumokuākea “complete[s] the cycles we have in all of our stories,” says Pualani Kanaka’ole Kanahale, a *kumu* (teacher of cultural practices) and leader of Ha’ae Wale Hānauna Lolo.

### Maritime Heritage and Maritime Archaeology

The Hawaiian Islands have a rich maritime history; specific remnants of this are preserved in Papahānaumokuākea Marine National Monument. Following Captain James Cook’s first encounter with Hawai’i, the presence of European and American vessels at the main Hawaiian Islands slowly began to increase, and early European voyages of discovery included several encounters with the Northwestern Hawaiian Islands. The French navigator Jean François de Galaup, Comte de La Pérouse (Cook’s contemporary) made brief surveys of Mokumanamana and French Frigate Shoals in 1787. Russian navigators such as Urey Lisianski also conducted surveying expeditions in this portion of the Pacific in 1805. In the mid 19th century, American surveying efforts by N.C. Brooks (1859), Lieutenant John Brooke (1859), and Captain William Reynolds (1867) added to the growing body of knowledge on the area.

Western whalers, in their early search for productive areas, encountered the low and uncharted atolls on their passages westward from Honolulu and Lahaina, Maui to the

whale-rich seas off Japan, the Japan Grounds, which extended from Japan eastward to Kure Atoll (Richards 1999). Several of the islands, therefore, received their Western names from the early landings and/or shipwrecks of these Pacific whalers. Midway was originally sighted by Captain Daggett of the New Bedford whaler *Oscar* in 1839. Laysan was reportedly discovered by the American whaling ship *Lyra* prior to 1828. Pearl and Hermes Reef is named for the twin wrecks of the British whalers *Pearl* and *Hermes* in 1822. Gardner Pinnacles was named by Captain Allen on the Nantucket whaler *Maro* in 1820, the same year the ship came across Maro Reef. Whaling, which decimated marine mammal populations worldwide, carried with it major ramifications in terms of oceanic discovery, cultural contact, economic development, and political expansion.

Seafaring activity in the Hawaiian Islands quickly became culturally mixed. Hawaiian chiefs purchased and operated numerous schooners and brigs, and Native Hawaiians found employment on a wide range of sailing vessels. Many were well aware of the evolving whaling industry, and were recruited and served on board whaling ships. It is estimated that 500 Hawaiian sailors shipped out annually onboard Western whalers during the peak of the Pacific whaling era, between 1840 and 1860 (Chappell 1997: 180).

There are ten known whaling shipwrecks in the Northwestern Hawaiian Islands (see Appendix E). Five of these shipwreck sites (*Pearl* 1822, *Hermes* 1822, *Parker* 1842, *Gledstones* 1837, and an unidentified 19th century whaler) have been documented by field survey. These are the earliest wrecks yet found in Hawaiian waters, and provide a rare archaeological glimpse into this period of whaling in the Pacific. Whaling shipwrecks are an example of the international importance of this region in the early 19th century, when whale oil fueled the cities of the Industrial Era, and drove ships halfway around the globe in search of this invaluable resource.

The U.S. Guano Act of 1856, which enabled commercial claims to many remote and

uninhabited islands in the Pacific, heralded the hunt for mineral resources. Several of the Northwestern Hawaiian Islands were leased by private companies for guano extraction. The local development of facilities supporting these activities was most significant on Laysan Island, where a small community existed from the 1890s through the early 20th century. Guano works among the atolls necessitated supply ships and passage for contract laborers, increasing local vessel traffic in the region.

The U.S. Navy's interest in Midway destined the atoll to play a distinctive role in history. Captain William Reynolds of the USS *Lackawanna* took formal possession for the U.S. in August 1867, making Midway Atoll the first islands annexed beyond the West Coast. The harbor had been erroneously described as similar to Honolulu, both roomy and safe, and the low Sand and Eastern Islands as "productive for agriculture." These were unrealistic claims at best, but early in the age of steam navigation, the U.S. sought transpacific coaling stations and the establishment of commercial links to East Asia. The effort was not without a cost, as the USS *Saginaw*, a Civil War-era gunboat, was lost at nearby Kure Atoll in 1870. The Midway Islands were the first fruits of Secretary of State William Seward's expansionist policies, and grew in political importance during the American period.

The islands were not the only focus of activity. Commercial fishing in the waters surrounding the islands of Papahānaumokuākea began with the arrival of large sailing vessels that hailed from ports around the world. These vessels left the reefs and shoals with cargoes of shark meat, fins and oil, turtle shells and oil, and sea cucumbers. Commercial harvesting of tuna, bottomfish, lobsters, and other marine animals in the region continued through the 20th century.

Throughout this period, Papahānaumokuākea presented significant hazards to shipping because of the low, inconspicuous nature of the islands, which makes their shoals and reefs difficult to detect from the water,



*Cavernous cauldrons indicate this shipwreck was likely a historic whaling vessel (Photo: Tane Casserly)*

and their often incorrect location on marine charts. This, combined with the increase in commercial activities over time, has made Papahānaumokuākea into a veritable graveyard of maritime disaster in the 19th century. Fortunately, the frequent proximity of sandy "desert" islands, not barren at all but rich in terms of marine mammals, seabirds, and ocean resources, granted castaways the opportunity for survival. Many tales of shipwreck in these islands present similar themes: unexpected groundings on low coral atolls, difficult survival on turtles, seals, fish and bird eggs, and construction of craft from debris for rescue voyages eastwards back to the main Hawaiian Islands. Also, not surprisingly, several commercial outfits in the main Hawaiian Islands sent local schooners on "wrecking" or salvage cruises to the northwestern atolls.

Currently, 60 known shipwreck sites are known in Papahānaumokuākea, the earliest dating back to 1822. Combined with known aircraft losses, there are a total of 127 potential maritime resource sites, giving Papahānaumokuākea a significant and basically undisturbed marine archaeological legacy. These submerged historical resource sites are international in scope and represent a cross-section of the many cultures that engaged in Pacific seafaring history. Twenty-five of these sites have been confirmed by field survey. Because maritime archaeology is such a new field of research in Papahānaumokuākea, discoveries of new shipwreck sites in this region occur frequently. Each new survey of the area yields further important information to add to the inventory and assessment of shipwreck sites in this area.



*Fertile grounds for maritime archaeology*

(Photo: James Watt)



only two shipwreck sites, both located in Australia, yield similar information to the shipwreck sites in Papahānaumokuākea. In late summer 2008, two additional shipwrecks were discovered, the *Gledstones* (which was lost in 1837) and an unidentified 19th century whaler.

**The American period**

The Kingdom of Hawai'i was officially annexed by the U.S. in 1898. Claims to the Northwestern Hawaiian Islands, substantiated by the former Kingdom, were transferred (except Midway) to the Territory of Hawai'i.

Statehood for the Territory occurred in 1959, following World War II and subsequent large-scale social, political, and economic transformations in the Pacific.

Hawai'i and the Northwestern Hawaiian Islands played a crucial role in global communications. In 1903, a transpacific submarine cable was completed via Honolulu, Midway, and Guam. Residence at Midway also meant an increasing awareness of the area by the American government. Illegal poaching in the remote archipelago prompted the first U.S. Marine presence at Midway, and in 1909 President Theodore Roosevelt declared the whole area (with the exception of Midway) the Hawaiian Islands Reservation, for the protection of seabirds.

In fall 2002, for example, a multi-agency research expedition that included a small team of maritime archaeologists conducted the first systematic survey for maritime cultural resources in the distant portion of the archipelago. The study area encompassed the islands and atolls stretching from Nihoa in the south to Kure in the north. In 2003, maritime archaeologists conducted a survey of selected sites at Kure and Midway Atolls. The 2003 work featured the discovery of the wreck site of the USS *Saginaw*, lost at Kure Atoll in 1870. In 2005, the maritime archaeology team focused on documenting the 19th century whaling shipwreck sites at Pearl and Hermes Atoll and Kure Atoll. Non-invasive survey of three wrecks, the British whalers *Pearl* and *Hermes* (which sank in 1822), and the American whaler *Parker* (which sank in 1842), were initiated. Further follow-up surveys were conducted to the newly discovered whalers in 2006, and a yet-to-be-identified site known as the "Oshima" wreck. In 2007, the maritime archaeology team discovered the 1917 wreck of the four-masted schooner *Churchill*, lost under mysterious circumstances while in transit with copra (dried coconut meat) from Tonga to Seattle, Washington. Very little maritime archaeological work has been conducted in atoll environments, and pelagic whaling vessels in an archaeological context are a rare discovery; for global comparison,



*A textured ecological, cultural, and historic islandscape* (Photo: James Watt)

With the first “round-the-world” cable message sent by President Roosevelt on July 4, 1903, and the subsequent construction of the Pan American Airways facilities (see Midway Atoll overview, below), Midway became a crucial connection for the Pacific region and the world. The U.S. Navy’s interest in the strategic location of Midway centered on its use as a seaplane base, and in 1940, construction of the naval air station at Midway was begun. Growing infrastructure at Midway reflected its strategic importance as a trans-Pacific communication and transportation hub.

World War II had a dramatic impact on the region. Tern Island at French Frigate Shoals was initially developed as a naval facility for staging aircraft. Besides the naval air station at Midway, the Navy also built a major submarine refit and repairs base. Together, these areas comprised a vital center for submarine, surface fleet, and aviation operations. In fact, the Hawaiian Sea Frontier forces stationed patrol vessels at most of the islands and atolls.

Midway Atoll itself was the focus of one of the most important naval battles in the war’s Pacific theater. In June 1942, the Japanese Imperial Navy attempted the invasion of the atoll. Ultimately, four Japanese aircraft carriers and one American carrier were sunk, and hundreds of aircraft shot down. The Imperial Japanese Navy was forced to withdraw. This was a watershed moment in the Pacific; had the invasion succeeded, America’s line of

defense would have retreated to the West Coast. The majority of the sea battle took place between 160 to 300 kilometers to the north of the atoll, but an intense air fight was waged directly over and around the atoll itself (see Midway Atoll overview, below). Numerous Japanese and American planes splashed down into the waters surrounding Midway, and many of these sites are now war graves. At least 67 naval aircraft are recorded as being lost in the vicinity of the Northwestern Hawaiian Islands. These submerged aircraft reflect the important aviation legacy of Midway and the surrounding region.

Midway Atoll today is designated as a National Memorial to the Battle of Midway. Nine defensive structures related to the Battle of Midway were designated as a National Historic Landmark in 1986. Numerous other structures are eligible for placement on the National Register of Historic Places.

#### *Overview of Each Island – History and Development of the Property*

##### **Nihoa – 23°03’N, 161°56’W**

The islands of Papahānaumokuākea, particularly in its southeastern portion, were used through the time of James Cook’s expeditions by Native Hawaiians as seasonal dwelling sites for fishing, turtle harvest and feather gathering. Nihoa and Mokumanamana are thought to have been utilized by Native Hawaiians periodically until well into the Western era, with voyages continuing, in



*Schools of Convict Tangs or manini thrive in Papahānaumokuākea (Photo: James Watt)*



secret, into the 20th century for the gathering of turtles, fish, bird feathers and eggs (Tava and Keale 1989; Maly 2003).

In 1789, Captain Douglas of the *Iphegenia* was the first Westerner to visit Nihoa. Several Hawaiian ali'i (royalty) journeyed to Nihoa in the next century. In 1822, Hawaiian Queen Ka'ahumanu visited the island with her husband, King Kaumuali'i, chief of Kaua'i. They rediscovered historic evidence of prior habitation, as the Queen had learned from *oli* (chant) and *mele* (song) passed down through the generations (Rauzon 2001). King Kamehameha IV, or Alexander Liholiho, formally annexed Nihoa for the Hawaiian Kingdom in 1857 (Paty in Emory 1928). In 1885, Queen Lili'uokalani and her 200-person entourage landed on Nihoa, to study the palms, wildlife and artifacts on the island (Bishop in Emory 1928).

**Mokumanamana (Necker Island) – 23°35'N, 164°42'W**

Mokumanamana was documented by La Pérouse in 1786. Captain John Paty claimed Mokumanamana for the Kingdom of Hawai'i in 1857, per the request of King Kamehameha IV, and that claim was later contested, with the island being annexed again by Hawai'i's Provisional Government in 1894. The British once sought to lease the island as a communications cable relay station, but the idea was quashed by the American

Congress. More recently, the island was used by the military for bombing practice.

**French Frigate Shoals (Kānemiloha'i) – 23°145'N, 166°10'W**

French Frigate Shoals was first encountered by Europeans when La Pérouse, sailing with the frigates *Boussole* and *Astrolabe* nearly ran aground there in 1876. Military activities during World War II resulted in significant alterations to the atoll, with Tern Island being largely dredged up and formed into the shape of a runway to serve as a refueling stop for planes en route to Midway. The original seawall, runway, and some structures remain. The U.S. Coast Guard occupied Tern and East Islands from 1944 until the 1970s and ran a LORAN station, evidence of which still remains.

The U.S. Fish and Wildlife Service has maintained a field station at Tern Island since 1978, staffed by two permanent employees and a handful of volunteers. National Marine Fisheries Service also maintains staff on the island in support of Hawaiian Monk Seal and Hawai'i Green Turtle projects.

**Gardner Pinnacles (Pūhāhonu) – 25°02'N, 168°05'W**

Gardner Pinnacles was given its Western name by Captain Allen on the Nantucket whaler *Maro*, who encountered the island in 1820. The land area of this island is not large, and the two rocky pinnacles that project above the water are difficult to land on. As a result, there is no record or evidence of any previous human activity.

**Maro Reef (Ko'anako'a) – 25°22'N, 170°35'W**

Captain Allen of the *Maro* first charted Maro Reef in 1820, when he recognized the danger of the area and steered clear of it. The reefs and shoals of Maro Reef are so extensive and vast, that it is thought that this area was generally avoided by mariners. There are at least six recorded shipwreck losses at Maro Reef, beginning in 1852.

*Hawaiian Morwong, common in Papahānaumokuākea*  
(Photo: James Watt)



**Laysan Island (Kauō) – 25°46'N, 171°45'W**

On May 1, 1857, Captain John Paty of the Hawaiian schooner *Manuokawai* landed on Laysan and annexed it to the Hawaiian Kingdom. During his visit, Captain Paty commented on the great number of albatross nests and guano deposits on the island. Scientific expeditions to Laysan continued in 1859, with Lieutenant J.M. Brook's visit aboard the *Fenimore Cooper* to collect soundings, positions and physiographic data to make a chart of the island for the United States Hydrographic Office.

In 1890, Laysan was leased by the Hawaiian Kingdom to the North Pacific Phosphate and Fertilizer Company for a period of 20 years. Guano mining and digging occurred on Laysan from 1892 to 1904, when the supply was exhausted. This period saw the construction of several buildings, including a lighthouse and a small railroad, which supported this trade; between 100 and 125 tons of guano could be shipped from Laysan per day (Ely and Clapp 1973). Today, the only obvious terrestrial remnants of this operation on Laysan are guano piles, pieces of rail, and human grave sites. Large 19th century anchors, which may have served as moorings for the guano landing, lie submerged near the shore.

By 1900, Japanese feather poachers began raids on Papahānaumokuākea, slaughtering thousands of albatross and other birds for their plumage. This prompted President Theodore Roosevelt to issue Executive Order No. 1019 on February 3, 1909 to set aside all the islets and reefs from Nihoa to Kure (except Midway) as the Hawaiian Islands Reservation. In April 1923, Laysan was visited by the U.S.S. *Tanager* in what became known as the *Tanager* Expedition. The objective of this mission was to make scientific observations and collections of the flora and fauna in the NWHI for the U.S. Bureau of Biological Survey (Bryan 1978). The party of explorers established a camp on shore for one month, and made detailed records and collected specimens of the various forms of life on Laysan (Macintyre 1996). The previous guano business venture had also introduced rabbits to the island to augment the food supply in 1903. The rabbits' unchecked herbivory and breeding resulted in the almost complete de-vegetation of the island. In 1923, the

scientists of the *Tanager* Expedition successfully eradicated the last rabbit, but not in time to prevent the extinction of at least three native land birds and an unknown number of plants and terrestrial invertebrates.

Since 1991, FWS has operated a semi-permanent field camp on Laysan, with efforts focused on eradicating invasive plant species and restoring native habitats. Active restoration in the form of control and eradication of introduced mammals, insects, and plants is occurring at several islands in Papahānaumokuākea. The most comprehensive of these restorations is occurring at Laysan Island. The plant community present today is descended from either the surviving seed bank, adventive species that have re-colonized, or plantings in the decades following the guano business venture. Of the 27 plant species documented in early observations and three more discovered in recent pollen cores of Laysan Lake, 18 still grow at Laysan, along with 11 species of alien plants. A 12 year effort to eradicate the invasive grass *Cenchrus echinatus* has succeeded, though biologists remain vigilant should any seeds resprout. Efforts to restore the plant community to its pre-contact state are proceeding, with a year-round camp where staff are propagating and out-planting eight species (five for re-introduction and three for enhancement of existing small populations). All replanting is conducted using the original species or closest relatives from similar habitats. Replanted plants are started from carefully processed seeds to prevent accidental introductions of fungus and insects. To date, two of six previously extirpated species are reproducing independently, and another two have been out-planted and have survived at least one annual cycle.

Efforts to fill the ecological niche of the extinct Laysan Millerbird (*Acrocephalus familiaris familiaris*) will be carried out using birds from the only remaining Millerbird population within Papahānaumokuākea (at Nihoa; *Acrocephalus familiaris kingi*) as soon as the habitat is judged ready to support the species at Laysan Island. Similar restoration efforts are also occurring at Midway and French Frigate Shoals, and are planned for other terrestrial sites in the archipelago.



Numerous researchers have worked on Laysan, including biologists from the U.S. Geological Survey. They have established an additional population of the endangered Laysan Duck at Midway Atoll.

**Lisianski Island (Papa'āpoho) - 26°04'N, 173°58'W**

Lisianski gained its Western name in 1805 when the Russian exploring ship *Neva* grounded on the reef. Under the command of Captain Urey Lisianski, the *Neva* was sailing from Sitka to Macao to meet the *Nadeshda*, her sister ship, on Russia's first circumnavigation of the world (Clapp). The ship was re-floated, but was once again driven into a reef, and the crew began repairs on the battered ship during a break in the weather (Bryan 1978).

Early expeditions to Lisianski include a visit by Captain Benjamin Morrel, Jr., of the ship *Tartar*, who wrote about the inland bird rookeries, Green Turtles, sea-elephants (probably Hawaiian Monk Seals) on the beach, and the lack of any fresh water (Clapp and Wirtz 1975). Captain John Paty arrived at Lisianski in 1857 to take possession of the island for the Hawaiian Kingdom and estimate the amount of guano there (ibid.). Lisianski was later visited by the bark *Gambia*, the schooner *Ada* (which collected sharks, turtles, and sea cucumbers), and the schooner *Kaalokai*, which was hired for an ornithological survey of Lisianski (Bryan 1978). Evidence shows that little guano mining took place at Lisianski, though several Japanese feather poachers raided the island in the early 1900s (Bryan 1978). The first scientific visit to Lisianski occurred in 1928 by the *Moller*, an exploring vessel under the command of Captain Stanikowitch. The team made

observations of the island and collected several species of birds, and their records comprise the first list of bird species on Lisianski (Clapp and Wirtz 1975).

**Pearl and Hermes Atoll (Holoikauaua) - 27°50'N, 175°50'W**

Pearl and Hermes Atoll derives its Western name from the two British whaling ships, the *Pearl* and the *Hermes*, that wrecked on the reef on April 24, 1822 while sailing in consort to the newly discovered Japan whaling grounds. One of the carpenters on board the *Hermes*, James Robinson, supervised the building on the beach of a small 30-ton schooner they named *Deliverance*. Though most of the crew elected to board the passing ship *Earl of Morby*, Robinson and 11 others took possession of the nearly finished *Deliverance*, sailed her back to Honolulu, and eventually sold her there for \$2,000. The remains of the *Pearl* and the *Hermes*, the oldest wrecks in Hawai'i, were discovered in 2004. National Historic Register nominations are in process.

Following a few scientific expeditions to Pearl and Hermes Atoll in the early 1900s, the atoll was home to a short-lived pearl fishery after pearl oysters were discovered in the lagoon in the 1920s. Military activity occurred at the atoll in the mid 1930s and continued through the end of the Battle of Midway (Amerson et al. 1974).

Each summer for nearly two decades, personnel from the U.S. Fish and Wildlife Service and National Marine Fisheries Service have established temporary field camps at Pearl and Hermes to monitor bird and Hawaiian Monk Seal populations. Neither permanent

structures nor year-round human activities occur on these islands.

**Midway Atoll (Pihemanu, Brook Island and Middlebrook Islands) – 28°15'N, 177°20'W**

Of all of the islands within Papahānaumokuākea Marine National



This 3-inch gun on Midway's Eastern Island defended the atoll during the Battle of Midway (Photo: Pete Leary)

Monument, Midway Atoll has been most affected by human activity.

In 1903, the Commercial Pacific Cable Company established Midway as a link in the first around-the-world communications cable. The employees of the Midway Cable Station built five concrete buildings, cultivated a garden with imported soil, and planted ironwood trees, which then spread around the island, as wind breaks.



(Photo: FWS)

In 1935, Pan American Airways constructed a base for its amphibious “flying boats” at Midway. The facility included tourist and employee amenities such as a hotel, a solar hot water system, tennis courts, baseball fields, and a golf course.

In 1941, as World War II raged in Europe, the United States commissioned the Naval Air Station Midway. The military expanded the harbor and developed a seaplane landing basin. They constructed runways on Eastern Island, several defensive batteries, and the infrastructure to support a few thousand military personnel. December 7, 1941, saw not only the famous attack on Pearl Harbor, but also one on strategically important Midway. Japanese destroyers shelled Sand Island for two hours, damaging several buildings, including the seaplane hangar and power plant.

On June 4, 1942, more than one hundred Japanese planes zoomed toward Midway as American military aircraft, PT boats, and anti-aircraft batteries tried to slow their progress. Japanese bombs blasted the seaplane hangar, torpedo and bomb-sighting building, Navy mess hall, administration offices, brig, and other buildings, and damaged several more on Sand Island. On Eastern Island, bombs hit the mess hall, power plant, gasoline lines, sick bay, command post, post exchange, engineering tents and runways. Dark smoke rose from blazing oil tanks. The 17-minute attack left the buildings of Midway Atoll in ruins.

Meanwhile, a massive sea and air battle raged 480 km north of Midway Atoll. The U.S. Navy sank four Japanese aircraft carriers and shot down 292 planes. The Japanese defeat in the

Battle of Midway has been called the “turning point of World War II in the Pacific” (Allen 1950: 63 in Yoklavich 1993: 29)

After World War II, the military base at Midway continued to support American military presence in the Pacific until 1993, when the Naval Air Facility was closed. From 1983 to 1997, the Navy and FWS conducted a massive cleanup of Midway Atoll. All the buildings and structures from Eastern Island have been removed. On Sand Island, most of the Cold War–era buildings, 106 underground storage tanks, 15 large above-ground tanks, connecting pipelines, subsurface petroleum, PCB, and DDT-contaminated soil, and large amounts of metal debris were removed. Rats were eradicated.

Today, the FWS maintains a small staff and volunteer program on Midway. They work to remove invasive vegetation, plant native vegetation, collect marine debris, monitor wildlife populations, provide educational activities for visitors, restore historic structures, and clean up contaminants. Midway is not unlike a very small town in its needs for electricity, food service, sewage treatment, and communication. A FWS contractor with 60 employees provides infrastructure support on the island. An airport on Sand Island serves the needs of staff, visitors, and as an emergency diversion site for trans-Pacific commercial aircraft.

**Kure Atoll (Mokupāpapa, Kānemilohaʻi, Ocean Island and Cure) –  
23°03'N, 161°56'W**

Historical records contain references to contact with Kure Atoll in 1799 by Captain



Don J. Zupiani of the Spanish vessel *Senhora del Pilar*, who named the island Patrocinio (Woodward 1972). In 1804, the ship *Ocean* arrived at the island, and its captain named the island “Ocean Island” (Bryan 1967). In 1835, Admiral Krusenstern of the Russian Navy stated that Captain Kure, a Russian navigator, landed on the atoll and named it Kure. The exact date when Kure visited the atoll is not known.

Kure Atoll has seen a history of several shipwrecks and scientific expeditions. Following the wreck of the British collier *Dunnottar Castle* in 1886, King Kalākaua, the Hawaiian Monarch, dispatched the *Waialeale* to rescue the crew and take possession of the island. On September 20, 1886, Colonel James H. Boyd of the *Waialeale* took formal possession of Kure, naming the island Mokupāpapa (Bryan 1978). The U.S. Government acquired Kure as part of the Territory of Hawai‘i on July 7, 1898, and in February 1909, Kure Atoll became part of the Hawaiian Islands Reservation when President Theodore Roosevelt signed Executive Order No. 1019 (Bryan 1978). Kure Atoll was under control of the U.S. Navy between 1936 and 1952, after which

it was turned back over to the Territorial Government of Hawai‘i (Woodward 1972).

Unlike Midway and French Frigate Shoals, Kure Atoll was not modified during World War II. The U.S. Navy did install a radar reflector in 1955, and opened large areas for albatross in 1959, but no other alterations were made to the island until the U.S. Coast Guard established a LORAN (Long Range Aids to Navigation) station on Green Island, commissioned on March 17, 1961 (Woodward 1972). Promising to protect the flora and fauna on Kure Atoll, the Coast Guard leased Green Island from the Hawaiian Commissioner of Public Lands. Kure was chosen because its isolation enabled clear electronic transmissions for navigational purposes without interference (Gibbs 1977). The Coast Guard built a 1,220-meter runway and a 190-meter-high LORAN tower, along with several structures that included a barracks, a signal/power building, a transmitter building, a pump house, and seven fuel tanks (Woodward 1972). The Coast Guard maintained the station until 1992.

In 1993, the State of Hawai‘i Department of Land and Natural Resources, Division of Forestry and Wildlife (DLNR/DOFAW) worked with the Coast Guard to demolish the majority of the buildings on the island. Only one small brick house, a storage shed, a water tank, and the runway remain on Green Island. DLNR/DOFAW manages Kure Atoll as a State Wildlife/Seabird Sanctuary. Since 1994, DOFAW has set up an annual field camp on the island to monitor seabird populations, conduct habitat restoration, monitor Hawaiian Monk Seals and remove the marine debris from the shoreline and coral reefs. National Marine Fisheries Service has an annual field camp each summer on Kure Atoll to monitor Hawaiian Monk Seals. For the past five years, researchers have also been monitoring a resident population of *nai‘a* (Hawaiian spinner dolphins) in the atoll.

100



Monitoring the extent of coral bleaching in Papahānaumokuākea (Photo: James Watt)

### History of Research in Papahānaumokuākea

Assessment, monitoring and mapping of the flora and fauna in the Northwestern Hawaiian Islands began nearly a century

ago as exploratory research voyages set sail primarily to collect data and specimens for cataloging purposes. These Western scientific voyages began with the R/V *Albatross* expedition in 1902. The scientific expedition, conducted by the U.S. Fish Commission, visited what were then referred to as the “Leeward Islands,” including what is now known as Nihoa, Laysan and Midway. The expedition purpose was mainly to collect samples from the deeper waters around the Hawaiian Islands, and to document newly discovered species of deep-water fishes and invertebrates. In addition to the marine studies, the crew conducted terrestrial explorations, documenting key species as well as collecting photographs of many now-extinct species such as the flightless Laysan Rail.

Following the *Albatross* expedition, the next notable scientific voyage was the R/V *Tanager* expedition of 1923–1924. While technically the second phase of exploration (the first by post-contact Native Hawaiians), the *Tanager* was perhaps the first voyage driven entirely by scientific inquiry. Archaeologists and biologists documented archaeological sites and conducted numerous types of surveys all the way to the western edge of the NWHI. Perhaps of most importance was the *Tanager’s* documentation of human impact to terrestrial systems. While on Laysan, scientists witnessed the extinction of the endemic Laysan ‘*apapane* (Hawaiian honeycreeper, with crimson body and black wings and tail (*Himatione sanguinea freethi*)) when the three remaining birds died during a storm. They also recorded the vast changes in vegetation and birdlife that had taken place over the previous 20 to 30 years. During this period, mining for guano, the introduction of rabbits, and the harvest of seals and birds took an enormous toll on the island ecosystem. Of the 27 species of plant life that were originally documented before these extraction activities, only four remained in 1923 (Grigg 2006). In addition to documenting ecological change, archaeologists at Nihoa and Mokumanamana discovered extensive artifacts and ruins, some of which are unlike any known from the main Hawaiian Islands.



Shipboard analysis of coral health (Photo: James Watt)

Historical scientific expeditions, such as the Rothschild and Schauinsland expeditions of the late 1890s, the *Albatross* in 1902, and the *Tanager* in 1923 and 1924, briefly explored the islands in the pursuit of scientific knowledge. However, their activities were generally limited to species inventories and the collection of large numbers of specimens. For example, the 1896 Schauinsland expedition collected at least 271 skins of 25 bird species, whereas J. J. Williams’ trip in 1892–1893 yielded “several barrels of stuffed birds.”

From 1963 through 1969, numerous voyages were made to the NWHI as part of the Pacific Ocean Biological Survey Program (POBSP) and the Smithsonian Institution. A number of biologists took part in ten trips to French Frigate Shoals, where numerous specimens were collected and data were gathered. The main goals of this program were to

101



Pristine Papahānaumokuākea reef with numerous *Acropora* coral colonies, a species extremely rare in the main Hawaiian Islands (Photo: James Watt)



learn what plants and animals occurred on the islands, the seasonal variations in abundance and reproductive activities, and the distribution and population of the pelagic birds of that area. During this project, more than 10 million square kilometers of the central Pacific Ocean were surveyed, and numerous publications were released in the Smithsonian's *Atoll Research Bulletin*.

Following the vast POBSP studies of the 1960s, the Tripartite NWHI Fishery Investigation expeditions in the mid 1970s aimed to establish information baselines on the flora and fauna in the area. These expeditions were unique in that three major agencies (National Marine Fisheries Service, U.S. Fish and Wildlife Service, and the Hawai'i Division of Fish and Game) actively collaborated to create an integrated research program in the NWHI. This collaboration provided a unique opportunity to document the relationships between species and assess the effects of commercial fishing and other activities on the region's ecosystems. This endeavor also launched the first intensive marine-based research expedition. Although the Tripartite expeditions laid the groundwork for management plans covering a variety of resources, much of the research of these expeditions was geared toward resource assessment, with a primary focus on commercially important species.

In the late 20th century, scientific research efforts underwent a paradigm shift, becoming more focused on knowledge and conservation of the natural ecosystems. This shift stemmed from the recognition that increased technology and human populations have created significant pressures on ocean ecosystems. In 2000, the State of Hawai'i, U.S. Fish and Wildlife Service, NOAA and several research institutions launched the NWHI Reef Assessment and Monitoring Program (NOWRAMP) to characterize and monitor coral reefs and establish a baseline for comparison and to facilitate monitoring temporal changes in the ecosystem. In addition to this group, NOAA has also initiated a comprehensive mapping effort using satellite imagery, multibeam sonar, and other remote sensing techniques to provide detailed characterizations of benthic habitats.

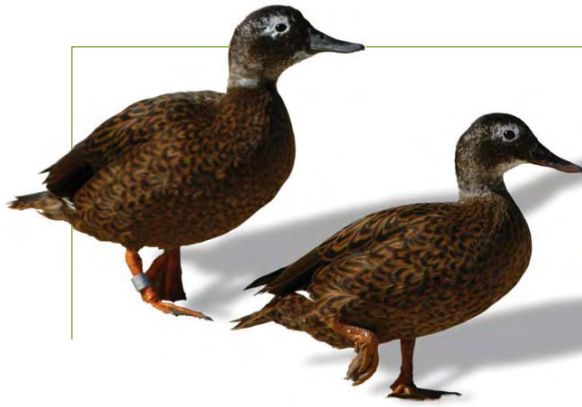
Several NOAA vessels have been commissioned primarily to support the research and mapping activities in the area that has become known as Papahānaumokuākea, and as a result multiple scientific projects have been initiated in the region. These activities range from basic monitoring of various species and environments to technologically advanced studies incorporating the latest scientific tools such as genetic analyses, satellite tagging, and deep water submersibles. More

recent scientific voyages to Papahānaumokuākea Marine National Monument are far less extractive, and are of extraordinary benefit to the preservation and protection of the area's natural resources. These cruises generally take tiny biopsies of corals, or collect feathers or scat from the beaches, and using modern laboratory techniques, have produced important information on key management issues such as population connectivity. Papahānaumokuākea is one of the world's largest marine protected areas; an enhanced understanding



Volunteers participate in the annual Midway Atoll National Wildlife Refuge albatross count. Each active nest is marked as it is counted  
(Photo: Roy Lowe)





## Laysan Duck

Papahānaumokuākea Marine National Monument is home to one of the world's rarest ducks, *Anas laysanensis*, commonly known as the Laysan Duck. Having the most restricted range of any duck species worldwide, the remaining Laysan Ducks have been relegated to a single naturally occurring population on one island in the Northwest Hawaiian Islands.

The species was extirpated from most other

islands of the Hawaiian Archipelago after the arrival of the first humans approximately 1,500 years ago. Bones of the Laysan Duck have been found on the islands of Hawai'i, Maui, Moloka'i, O'ahu, Kaua'i and Lisianski. Total estimated population sizes on Laysan Island have ranged from seven to 688 adult birds in the past century, while a recent population estimate cites 459 adults. Viability models for species with small populations and high isolation predict a high risk of extinction due to catastrophic, environmental, genetic, and/or demographic stochasticity. As a result, the Laysan Duck is the subject of intensive active management, research and restoration actions.

The recovery of the Laysan Duck focuses on the following actions: 1) management to reduce risks to the Laysan Island population; 2) protection and enhancement of suitable habitat; and 3) actions to reduce or eliminate threats sufficient to allow successful reestablishment of additional wild populations.

Activities to increase the longevity of this species in recent years have focused on translocations to establish the species on additional islands and atolls within Papahānaumokuākea. Midway Atoll, part of the National Wildlife Refuge System, was chosen as the most promising site for initial translocations. Eighteen months of extensive habitat restoration and modification were required to prepare for the arrival of the ducks. Refuge staff and volunteers excavated nine shallow freshwater seeps, removed non-native plants, planted native vegetation to provide cover, forage and nesting habitat and constructed 16 holding aviaries to provide for a "soft-release" of the translocated ducks.

Within three years, and while overcoming the challenges of working in the most remote island system in the world, these teams have successfully established breeding populations of Laysan Ducks on two different islands of Midway Atoll, and are now at work preparing for the translocation and establishment of a third population on yet another island. The creation of additional breeding populations has greatly reduced the likelihood of extinction of the Laysan Duck, and the team's continuing efforts toward further reintroducing the species, expanding its range and increasing its population size has set the species on the road to recovery.



An endangered Laysan Duck nurtures its newly hatched brood on Midway Atoll National Wildlife Refuge. The Laysan Duck, *Anas laysanensis*, is one of the rarest ducks in the world (Photo: Jimmy Breeden)



of this place through management-driven research continues to benefit the understanding of ecosystem management and interpretation.

Overall, the most recent scientific expeditions to the NWHI are not unlike the voyages undertaken at the turn of the century. As in initial expeditions, the primary focus of research in recent and forthcoming expeditions is of comprehensive data collection, and with the technology now available, new discoveries. To advance scientific understanding of the region, Papahānaumokuākea is working toward synthesis of all the various data and modeling programs to allow an in-depth understanding of the area and the processes on which the health of the region depends. With the wealth of new information being collected each year, this information can be utilized to combine and synthesize the vast ranges of information from various agencies and institutions, and from them, develop a new management paradigm.

#### *Management in the Modern Era*

104

Due to its remote location, the property has suffered relatively few major human perturbations. During the 19th and 20th centuries, the NWHI faced many extractive uses as Honolulu became an important port in the Pacific, and provided a convenient jumping-off point. Extractive activities included whaling, hunting of monk seals and birds, and fishing for shark, turtle, sea cucumbers, and pearl oysters. Terrestrially, several of the islands were leased for guano extraction, and feathers and albatross eggs were collected. The most significant activities of this nature occurred on Laysan and Lisianski Islands and Midway Atoll. All of these activities ceased by the early 20th century, when American President Theodore Roosevelt acknowledged the need to protect the region's birds, setting aside the islets and reefs of the Northwestern Hawaiian Islands (except Midway Atoll) as the Hawaiian Islands Reservation. Since then, numerous efforts have been made to eradicate alien species, and to protect, preserve, maintain and, where appropriate, restore natural communities,

including habitats, populations, native species, and ecological processes as a public trust for current and future generations.

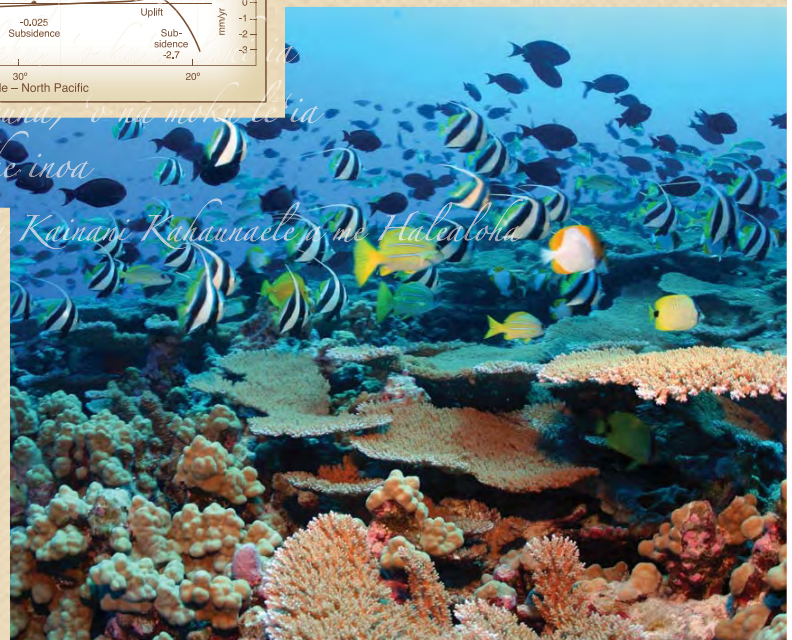
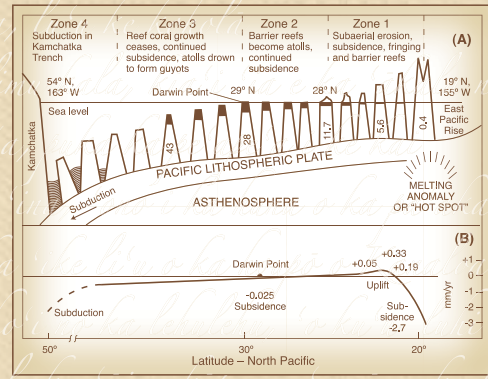
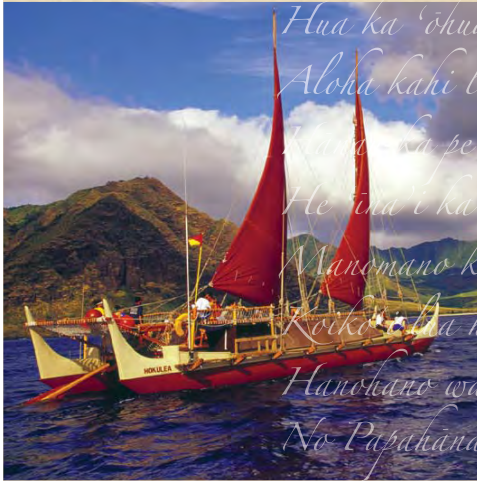
The lands and the waters of Papahānaumokuākea have always been remote, and therefore not heavily accessed. Thus, use of the natural resources of the property was historically minimal and sporadic. In recent years, human access to the property has been primarily limited to commercial fishing, conservation and management, and research activities. At times, longline, crustacean and bottomfish fisheries have operated in Papahānaumokuākea. However, even before the designation of the National Monument, only the bottomfish fishery continued to operate under a limited-entry system. This fishery continues to operate in Papahānaumokuākea, limited to no more than eight permitted vessels that are capped in terms of catch. All commercial fishing will cease in 2011, as per terms of Presidential Proclamation 8031.

Current management strategies result in careful scrutiny of activities within the property, with particular attention to cumulative impacts. This oversight ensures that any potential negative human impact to the natural resources of Papahānaumokuākea will be negligible.

Management and conservation activities that take place within Papahānaumokuākea Marine National Monument undergo the same rigorous review and permitting process as scientific activities. Examples of management and conservation activities include the continuation of a decade-long effort to remove marine debris from the coral reefs and beaches of the property, alien plant species removal projects on several islands, and restoration of native plant and animal species.



*A hāhānānā ka lā nui a kāu paka i Hāhānā  
 Apakāu ke kūkāna i ka 'ili kai o nā kai 'ewalu  
 He 'ike makāwalu ka'u e 'ano i nei,  
 'O nā au walu o Kanaloa Haunawela noko i ka moana nui  
 He Hū'akāi ka makāni o Lehua 'au i ke kai  
 Kū'ono'ono ka lua o Kūhaimoana i ke kapa 'ehukāi o Kā'ula  
 'O Kū i ka loulou, ulu a'e ke aloha no Nihoua moka manu  
 Manu o kū i ka 'āhūi, he alaka i nā ka lāhūi  
 'O Hinapukō'a  
 'O Hinapūhālako'a  
 'O Hina kapukapu  
 'O Hinaikāmalama*



*Justification for Inscription on the  
 World Heritage List*



## 3. Justification for Inscription on the World Heritage List

Papahānaumokuākea Marine National Monument is nominated as a mixed cultural and natural heritage site with a cultural landscape under criteria (iii), (vi), (viii), (ix) and (x).

### 3.a Criteria Under Which Inscription Is Proposed

**Criterion iii: to bear a unique or at least exceptional testimony to a cultural tradition or to a civilization, which is living or which has disappeared.**

#### *Peopling of Polynesia and the marae-ahu-heiau Ritual System*

All Polynesian cultures have a shared history and descend from an Ancestral Polynesian Culture, which developed in a Western Polynesian homeland sometime in the mid-later first millennium BC (Green 1986; Kirch 1984; Kirch and Green 1987, 2001). As Polynesians voyaged and settled the remote parts of Eastern Polynesia from this Western homeland, isolation led to marked social change, particularly after inter-archipelago long-distance voyaging ceased in the 15th century.



*Pale anemone crab* (Photo: Susan Middleton & David Liittschwager)

The *marae-ahu-heiau* complex found throughout Eastern Polynesia refers to ceremonial sites, often monumental in size, where individuals and communities had structured relationships with the ancestors and gods and where socio-political rites were carried out (Green 1993). There is growing evidence that ritual sites were also used for astronomical reckoning in order to link the lunar calendar with the agricultural calendar and seasonal festivals (Kirch 2004a, 2004b). The *marae-ahu-heiau* ritual architecture found throughout Eastern Polynesia has a court – either a pavement or an enclosure, with representations of the gods (upright stones, sculptures, etc.)

and an *ahu* (altar). That these types of religious sites throughout Eastern Polynesia have a shared morphology and use demonstrates the common ancestry of all Eastern Polynesian religions and religious architecture.

The 45 shrines of Nihoa and Mokumanamana, built sometime between

**“The Last Frontier: The Pacific Islands were the most difficult and therefore the last places on earth to be reached by humans. With that settlement, humankind finally reached the end of the habitable world.”**

– **K. R. Howe**, in *Vaka Moana (“Ocean Sailing Canoes”): Voyages of the Ancestors, the Discovery and Settlement of the Pacific*. *Hawai’i is the most isolated archipelago in the world, and one of the last two, if not the last, Pacific island chains to be reached by humans.*

1000 and 1700 AD consist of well-paved terraces and platforms with single uprights or more commonly, rows of uprights. In the Hawaiian Archipelago, they show rare shared connections to other Eastern Polynesian cultures that use lines of uprights to represent the gods, namely the Society Islands and Tuamotu Islands of Central Eastern Polynesia (Green 1996; Emory 1928). They are the only *heiau* in the Hawaiian Archipelago, apart from a few exceptions found in remote high-altitude zones (Mauna Kea and Haleakalā), that incorporate these elements. The Papahānaumokuākea ceremonial sites demonstrate both the common ancestry for all Eastern Polynesian religions and ritual architecture (Graves and Sweeney 1993), as well as the diversity in religious architecture that developed as socio-political institutions diverged through time and Eastern Polynesian cultures became more isolated and regionally focused after 1450 AD.

Other facets of the material culture in Papahānaumokuākea clearly demonstrate cultural affinities to Central Eastern Polynesia. These include exceptionally detailed stone figures that lack counterparts in stone or wood figures

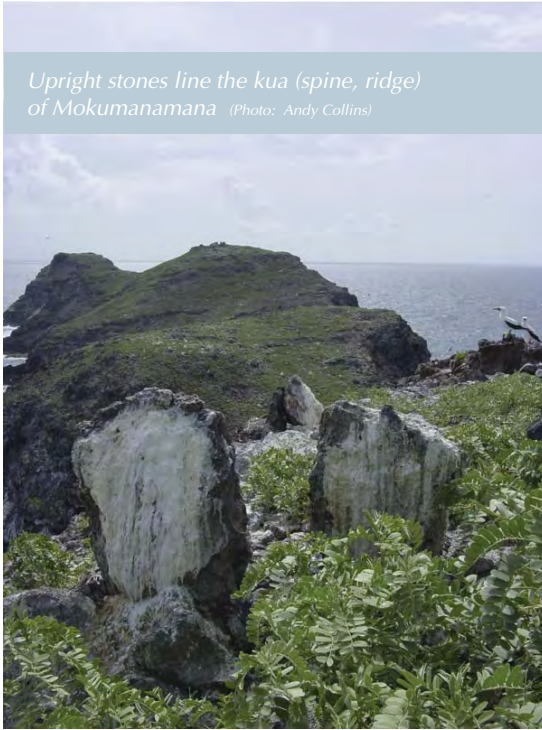
found in Hawai'i (Cleghorn 1988), but resemble sculpted *ki'i* (god figures) recovered from the Marquesas Islands in Central Eastern Polynesia (Chavaillon and Olivier 2007). The layout of temples at Nihoa and Mokumanamana is hypothesized to relate to the observations of celestial phenomena used to coordinate the lunar and agricultural calendars, similar to ritual sites documented in both Mangareva (Central Eastern Polynesia) (Kirch 2004a; McCoy 2008) and elsewhere in Hawai'i (Kirch 2004a; McCoy 2008). Thus, the archaeological landscapes of Nihoa and Mokumanamana demonstrate ties to earlier ancestral cultures to the West, yet aspects of their form and layout also provide exceptional examples of how the Native Hawaiian culture evolved, adapted and changed in its relative isolation. The Papahānaumokuākea cultural and marine landscape has importance on a world-wide scale as a rare undisturbed example of the long-term history of settlement, evolution and change in the Oceanic Island region.



*Papahānaumokuākea, a place of outstanding movements on the sea. Shown here, the traditional Hawaiian voyaging canoe, Hōkūle'a, returning to the main Hawaiian Islands (Photo: Monte Costa)*



*Upright stones line the kua (spine, ridge) of Mokumanamana (Photo: Andy Collins)*



#### *Intact Cultural-Marine Landscape*

Skill in voyaging enabled not only discovery, but also continued use of remote regions that lacked basic resources for sustenance. Despite a dearth of fresh water, these islands were important residential and ceremonial sites for a resilient pre-contact Hawaiian community. Nihoa and Mokumanamana feature rare, intact archaeological landscapes of residential sites, agricultural terraces, and ceremonial complexes from settlements where Native Hawaiians resided between 1000-1700 AD (Cleghorn 1988). A diverse range of ancient site types are well represented, including habitation terraces and rock shelters, some of substantial size and expert architecture, extensive terraces for dryland agriculture, and a plethora of shrines and *heiau/marae* for ritual activities. Survey and excavation have recovered artifacts suggesting that a range of activities were carried out by pre-contact Native Hawaiians on these islands. These include daily domestic activities (cooking, food preparation and storage, manufacture of stone tools and fishing gear), subsistence activities (fishing and collecting marine resources, cultivating dryland crops), and ritual activities (including burial of the dead). Native Hawaiians

presently use the area as a navigational testing ground and to perform varied rituals in the ceremonial landscape.

The lack of intensive use or development in Papahānaumokuākea has left these archaeological landscapes in remarkably pristine condition. In pre-contact Hawai'i, settlements extended from the coast to the interior island regions in generally pie-shaped patterns termed *ahupua'a*, which encompassed resources of both the land and the ocean (Kirch 1985). Most cultural landscapes within the Hawaiian Islands, particularly those situated near the coast, have been detrimentally affected by modern development. Papahānaumokuākea is arguably the only place in the Hawaiian Islands with a fully intact pre-contact archaeological landscape where the full suite of site types are preserved, coupled with a near to pristine natural marine environment. As such, it represents an exceptional treasure to the worldwide community and to descendant Native Hawaiians who continue to have a living cultural connection with these land and sea resources.

#### *Mystery Islands and Adaptations to Remote Island Environments*

Papahānaumokuākea is particularly significant in this context because Nihoa and Mokumanamana are both "Mystery Islands" – the once-inhabited but now abandoned outposts at the farthest reaches of Polynesian migration – which have been integral in describing how Polynesia

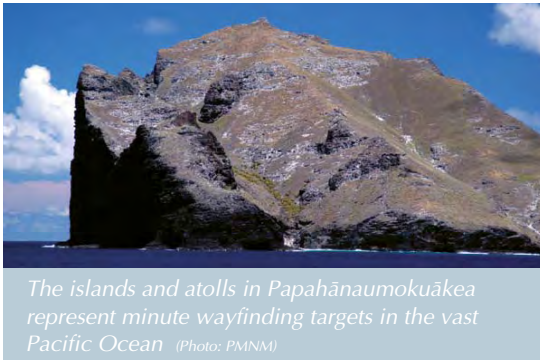


*Residential sites on Nihoa (Photo: David Boynton)*

**Papahānaumokuākea “... completes the cycles we have in all of our stories. We always have these cycles in our stories... the sun rising at Kumukahi [Hawai‘i Island] and then setting way over in the West [Papahānaumokuākea].”**

– *Pualani Kanaka‘ole Kanahela* during the re-commencement of the ancient Summer Solstice voyage to Mokumanamana. She says of the significance of cultural practitioners visiting Papahānaumokuākea: “We’re completing the cycle of the sun. And then the new cycles begin.... When we go back to Hawai‘i, we begin the cycle of rebirth all over again.”

was purposefully (rather than accidentally) peopled, as was suggested earlier in the 20th century). Archaeological studies have been highly influential in understanding how sustained inter-archipelago and



The islands and atolls in Papahānaumokuākea represent minute wayfinding targets in the vast Pacific Ocean (Photo: PMNM)

inter-island voyaging were required to sustain human life on Polynesian Mystery Islands (Diamond 2005; Weisler 1994, 1995, 1997, 2002). As Weisler (1996: 627) notes, “so-called Mystery Islands,” with their marginal ecological conditions and isolation taxed the capabilities of Polynesian colonization to the physical and social limits. They document not only how Polynesians settled marginal places with minimal resources but offer an example of a remarkable achievement in the history of human life: how humans adapted to some of the most isolated and extreme living conditions on earth.

In archaeological or anthropological terms, Nihoa and Mokumanamana have a fully “transported” and human modified landscape, with the remains of hundreds of stone

masonry features and earthen and rubble fill terraces. Despite these islands’ remote character and marginal resources (e.g., lack of fresh water, materials for building, food, anchorages) deep-sea sailing canoes and wayfinding expertise transported people and resources from the main Hawaiian Islands to these Mystery Islands. Such efforts are thought to have been expended because of Mokumanamana’s spiritual significance as the boundary between the realm of the living and the realm of the afterlife.

Other Polynesian Mystery Islands have seen archaeological research and have intact prehistoric archaeological remains (Henderson-Pitcairn; the Phoenix-Line Islands, Norfolk Islands, and the Kermadecs). However, among these, those in Papahānaumokuākea stand apart from the rest. They not only have the highest density of ritual and ceremonial sites among the Mystery Islands, but they have unique ritual sites documenting both the evolution of Polynesian societies and their shared past connections to ancestral cultures in the West. They are also, significantly, the only Mystery Islands with a living descendant community that currently uses and has strong ties to the islands’ cultural and natural resources.

**“It is the edge of the Hawaiian universe...”**

– *Halealoha Ayau*, Hawaiian cultural practitioner on why Papahānaumokuākea is a place of such fundamental importance to the Native Hawaiian people and culture.”



**Criterion vi: to be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance.**

Native Hawaiian culture continues to evolve in great part through the perpetuation of a rich oral tradition. Genealogies and cultural meanings are still passed down through *oli* (chant) and *mele* (song), as are histories, natural resource management knowledge, philosophies, and medicinal and spiritual knowledge. Papahānaumokuākea is the spiritual, physical, or practical site of a host of traditions that are central to Native Hawaiian culture and understanding.

### The World of Gods and Spirits

Papahānaumokuākea is considered a sacred area, from which Native Hawaiians believe all life springs, and to which spirits return after death. The longest recorded traditional Hawaiian chant, the Kumulipo (source of deep darkness), recounts how all life forms came and evolved out of the primordial darkness, called Pō.

Unlike the Maori *iwi* (tribes) of *Aotearoa* (New Zealand), Native Hawaiian genealogies in their homeland do not begin with the naming of the canoe on which their ancestors arrived, but instead establish a familial

relationship with the creation of the land they inhabit, the Hawaiian Islands. Oral histories of the generations of Hawaiians extend back more than 900 generations, linking all Hawaiians to Wākea (sky father) and Papa (earth mother), to the first living creatures of land and sea, and to the elements themselves (Kame‘eleihiwa 2007).

The Kumulipo tells of the births of the universe’s first life forms, considered to be gods by Native Hawaiians, beginning with the deep darkness of night and the coral polyp, continuing with emergence of the archipelago’s various plants and animals, and ending with the birth of Native Hawaiians.

The Kumulipo describes the Hawaiian universe as being comprised of two worlds: Pō, the deep darkness reserved for gods and spirits, and Ao, the realm of light where the living reside. Native Hawaiians believe that Mokumanamana represents the boundary between these two worlds. In astronomical terms, this boundary crosses the Tropic of Cancer, which runs across Mokumanamana.

Native Hawaiians also believe that when people die, their spirits travel to portals, called *leina* in Hawaiian, located on each main Hawaiian Island. From these portals, spirits embark on a journey out of Ao, and into the west, to Pō. Once again, this spirit realm of Pō is represented by the islands and their surrounding waters located to the northwest of Mokumanamana.

As the boundary between Pō and Ao, Mokumanamana today serves as a critical place for ongoing Native Hawaiian cultural research into the significance of celestial movements, particularly during major solar events such as the summer solstice. Native Hawaiian tradition holds that a person’s shadow is the physical manifestation of their spirit. Therefore, Hawaiian ceremonies are held during periods of the day when the shadow cannot be seen, and power is therefore concentrated in the body: the transitions at dusk and dawn, and at noon. The sun hangs overhead the longest on the summer solstice, June 21, along the Tropic of Cancer, making Mokumanamana a powerful place to hold summer solstice ceremonies.

*Blowing a conch shell and chanting, Hawaiian practitioners greet their ancestors (kūpuna), give thanks, and ask their permission to land on Nihoa and Mokumanamana (Photo: Na‘alehu Anthony)*



In 2007, renowned Native Hawaiian cultural practitioner and researcher Pualani Kanahale and a group of cultural practitioners called *Ha'ae Wale Hānauna Lolo* visited Mokumanamana to study the relationship between the island's *heiau*, or shrines, and the path of the sun during the summer solstice. Native Hawaiian cultural researchers are committed to continuing this research, as well as to conducting other studies, on both Nihoa and Mokumanamana. These research opportunities are important to the maintenance and continued growth of strong bonds between Native Hawaiians and the Northwestern Hawaiian Islands.

In addition, Native Hawaiians rely on access to Nihoa and Mokumanamana to conduct ceremonial rites associated with the deities connected with these places, such as Kāne, the god of life and fresh water, and Kanaloa, the god of the deep ocean.

*One of the The Last-Remaining Places  
of Abundance (ʻĀina Momona)*

The natural integrity of Papahānaumokuākea is exceptional. In a Pacific and Hawaiian

context, this integrity is of paramount cultural importance, particularly in comparison to the largely degraded terrestrial and marine ecosystems in the main Hawaiian Islands. Terrestrial, and particularly marine environments, that remain relatively lightly affected by humans, with high rates of endemism and life that is unique to the Hawaiian Archipelago, are crucial to an indigenous understanding of the important relationships between ocean and land; between living things in a unique, fragile and induplicable ecosystem; and particularly between humankind and the natural world. These understandings, central to the Native Hawaiian world-view, are passed down through oral histories and traditions, but require a living, physical manifestation to have more than abstract or historical meaning. Papahānaumokuākea serves a critical function today for Native Hawaiians who are seeking ways to not only reconnect and expand their cultural practices, but also ways to improve degraded natural environments in the main Hawaiian Islands, to which their cultural practices are intrinsically linked.



*A Green Turtle or honu glides above Acropora (Table Coral)*  
(Photo: James Watt)



Papahānaumokuākea provides Native Hawaiians and the broader public a region to observe and learn from that is nearly pristine and unspoiled. This example can teach valuable lessons in conservation that can be applied to the archipelago's main islands (see Section 2.a) and beyond, to other places that seek to integrate indigenous knowledge of sustainable management practices with current Western paradigms of conservation. In particular, islands such as Nihoa and Mokumanamana offer examples of how the ancestors of Native Hawaiians implemented their traditional knowledge to sustain their presence on remote islands with fragile environments.

In this living classroom, Hawaiian practitioners are learning by comparison about how their environments in the main Hawaiian Islands have been altered. For example, on the July 2008 Educators of Oceania research cruise to Papahānaumokuākea, Hawaiian practitioners conducted surveys of reef habitat to help determine traditional Hawaiian indicators of change to

the main Hawaiian Islands' reefs. Papahānaumokuākea also provides the potential to be an inspirational example of how to integrate indigenous and Western management practices, providing a model for other culturally and ecologically invaluable properties (see Section 5).

### *Hawaiian Voyaging and Wayfinding (Non-Instrument Navigation)*

Today, Papahānaumokuākea serves a critical role in two significant, living, Native Hawaiian traditions: voyaging and wayfinding. The voyaging route between Kaua'i and Nihoa is used today, as it has been for generations, as a major training and testing ground for novice navigators studying modern Hawaiian wayfinding aboard traditional, double-hulled Hawaiian voyaging canoes.

This route is the only one from the main Hawaiian Islands where neither the launching point nor the target destination is visible for an extended period during the course of the voyage, thereby offering a close simulation of a long-distance voyage without the added



*One of Hawai'i's last-remaining places of abundance: intact coral reef ecosystems, plentiful wildlife, and viewsapes unchanged for centuries (Photos: James Watt)*

*Just as in ancient times, Papahānaumokuākea is the proving ground today for apprentice Hawaiian wayfinders (non-instrument navigators)* (Photo: PVS)



dangers of testing endurance. It is also the only voyaging route that offers this simulation while being close enough to the main Hawaiian Islands to ensure safety and access to provisions. These characteristics make this route “the ideal training platform” for novice Hawaiian wayfinders, according to Nainoa Thompson, Master Hawaiian Navigator. Today, novice Hawaiian wayfinders are considered ready to attempt navigation of a long-distance voyage after they have successfully guided a voyage from Kauaʻi to Nihoa, with a possible additional leg to Mokumanamana. The roundtrip from Kauaʻi to Mokumanamana can be completed within four days, compared to a 30-day, one-way voyage from Hawaiʻi to Tahiti (Kālepa Babayan 18 June 2008, personal communication; Dennis Chun 19 June 2008, personal communication; and Nainoa Thompson 4 October 2008, personal communication).

The connection between Native Hawaiian voyaging and Papahānaumokuākea is not limited to the training of navigators. Traditional, double-hulled Hawaiian voyaging canoes have traveled throughout Papahānaumokuākea in recent years. In 2004, *Hōkūleʻa* sailed from Kauaʻi all the way to Kure Atoll and back as part of the educational “Navigating Change” voyage (see Section 2.b). Moreover, the five existing and two under-construction Hawaiian voyaging canoes will continue to serve as the traditional vessels to deliver cultural practitioners to Nihoa and Mokumanamana

for religious ceremonies. The use of traditional canoes offers an opportunity to maintain a level of cultural integrity that is appropriate for these ceremonies. In two separate voyages in 2003 and 2005, the voyaging canoes *Hōkūleʻa* and *Hōkūalakaʻi* brought the cultural protocol group *Nā Kupuʻeu Paemoku* to Nihoa and Mokumanamana for ceremonial purposes.

**Criterion viii: to be outstanding examples representing major stages of earth’s history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features**

The 1,931 kilometer long string of islands, atolls, and banks in Papahānaumokuākea Marine National Monument form a major portion of the Hawaiian-Emperor Archipelago, the world’s longest and oldest volcanic chain (Grigg 1997), and an unparalleled example of sequential volcanic hotspot island formation and evolution. Each of the islands in the Hawaiian-Emperor Archipelago began as a submarine volcano on the ocean floor. This volcanic “hot spot,” currently located near the island of Hawaiʻi, the southernmost Hawaiian Island, has been active for at least 80 million years. Gradual tectonic movement of the Pacific plate to the northwest carries each emerging island slowly away from the hotspot, creating a chain of volcanic islands.

113



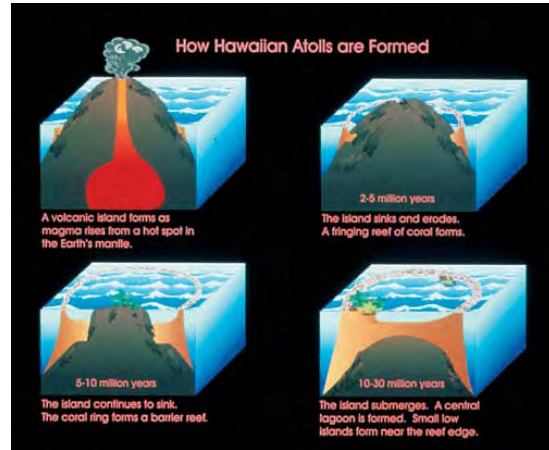
*Remote and low-lying Nihoa and Mokumanamana help wayfinders simulate trans-Pacific voyaging - while within safe reach of port* (Photo: Naʻalehu Anthony)



Papahānaumokuākea’s islands, atolls and associated submerged banks comprise a classic geomorphologic sequence illustrating what can happen in an island’s middle and late age—with eroded high islands, near-atolls with volcanic pinnacles jutting from surrounding lagoons, true ring-shaped atolls with circular rims and central lagoons, secondarily raised atolls, and submerged banks, rich with marine life, where islands once stood.

Coral reef and then atoll formation proceed in parallel with an island’s formation and senescence. When a submarine volcano rising from a seafloor hotspot reaches the level of the photic zone, where sunlight is present, coral reefs begin to form. As the islands are transported by plate motion to the north and northwest, these reefs continue to grow around the island margin, and the islands themselves are moved off the hotspot and begin to erode and subside. Eventually the volcanic core disappears altogether, and the classic ring-shaped atoll is left behind.

Papahānaumokuākea encompasses the northernmost three-quarters of the Hawaiian Archipelago. The oldest of these, Kure, is estimated to be ~27 million years old, whereas Nihoa, the youngest within Papahānaumokuākea, is estimated to be 7.2 million years old, and is the closest to the active volcanic hotspot at Kīlauea in the main Hawaiian Islands,



Model of Hawaiian atoll formation  
(Patti Gallagher-Jones/FWS)

(Rubin 2001). Nowhere else in the world is this progression illustrated in such an unambiguous and linear fashion (Figure 3.1).

As one moves up the Northwestern Hawaiian chain from southeast to northwest, the islands clearly and dramatically illustrate the stages in the volcanic island growth cycle, containing all stages of island/atoll/seamount progression. At Papahānaumokuākea’s relatively younger southwestern end, Nihoa and Mokumanamana are volcanic in nature, the eroded peaks of much larger islands that are mostly subsided and now form the basis for large banks that ring the emergent land. Moving northwest, French Frigate Shoals represents a site where only La Pérouse Pinnacle, a steep-sided basalt sea stack, still exists above sea level in the middle of the original volcano that forms the foundation for the surrounding atoll. Gardner Pinnacles are steep basalt sea stacks surrounded by an extensive bank, where coral growth did not keep pace with the island’s subsidence. Moving further northwest, one encounters islands that are true atolls, rings of coral reef that outline what were once large land masses, long since eroded. Drilling projects on Midway in the late 1960s confirmed that these islands were built above the sea by lava flows that were subsequently weathered and partially truncated

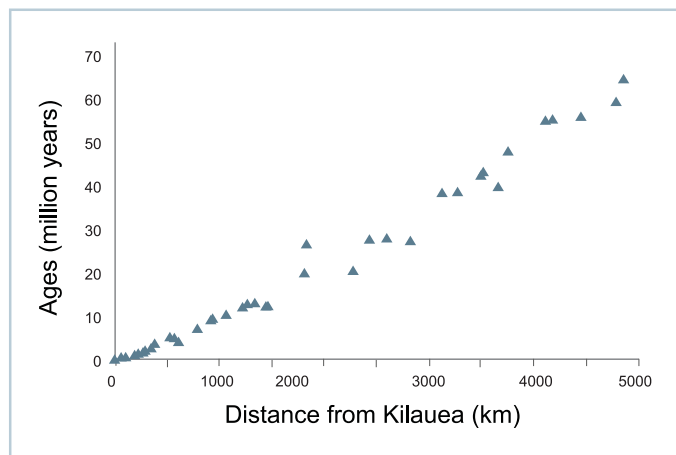
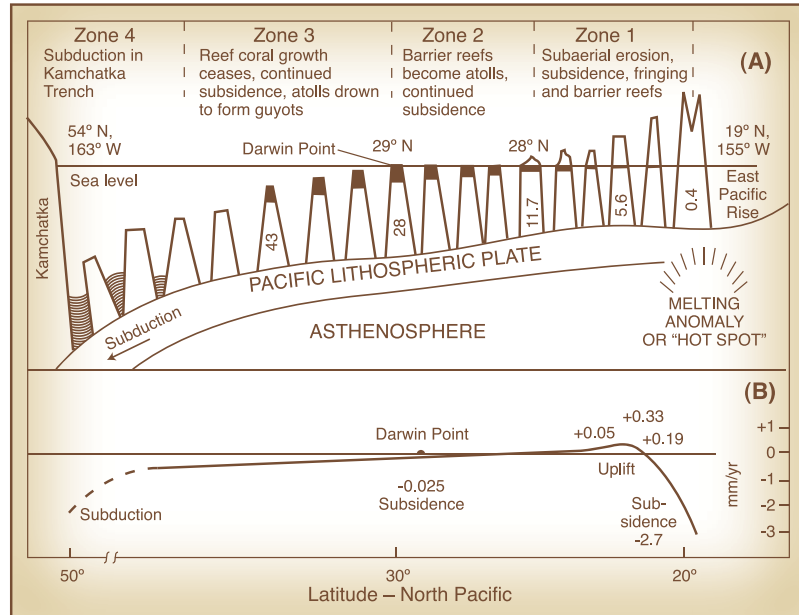


Figure 3.1: Age of volcanoes within the Hawaiian Archipelago  
(Data: Clague and Dalrymple (1987))

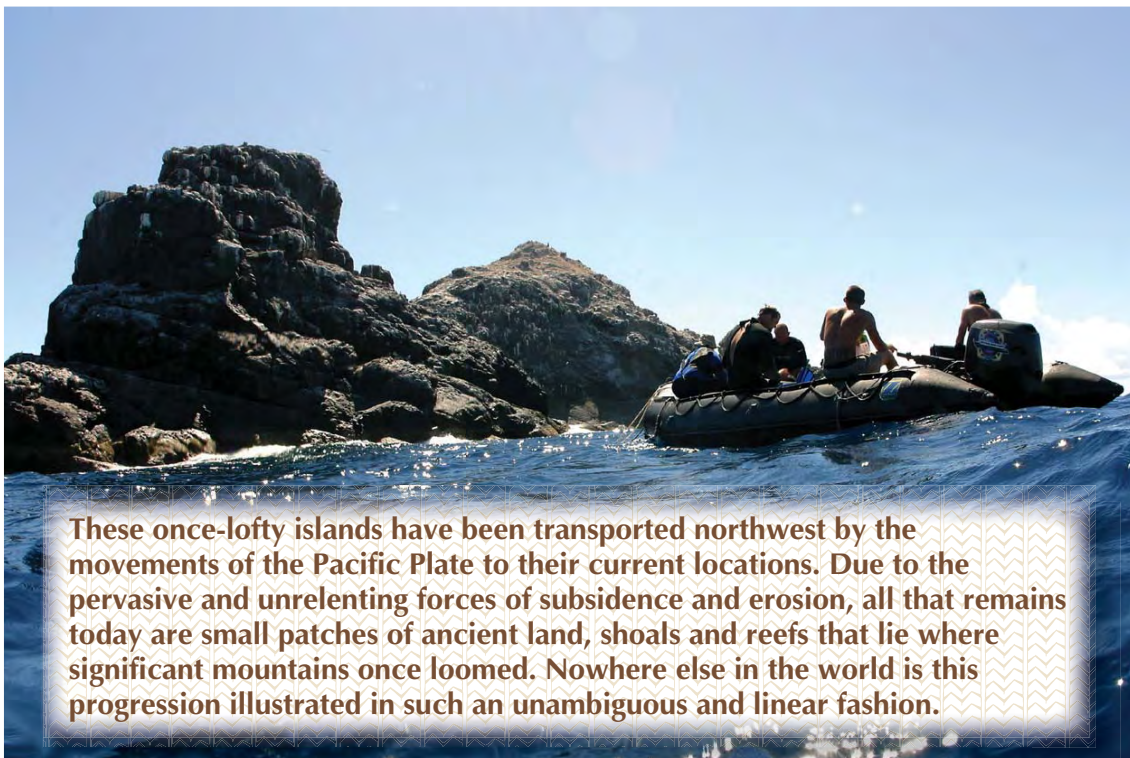
in pre-Miocene time, submerged and covered by successive layers of limestone left behind from coral growth (Ladd et al. 1976).

Papahānaumokuākea includes a unique example of an atoll at the critical “Darwin Point,” the northernmost threshold for coral reef existence (Grigg 1982). Kure Atoll is the northernmost coral reef in the world and has reached the latitude at which coral growth rates, which decrease in cooler temperatures, are matched by the rate of subsidence of the island. North of the Darwin Point, reefs can no longer grow fast enough to counteract subsidence, and along with the underlying platforms become seamounts and guyots that eventually disappear into



Model of volcanic island growth progression, from island to atoll to seamount (Richard Grigg)

the ocean depths at the northern end of the Hawaiian-Emperor chain (Grigg 1997). Papahānaumokuākea includes 30 submerged banks and guyots, and many of these may already be too deep to re-emerge at sea level through coral growth.



These once-lofty islands have been transported northwest by the movements of the Pacific Plate to their current locations. Due to the pervasive and unrelenting forces of subsidence and erosion, all that remains today are small patches of ancient land, shoals and reefs that lie where significant mountains once loomed. Nowhere else in the world is this progression illustrated in such an unambiguous and linear fashion.





*Masked Angelfish*  
(Photo: Susan Middleton & David Liittschwager)

116

**Criterion ix: to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals**

Landscapes and seascapes that have evolved and continue to progress largely without man's interference are increasingly rare. Due to the remote and nearly undisturbed nature of the ecosystem at Papahānaumokuākea, ecological and biological processes are continuing much as they have since these lands first rose from the seafloor and then moved with the Pacific plate to the North.

At 1,400 hectares, the total land area of Papahānaumokuākea is extremely small, but is crucially important for the survival of both marine and terrestrial species, many that spend part or most of the year at sea and come ashore to breed or nest; these include turtles, monk seals, and seabirds.

The interdependence among these species is exemplified by such interactions as large schools of pelagic tuna driving the smaller bait fish to the surface, where they are preyed upon by thousands of seabirds who rely on these apex predators for a key food source.

#### *Marine Endemism*

Of the ~7,000 marine species found in Papahānaumokuākea Marine National Monument, over one quarter are found nowhere else on the planet. This high degree of endemism represents the highest reef fish endemism rates in the Pacific (20%–63% by area). It is also a spectacular example of evolution in isolation, which results in speciation and a high degree of endemism. The rate of endemism within coral reef fishes increases as one moves northwest up the island chain, with endemics in the far northwest comprising over 50% of the population in terms of numerical abundance. For example, at Nihoa, just 20% of numerical abundance of the 127 fish species are endemic, whereas

at the northern three atolls of Pearl and Hermes, Midway and Kure, the rates of abundance of endemism among fish species are as high as 62%, 54%, and 56%, respectively (DeMartini and Friedlander 2004) (Figure 3.2).

Oceanic islands are unique, and on each island, evolution frequently follows a different course, often with remarkable results. In some cases, there is as much diversity between islands in the property as there is among the islands as a whole; some genera of corals only occur in a few of the atolls and nowhere else in Hawai'i.

Over the course of the past five years, field expeditions to Papahānaumokuākea have collected numerous samples of marine plants and animals that were not previously described, or are new records for a site. On an expedition of discovery and baseline data collection in 2000, more than seven new and different species of sponges were discovered at Pearl and Hermes Atoll (Maragos and Gulko 2002). In 2006, during the Census of Marine Life (CoML) expedition, more than one hundred new cryptic species were collected. Recent surveys of corals, including those conducted during the census at French Frigate Shoals, reveal that as many as 40% of the coral species are endemic, with most still yet to be described.



Apex predators abound within Papahānaumokuākea's waters  
(Photo: James Watt)

### Top Predator Dominated Ecosystem

Papahānaumokuākea's coral reef ecosystem represents one of the world's last remaining top predator dominated systems, a rare and intact community structure characteristic of coral reefs prior to human exploitation. The coral reef ecosystem is diverse and healthy, and supports an abundance of wide-ranging top predators such as sharks and jacks. These apex predators represent 54% of the biomass in Papahānaumokuākea, compared with 3% of the biomass in the main Hawaiian Islands—the latter number being consistent with human-populated regions worldwide (Figure 3.3).

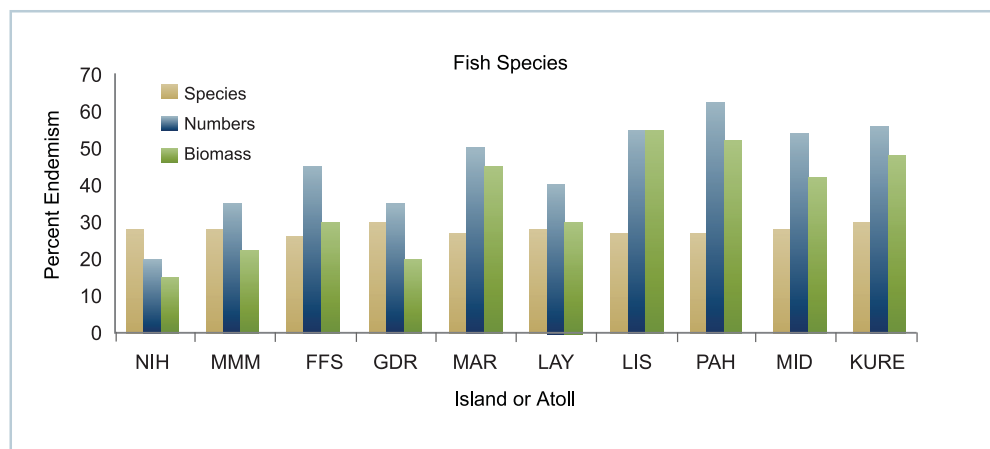


Figure 3.2: Various measures of percent endemism (based on species occurrence, and on numerical and biomass densities) at each of 10 Papahānaumokuākea islands and atolls, illustrating patterns of endemism with latitude (from DeMartini and Friedlander 2004)



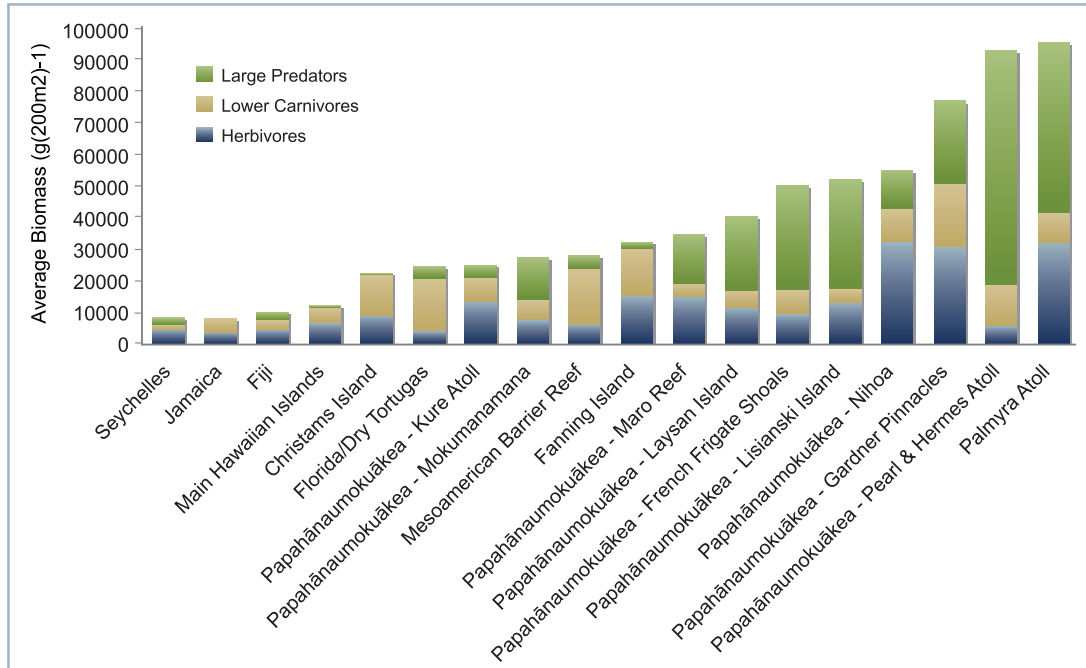


Figure 3.3: Comparative biomass of large predators, lower carnivores, and herbivores among coral reef ecosystems of the world

### Terrestrial Endemism

The terrestrial area of Papahānaumokuākea is comparatively small, but it is a critically important component of the ecosystem. More than 14 million seabirds nest, rest and breed on the tiny islets in the chain, including 99% of the world's Laysan Albatrosses (listed as vulnerable by IUCN) and 98% of the world's Black-footed Albatrosses (listed as endangered by IUCN).

The extinct Laysan Honeycreeper, and the extant Nihoa Finch and Laysan Finch, are all members of the family Drepanididae, the Hawaiian honeycreepers, a family

that underwent one of the world's most spectacular avian radiations from a single ancestral species. This remarkable proliferation of species from a single ancestral type is often compared to the evolutionary radiation of Darwin's finches on the Galapagos Islands.

Representatives in many other taxa of plants and animals that have undergone similar radiations also occur in Papahānaumokuākea. The endangered fan palm, *Pritchardia remota*, found only on Nihoa, is most closely related to three endangered *Pritchardia* species found in remote areas of the main Hawaiian Islands. The entomofauna of Papahānaumokuākea also includes some groups of insects that demonstrate dramatic adaptive radiations. One such group is the seed bugs, specifically the genus *Nysius*, which shows the complete range of feeding types: from host-specific plant feeders, to diverse plant hosts, to omnivorous feeding, and finally to predator/scavengers. It is a rare occurrence to find herbivorous and carnivorous seed bugs within the same genus. Nowhere else in the world is there a lineage like the Hawaiian *Nysius*, which exemplifies evolution of carnivory in Heteroptera.

118



The Nihoa Finch is one of three remaining endemic honeycreeper species in Papahānaumokuākea  
(Photo: Dave Boynton)

**Criterion x: contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.**

The terrestrial and marine habitats of Papahānaumokuākea are crucial for the survival of many threatened species, several of which are found on only one island, or have limited ranges. Some of these species are of particular conservation concern because of their limited ranges. IUCN recently named the unprotected Emperor Seamounts, the northernmost part of the Hawaiian-Emperor Archipelago, as first on its list of “High Seas Gems”—“areas of concentrated abundance or diversity, rarity, naturalness, or vulnerability.” Papahānaumokuākea, the protected neighboring section of this archipelago, shares these qualities.

#### *Largest Tropical Seabird Rookery in the World*

Papahānaumokuākea is home to more than 14 million birds living seasonally in what is collectively the largest tropical seabird rookery in the world. Twenty-one species of tropical and subtropical seabirds breed in Papahānaumokuākea. Virtually all of the world’s entire populations of Laysan Albatross and Black-footed Albatross live there (see Table 3.1), as well as populations of global significance of Red-tailed Tropicbirds, Bonin Petrels, Tristram’s Storm-Petrels, and White Terns.

#### *Refuge for Rare Species*

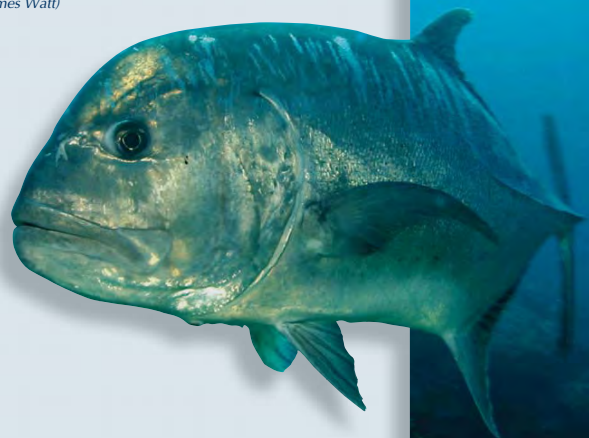
Many species of plants and animals still exist in Papahānaumokuākea that once occurred in the main Hawaiian Islands (as evidenced by their presence in the fossil record), but could not survive after the arrival of humans and their commensal mammals. In all, there are 23 species found in the property that are listed under the U.S.



Most reef systems around the world have seen a dramatic reduction of large predatory fish, and this is disturbing, since healthy populations of predator species are a good indicator of an ecosystem’s overall health. When predator populations are greatly reduced by fishing and other human activities, the normal structure of the reef community is disrupted.

More than half the weight (biomass) of all fish on NWHI coral reefs consists of large top-level predators like sharks and jacks. In contrast, only 3 percent of the fish biomass on main Hawaiian Islands reefs is composed of these predatory fish, several of which are highly prized food and game fishes. It is likely that this difference results from human impacts such as fishing and habitat loss from shoreline development. These activities, largely absent in the NWHI, make it one of the last places on Earth where scientists can study the ecology of a coral reef ecosystem without large-scale human disturbance. Such studies provide new insights into how Hawaiian coral reef ecosystems function, and the impacts of removing large predators.

*Galapagos sharks (Carcharhinus galapagensis) (top) and Giant Trevally (Caranx ignobilis) (bottom) are a few of the abundant top level predators in Papahānaumokuākea waters*  
(Photos: James Watt)







Critical seabird refuge and rookery (Photo: FWS)

Endangered Species Act, and there are undoubtedly many more that might be eligible for listing, especially in the case of terrestrial arthropods (Evenhuis and Eldridge 2004). Additionally, Papahānaumokuākea is home to 22 IUCN Red-Listed species. Furthermore, Papahānaumokuākea contains countless endemics, often species that have ranges limited to a single island. Four endangered endemic land birds are found in the property, and nowhere else in the world. The critically endangered Laysan Duck was once more widespread around the Hawaiian Archipelago but now occurs in only two places: 1) a small, relict population on Laysan Island where it breeds and forages around Laysan’s unusual hypersaline lake; and 2) in a recently translocated population at Midway Atoll.

120

*Habitat for Numerous Species of Global Significance*

Papahānaumokuākea is the most important habitat for in-situ conservation of a number of endangered species (Table 3.1).

Table 3.1: IUCN Red-Listed species found within Papahānamokuākea

Species	IUCN Red List Status
Hawaiian Monk Seal	Critically Endangered
Laysan Albatross	Vulnerable
Black-footed Albatross	Endangered
Nihoa Finch	Critically Endangered
Nihoa Millerbird	Critically Endangered
Laysan Finch	Vulnerable
Laysan Duck	Critically Endangered
Green Turtle	Endangered
Hawksbill Turtle	Critically Endangered
Olive Ridley Turtle	Vulnerable
Leatherback Turtle	Critically Endangered
Loggerhead Turtle	Endangered
Nihoa Banza Conehead Katydid	Vulnerable
<i>Pritchardia remota</i>	Endangered
<i>Amaranthus brownii</i>	Critically Endangered
Giant Grouper	Vulnerable
Blue Whale	Endangered
Fin Whale	Endangered
Humpback Whale	Least Concern
North Pacific Right Whale	Endangered
Sei Whale	Endangered
Sperm Whale	Vulnerable



### Marine

Hawaiian Monk Seals are found only in Hawai'i, with the main breeding subpopulations located throughout the NWHI and a small but growing population in the main Hawaiian Islands. This population represents one of only two monk seal populations remaining anywhere, as the monk seals of the Caribbean are extinct and the populations of the Mediterranean monk seals are perilously low, at below 350 individuals. In 1988, the National Marine Fisheries Service designated critical habitat for the Hawaiian Monk Seal from shore to 20 fathoms around every island, atoll, and bank of Papahānaumokuākea, except Sand Island at Midway Atoll. This habitat includes "all beach areas, sand spits and islets, inner reef waters, and ocean waters" (50 CFR Part 226).

The property also provides nearly the entire nesting habitat for the threatened Hawaiian Green Turtle. On the undisturbed beaches of these remote atolls, both male and female turtles come ashore to bask on the beach in broad daylight, a behavior no longer seen in most



other parts of the world. The critically endangered Hawksbill and Leatherback turtles, and the endangered Olive Ridley and Loggerhead turtles, are also found in Papahānaumokuākea. In addition, the waters of Papahānaumokuākea are home to more than 20 cetacean species, six of them federally and/or internationally recognized as endangered. Recent research by Johnston et al. (2007) indicates that Papahānaumokuākea contains two-thirds of the humpback whale wintering habitat in the Hawaiian Archipelago. This study documented for the first time breeding and calving activity of humpback whales within Papahānaumokuākea.



*Critical habitat of the endangered Hawaiian Monk Seal, found only in Hawai'i (Photo: James Watt)*



Altogether, besides the 23 identified endangered species (U.S. ESA) found within the property, there are also hundreds, if not thousands, of endemic species. Papahānaumokuākea is the last or only home for these creatures, and they require continued protection to assure their existence.

**Terrestrial**

The terrestrial area of Papahānaumokuākea is very small compared to its marine area, and only the larger and higher islands are of sufficient size to support significant and diverse plant biota. All islands are dry, with minimal fresh water resources. Remarkably, given these limitations, the terrestrial areas of Papahānaumokuākea also support significant endemism. All the islands and atolls of Papahānaumokuākea except Gardner Pinnacles, Maro Reef and Midway support endemic species that are specific to their respective islands. This includes at least 145 species of endemic arthropods, six species of endangered endemic plants (including an endemic palm), and four species of endemic birds, including remarkably isolated species such as the Nihoa Finch, Nihoa Millerbird, Laysan Finch, and the Laysan Duck, one of the

world’s rarest ducks. Three of these species (Nihoa Finch, Nihoa Millerbird, and Laysan Duck) are deemed critically endangered by the IUCN (Table 3.1), and the Laysan Finch is listed as vulnerable. In addition, as mentioned previously, millions of seabirds use the area for breeding and foraging, and as a transit corridor for migrations to the north and south.

At least six species of terrestrial plants found only in the region are listed under the U.S Endangered Species Act, some so rare that because of the difficulty of surveying these remote islands, they have not been documented for many years. The IUCN lists *Cenchrus agrimonioides* var. *laysanensis* from Laysan as extinct, though biologists hold hope that it may still exist. As noted in Table 3.1, *Amaranthus brownii*, endemic to Nihoa, is deemed critically endangered by the IUCN, while *Pritchardia remota* is considered endangered. Although it has yet to be documented thoroughly, the terrestrial invertebrate fauna shows significant patterns of clear precinctive speciation, with endemic species described from Nihoa, Mokumanamana, French Frigate Shoals, Laysan, Lisianski, Pearl and Hermes, and Kure.



The endangered endemic loulu palm, *Prichardia remota*, (inset) is one of six endemic terrestrial plants of the region listed as endangered (inset photo: Alex Wegmann Lower photo: James Watt)

## Seabird Species



The vast majority of breeding seabirds in the Hawaiian Archipelago nest on the low sandy islands and atolls of the NWHI. Due to the remoteness of the area, seabirds are by far the most dominant animals of the emergent lands. Approximately 14 million seabirds comprising over 20 species use the NWHI as their primary nesting site. As a result, the NWHI is considered one of the largest and most important assemblages of tropical seabirds in the world.

When the sheer numbers of seabirds present in the Papahānaumokuākea are compared to the total landmass available, it is apparent how populous these seabirds are, as every acre of emergent land, on average, contains more than 4,015 seabirds (9,922 seabirds per hectare), which equates to approximately 1 seabird per square meter.

The following list represents the diversity of breeding seabird species:

Black-footed Albatross	<i>Phoebastria nigripes</i>
Laysan Albatross	<i>Phoebastria immutabilis</i>
Bonin Petrel	<i>Pterodroma hypoleuca</i>
Bulwer's Petrel	<i>Bulweria bulwerii</i>
Wedge-tailed Shearwater	<i>Puffinus pacificus</i>
Christmas Shearwater	<i>Puffinus nativitatis</i>
Tristram's Storm-Petrel	<i>Oceanodroma tristrami</i>
Red-tailed Tropicbird	<i>Phaethon rubricauda</i>
White-tailed Tropicbird	<i>Phaethon lepturus</i>
Masked Booby	<i>Sula lepturus</i>
Red-footed Booby	<i>Sula sula</i>
Brown Booby	<i>Sula leucogaster</i>
Great Frigatebird	<i>Fregata minor</i>
Little Tern	<i>Sternula albifrons</i>
Gray-backed Tern	<i>Onychoprion lunatus</i>
Sooty Tern	<i>Onychoprion fuscatus</i>
White Tern	<i>Gygis alba</i>
Blue-gray Noddy	<i>Procelsterna cerulean</i>
Brown Noddy	<i>Anous stolidus</i>
Black Noddy	<i>Anous minutes</i>

Greater than 98 percent of the world's Laysan and Black-footed Albatrosses nest in the islands and atolls of the NWHI. Papahānaumokuākea also supports several other colonies of global significance, such as the Bonin Petrel, Christmas Shearwater, Tristram's Storm-Petrel, and the Gray-backed Tern.

Conservation of these seabird species is a high priority for the Monument, as 11 of the 21 species recorded inside Papahānaumokuākea boundaries have been classified as highly imperiled or of high conservation concern at the broad scale of the North American Waterbird Conservation Plan.





### 3.b Statement of Outstanding Universal Value

Covering a vast area in one of the world's most isolated archipelagos, Papahānaumokuākea Marine National Monument encompasses a significant expanse of low-laying islands and atolls, predator dominated coral reef ecosystems, and marine and terrestrial flora and fauna that show significant patterns of enhanced speciation with numerous endemic and endangered species. It is a unique seascape, rich in ecological, geological and cultural heritage.

The islands and atolls of Papahānaumokuākea comprise an important prototype and outstanding example of ongoing geologic processes and the clearest illustration of 'hotspot' island progression in the world. The sheer isolation of these islands and waters

causes Papahānaumokuākea to function as an intact miniature evolutionary universe. It contains innumerable excellent examples of ecological and biological evolutionary processes (such as dramatic examples of adaptive radiation) that continue undisturbed, resulting in very high rates of endemism. The region provides a crucially important habitat for the conservation of many endangered or threatened species of global concern. Papahānaumokuākea is also a sacred cultural landscape, a region of deep cosmological and traditional significance to the living Native Hawaiian culture that contains a host of intact and significant archaeological sites. The entire region provides a largely undisturbed ancestral environment, whose preservation both illuminates and embodies the Hawaiian concept of the literal and spiritual kinship of all things in the natural world, including man, and represents the site where life originates and the place where spirits return after death.

**Criterion iii:** Papahānaumokuākea's remarkable archaeology and significant ritual sites (heiau) bear exceptional testimony to the shared historical origins of all Polynesian societies, and to the growth and expression of a culture that evolved from the last and most difficult wave of cross-Pacific Polynesian migration. As the only Mystery Islands (once-inhabited but now abandoned outposts at

the farthest reaches of Polynesian migration) that continue a cultural association with their indigenous people, the islands of Nihoa and Mokumanamana can reveal much about cultural resilience in a changing environment.

**Criterion vi:** Papahānaumokuākea, as an associative cultural landscape, represents core elements of Native Hawaiian cosmology

124







(Photo: Andy Collins)

and tradition. The islands northwest of the Tropic of Cancer are believed to lie within the region of primordial darkness from which life originates and to which it returns. For a culture that considers nature and civilization to be part of a genealogical whole, Papahānaumokuākea offers a “place of abundance” to reconnect with an ancestral environment, and its seas are also a traditional and contemporary testing ground for the revitalized art of Polynesian wayfinding.

**Criterion viii:** The string of islands in Papahānaumokuākea, 1,931 kilometers long, comprise a classic, important and unparalleled example of later stages of island and atoll evolution. The archipelago has provided some of the most compelling confirmation of current theories of global plate tectonic movements.

**Criterion ix:** Papahānaumokuākea is a spectacular example of evolution in isolation, which results in enhanced speciation and a phenomenally high degree of endemism in both the marine and terrestrial flora and fauna. The coral reef ecosystems of Papahānaumokuākea also represent one of the world’s last apex predator dominated ecosystems, a community structure characteristic of coral reefs prior to significant human exploitation.

**Criterion x:** The region is home to, and a crucial refuge for, many endangered, threatened, and endemic species, including critically endangered marine mammal, bird, and plant species for whom it is the last or only refuge anywhere on earth. Papahānaumokuākea is also the largest tropical seabird rookery in the world.

## Integrity

Papahānaumokuākea is a nearly pristine marine ecosystem, which allows biological and ecological processes and systems to continue undisturbed, to a degree seen in few other places on earth. It includes all key areas and ecosystems that are needed to maintain ecological integrity and the long-term conservation of its unique diversity. Papahānaumokuākea is also a complete and intact cultural and maritime landscape that is in continuous use by its cultural descendants, Native Hawaiians. Its densely scattered, well-preserved and varied archaeological sites have been subject to very few human disturbances.

## Authenticity

The authenticity of Papahānaumokuākea lies in the continuing strong association of the landscape with the cosmology and oral traditions of Native Hawaiians, the embodiment of an ancestrally pristine and spiritually meaningful marine environment, and the perpetuation of customary practices such as wayfinding.

## Requirements for protection and management

Papahānaumokuākea is protected by a significant federal and state legal regime, including an extensive management plan; enforcement, surveillance, and monitoring activities; and severe restrictions on access. Tourism is restricted to limited numbers at only one site, on Midway Atoll. The area is managed to provide opportunity for significant input and advice from key stakeholders and has a long history of public engagement.



(Photo: James Watt)



### 3.c Comparative Analysis

The inscription of Papahānaumokuākea Marine National Monument would contribute to a balanced and representative World Heritage List. While oceans comprise 70% of the earth's surface, the World Heritage List represents relatively few coastal, marine and small island natural sites. The World Heritage Marine Programme identified that out of the 800-plus sites inscribed on the World Heritage List, only about 4% have significant marine components. Significant marine sites with an associative cultural landscape are currently absent from the List. None of the approximately 30 tropical World Heritage sites, and none of the 25 mixed World Heritage sites, represents an associative cultural landscape with marine components, although several sites are currently being proposed.

As recognized by the UNESCO World Heritage Global Strategy (Paragraphs 54-58 of the Operational Guidelines, 2005), natural and mixed sites are priorities for future inscription in the World Heritage List. In addition, in 2007, IUCN identified a gap in the World Heritage List's representation of sites in the Pacific, relating to marine systems, as well as cultural landscapes (IUCN 2007). The recent ICOMOS Thematic Study, "Cultural Landscapes of the Pacific Islands" explores cultural landscapes of the Pacific as rich in associative value and a priority for future site inscription. This study identifies "movement of peoples" and "storied places that explain origin and development" as particularly strong themes in the Pacific region. Papahānaumokuākea is discussed as an example of a site that would meet this description (Smith and Jones 2007). In concert with IUCN and ICOMOS, The World Heritage: Pacific 2009 Programme reflects a concerted effort to encourage and facilitate the inscription of more Pacific sites, stating that despite "extraordinary cultural and biological diversity and richness, the Pacific is the most under-represented sub-region."

#### Natural

#### Global Comparison of World Heritage sites - Biology

The majority of sites with tropical marine components on the World Heritage List are managed for their terrestrial biodiversity, rather than their marine component (Hillary et al. 2003). Of the more than 400 atolls and reef islets in the world, only three have been inscribed as World Heritage sites: East Rennell, Aldabra, and Atol da Roca, which are all raised atolls. World Heritage sites that include marine and/or cultural components (New Caledonia Lagoons, Galapagos, Great Barrier Reef, Cocos Island, the Gulf of California, Hawai'i Volcanoes National Park, Tongariro National Park, Tubbataha Reef in the Philippines) have been successfully established by only a few nations in Oceania, and no World Heritage sites currently include coral reef components of the central deep Pacific.



Lobe coral (*Porites lobata*) at Lisianski Island  
(Photo: James Watt)

The most logical natural comparison in the World Heritage portfolio is the Galapagos Islands, another isolated Pacific archipelago with a marine component. Although the Galapagos Islands are in the Pacific, they do not share Papahānaumokuākea's Polynesian cultural history and association; its variety of natural features and habitats (among them, true atolls, low reef islands, seamounts, and banks), and its superlative illustration of geologic island evolutionary history.

Papahānaumokuākea's expansive and intact top predator dominated ecosystem is one of the last remaining representations of world's oceans and reefs prior to significant human exploitation. Several World Heritage marine sites (Cocos Island, Galapagos, the Great Barrier Reef, Lagoons of New Caledonia, Malapelo, and Tubbataha) also have remnant apex predator components, but in these areas, the top predators are mostly sharks (rather than the diversity found at Papahānaumokuākea). Furthermore, their marine ecosystems are not exclusively top predator dominated (Figure 3.3). At Papahānaumokuākea, apex predators such as jacks, groupers and sharks remain more than half the biomass, in contrast to the 3% top-predator biomass in the main Hawaiian Islands and human-populated regions worldwide. Large predatory fish (giant trevally and grouper), which are heavily over-harvested worldwide, are still abundant and dominant in Papahānaumokuākea's nearly pristine marine ecosystem.

#### **Comparative richness and endemism - marine**

The Indo-Pacific region contains the world's richest assemblage of reef fishes and marine invertebrates. Most of this biota, however, is inadequately sampled and most have yet to be taxonomically characterized. In regard to making comparisons of marine biota among



*Big-scale Soldierfish abundant in Papahānaumokuākea*  
(Photo: James Watt)

various sites in the Indo-Pacific region, reliable data is available primarily for reef fishes, shallow water corals (occurring at depths of less than 30 meters), and marine mollusks. These groups have been relatively well sampled across the region, leading to confidence that the comparative data derived from them is accurate. They are also used by major conservation organizations such as Conservation International as focal groups for rapid assessment surveys and conservation prioritization.

**Reef Fish:** Papahānaumokuākea leads the list of the top 10 "hotspots" for reef fish endemism within the Pacific and Indian Oceans (Allen 2007). Although many World Heritage marine sites exhibit fairly high levels of endemism (Coiba National Park, East Rennell, Galapagos, Lagoons of New Caledonia, and Malapelo are all good examples), within these sites, the vast majority of species are widespread throughout the region due to their planktonic mode of larval dispersal. Only in a few peripheral and isolated areas of the Indo-Pacific, such as the Red Sea, the Marquesas Islands, and the Hawaiian Islands, are significant concentrations of locally endemic species encountered.



These peripheral areas of highly concentrated endemism are in turn priority candidates for the highest level of biodiversity conservation efforts due to the globally unique composition of their marine biota. In comparison to other protected sites in more equatorial settings, or in closer proximity to large islands or continental coastlines, the overall species richness of Papahānaumokuākea may not seem exceptional. At present, 250 species of reef fishes are recorded from Papahānaumokuākea, compared to 88 at Rapanui, 310 in the Cocos Islands, 449 in the Galapagos Islands, 463 in northwest Madagascar, 518 in the Phoenix Islands, 852 in Samoa, and 1,500 on the Great Barrier Reef of Australia (Randall et al. 1977; Allen 2003; Allen 2007). However, when compared to these other sites, the rate of species endemism in Papahānaumokuākea is much higher at 23%, compared to 6% in the Cocos Islands, 19% at Easter Island, 12% in the Galapagos Islands, and 1% in both the Phoenix Islands and on the Great Barrier Reef of Australia (Allen 2007) (Figures 3.4 and 3.5).

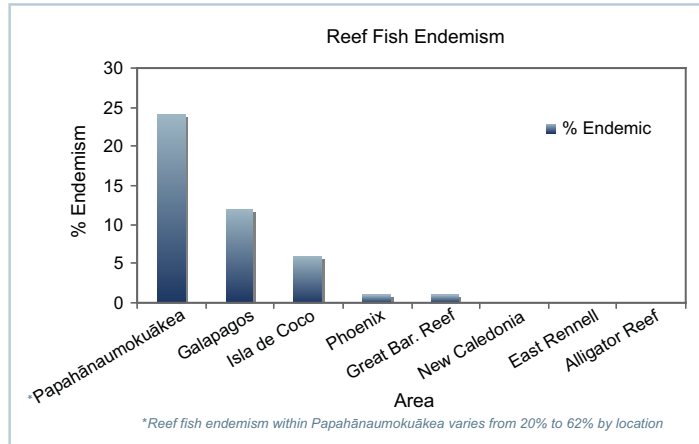


Figure 3.5: Comparison of World Heritage Site reef fish endemism rates (Source: PMNM)

described earlier in this section, endemism rates vary on individual island and reef scale, with a general trend for a higher rate of endemism toward the northwest, farther from human population centers.)

These high rates of endemism at both archipelago and individual atoll level serve to emphasize the unique composition of the Papahānaumokuākea reef fish biota (Figure 3.5).

**Coral:** In regard to scleractinian coral species richness, Papahānaumokuākea supports 57 documented species in shallow waters less than 30 meters deep (Maragos, 1995), compared to 23 species at Coiba Island in Coiba National Park, a World Heritage site off western Panama, 127 species in the Society Islands, 130 species in the Phoenix Islands, 230 species in Fiji, 320 species in New Caledonia, 323 species in northwest Madagascar, and 400 species on the Great Barrier Reef of Australia, all of which are more equatorial in location (Bennett 1971; Chevalier 1973; Maté 2003; Turak 2005). However, as with reef fishes, the lower richness total is offset by a very high rate of local endemism (Figure 3.6). Recent surveys of corals reveal that that as many as 40% of the coral species are endemic, with most still yet to be described (Maragos 2008).

128

Papahānaumokuākea’s endemic fishes comprise more than 50% of Papahānaumokuākea’s population in terms of numerical abundance, and represent 23% of the number of species (Figure 3.5). (As

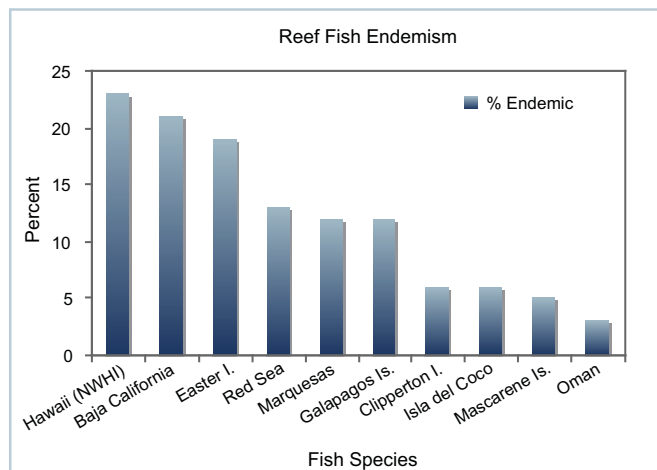


Figure 3.4: Top 10 coral reef hotspots, based on percentage of endemic reef fishes of the total fish fauna (Source: PMNM)

**Algae:** The reefs of Papahānaumokuākea are also notable in that much of their structure is composed of crustose coralline algae rather than hermatypic corals. Species inventories of such coralline algae are in an incipient phase, but promise to reveal high species richness totals and similarly high rates of local endemism. (For example, the Great Barrier Reef of Australia supports 500 species of marine algae in addition to its 400 species of corals, and the same ratio in New Caledonia is 320 coral species to 336 algal species (Garrigue and Tsuda 1988).) Such algae-to-coral species ratios are likely to be even higher in an archipelago such as the NWHI that lies near the Darwin Point. Therefore, in evaluating the overall richness of the coral reef composition in Papahānaumokuākea, this unique mix of structural components must also be taken into account and further highlights the globally unique natural environment of the area.

**Invertebrates:** Among shallow-water marine invertebrates, 838 species representing 12 orders are currently documented from Papahānaumokuākea; however, endemism rates within most of this assemblage have not yet been established. Comparative species richness data for such marine invertebrates on a Pacific-wide basis is far less comprehensive than that for reef fishes or corals, and assessments of endemism nearly absent. As such, only limited comparisons can be made with other areas, and are, to some extent, misleading since the available data comes from larger, older islands in closer proximity to continental source areas. In regard to marine mollusks, Papahānaumokuākea supports 378 species, compared to 453 at Coibá, 525 in northwestern Madagascar, 643 in eastern New Guinea, 802 in New Caledonia and 4,000 on the Great Barrier Reef of Australia (Bennett 1971; Perez and Vasquez 2000;

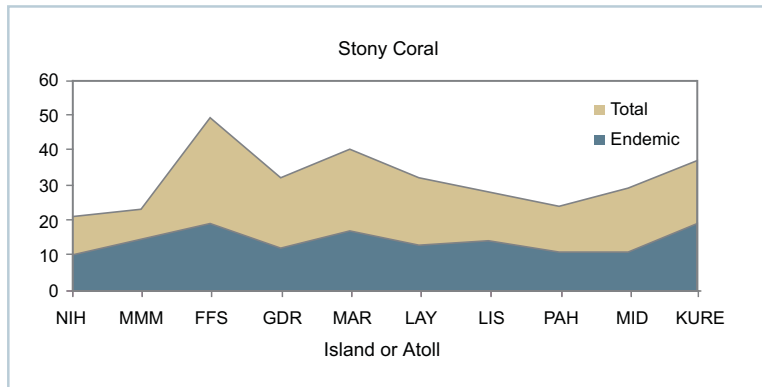


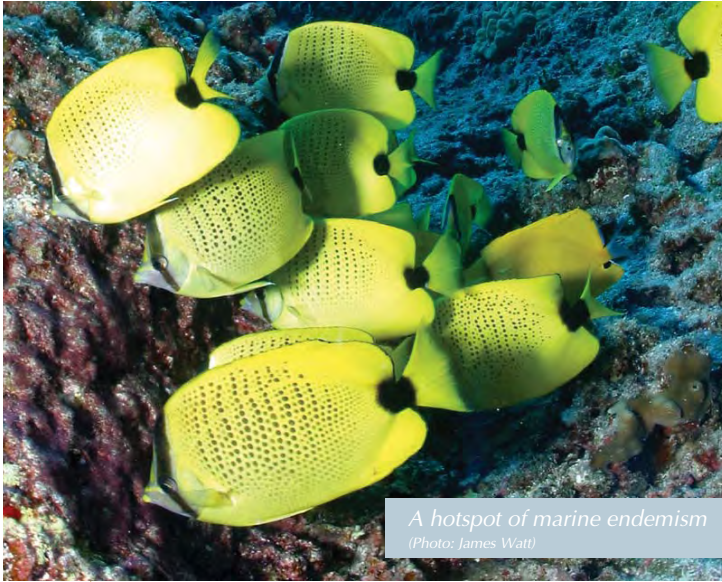
Figure 3.6: Total and endemic species of stony coral in Papahānaumokuākea by location (Source: PMNM)

Laboute and Richer de Forges 2004; Wells 2005). Asterioids in Papahānaumokuākea total 11 species, compared to 54 in New Caledonia; for echinoderms, the comparative totals are 26 species in Papahānaumokuākea and 43 in New Caledonia; for ophiuroids, the comparative totals are 21 in Papahānaumokuākea versus 57 in New Caledonia; and for holothuroideans, the totals are 17 Papahānaumokuākea species versus 55 New Caledonian species (Laboute and Richer de Forges 2004). As with reef fishes and scleractinian corals discussed previously, the overall richness numbers must be balanced with the realization that a high proportion of the Papahānaumokuākea taxa, having evolved in relative isolation, are locally endemic and the ecosystem is therefore unique. In marine mollusks, this endemism rate is 20% for the overall fauna; certain groups such as the Turrinae (turrid shells) have endemism rates approaching 60% (Kay 1979).



Of shallow water marine invertebrates, 838 species representing 12 orders are documented in Papahānaumokuākea (Photo: James Watt)





*A hotspot of marine endemism*  
(Photo: James Watt)

### Comparative richness and endemism - terrestrial

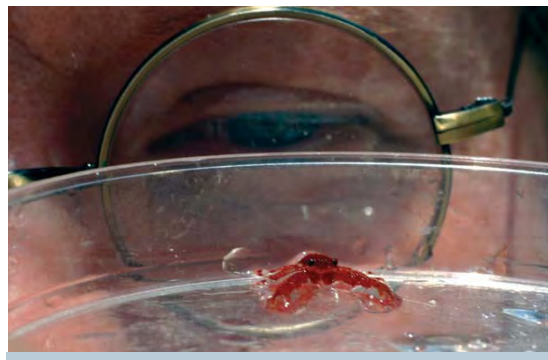
Endemism rates for terrestrial fauna in the islands of Papahānaumokuākea are also high, with numerous single-island endemics. These include four species of land birds, four endemic plant species, at least 35 endemic species of insects, spiders and mites, and six species of endemic land snails. This concentration of terrestrial endemism is exceptional in the context of the insular Pacific as a whole, east of the Tonga Trench, where most isolated atoll chains support a relatively limited biota composed of widespread, dispersive generalists. For example, across the 153 atolls comprising the Marshall, Gilbert, Line, Phoenix, and Tuamotu archipelagos of the central Pacific, there are only four endemic bird species (BirdLife International 1988). Therefore, on an endemic-species-per-island basis, the rate of bird endemism in Papahānaumokuākea is 20 times higher than in the vast archipelagos that lie to the south and southwest.

Papahānaumokuākea is home to one of the largest and most important assemblages of tropical seabirds in the world, with more than fourteen million birds representing 21 species. More than 95% of the world's populations of Laysan and Black-footed Albatross nest here, and Bonin Petrel, Tristram's Storm-Petrel, Red-tailed

Tropicbird, and White Tern have all settled Papahānaumokuākea in colonies of global significance. In fact, BirdLife International has indicated that a total 17 seabird species trigger global International Bird Areas criteria in the Northwestern Hawaiian Islands (i.e., 17 species are present in globally significant numbers). These include: Gray-backed Tern; Sooty Tern; Brown, Black and Blue-gray Noddies; White Tern; Red-tailed Tropicbird; Masked Booby; Red-footed Booby; Great Frigatebird; Bonin Petrel; Bulwer's Petrel; Wedge-tailed Shearwater; Christmas Shearwater; Black-footed Albatross; Laysan Albatross; and Tristram's Storm-Petrel (Ben Lascelles, Marine IBA Officer, BirdLife International, 2008).

In total numbers and biodiversity of tropical seabirds, this is greater than the community of marine birds in the Phoenix Islands Protected Area that is also being proposed for nomination. There are also similarities to other, more high-latitude, sites already holding World Heritage status. The presence of one of the world's largest albatross breeding colonies of any species (Laysan Albatross, Midway Atoll) invites comparison with World Heritage sites such as Heard Island, Macquarie Island, Gough Island, and the New Zealand Subantarctic Islands, all of which are important colonies for several species of Southern hemisphere albatrosses.

Other similarities between these World Heritage sites in the subantarctic are the presence of intact seabird communities representing species exhibiting the range of foraging and nesting behaviors appropriate



*Many new species still to be discovered*  
(Photo: James Watt)



Red-footed Booby in the sunset of French Frigate Shoals (Photo: James Watt)

for the ecosystem. The subantarctic seabird communities are characterized by higher species diversity than found anywhere in the tropics, which may reflect the very different ecological situation there of higher primary productivity and more habitat options allowing for benthic and littoral foraging guilds not observed in typical tropical seabird communities. That complete seabird communities persist at all the sites described above demonstrates another common element between these sites: the absence or relatively recent human introduction of terrestrial mammals such as rats. Henderson Island (23°S latitude in the Pacific) is a World Heritage site of enormous importance to four beleaguered species of gadfly petrels (Genus *Pterodroma*) that have been extirpated by rats from most of the other islands in the world on which they nest. In the north, Papahānaumokuākea provides some of the last safe havens for another gadfly petrel species, the Bonin Petrel, as well as other small petrels that cannot coexist with introduced mammals.

Papahānaumokuākea provides the vast majority of breeding, nesting and foraging habitat for the endemic Hawaiian monk seal (*Monachus schauinslandi*), one of the last two remaining species of monk seals on the planet. The fully protected beach, near shore, and deep bank ecosystems of Papahānaumokuākea provide essential habitat for this IUCN-listed critically endangered species. In contrast, the Mediterranean monk seal (*Monachus monachus*) which once ranged throughout the Mediterranean Sea and Black Sea, has declined in numbers to fewer than 350 remaining individuals, and is currently fully protected in only a small portion of its former range.

#### Global Comparison of Physical Characteristics of Reef Archipelagos - Geology

#### Comparison of Pacific, Indian and Atlantic archipelagos

The world's three deep oceans with tropical components (Pacific, Indian, and Atlantic) support approximately 84 island archipelagos that fall within the latitudes of 30° North and South; half of these (58) are in the Pacific Ocean.

**Pacific Ocean:** Of the Pacific archipelagos, 28 are: 1) derived from volcanoes associated with a continental shelf, 2) located on continental slopes, 3) greatly influenced or modified by subduction at deep ocean trenches near continental margins, or 4) large islands of continental origin. Nine archipelagos in the Pacific consist entirely of ancient low-reef islands and atolls in the stable central Pacific: Line, Tuamotu, Tokelau, Gilbert, Marshall, Tuvalu, Yap, Phoenix, and Ha'apai. These archipelagos are situated in an area of the central Pacific that lacks hotspots and significant seismic activity. An additional five of the remaining 30 archipelagos consist of only a single island (Minami Torishima (Marcus), Niue, Nauru, Kosrae, and Rapanui), and are not comparable to the Hawaiian Islands. The remaining Pacific archipelagos were formed by the action of oceanic hotspots on the deep ocean floor; however none of these are as ancient or as vast as the Hawaiian Islands. Papahānaumokuākea also contains a clear,



linear illustration of all the different stages of atoll formation and decay, from high islands to submerged seamounts. Additionally, the northwestern end of the Hawaiian Archipelago within Papahānaumokuākea exhibits high levels of endemism of species associated with coral reefs. As mentioned earlier, Papahānaumokuākea is part of the Hawaiian-Emperor Archipelago, recently included as one of just ten sites in a new publication from IUCN promoting “High Seas Gems: Hidden Treasures of our Blue Earth.”

**Indian Ocean:** Of the ten tropical and subtropical archipelagos in the Indian Ocean, only two (Chagos and Mascarene archipelagos) were formed from seismic activity associated with the mid-ocean ridge or by deep-sea trench subduction zones. Only the Chagos Archipelago is of comparable magnitude, but it was created by geological processes vastly different from those of Papahānaumokuākea. In total, none of the Indian Ocean groups exhibit comparable habitats and origins, and only a few species are common to both sub-regions.

**Atlantic Ocean:** Of the ten island archipelagos within 30 ° N and S latitudes in the Atlantic Ocean proper, nine are

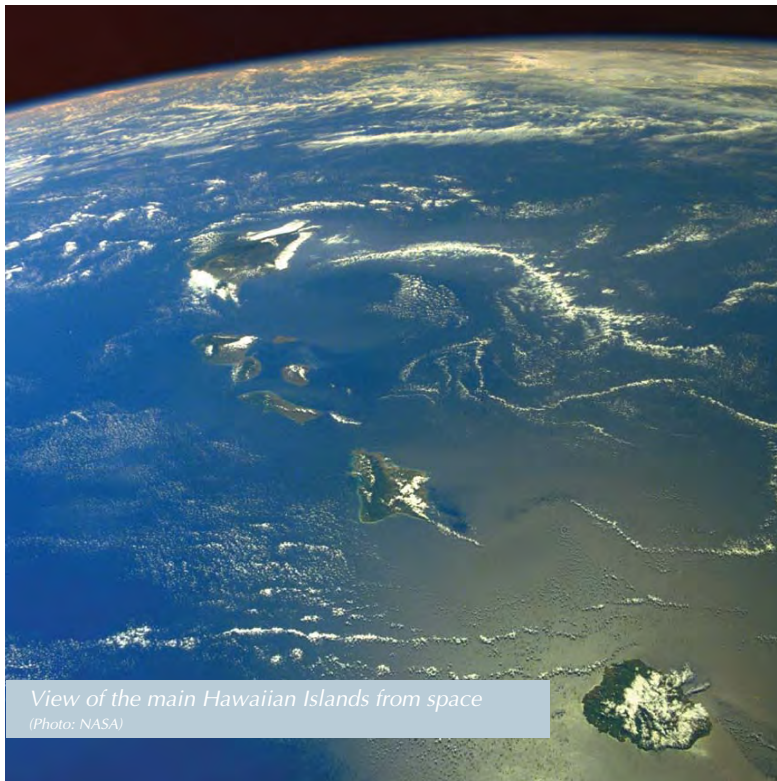
associated with seismic origin on the Mid-Atlantic Ridge, or are of continental shelf origin. Although corals are present at some of these locales, only the Florida Keys–Dry Tortugas support viable coral reef habitat. None share any of the Pacific reef-associated species and only a few share Pacific reef-associated genera. The two large Caribbean archipelagos bordering the Atlantic (Greater and Lesser Antilles) are under the jurisdiction of dozens of separate governments. All but a few islands are heavily populated, and are strongly influenced by adjacent continents and associated geological composition, trenches, volcanic eruptions, uplifting, and other tectonic activities. All of the coral reef ecosystems there are relatively new, and formed from geological processes occurring in the Miocene, three million years ago. (By comparison, Kure Atoll was formed about 27 million years ago.)

In summary, there is very little basis on which to make comparisons of Papahānaumokuākea with Atlantic-Caribbean archipelagos, or with other archipelagos in the deep Pacific Ocean. Even within the northeast central Pacific, the Papahānaumokuākea reef-associated fauna

is significantly different from those of its closest neighbors to the south, based on comparisons of coral-associated communities.

**Comparative volcanic hotspot archipelago formation**

The linear archipelagos of the insular Pacific have been hypothesized to represent island chains that formed sequentially above relatively fixed hotspot plumes as the Pacific Plate moved northward and then northwestward from the Late Cretaceous to the present day (Wilson 1963, 1965; Morgan 1971, 1972). As a result, the eastern Pacific in



View of the main Hawaiian Islands from space  
(Photo: NASA)

particular contains a set of northwest-to-southeast trending island groups that record the geological signatures of these plate-hotspot interactions. The most prominent of these are the Hawaiian, Society, Marquesas and Austral chains, all of which have been well-investigated geologically.

**Hawaiian Islands:** Among the archipelagos listed above, the Hawaiian Archipelago provides by far the best-delineated and least interrupted illustration of a hotspot process in action. From the newest eruptive volcanic seamount at Lōʻihi, south of the island of Hawaiʻi, to the nearly senescent atoll of Kure in the northwest, the Hawaiian Archipelago exemplifies the entire 30 million year span of the progression and erosion sequence associated with the lifespan of hotspot-associated islands within an archipelago (Clague 1996). Geologically significant portions of this sequence have been well documented within Papahānaumokuākea. This area includes mature high islands in the final stages of post-shield erosion (Nihoa, Mokumanamana), incipient atolls with only remnant bedrock pinnacles (French Frigate Shoals, Gardner Pinnacles), mostly submerged atolls (Maro Reef), approximately 30 drowned banks, secondarily raised atolls (Laysan, Lisianski), and true atolls (Pearl and Hermes, Midway). The oldest representative (Kure Atoll) lies at the “Darwin Point,” where further atoll formation is precluded by progressively cooler sea temperatures that do not allow enough upward growth of coral to keep pace with downward isostatic island subsidence. As such, the area provides the world’s foremost illustration of the entire process of hotspot island formation and subsidence. Papahānaumokuākea, in particular, exemplifies the later stages of this process, including examples of the type of senescence that follows atoll formation.

**Society Islands:** Other major hotspot-associated island chains in the eastern Pacific region possess similar underlying geological dynamics and island age progressions (Dupuy et al. 1989), but the overall patterns are less clearly and explicitly displayed. In the Society Islands, for instance, there has been an apparent

lateral “bleed” of magma into fracture zones that run perpendicular to the main axis of the hotspot trace (Guillou et al. 2005). This has resulted in the formation of island pairs of roughly similar age to either side of the putative underlying hotspot track (Bora Bora–Tupai, Raiatea–Tahaa, Maiao–Moorea). In addition, the Society Island chain exhibits a significant half-million-year hiatus in its central sector, with no extant islands lying between Huahine (2.4 My) and Maiao (1.9 My). As compared to the intact and constant geological illustration visible with the Hawaiian Archipelago, it represents a much more complicated and less definitive example of the general hotspot-associated island chain pattern.

**Marquesas Islands:** The Marquesas Islands, another hotspot-associated island chain, also provide an imperfect example of process and pattern, due to the irregular age progression among the constituent islands. Although there is a general age progression from older to younger islands, running from Eiao (7.5 My) in the northwest to Fatu Hiva (1.4 My) in the southeast, several islands in the middle of the chain have yielded isotopic dates that span much of the apparent age of the archipelago as a whole. For instance, the lavas of Ua Pou have erupted over a period of four million years, from 5.6–1.6 My (Duncan et al., 1986), and those of Hiva Oa over a period of nearly 900,000 years, from 2.47–1.59 My (Woodhead, 1992), confounding the predicted age progression. One possible explanation for this is that the hotspot trace moved across an old, inactive subduction zone, which, in a manner somewhat analogous to the Society Islands system, allowed magma to “bleed” upward through a zone of crustal weakness for anomalously long periods of time during the formation of the two aforementioned islands. Whatever the underlying cause, the age progression anomalies in the Marquesas render them a far less compelling illustration of the hotspot pattern than is seen in the Hawaiian Archipelago.

**Austral Islands:** The Austral Islands provide the system most closely comparable to Papahānaumokuākea. The age progression along the length of the Austral Islands



Archipelago is linear and progressive, from Rimatara (21 My) in the northwest to the currently active MacDonal seamount in the southeast (Barszczus and Liotard 1985). The constituent islands were formed from single, discrete volcanoes, uncomplicated by lateral magmatic migration along other regional structures. The islands of the Australs, however, are small and limited in number, and the chain possess no true atolls. In addition, Dupuy (1988) has questioned whether the current chain is the product of only a single hotspot, given the wide range of radiometric dates from Rurutu and Tubuai (Liotard and Barszczus 1989; Maury et al. 1994). The relatively long duration of volcanism at these islands may once again be due to the transgression of a fracture zone across the hotspot trace, similar to the situation in the Society Islands. Therefore, the Austral Islands are not as unequivocally illustrative of the overall process of hotspot island formation, erosion, and senescence, as is Papahānaumokuākea, and in addition do not show the many different, and related, stages of atoll formation from high islands to submerged seamounts.

Within the Pacific Plate as a whole, approximately twenty-five linear volcanic chains of putative hotspot origin have been recognized. Clouard and Bonneville (2005) compiled 1,685 published radiometric ages for 290 of the volcanic islands contained within these archipelagos in order to determine whether such linear island groupings were likely to be of true hotspot origin. These authors concluded that “Among the twenty-five volcanic chains for which ages are available, almost all show inconsistencies with the classical fixed-hotspot theory, and more inconsistencies appear as information on ages become available. These inconsistencies include wrong rate of progression (e.g., Pukapuka ridge), a trend incompatible with Pacific absolute plate motion (e.g., Marquesas Islands), lack of an active hotspot for each of the oldest chains except Louisville and Hawai’i and even for a younger chain (e.g., Austral Islands), occurrence of several volcanic stages on the same seamount (e.g., Sāmoa Islands), no age

progression at all (e.g., Northwest Pacific seamounts) with clusters of intraplate volcanism (e.g., Line Islands), and geographical distribution of seamounts away from the proposed hotspot track (e.g., Tarava and Musicians seamounts).” The only volcanic chains for which radiometric dating was unequivocally consistent with the hotspot formation hypothesis were the Austral Islands, Easter Island, the Foundation Seamounts, the Louisville chain, the Pitcairn Islands, the Society Islands, and the Hawaiian-Emperor chain. As noted above, all of these except the Louisville, Austral, and Hawai’i chains lack an active hotspot. Among the latter three chains, none of the Louisville volcanoes are currently above sea-level, although forty of them were emergent islands at some time in the past (Lonsdale 1988), and the Austral Islands present previously noted anomalies in terms of radiometric dating on Rurutu and Tubuai. Thus, even when considered in the context of the entire Pacific, the Hawaiian Archipelago still emerges as the prime exemplar of the hotspot archipelago model, with a particularly well preserved age progression within Papahānaumokuākea in the archipelago’s older northwestern sector.

#### *Global Comparison of Islands, Atolls and Reefs – Summary*

Almost 75% of the planet’s islands and atolls are found in the Pacific Ocean. Volcanic islands, low reef islands, and atolls in the deep tropical Pacific Ocean basin span a distance of more than 14,800 km from Palau in the far western Pacific to French Polynesia in the southeastern Pacific (Bryan 1953; Wiens 1962; Maragos and Holthus 1995; Maragos et al. 1996; National Geographic 1999). Over this broad expanse of the globe, only the Hawaiian Archipelago is recognized as a distinct large marine ecosystem (LME). In the rest of Pacific, the areas in the southeast, central, northwest, and southwest do not have similar distinction, but are recognized as separate geographical provinces with biologically related systems (Maragos et al. 2008).

As noted previously, of the numerous islands, atolls, and archipelagos in the Pacific, the islands of the Galapagos Archipelago invite the closest comparison of biological fauna, yet these islands do not share the natural, cultural or historical relationship of Papahānaumokuākea. Both are distinctive examples of irreplaceable locales. The only other Pacific areas that have been afforded significant levels of protection are a few of the islands and reefs within the jurisdiction of Palau and the uninhabited atolls and low reef islands of the Phoenix Islands Protected Area within the central Pacific, which were recently designated by the Government of Kiribati as one of the largest marine protected areas in the world.

Other World Heritage properties that are close comparisons to Papahānaumokuākea, both in terms of magnitude and as marine sites, are Tubbataha Reef in the Philippines, the Great Barrier Reef of Australia, the lagoons of New Caledonia, and the Belize Barrier Reef. However, these properties are comprised of the fringing reefs of large continental areas, rather than isolated

island chains, and they are affected by their proximity to their respective continental shelves and slopes of Australia and Central America. Because of this close proximity, these sites are subject to stressors such as pesticides and nutrients from agriculture, as well as runoff and sedimentation stemming from their adjacent large continental land mass.

Papahānaumokuākea, as a largely uninhabited and untrafficked sector of the world's most isolated archipelago, is not subject to any of the stressors associated with fringing continental reefs. In addition, the Great Barrier Reef and the Belize Barrier Reef, due to their proximity to other land masses, tend to contain a marine fauna that is representative of the region in general, in contrast to the specialized and highly endemic fauna found in Papahānaumokuākea. The Great Barrier Reef Marine Park Authority allows regulated tourism in over 99% of the Park. This lies in stark contrast to Papahānaumokuākea, where entry is prohibited except by permit, and limited recreation is permitted only at Midway Atoll, representing a very small portion of the area as a whole.

*Isolation from continental land masses and population centers protects Papahānaumokuākea's reefs* (Photo: James Watt)

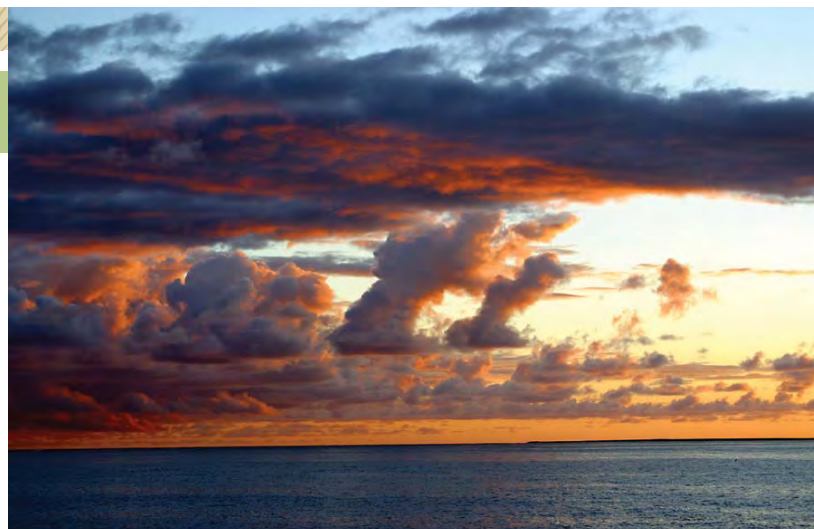




**Cultural**

*Comparison To Other World Heritage Sites*

The current World Heritage List contains some 60 sites of cultural landscapes inscribed for spiritual, social, and/or historical value associated with a place. Listed in Table 3.2 are the World Heritage sites most comparable to Papahānaumokuākea because their cultural heritage either is prevaillingly cosmological, relates to more intangible than tangible cultural heritage, or is a site in the Pacific region.



*Table 3.2: Comparable World Heritage Sites to Papahānaumokuākea and summary of their cultural significance*

Site	Year	Criteria	Summary of Site's Heritage
Tongariro National Park (New Zealand)	1993	vi	Mountains of cultural and religious significance for the Maori people symbolize the spiritual links between this community and its environment. The park has active and extinct volcanoes, a diverse range of ecosystems and spectacular landscapes.
Rio Abiseo National Park (Peru)	1990, 1992	iii	Pre-Inca mini-caves, and 36 previously unknown archaeological sites at altitudes between 2,500 and 4,000 meters. Located in rainforests characteristic of this region of the Andes. High level of endemism among the fauna and flora found in the park.
uKhahlamba Drakensberg Park (South Africa)	2000	i, iii	Diversity of habitats protects a high level of endemic and globally threatened species, especially birds and plants. Caves and rock-shelters with the largest and most concentrated group of paintings in Africa south of the Sahara, made by the San people over a period of 4,000 years. The rock paintings represent the spiritual life of the now extinct San people.
Pyrénées – Mont Perdu (Spain, France)	1997	iii, iv, v	Mountainous, pastoral landscape reflecting an agricultural way of life that was once widespread in the upland regions of Europe but now survives only in this part of the Pyrénées. Past European society, landscape of villages, farms, fields, upland pastures and mountain roads. Human settlement since 40,000 -10,000 BC. Mt. Perdu unifies Heavens and Earth. Interaction between nature and culture; land belongs to local communities.
Ibiza, Biodiversity and Culture (Spain)	1999	ii, iii, iv	Phoenician port of the Phoenician-Carthaginian period, exemplifies the important role played by Mediterranean economy in protohistory. Renaissance military architecture, a profound influence on the development of fortifications in the Spanish settlements of the New World.
Laponian Area (Sweden)	1996	iii, v	The Arctic Circle region of northern Sweden is the home of the Saami, or Lapp people. It is the largest area in the world (and one of the last) with an ancestral way of life based on the seasonal movement of livestock... huge herds of reindeer [led] towards the mountains through a natural landscape [of] glacial moraines and changing water courses.

*Table 3.2 (continued): Comparable World Heritage Sites to Papahānaumokuākea and summary of their cultural significance*

Site	Year	Criteria	
Ohrid Region (The former Yugoslav Republic of Macedonia)	1980	i, iii, iv	Situated on the shores of Lake Ohrid, the town of Ohrid is one of the oldest human settlements in Europe. Built mainly between the 7th and 19th centuries, it has the oldest Slav monastery (St Pantelejmon) and more than 800 Byzantine-style icons dating from the 11th to the end of the 14th century. After those of the Tretyakov Gallery in Moscow, this is considered to be the most important collection of icons in the world.
Göreme National Park and the Rock Sites of Cappadocia (Turkey)	1985	i, iii, v	Capadocian Monasticism village, convent. Rock-hewn sanctuaries that provide unique evidence of Byzantine art in the post-Iconoclastic period. Dwellings, troglodyte villages and underground towns – the remains of a traditional human habitat dating back to the 4th century – can also be seen there.
Hierapolis-Pamukkale (Turkey)	1988	iii, iv	Springs in a cliff almost 200 m high feed calcite-laden waters at Pamukkale (Cotton Palace). Mineral forests, petrified waterfalls and a series of terraced basins. Late 2nd century BC kings of Pergamon established the thermal spa of Hierapolis. Ruins of the baths, temples and other Greek monuments.
St. Kilda, Hebrides Islands (United Kingdom of Great Britain and Northern Ireland)	1986, 2004, 2005	ii, v	Volcanic archipelago, one of the biggest sanctuaries of wildlife and marine life in the North Atlantic. Bronze Age Christian artifacts from the 10th C and evidence of Viking invasions.
Le Morne Cultural Landscape (Mauritius)	2008	iii, vi	A natural fortress, the rugged mountain that juts into the Indian Ocean in the southwest of Mauritius was used as a shelter by runaway slaves (maroons) through the 18th and early years of the 19th centuries. A symbol of the slaves' fight for freedom, their suffering, and their sacrifice.
Uluru-Kata Tjuta National Park (Australia)	1994	v, vi	Spectacular geological formations that dominate the vast red sandy plain of central Australia. Uluru, an immense monolith, and Kata Tjuta, rock domes located west of Uluru, form part of the traditional belief system of one of the oldest human societies in the world. Traditionally owned by the Anangu Aboriginal people.
Chief Roi Mata's Domain (Vanuatu)	2008	iii, v, vi	Closely associated with oral traditions surrounding the last paramount chief of Vanuatu, this site includes Chief Roi Mata's residence, the site of his death, and his mass burial site. Representative of Pacific chiefly systems.

Table 3.2 describes comparable sites and summarizes these sites' heritage and/or importance to the associated culture, while Table 3.3 demonstrates what Papahānaumokuākea offers to the World Heritage List in comparison with these sites. Papahānaumokuākea represents both a seascape and a sacred site associated with a living indigenous culture. Of World Heritage cultural and mixed sites comparable to Papahānaumokuākea, none represents all these qualities, as Table 3.3 illustrates.



*Agricultural terraces of Nihoa (Photo: David Boynton)*



**Table 3.3:** Comparison of Papahānaumokuākea to relevant cultural landscape World Heritage Sites. Green-colored cells illustrate similarities, while tan represents dissimilarities.

Site	Living Culture	Marine Cultural Components	Sacred Site
Papahānaumokuākea Marine National Monument (Proposed, U.S.A.)	Yes	Yes	Yes
Tongariro National Park (New Zealand)	Yes	No	Yes
Rio Abiseo National Park (Peru)	No	No	No
uKhahlamba Drakensberg Park (South Africa)	No	No	Yes
Pyrénées – Mont Perdu (Spain, France)	Yes	No	Yes
Ibiza (Spain)	No	Yes	No
Laponian Area (Sweden)	Yes	No	No
Ohrid Region (Macedonia)	No	No	Yes
Goreme National Park and the Rock Sites of Cappadocia (Turkey)	No	No	Yes
Hierapolis-Pamukkale (Turkey)	No	No	Yes
St. Kilda, Hebrides Islands (U.K.)	No	No	No
Le Morne Cultural Landscape (Mauritius)	Yes	No	No
Uluru-Kata Tjuta National Park (Australia)	Yes	No	Yes
Chief Roi Mata’s Domain (Vanuatu)	Yes	No	Yes

In terms of sacred sites that are inscribed on the World Heritage List, Papahānaumokuākea is most closely comparable to Tongariro, Uluru-Kata Tjuta, and Kakadu national parks. The cultures associated with each of these three sites are considered indigenous to their lands: the Native Hawaiian, the Maori, the Anangu and the several Aboriginal peoples of Kakadu. All three places are crisscrossed by ancient oral traditions and pathways of the gods of the indigenous peoples of each place.

Like Papahānaumokuākea, the mountains and volcanoes in the heart of Tongariro National Park have cultural and religious significance for an indigenous people, the Maori, and symbolize the spiritual links between the community and its natural environment. Additionally, Tongariro is considered the place from whence life originated and to which spirits return after death, as is Papahānaumokuākea in the Hawaiian belief system. The Maori and Native Hawaiian cultures are both the results of the last wave of Pacific migration to outlying

points on the Pacific triangle. Both sites have strong cultural and spiritual ties, but they also, due in part to the distance between them and the geography and topography of both of their homelands, host cultures that evolved very differently. Because the Maori of Tongariro are not a voyaging *iwi* (tribe), Papahānaumokuākea would be the only World Heritage site that preserves and perpetuates the invaluable wayfinding and seafaring culture of Polynesia as well as the distinctive Hawaiian culture.

Uluru-Kata Tjuta National Park’s singular geology – in the form of the world’s largest, natural monolith and other red rock formations, and its sacredness to Australia’s aboriginal Anangu people – parallel Papahānaumokuākea’s striking example of island and atoll geologic evolution and its sacredness to Native Hawaiians. However, the Anangu continue to live, hunt and gather in Uluru-Kata Tjuta, unlike Native Hawaiians in Papahānaumokuākea, and the two cultures and their respective landscapes (one landlocked and one largely ocean) are quite divergent.

Moreover, the two sites differ greatly in their controls on access.

Nonetheless, Uluru-Kata Tjuta and Kakadu national parks, both in Australia, are comparable Pacific region mixed sites whose natural features include both unique examples of either geology or a complex variety of ecosystems and are sites that are part of the traditional belief systems of the Aboriginal people representing a way of life. The Anangu of Uluru-Kata Tjuta expressed their cultural link to their landscape much as Native Hawaiians express their strong link to Papahānaumokuākea: the cultural landscape includes the interaction and co-evolution of the people with the place, and the natural resources of the place are inherently cultural resources via the indigenous peoples' genealogical, spiritual and cultural associations with them. Indigenous connections to individual environments are almost universal, but their particular expression is always unique; neither of these Australian mixed sites includes a voyaging, island, or seascape component, nor the Native Hawaiian expression of their relationship with a unique ecosystem. These indigenous Australian and Hawaiian sites are very different expressions of the way nature, culture, and spiritual belief have intertwined in the Pacific.

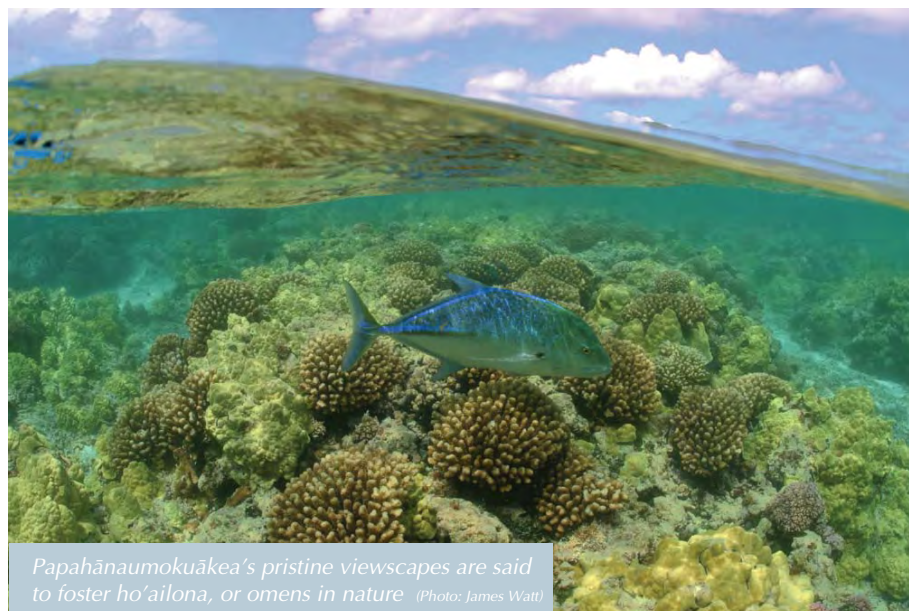
### Comparison to Hawai'i Volcanoes National Park

The State of Hawai'i contains one other World Heritage site: Hawai'i Volcanoes National Park (HAVO). While there are undoubtedly significant cultural associations between the Native Hawaiian people and this site, HAVO's inscription is for its geological phenomena only, and not for any cultural criteria. Kīlauea, Hawai'i's most active volcano protected in HAVO, is also an extremely sacred place for Native Hawaiians, comparable perhaps to Mauna Kea, Haleakalā, and Papahānaumokuākea – all of which are places of the gods (*nā akua*). In addition,

the migration story of the fire goddess Pele connects Papahānaumokuākea and Kīlauea; Hawaiian mythology tells that the goddess first arrived in the Hawaiian Archipelago in the Northwestern Hawaiian Islands and then traveled southward through the island chain until finally settling in Kīlauea, her current home. (This highlights the possibility of a serial nomination inscribing HAVO for cultural criteria in the future.) Kīlauea has deep cultural significance to Native Hawaiians, but it does not include a cultural seascape, nor is it inscribed for its archaeology.

### Comparison to Other Places Significant to Living Indigenous Cultures

As noted throughout this application, Papahānaumokuākea is the sacred realm of Pō, the place where life originated and the place to which spirits return after death. No other location in the Hawaiian Archipelago serves in this capacity. The islands in the archipelago located southeast of Mokumanamana represent Ao, the world where the living reside. While each of the main Hawaiian Islands have *leina* (leaping off points, from whence spirits travel to the afterlife), no place serves as the final destination for these traveling spirits, other than the region to the northwest, beyond Mokumanamana.



*Papahānaumokuākea's pristine viewsapes are said to foster ho'ailona, or omens in nature (Photo: James Watt)*





Sea urchins, called “wana” in the Hawaiian language, are both a delicacy and storied in ancient myths (Photo: James Watt)

The concept of Pō and Ao is pan-Polynesian. It is found, for example, in the traditions of New Zealand, Tahiti and Tuamotu (Best 1976; Henry 1928; Stimson 1933; Walker 1990). All of these cultures consider Pō to be a dark place of origin, and Ao to be a place of daylight and humans. While the demarcation between these points is relatively clear in Native Hawaiian culture, such is not as obviously the case in other cultures (Stimson 1933).

Regionally, Tongariro National Park, as stated earlier, inspires a similar level of reverence for the Maori tribe Ngati Tuwaretoa. They believe that life began in Tongariro and that spirits return there, much as Native Hawaiians believe occurs in Pō, within Papahānaumokuākea.

Globally, Polynesian seascapes tell a unique story of astounding voyaging and settling abilities; the sea looms large in mythic and practical landscapes across the Pacific region. To many Polynesian cultures, the sea is as legible, as filled with distinct zones, resources, histories, and stories, as the land. As quoted in the December 2007 ICOMOS Thematic Study by Anita Smith and Kevin L. Jones, “Cultural Landscapes of the Pacific Islands”:

“through senses, lore, observation, technology, skill, mythology and myriad other ways, the ocean of the Micronesians [and other Pacific Island peoples] was and in some cases still is an utterly knowable place in its form and texture and its link with the guiding heavens connecting the strange place that is always beyond the knowable world, the horizon where spirits below meet the spirits above. This is a seascape traversed by known seaways a place of paths that linked communities” (Rainbird in Smith and Jones 2007: 61-62).

The natural attributes that made this complex, multidimensional, ocean-dominated world were both practical and metaphysical. The Polynesian universe “comprised not only land surfaces, but the surrounding ocean as far as they could traverse and exploit it, the underworld with its fire-controlling and earth-shaking denizens, and the heavens above with their hierarchies of powerful gods and named stars and constellations that people could count on to guide their way across the seas. [Polynesians’] world was anything but tiny” (Hau’ofa 1994: 152).

A vast Pacific seascape whose natural integrity and spiritual significance has been preserved over time, such as Papahānaumokuākea, is invaluable both to the culture it supports and to a global understanding of an alternative, closely symbiotic model between nature and mankind. Because Native Hawaiian culture continues to thrive, Papahānaumokuākea is not only a window to the past, but a foundational classroom for a living culture that still reveres the place and the traditional activities that can, and do, continue to occur only there.



Throngs of fish in Papahānaumokuākea’s seascape (Photo: James Watt)

### Comparison to Other Places of Abundance

The site's marine ecosystems are unquestionably the most pristine in the Hawaiian Archipelago, as explored in detail in the Natural Resources Comparative Analysis (above). In Native Hawaiian terms, Papahānaumokuākea's pristine cultural landscape is considered an *'āina momona* (place of abundance). Across the Hawaiian Archipelago, marine ecosystems experienced extraordinarily lopsided anthropogenic impacts: the main Hawaiian Islands' oceans have been severely impacted, while the seas of Papahānaumokuākea still abound with endemic reef fish, apex predators, seabirds, and turtles.

On a global scale, the natural comparative analysis clearly states that Papahānaumokuākea is a rare predator dominated ecosystem, possesses some of the highest rates of endemism for marine and terrestrial species in the world, and that the region is home to one of the largest and most important assemblages of breeding tropical seabirds in the world. While there are other comparatively pristine environments in the Pacific, such as the Phoenix Islands and Kingman Reef, Papahānaumokuākea provides an unspoiled environment that most closely resembles what ancestral Native Hawaiians interacted with on a daily basis and to which many of their current cultural practices are most closely linked. Papahānaumokuākea is the only place where Native Hawaiian cultural practices (wayfinding, celestial protocol) can occur in such a pristine natural place, and among *wahi kūpuna* (archaeological, cultural sites) of such integrity.

Because oral traditions are Native Hawaiians' baseline for the status of their ancestors' environment, being able to compare past stories with present circumstances in a nearly pristine environment is invaluable. Cultural baselines and interpretations can provide clues to solving problems for which western scientific



Seabirds in Papahānaumokuākea help guide navigators to land and are valued as endangered species (Photo: Ocean Futures Society)

baselines are relatively recent. Traditional knowledge based on cultural resiliency can only help to manage this place and others similar to it.

### Comparison to Other Voyaging Nations

Across the Pacific, low-lying, small islands and atolls have been used as navigational tests for apprentice navigators preparing to undertake long, open-ocean voyages. For example, people of Satawal, Lamotrek and Polowat in the Central Caroline Islands use the uninhabited island of West Fayu as a test for apprentice navigators to see if they have mastered navigational lessons. The 55-mile crossing from Satawal to West Fayu continues to be used today to see if a navigator is able to take on the responsibility of navigating a voyaging canoe to the tiny island's fishery, which continues to supply the people of Satawal (Woodward et al. 1998).

In Hawai'i, these islands are Nihoa and Mokumanamana, which are the only places in the archipelago that closely mimic open-ocean conditions without the attendant dangers. This

141

**“The voyage from Kaua’i-Ni’ihau to Nihoa is the final step in the training for young navigators before they can go deep-sea. The leg represents the ultimate test. It’s a one- to two-day voyage that requires every discipline employed in long-distance voyage, except extreme fatigue. It’s the ideal training platform.”**

– Nainoa Thompson, Hawaiian master navigator





*Marae shrines on Niihau* (Photo: Kekuewa Kikiloi)

navigational testing path from Kauaʻi to Niihau, and on to Mokumanamana, is the only one available to Native Hawaiians today.

Many other voyaging nations and cultures, from Vikings to Greeks to Tahitians to Maori, continue to use models of traditional voyaging vessels to conduct cultural ceremony, much as Native Hawaiians do in Papahānaumokuākea and elsewhere. For Native Hawaiians, who continue to chart tens of thousands of miles on voyaging canoes, navigational knowledge is often place-specific, and the integral training can only be done in home waters, where novice navigators can apply some of their life experience in environmental observations and associations. Moreover, the cultural ceremonies and protocol associated with Niihau, Mokumanamana and the other atolls up the chain, can only happen off of those shores where appropriate respect can be paid to their ancestors, in their particular spiritual, natural and geological manifestations.

142

#### *Comparison to Other Mystery Islands*

Mystery Islands are remote islands with extreme environments that exhibit evidence of Polynesian settlement but were abandoned by the time of Western contact. There are at least 25 of these islands: Niihau and Mokumanamana in Hawaiʻi; Pitcairn and Henderson of the Pitcairn group; Howland in the Phoenix Islands; Washington, Fanning and Christmas in the Northern Line Islands and Malden in the central group; Palmerston and Suvarrow in the Cook Islands; the subtropical islands of the Kermadecs, and Norfolk Island (Irwin 1992). Mystery Islands have world-wide significance. Understanding in

a regional context how increasingly isolated communities on smaller remote islands, such as Niihau and Mokumanamana or Pitcairn and Henderson, were able to remain connected to larger high islands with more diverse resources, such as the main Hawaiian Islands or Mangareva, has significance to other regions such as the Mediterranean, where inter-island communication was an essential activity in the past to ensure the movements of goods and people to sustain life on both the isolated islands and the relevant mainlands (see DiPiazza and Pearthree 2001a, b; Rolett 2002; Weisler 1997; and see Cherry 1985 for the Mediterranean).

Niihau and Mokumanamana are distinctive within the Mystery Island group in a number of ways. Other Mystery Islands in Eastern Polynesia have intact settlement landscapes, but none has the high density and intact preservation of ritual sites that Niihau and Mokumanamana possess, nor do they have the marae shrines that exhibit the adaptation of Eastern Polynesian culture. Niihau and Mokumanamana are also unique among Mystery Islands for the maintenance of a living cultural connection.

#### *Comparison to Other Archaeological Sites*

Listed on the National Register of Historic Places, Niihau and Mokumanamana possess a combined 141 archaeological sites, making them some of the densest scatters of prehistoric structural sites in Hawaiʻi. In addition, these islands feature archaeological landscapes that contain original materials that largely have not been subject to the anthropogenic disturbances (invasive species, development, etc.) very common among the main Hawaiian Island sites. The view planes of the islands' religious sites – an element that is critical in Hawaiian culture – are also undisturbed, an extremely rare condition in Hawaiʻi, where telescopes, coastal and urban development, and diverted freshwater, among other things, have adversely altered most religious sites and their surrounding environments. Moreover, the stone upright sites on Niihau and Mokumanamana are a rare style of *heiau* in the Hawaiian Archipelago,

otherwise found only atop the extinct volcanoes of Mauna Kea on Hawai'i Island, and at the top of Haleakalā on Maui.

As a whole, Papahānaumokuākea plays a critical role in understanding the nature of Polynesian migration and settlement in the Pacific. All of the islands of Papahānaumokuākea were either empty at the time of first Western contact or abandoned, having been occupied some time prior (Kirch 1988a). All of the islands of Papahānaumokuākea are small, geographically isolated, and lacking sufficient resources to allow self-sustainability or demographic stability (in initial and later stages of colonization). These environmental limitations are thought to be the main reasons why interaction was so vital to these regions (Irwin 1990, 1992: 174-180).

### 3.d Integrity and Authenticity

#### Cultural

#### Cultural Authenticity

Papahānaumokuākea continues to be considered a spiritual place of the gods for Native Hawaiians and is valued for its pristine wilderness of terrestrial and marine habitats. As noted above, oral histories and archaeology indicate the extensive length of time that Native Hawaiians have experienced and respected Papahānaumokuākea. Oral histories provide interpretations of still existing natural resources and phenomena in terms of ancestral voyages and origin stories specific to Papahānaumokuākea. The concepts of the reciprocity exchange of *hānai a 'ai* (to care for and eat from) and "*nānā i ke kumu*" ("look to the source") also help to express the *kuleana* (privilege and responsibility) for Native Hawaiians to protect, honor and give back to Papahānaumokuākea, its natural resources, and its spiritual significance.

There is a continuing, centuries-old Hawaiian protocol of protecting

these sites and offering gifts to the place and spirits, as part of the reciprocal nature of the Native Hawaiian culture. Since the time of European contact with the islands, the region has continued to mainly be used for resource harvesting and perpetuation of cultural and religious traditions by Native Hawaiians.

Papahānaumokuākea continues to be a preeminent location for experiencing and understanding seascape (inclusive of the islands connected by the sea) *hō'ailona* (signs, omens in nature) that occur in pristine environments. These *hō'ailona* often come to Native Hawaiians via the natural forms taken by their ancestors who have pertinent advice to give them from the spiritual world. They come in many potential forms, such as encounters with sharks or giant trevally; cloud forms rising in welcoming or foreboding shapes over sacred sites; the ocean suddenly making a distinctive color or surface change that bespeaks a warning or a benevolent presence; a normally high-soaring bird skimming the ocean surface and flying directly toward a person, etc. Many believe that anyone, if they are open to the experience and appropriately inspired by the situation and location, can receive *hō'ailona*. In Papahānaumokuākea, because of its pristine beauty and direct, unimpeded links to Native Hawaiians' spiritual, historical and ancestral origins, these *hō'ailona* are distinct, regular and available for the culturally and spiritually aware mind to interpret and understand. It is partly because of these experiences that Native Hawaiians value the



*Mokumanamana's upright stones silhouetted by the sunset. The upright stones line the 'spine' of the island and are oriented to the movements of the sun across the year (Photo: Kekuewa Kikiloi)*



unparalleled opportunities provided by the islands, atolls, reefs, ocean and atmosphere of Papahānaumokuākea to not only reconnect with and learn from their past, but better prepare for their future.

### Native Hawaiian knowledge and practice

The authenticity of Papahānaumokuākea's significant role in Native Hawaiian culture stems from several lines of evidence:

- (1) Oral traditions – Native Hawaiian customs have been passed down over multitudes of generations through oral traditions, including *mo'olelo* (stories), *mele* (songs), place names and *mo'okū'auhau* (genealogies);
- (2) Historical record – after Western contact, scholars both Native Hawaiian and non-Native recorded a wide range of Hawaiian traditions in journals, books and Hawaiian language newspapers and periodicals, dozens of which were published between 1834 and 1948;
- (3) Existing community knowledge – modern day oral history projects conducted over the years with *kūpuna* have also preserved many Native Hawaiian traditions.

part of the reason Papahānaumokuākea is so revered and cherished by Native Hawaiians is “because many different navigators came through. Pele from the north. Others from Kahao'olawe. Others from Ni'ihau. Many different groups came here, settled here, on many different courses and canoes...Many of us have connections through our genealogies, or who used to fish up there. It's about us, and our connection to our ancestors who also looked at the same stars, who also voyaged to this place” (William Ailā 18 June 2008, personal communication).

The migration *mo'olelo* (story) about Pele, the revered volcano goddess, lists the many islands she visited as she traveled from her home in Tahiti to the Hawaiian Archipelago. As Pele is one of the most important Hawaiian gods, a host of different stories describe her arrival in the Hawaiian Islands, with several mentioning her plan to travel to Mokumanamana and her actual visit to Nihoa (Beckwith 1951; Westervelt 1916).

The name Papahānaumokuākea itself pays tribute to the two gods who are most widely attributed to the parenting of the Hawaiian Islands and the Native Hawaiian people: Papahānaumoku, the goddess of the earth, and Wākea, the god of the sky. Descriptions of their union are found in such sources as the epic creation chant the Kumulipo, below, as well as a number of other published materials, many dating back to the 19th century (Kaiāikawaha 1835; Malo 1839; Kamakau 1865; Fornander 1918). For example, in his 1839 book *Mo'olelo Hawai'i*, Hawaiian scholar David Malo noted that all Native Hawaiians, commoners and chiefs alike, were descended from Papa and Wākea. In 1835, another Hawaiian scholar, named Kaiāikawaha, documented a version of the Papa and Wākea creation story that lists the birth of a number of islands after Nihoa. The names provided may be the ancient names of the Northwestern Hawaiian Islands.

144

Specific examples of evidence from the historical record and oral history projects that document the Native Hawaiian people's close relationship to Papahānaumokuākea can be found below in the discussion on authenticity. These include verbatim quotes from 18th and 19th century newspapers and periodicals, reports of the Board of Genealogy of Hawaiian Chiefs, the Bishop Museum on-line Mele Index, oral histories, traditional stories, early explorer's journals (including Captain James Cook's), and manuscripts of *mele* (song), *oli* (chant), and *pule* (prayer).

Many oral traditions about the NWHI recount voyages through these islands, from the times of antiquity to present day. As recorded in oral histories, Native Hawaiians and their gods have traveled up and down Papahānaumokuākea throughout the past two millennia. Cultural practitioner William Ailā says that

Eia na aina i hanau mai ai maloko mai o ke kanaka i puka mai ai. O Papahanau moku ka wahine o ka Hanau – Akea ke kane, moe laua, ko ka laua keiki, a hanau mai ka laua hiapo he pohaku o Kahikiku, oia ka mua,

hanau mai kona hope o Kahikimoe,  
 o kona hope o Kahikiikeapaapanuu,  
 o kona hope o Kahikiikeapaapalani,  
 o kona hope o Kahaula,  
 o kona hope o Puula,  
 o kona hope o Puukanukanu,  
 o kona hope o Waiauau,  
 o kona hope o Waiakaka,  
 o kona hope o Waialea,  
 o kona hope o Aleauli,  
 o kona hope o Aleakea,  
 o kona hope o Kahaula,  
 o kona hope o Kapili,  
 o kona hope o Kamuku,  
 o kona hope o Kamukuikahahane,  
 o kona hope o Ulunui,  
 o kona hope o Melemele,  
 o kona hope o Hakulauai,  
 o kona hope o Polapola,  
 o kona hope o Hawaiiiku,  
 o kona hope o Hawaiiiliikanaka,  
 o kona hope o Hawaii,  
 o kona hope o Maui,  
 o kona hope o Kanaloa,  
 o kona hope o Nanai,  
 o kona hope o Molokai,  
 o kona hope o Oahu,  
 o kona hope o Kauai,  
 o kona hope o Niihau,  
 o kona hope o Molokai,  
 o kona hope o Oahu,  
 o kona hope o Kauai,  
 o kona hope o Niihau,  
 o kona hope o Kaula,  
 o kona hope o Mokupapapa,  
 o kona hope o Nihoa,  
 o kona hope o Haena,  
 o kona hope o Haenaku,  
 o kona hope o Hanamoe,  
 o kona hope o Haenaala,  
 o kona hope o Haenaee,  
 o kona hope o Haenamauhoalalahiki,  
 o kona hope o Laloiho,  
 o kona hope o Laloae,  
 o kona hope o Lalohele,  
 o kona hope o Lalokona,  
 o kona hope o Laloaniani,

*Here are the lands that were born from which the people emerged. Papahānaumoku the mother of birthing – Wākea the husband, they mated, and their children were begotten, and born was their first child a rock named Kahikikū, he was the first,*

*born next was **Kahikimoe [Tahiti]**,  
 born next was Kahikiike'āpaapanu'u,  
 born next was Kahikiike'āpaapalani,  
 born next was Pu'ulā,  
 born next was Pu'ukanukanu,  
 born next was Wai'au'au,  
 born next was Waiakāka,  
 born next was Waiale'a,  
 born next was Ale'auli,  
 born next was Ale'akea,  
 born next was Kaha'ula,  
 born next was Kapili,  
 born next was Kamuku,  
 born next was Kamukuikahahane,  
 born next was Ulunui,  
 born next was Melemele,  
 born next was Hakulauai,  
 born next was **Polapola [Bora Bora]**,  
 born next was Hawai'ikū,  
 born next was Hawai'imoe,  
 born next was Hawai'iala,  
 born next was Hawai'ikapakūkehoa,  
 born next was Hawai'ili'ili'iakānaka,  
 born next was **Hawai'i**,  
 born next was **Maui**,  
 born next was **Kanaloa [Kaho'olawe]**,  
 born next was **Nāna'i [Lāna'i]**,  
 born next was **Moloka'i**,  
 born next was **O'ahu**,  
 born next was **Kaua'i**,  
 born next was **Ni'ihau**,  
 born next was Ka'ula,  
 born next was Mokupapapa,  
 born next was Nihoa,  
 born next was Hā'ena,  
 born next was Hā'enakū  
 born next was Hā('e)namoe,  
 born next was Hā'enaala,  
 born next was Hā'enaee,  
 born next was Hā'enamauhoalālahiki,  
 born next was Laloiho,  
 born next was Laloae,  
 born next was Lalohele,  
 born next was Lalokona,  
 born next was Lalo'ānini,  
 born next was Kamole,*



o kona hope o Kamole,  
o kona hope o Manawainui,  
o kona hope o Manawailani,  
o kona hope o Manawaihiki,  
o kona hope o Kuaihelani,  
o kona hope Holaniku.

Oia na keiki moku i hanau mai ai.

*born next was Kapou,  
born next was Kapouhe'eua,  
born next was Kapouhe'elani,  
born next was Manawainui,  
born next was Manawailani,  
born next was Manawaihiki,  
born next was Kuaihelani,  
born next was Hōlanikū.*

*These are the islands that were born.*

*Excerpt and translation provided by Kekuewa Kikilo.*

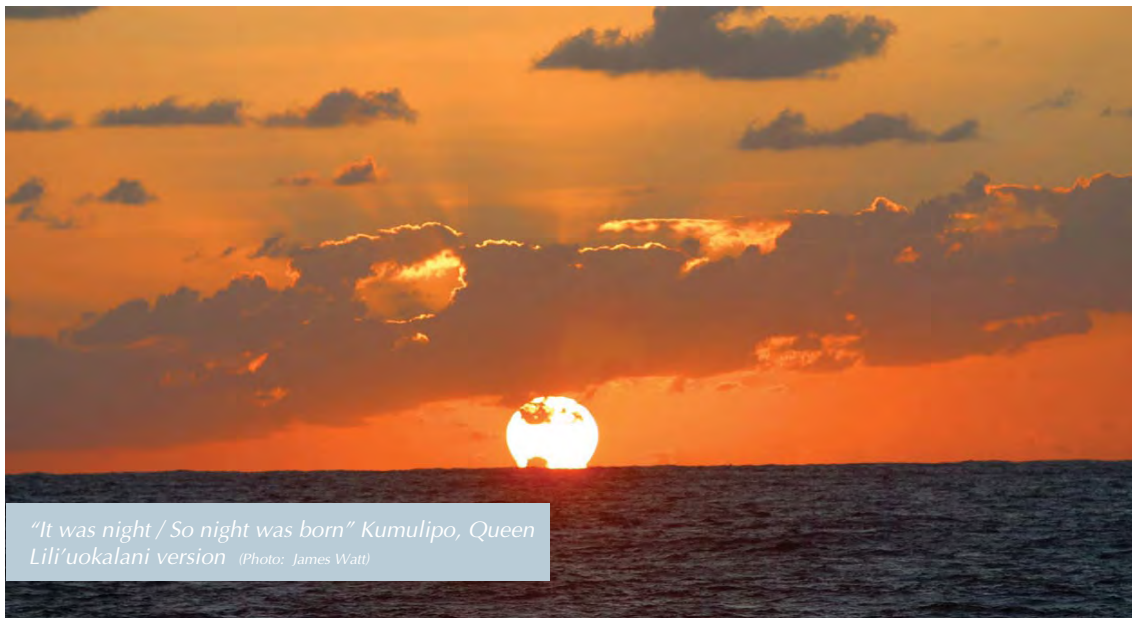
About 50 Hawaiian language newspapers and periodicals were published between 1834 and 1948. This body of archival literature has provided, and will continue to provide, invaluable documentation regarding Native Hawaiian traditions in the Northwestern Hawaiian Islands. For example, the six-part serial “He wahi Kaaono Mokulehua,” printed in the Hawaiian language newspaper “Ka Hoku O Ka Pakipika” in 1861 through 1862 relays a story of a man named Mokulehua who visits the islands west of Nihoa and Mokumanamana. The story provides a list of places he visited, with names that may be ancient, forgotten names for islands in Papahānaumokuākea.

system. At more than 2,000 lines long, the Kumulipo was first chanted to honor the 18th century chief Kalaninuiʻiamamao, and has been passed down through the generations of the highest ranking Native Hawaiian chiefs. Multiple interpretations exist surrounding the exact translations, and multiple editions were written in the 19th century. King David Kalākaua commissioned the publication of a version of the chant as a pamphlet in 1889, and his sister, Queen Liliʻuokalani, later translated it into English.

The Kumulipo (source of deep darkness) tells the history of how all life forms came and evolved from the region of Pō, in Papahānaumokuākea, beginning with the coral polyp – the building block for all life. Through a series of eight more wā (stages), came the various life forms of the earth, culminating with the birth of man.

146

The predominant Native Hawaiian creation story, the Kumulipo, exemplifies the fundamental importance of Papahānaumokuākea to the Hawaiian belief



*“It was night / So night was born” Kumulipo, Queen Liliʻuokalani version (Photo: James Watt)*

After Western contact with the Hawaiian Archipelago, which brought with it Western customs and viewpoints, the region continued to be important to the evolving Hawaiian culture. Some of the highest-ranking Hawaiian royalty of the 19th century visited the Northwestern Hawaiian Islands, including Queen Ka'ahumanu, King Kamehameha IV, and King David Kalākaua (Department of Hawaiian and Pacific Studies, Bishop Museum 2002). In 1822, Queen Ka'ahumanu visited Nihoa, which was said to be the source of Kaua'i's life-giving rain, with her husband, King Kaumuali'i, chief of Kaua'i. They rediscovered historic evidence of prior habitation, as the Queen had learned from *oli* (chant) and *mele* (song) passed down through the generations (Rauzon 2001). King Kamehameha IV (Alexander Liholiho) formally annexed Nihoa for the Hawaiian Kingdom in 1857, starting the process of formally claiming most of the NWHI. In 1885, Queen Lili'uokalani and her two-hundred-person entourage landed on Nihoa to study the palms, wildlife and artifacts on the island (Bishop, in Emory 1928).

Recent efforts to document the oral histories of today's Native Hawaiian *kūpuna* provide further evidence of the Native Hawaiian people's continuous relationship with Papahānaumokuākea. In 2003, Kepā Maly produced a comprehensive oral history project that contained excerpts from 130 interviews he conducted with Native Hawaiian *kūpuna* over 28 years. Maly's interviews with Kāwika Kapahulehua, a late kupuna from Ni'ihau and first captain of *Hōkūle'a*, revealed that the people from this island continued to voyage to Papahānaumokuākea into at least the late 19th century to fish and gather other resources. In addition, Rerioterai Tava and Moses Keale documented additional connections between the Ni'ihau people and Nihoa in the 1989 book "Ni'ihau: The Traditions of an Hawaiian Island." They recorded Ni'ihau traditions that indicate families from the island voyaged to Nihoa to fish and collect leaves, wood and grass for cordage. The connection between Ni'ihau and Nihoa is so well preserved that the people of the island still remember the exact time of year and type of wind that was used to sail from Ni'ihau to Nihoa (Maly 2003; Tava and

Keale 1989). Moreover, Native Hawaiian commercial fishermen continued to access the Northwestern Hawaiian Islands throughout the 20th century (Maly 2003), and apprentice traditional wayfinders continue to be tested by the navigational practical exam of "pulling Nihoa from the sea" (Nainoa Thompson 4 October 2008, personal communication).

### Cultural Integrity

#### Archaeological sites

The archaeological sites on both Nihoa and Mokumanamana retain their original designs, materials, and workmanship. Their settings on remote islands in the expansive Pacific Ocean distinguish the sites from any others in Hawai'i and in the world. In such remote settings, the sites remain virtually untouched, and human disturbance is minimal. In comparison, all known sites in the main Hawaiian Islands have been negatively affected by some combination of land use change, invasive species, cattle ranching, feral ungulates, and other anthropogenic disturbances.

Though impacted by the ravages of wind, rain, sea spray and time, as well as natural disturbances by nesting birds and overgrowth by endemic plants, the cultural sites on Nihoa and Mokumanamana retain many of their original attributes in a setting free from most human disturbances. The majority of the sites on both islands that are known to have existed are still there, and are in good condition and in their original locations. No buildings or other unrelated elements have affected the visual or metaphysical planes of these sites. Furthermore, under multiple layers of protections (each site has been protected within the Hawaiian Islands National Wildlife Refuge since 1909, has been listed on the National Register of Historic Places as Island Archaeological Districts since 1988, and is now protected within Papahānaumokuākea Marine National Monument), their integrity will be preserved to the full extent of federal and state authority.

These almost untouched cultural sites show little to no anthropogenic change since the time of their building and use. On Nihoa, some of the sites have slightly



deteriorated in the form of wall collapse; however the degree of deterioration does not detract from the overall integrity of the archaeological sites. Thirteen of the sites have been impacted by archaeological excavations carried out in the 1920s. On Mokumanamana, some of the sites are slightly deteriorated, and four sites have been impacted from what may be bomb craters, probably a result of practice bombing during World War II. Fortunately, based on prior, thorough documentation of the sites, current archaeologists recognize that these impacts are isolated and minimal, particularly because the island is so dense with archaeology; more than 40 sites have not been integrally compromised.

Papahānaumokuākea preserves a significant part of the natural ecosystem—with preserved viewplanes and no noise pollution—in which Native Hawaiian forbearers practiced their culture for hundreds of years. In being one of the last remaining places of abundance, or *‘āina momona*, Papahānaumokuākea has become critical to the maintenance of specific traditional Native Hawaiian knowledge and practices.

**Repairs:** To date, no repairs have been made on the archaeological sites on Nihoa and Mokumanamana. Current regulatory measures ensure that repairs would be performed using culturally appropriate techniques and protocols to honor the sites.

148

### Natural

#### Natural Integrity

As detailed throughout this application, the integrity of Papahānaumokuākea’s marine environment is nearly pristine, with minimal disturbances. Though some terrestrial environments still bear the imprints of mankind, they also showcase the resiliency of many native species and the potential for restoration through human endeavors. The property includes all the key areas and ecosystems necessary to maintain its ecological integrity and the long-term conservation of its remarkable and unique terrestrial and marine diversity, and it is of sufficient size to maintain associated

biological and ecological processes. The property still displays intact ecosystems, with a significant number and diversity of apex predators. The in situ conservation of numbers of endangered species is sustained through active management and restoration of their habitats.

#### Marine biota

While the vast majority of marine biota is thriving within Papahānaumokuākea, there is one species that is of great concern. Even after years of conservation and active management and recovery efforts, the Hawaiian Monk Seal population remains in decline. The current decline is thought not to be mainly human induced, but instead due to alterations in the environment, and habitat loss of preferred breeding grounds from global climate change and sea level rise. For the past two decades a concerted effort has been made to save the Hawaiian Monk Seal. Multiple federal and state entities, along with nongovernmental organizations, private sector entities, and countless individuals in local communities have worked to recover the species. These efforts have not been sufficient to prevent the continued decline in the species, however without these efforts, the situation would likely be much worse. Several key actions are currently underway to address current and potential threats to the Hawaiian Monk Seal in attempts to alter the trajectory of the population and move the species towards recovery. A detailed Recovery Plan has been established and is being implemented through several management strategies and activities and is detailed in Section 5.

Another concern for the marine sector of Papahānaumokuākea is the presence of invasive species. There are a total of 11 documented alien marine invertebrate, fish and algal species in the NWHI, with the highest concentrations occurring in the harbor at Midway Atoll. Although there are a limited number of marine alien species present, none thus far have caused significant disruptions to the surrounding ecosystem. While the remoteness and relative inaccessibility of the NWHI has helped to prevent the introduction of some

alien species to the area, these islands are vulnerable to introductions through a variety of activities. Therefore, stringent regulations and protocols are in effect to reduce the chance of alien species introductions (see Section 5).

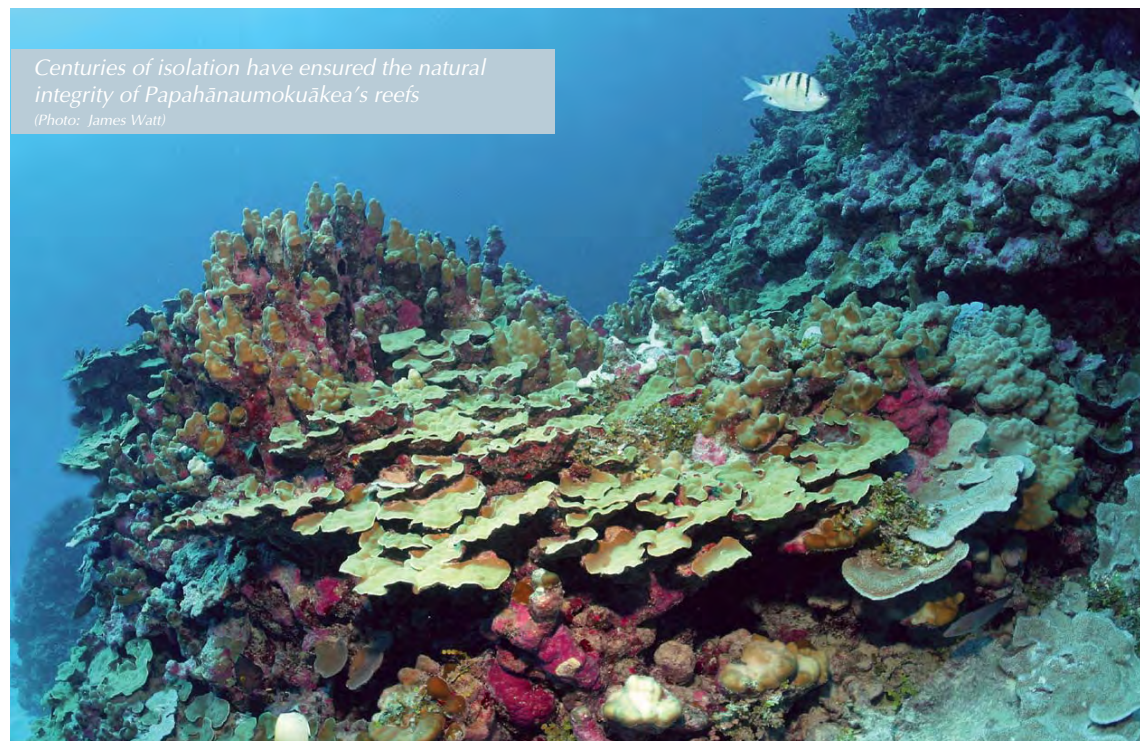
Other threats to the marine ecosystem are further detailed in Section 4, and are mainly a result of broader influences originating outside of the boundaries of Papahānaumokuākea that eventually affects shallow water resources. Most notable among these are stresses resulting from marine debris and large-scale environmental effects such as climate change and ocean acidification. While preliminary studies have not shown significant effects thus far to shallow water marine communities, continued research is necessary to understand how the marine and terrestrial ecosystems will respond to these large-scale events.

#### **Terrestrial biota**

As noted in Section 2.b “History of Development”, the terrestrial ecosystems of the Northwestern Hawaiian Islands suffered significant perturbations at the turn of the last century and again during World War II.

However, over the last fifty years, the focus has been on recovery and restoration of the previously altered environments. While the history of human impact and alteration of the islands was at one time significant, the actual impact footprint is minimal compared to most other places on earth. Several species of endemic plants and animals are in fact thriving. Development activities have been limited to small-scale conversions of abandoned Coast Guard buildings at French Frigate Shoals and Kure Atoll following the closure and removal of many of the of Navy and Coast Guard facilities. Development at Midway Atoll has been restricted as well; plans are underway to remodel existing facilities to accommodate the new Visitor Services program (see MMP Volume IV).

Preventing the importation and establishment of alien invasive species, removing those already at the site, and restoring species lost to previous alien introductions are the biggest challenges of terrestrial stewardship in Papahānaumokuākea. There have been several intentional and non-intentional anthropogenic introductions of non-native plants and animals since the islands and atolls of Papahānaumokuākea were first discovered by humans. As many as 125



*Centuries of isolation have ensured the natural integrity of Papahānaumokuākea's reefs*  
(Photo: James Watt)



species of alien insects and spiders have been found on these islands, and some of them, particularly ants, are extremely destructive. Discussions on the impacts of non-native animals and plants are presented in greater detail in Section 4.

Significant efforts are underway to restore native biota on several of the islands and multiple recovery plans are in place for a variety of species including seabirds, shorebirds and plants. The following list highlights some of the terrestrial restoration and remediation efforts:

- Rats and rabbits, introduced to some of the islands centuries ago, were responsible for significant impacts to the terrestrial environment. Through intensive eradication efforts by multiple state and federal entities, all rats and rabbits have been successfully removed from the NWHI.
- A 12-year eradication project at Laysan Island successfully removed an invasive sandbar. Active restoration is underway and has reestablished a number of other plants and animals that were lost after the introduction of rabbits.
- Contaminants causing the mortality of endangered Laysan finches were identified and removed from Laysan Island beaches.
- Clean-up and remediation efforts have been undertaken by the Navy and Coast Guard at Midway Atoll, Kure Atoll and French Frigate Shoals.
- Invasive ironwood trees have been successfully eradicated from Eastern Island (Midway Atoll).
- Intensive invasive weed eradication, native plant restoration, and propagation programs are ongoing at Midway and Kure Atolls.
- Multiple species are recovering and thriving (see Section 4 for details of specific species trends).

In addition to these efforts, strict protocols are in place to combat further introduction of alien species. Section 5 further discusses the numerous protective management and regulatory measures currently in place to protect this remote and special region.



*Through concerted efforts to address current and potential threats to the Hawaiian Monk Seal, biologists hope to move the species toward recovery (Photo: James Watt)*









## 4. *State of Conservation and Factors Affecting the Property*



*Sand Anemone or 'okole*  
(Photo: Susan Middleton & David Liittschwager)

### 4.a Present State of Conservation of the Property

The state of conservation of the property is excellent, both in terms of the physical condition of the resources, as well as the conservation and regulatory measures in place to maintain it. In addition to stringent conservation laws, the preservation of the property is maintained and assured through detailed and thorough management plans, on-site restoration and monitoring activities, and associated practices described in Section 5.

As detailed in Sections 2, 3 and 5, several factors contribute to the property's exceptional state of conservation. These factors include:

1. The extreme isolation of Papahānaumokuākea Marine National Monument. The sheer size and remoteness of the area, situated in the north-central portion of the world's largest ocean, thousands of miles from any continental land mass or heavy human population pressures, has ensured that human-based impacts have been relatively few, and the biological, historic and cultural resources of this site are well preserved.

2. Regulatory protections and management initiatives. These are in place to protect ecosystem function and ensure reef resilience and resistance in the face of potential threats from global climate change or other climatic events.
3. Numerous species recovery and restoration plans. These are in place and are being actively implemented.
4. Emergency response and restoration plans. These are either in place or in development for human health and safety, and in response to unanticipated natural and anthropogenic events.
5. Commitment in policy and precedence to incorporating Native Hawaiian traditional knowledge, practice, and values into the management of the site.
6. Conducting, supporting and facilitating Native Hawaiian cultural and historic research relating to the area.
7. Providing access for Native Hawaiian cultural practices at Papahānaumokuākea.
8. Engaging the Native Hawaiian community in the management of Papahānaumokuākea.
9. Restricted public access via permitting systems and vessel monitoring and notification systems.
10. Rigorous quarantine requirements for all activities in Papahānaumokuākea to reduce introduction of alien species.
11. A phase-out of all commercial fishing by 2011, with current fishing limited to only eight active vessels fishing for deep-water species.



*Undisturbed terrestrial and marine habitat of Papahānaumokuākea* (Photo: James Watt)

## Natural

### Species trends

More than 7,000 documented species are found within Papahānaumokuākea Marine National Monument and the vast majority of them are thriving. As outlined in Section 2, the property's coral reefs are considered nearly pristine and there is a very low



*Papahānaumokuākea is home to a large number of threatened and endangered species (Photo: James Watt)*

incidence of invasive species (Friedlander et al. 2005). Green Turtles are considered to be a resounding success story, with the number of females nesting at French Frigate Shoals rising steadily over the past 30 years (Balazs and Chaloupka 2004). Populations of most bird species are considered to be stable or increasing, based on intensive monitoring on three islands (FWS 2005).

As noted in Sections 2 and 3, Papahānaumokuākea is home to a large number of endangered species. Managing such species can be difficult, because they often have small population sizes, low genetic diversity, and other inherent traits that add to the complexity of their management. To properly account for these factors, considerable research on population stability and dynamics is required. Fortunately, a great deal of ongoing work devoted to such endangered species is being conducted within the property.

While the extreme geographic isolation and lack of direct human impacts is beneficial for the organisms of Papahānaumokuākea, it has historically limited the amount and diversity of scientific inquiry. As highlighted in Section 2.b, “History and Development

of the Property”, scientific expeditions have been patchy and topic-focused. Periods of exploration in the 1900s and 1920s generated the first views of species assemblages and structures, both above and below water. In the 1960s, research focused primarily on commercially important species, and until early 2000, the majority of scientific work conducted in the marine waters of the NWHI related to commercial fishery targets or rare and endangered species. Only in the last few years has research been expanded to the community- and ecosystem-based levels, incorporating monitoring of non-commercially important species such as smaller reef fish and invertebrates. With the federal and state protections that have been instituted since 2000, exploration and inquiry to quantify and track the status of all species in Papahānaumokuākea's waters have surged. As a result, species trend information will continue to grow for most major taxa.

The following provide examples of some of the species trend data currently available for groups of particular significance.

**Algae:** Increased efforts have been devoted to quantifying algal abundances and diversity in Papahānaumokuākea in recent years, with impressive results. Comprehensive algal sampling from 2000–2002 at French Frigate Shoals resulted in a 380% increase in the

153



*Pristine coral reef habitat (Photo: James Watt)*



numbers of species known from the region, with four of these species not previously found in the Hawaiian Archipelago (Vroom et al. 2005). As a result of recent investigations, Papahānaumokuākea has been documented to contain the highest percent cover of macroalgal species and lowest percent cover of living coral as compared with other geographic locations. This is likely due to the subtropical location of Papahānaumokuākea, which exposes reef communities to large seasonal variations in water temperature and current patterns as compared to other, more tropical, coral reef locations.



New species are often documented on research cruises (Photo: James Watt)

**Corals:** The abundance of shallow water corals of Papahānaumokuākea varies greatly between islands or atolls, but has remained fairly consistent in time (Figure 4.1). As noted previously, most locations contain relatively low coral cover with the exception of Maro Reef and Lisianski Island/Neva Shoals. In addition to percent cover, coral colony size–frequency distributions can provide important insight into characteristics of reef communities. Size–frequency distributions of all corals in belt transects throughout Papahānaumokuākea in 2003, 2004 and 2006 indicate generally similar distributions in all three survey years, suggesting stability in the complexity of the structural framework that provides shelter to many species of reef inhabitants (Waddell and Clarke 2008).

Scientists are still encountering new records of species or even new species on a continual basis. One expedition in 2006 yielded 11 new records of corals in Papahānaumokuākea. Although 57 species of corals have been documented in the property, many species occur at such low frequencies that they are not encountered in surveys. Thus, relatively few coral species numerically dominate in Papahānaumokuākea’s waters. Overall, three genera dominate the shallow water reef areas (Section 2, Figure 2.4). Given this, it is expected that the coral species list for Papahānaumokuākea will continue to expand as improving technology and research tools allow exploration and documentation of the generally unknown deeper reefs of the site.

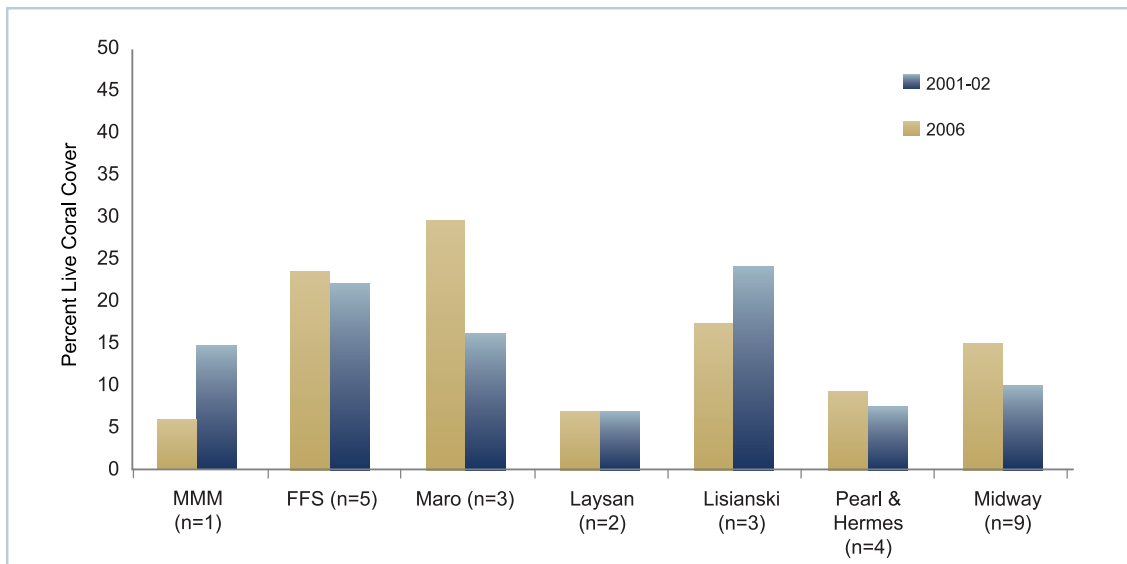


Figure 4.1: Mean coral cover at permanent transects by location (Source: Maragos and Veit, USFWS unpublished data)

## *Exploring the Unknown*

# *Diving Deep Into Papahānaumokuākea Waters*



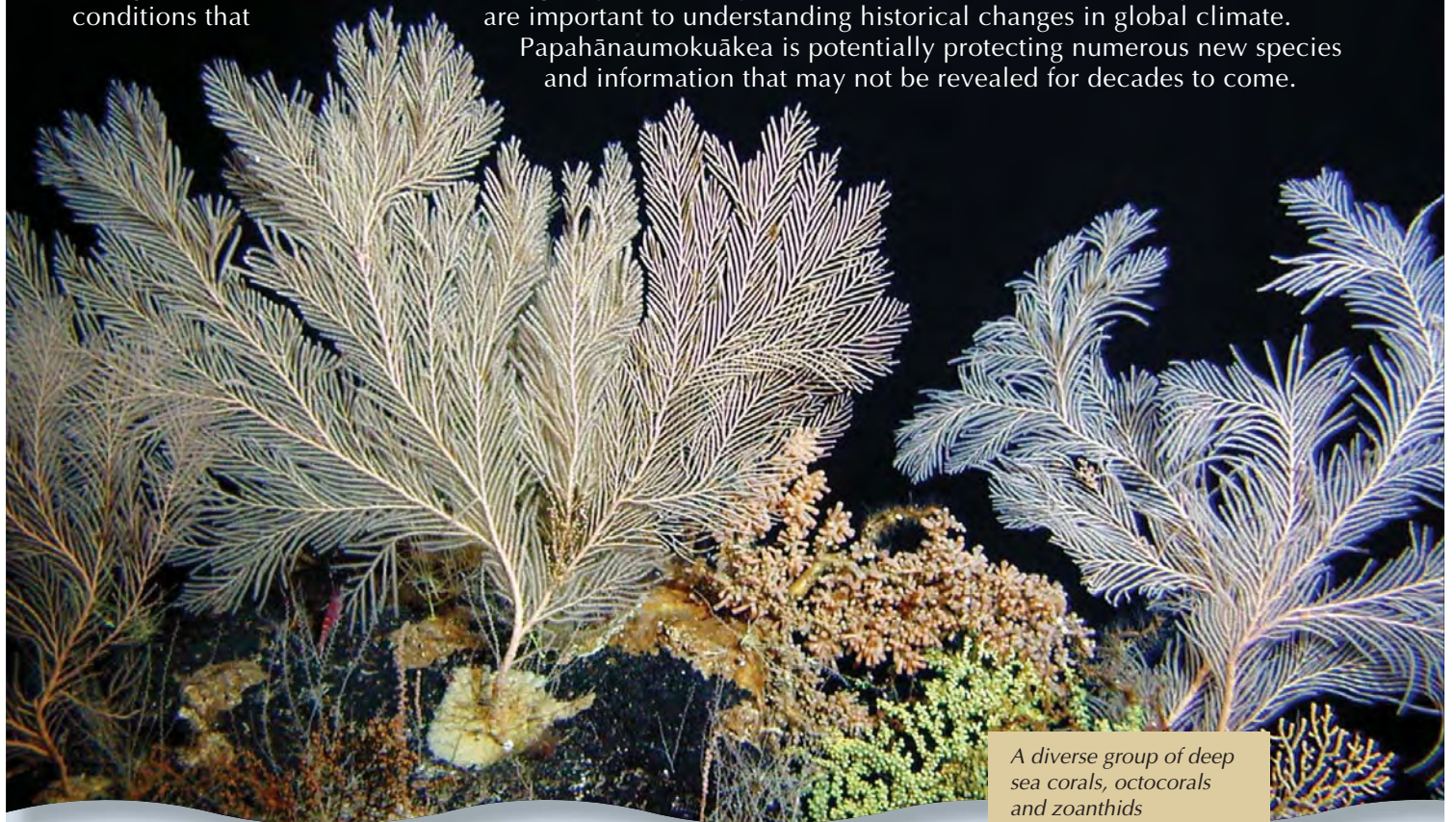
While the islands and atolls of the NWHI are known for their spectacular shallow water coral reefs, the majority of marine habitats residing within Papahānaumokuākea are largely unexplored. Deepwater habitats comprise over 90% of Papahānaumokuākea's area, yet are virtually unknown.

Deepwater portions of Papahānaumokuākea are thriving with organisms uniquely suited to deepwater survival; in recent years, researchers have found entire reefs complete with fish and crustaceans at depths of more than 5,000 feet. Since these areas occur in depths well below the limitations of SCUBA diving, managers and scientists have needed to find more advanced ways to explore the deepwater ecosystems. One such way is through the use of submersibles.

Each trip to the deep waters of Papahānaumokuākea brings records of mysterious new organisms and sheds light on the complexity and diversity of life in the deep. In 2007 scientists from the Hawaii Undersea Research Laboratory (HURL) set out to explore new research sites in Papahānaumokuākea, discovering multiple new deepwater coral and sponge beds in depths of 3,000 to 6,000 feet. During this voyage, the team discovered several new species, including a few so unusual that they may end up representing not only new species, but possibly a new genus. Scientists on this voyage also wanted to get a closer look at deep-sea coral communities. Unlike the corals of shallow waters, very little is known about the biology, ages, and growth rates of deepwater corals. Scientists have estimated that some living deepwater corals date back at least 10,000 years and can grow to more than 25 feet.

The dynamics of these deepwater ecosystems are only beginning to be revealed. Scientists have observed large numbers of commercially important but increasingly rare groupers and redfish among the sheltering structures of deep-sea coral reefs. These reefs may also hold insights to global threats, such as climate change. Because of their longevity, some deep-sea corals can serve as archives of past climate conditions that are important to understanding historical changes in global climate.

Papahānaumokuākea is potentially protecting numerous new species and information that may not be revealed for decades to come.



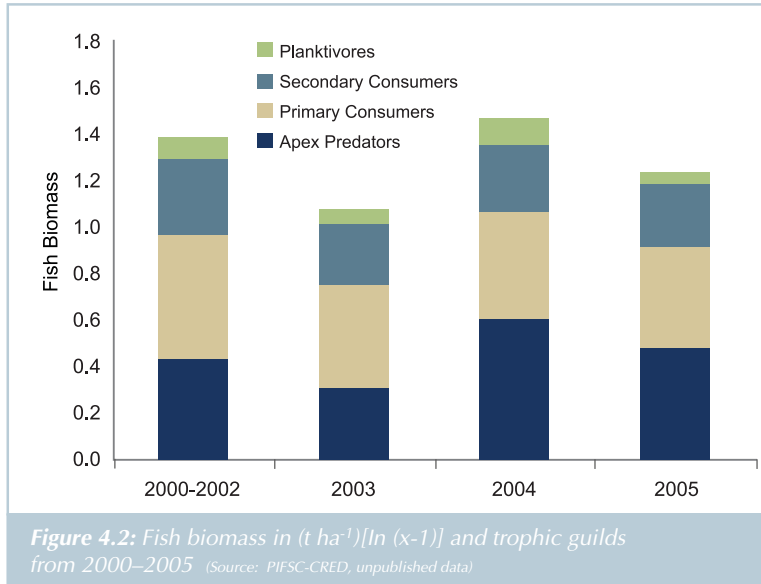
*A diverse group of deep sea corals, octocorals and zoanthids*

*(Photos: Amy Baco-Taylor)*

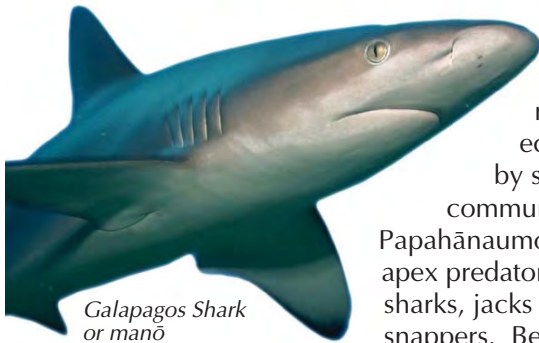


**Fishes:** Fish assemblages have been examined on an annual basis from 2000 onward, and monitoring data indicates that biomass of fishes of each trophic group (planktivores, secondary consumers, primary consumers and apex predators) have remained stable (Figure 4.2). A majority of the permanent monitoring sites are in the lagoon and backreef locations where sites can be sampled

on a more regular basis than forereef locations that are more vulnerable to weather and surf conditions. Inventories of apex predators account for 55% of the biomass of fishes in forereef locations. However, most of the large predators reside outside the reef, which means that apex predator densities at these permanent sites are underestimated (Friedlander and DeMartini 2002).



*Japanese Angelfish (Centropyge interrupta)*  
(Photo: James Watt)



Galapagos Shark  
or manō  
(Photo: James Watt)

Top predators play important roles in ecosystems by shaping communities. At Papahānaumokuākea, the apex predators consist of sharks, jacks and large snappers. Beginning in 2005, researchers

electronically tagged multiple Gray Reef Sharks, Galapagos Sharks, Tiger Sharks, Whitetip Reef Sharks, Green Jobfish and Giant Trevally to determine where and how far each species travels. Results indicate that most individuals of most species remain at their home atolls or islands. The only predator observed routinely moving among islands was the Tiger Shark, which not only moved between islands in Papahānaumokuākea but also between Papahānaumokuākea and the main Hawaiian Islands (MHI). The other sharks move extensively within atolls, but patterns and frequency of movement vary among species. The Giant Trevally and Green Jobfish (*Caranx ignobilis* and *Aprion virescens*) showed distinct, rhythmic patterns of movement with diel, tidal, and seasonal components (Meyer et al. 2007a, b).

**Reptiles:** Five species of sea turtles occur in the waters of Papahānaumokuākea, and all are listed under the federal Endangered Species Act. Only one of these species, the Green Turtle (*Chelonia mydas*), utilizes the shores of Papahānaumokuākea to bask and breed, with over 90% of the Green Turtle population in Hawai'i nesting at French Frigate Shoals. Monitoring of this species has taken place for the past 30 years, documenting a steady recovery of Green Turtles from their depleted state in the 1970s (Figure 4.3).

**Marine mammals:** The waters of Papahānaumokuākea are home to over 20 cetacean species, six of which are recognized as endangered and depleted under the U.S. Endangered Species Act and the U.S. Marine Mammal Protection Act. Papahānaumokuākea also hosts the largest population of one of the last two remaining species of monk seals in the world.

The Hawaiian Monk Seal is the only endangered pinniped occurring entirely within United States waters. The monk seal population is estimated to be approximately 1,200 individuals, a decrease of approximately 60% since the 1950s (Antonelis et al. 2006) (Figure 4.4).



Green Turtle or  
honu hatchling  
(Photo: Susan Middleton  
& David Liittschwager)

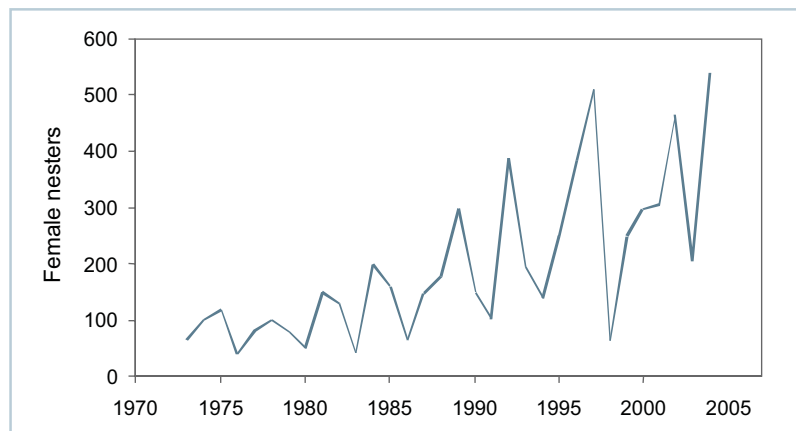
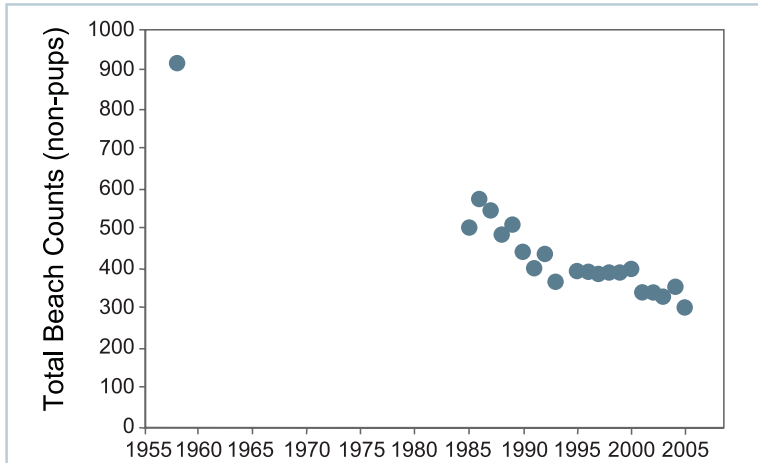


Figure 4.3: Long-term trend in the abundance of female nesting Green Turtles at French Frigate Shoals (Source: Balazs and Chaloupka 2004a)





**Figure 4.4:** Historical trend in non-pup beach counts of Hawaiian Monk Seals at the six main reproductive subpopulations  
(Source: Antonelis et al. 2006, updated by Baker, PIFSC)

studies include the following:

- Monk seal foraging range covers an area of approximately 48, 156 square kilometers, or almost 14% of the total area of Papahānaumokuākea.
- Seals forage extensively at or near their breeding sites and breeding subpopulations and haulout (basking) sites (95% within 12 km of these sites), except at French Frigate Shoals, where foraging distances were demonstrated to be greater.



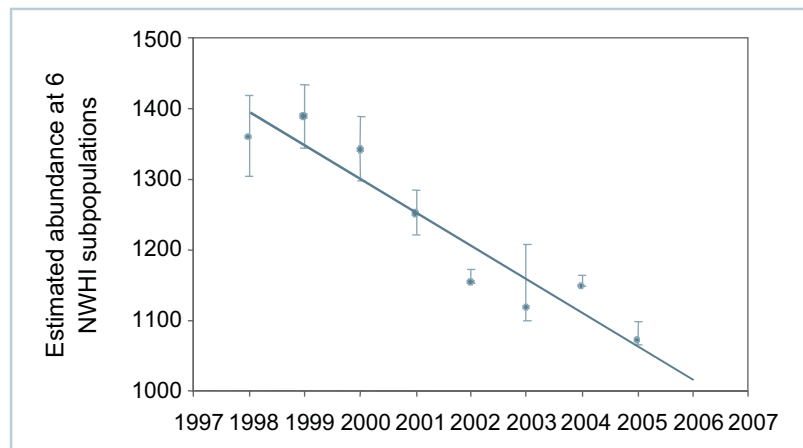
Hawaiian Monk Seal (*Monachus schauinslandi*) basking (Photo: James Watt)

Even with significant conservation measures in place, in recent years, monk seal numbers have been declining

- The highest concentration of monk seal activity in Papahānaumokuākea is focused on French Frigate Shoals and surrounding banks.
- Seals move along specific corridors to travel between breeding sites and haulout sites. These corridors are closely associated with the NWHI submarine ridge. Seals likely forage along these corridors around subsurface features like reefs, banks, and seamounts.

at five of eight breeding sites in Papahānaumokuākea Marine National Monument (Figures 4.4, 4.5). Hawaiian Monk Seals are the last hope for the continuation of monk seals globally, and considerable efforts have been made over the last two decades to manage, study, and promote recovery of this species. A Hawaiian Monk Seal recovery plan was recently released, building on the conservation and restoration efforts already in effect.

Between 1996 and 2002, the movements and diving patterns of 147 Hawaiian Monk Seals in the NWHI (consisting of a mix of male and female adults, juveniles, and pups) were monitored with satellite-linked depth recorders. Overall findings of these



**Figure 4.5:** Estimated abundance of monk seals at six breeding sites

**Seabirds:** Seabird colonies in Papahānaumokuākea constitute one of the largest and most important assemblages of tropical seabirds in the world, with 14 million birds representing 21 species (Naughton and Flint 2004). Six of the seabird species residing in Papahānaumokuākea have been classified in the highest concern categories of the North American Waterbird Conservation Plan. More than 98% of the world’s Laysan and Black-footed

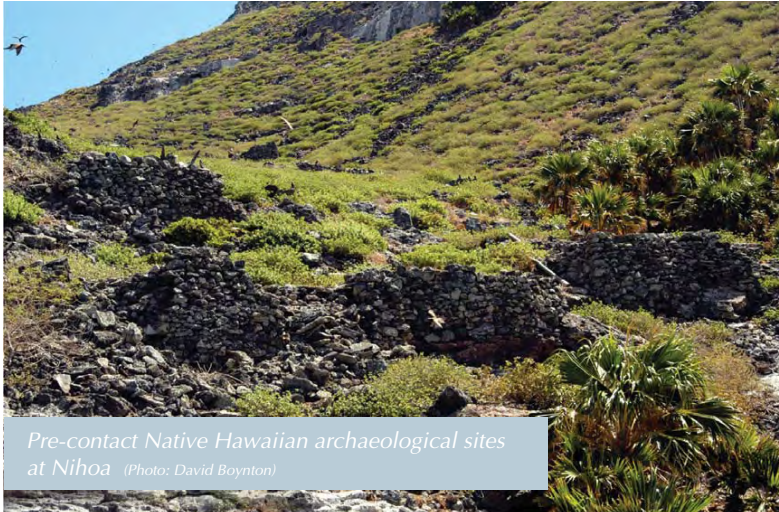
Albatrosses nest here. Population trends have been monitored in the NWHI for decades and are stable or increasing for most species, although there is concern for a few, especially the albatrosses (Table 4.1). Monitoring has revealed periodic reductions in reproductive success for two species of albatross, but these reproductive variations appear to be correlated with El Niño weather events; reproductive success is stable for non-El Niño years (Seki 2004).

**Table 4.1:** Overview of seabird monitoring efforts. Gray boxes indicate species and sites that have not been surveyed since 1984. Brown boxes indicate an apparent increase of greater than 25% since 1984, and green a greater than 25% apparent decrease. Blue boxes indicate little change, and purple boxes represent new records for that species at that location. White boxes indicate that the species was not found at that location. (Source: FWS, unpublished data)

Species	KUR	MID	PHR	LIS	LAY	GAR	FFS	MMM	NIH
Black-footed Albatross	Brown	Brown	Green	Blue	Blue	White	Blue	Green	Green
Laysan Albatross	Brown	Brown	Green	Gray	Blue	Gray	Brown	Blue	Green
Bonin Petrel	Blue	Brown	Green	Gray	Gray	White	Blue	White	White
Bulwer’s Petrel	Purple	White	Blue	Gray	Gray	White	Blue	Gray	Gray
Wedge-tailed Shearwater	Brown	Gray	Green	Gray	Gray	White	Green	Gray	Gray
Christmas Shearwater	Brown	Brown	Green	Gray	Gray	White	Green	Gray	Gray
Tristram’s Shearwater	Gray	White	Blue	Gray	Gray	White	Brown	Gray	Gray
White-tailed Tropicbird	White	Brown	White	White	White	White	White	White	White
Red-tailed Tropicbird	Blue	Blue	Green	Gray	Gray	Gray	Blue	Gray	Gray
Masked Booby	Green	Green	Green	Gray	Green	Blue	Brown	Gray	Gray
Brown Booby	Green	Gray	Blue	Gray	Blue	Blue	Gray	Gray	Gray
Red-footed Booby	Brown	Brown	Green	Gray	Brown	White	Brown	Gray	Gray
Great Frigatebird	Green	Brown	Green	Gray	Brown	White	Blue	Gray	Gray
Little Tern	White	Purple	Purple	White	White	White	White	White	White
Gray-backed Tern	Blue	Brown	Green	Gray	Gray	White	Green	Gray	Gray
Sooty Tern	Brown	Gray	White	Gray	Brown	Gray	Blue	Gray	Gray
Blue Noddy	White	White	White	White	White	White	Brown	Gray	Gray
Brown Noddy	Brown	Gray	Gray	Gray	Gray	White	Brown	Gray	Gray
Black Noddy	Purple	White	Green	White	White	White	Green	Gray	Gray
White Tern	Brown	Brown	Blue	Gray	Gray	White	Blue	Gray	Gray







### Cultural

The state of conservation of physical elements of the cultural property (archaeological and cultural sites) is exceptional, both in terms of the physical condition of the resources and the conservation measures in place to maintain them. Native Hawaiian access to the site for the perpetuation of Native Hawaiian use and practices is vibrant and currently in an active period of growth. Conservation measures in place to perpetuate and protect Native Hawaiian practices and culture within Papahānaumokuākea as well as to integrate traditional Hawaiian management practices with Western ones are supported by the vision, goals, strategies and activities of Papahānaumokuākea Marine National Monument.

### Native Hawaiian Archaeological Sites

Strong protection measures, both ancient and modern, as well as the archipelago's remoteness from human populations, mean that the historic sites on Niihau and Mokumanamana are in an excellent state of preservation. The Northwestern Hawaiian Islands have long been revered by Native Hawaiians as a sacred place, and its recent federal and state legal protections have formalized, in the modern age, a triple bond among the islands, Native Hawaiian culture and the general public. The greatest threats to these sites have been from natural processes such as erosion and succession by

native flora and fauna. Some disturbance occurs from burrowing birds and encroachment from root systems of loulou palms, and general exposure to the harsh natural elements.

The condition of Niihau's and Mokumanamana's archaeological and ceremonial sites benefits greatly from the islands' impediments to access: a prohibitively remote location, rugged terrain with few safe areas for

landing, a stringent permitting process for access, and a several-day journey by boat. All provisions, food, water and shelter must be brought from the main Hawaiian Islands. The islands themselves are exposed to the elements, especially Mokumanamana, where the terrain consists mostly of steep, jagged cliffs, often pummeled by gusting winds. According to the archaeologists who have visited the site most recently (Anan Raymond 7 August 2008, personal communication), this explains why the cumulative on-island time in archaeological research totals only 18 days over an 80-year period, including all archaeological research, from the first studies in 1928 (Emory 1928) through the most recent five-day expedition in July 2008 (Kikiloi and Raymond 2008).

Regulated access to Niihau and Mokumanamana is allowed for small groups of cultural and spiritual practitioners for cultural ceremonies. These practices ensure continuity in the Native Hawaiian connection to Papahānaumokuākea; they also form the basis of the creation of a cultural protocol for all visitors to these islands.

Even with the existing level of preservation, both the U.S. Fish and Wildlife Service and the State Historic Preservation Division are considering a coordinated stabilization project for the archaeological sites in East Palm Valley, Niihau, to prevent future loss or damage to those sites. East Palm Valley contains residential features and



large, ceremonial features, one of which is comprised of five terraces (Site 50), and another feature with a large terrace platform holding many uprights and a cairn (Site 51). Extensive bird burrowing is disrupting many of the sites, interior surfaces and deposits, and perimeter and retaining walls. Uprooted, dead loulou palms have also upended portions of the surfaces (Site 43). All the uprights of one ceremonial feature in the Valley were removed by a previous expedition (Emory 1928), blurring the perimeter boundaries (Site 45). Potential stabilization sites include many of the terraces in East Palm Valley, in part because data has already been recovered from them, and their front retaining walls are showing significant collapse. The State Historic Preservation Division requires that any stabilization projects be done without the removal of cultural artifacts (see Nihoa Island Archaeological Sites).

*Status of Native Hawaiian Access  
and Perpetuation of Practices in  
Papahānaumokuākea*

Native Hawaiians have a spiritual and practical connection to Papahānaumokuākea that began with the creation story of the Hawaiian people; that connection has persisted in various forms through the present day. Physical remnants of *wahi kupuna* (ancestral places), Hawaiian language archival and oral resources, and historical accounts provide evidence of the various past uses of the NWHI and surrounding oceans by Native Hawaiians (Kaunamano 1862 in *Hoku a ka Pakipika*; Manu 1899 in *Ka Loea Kalaiaina*; Wise 1923 in *Nupepa Kuokoa*). Evidence indicates that Nihoa and Mokumanamana served as a home and a place of worship for at least a 700-year period (Cleghorn 1988) (see also Section 2). However, by the time of Western European contact with the Hawaiian Islands, the majority of the Hawaiian population knew the region only by repute, as relatively few individuals traveled to these remote islands and had seen them with their own eyes, except families from the northwesternmost main Hawaiian Islands of Kaua'i and Ni'ihau (Maly 2003),



Stone terraces at Nihoa (Photo: Monte Costa)

which are geographically closest to the Northwestern Hawaiian Islands. Yet, oral traditions maintaining the people's connection to Papahānaumokuākea persisted. The oral transmission of knowledge and practice has ensured threads of continuity in Hawaiian people's cultural connection to the NWHI, even in periods when access was more limited than in the past. Despite the waning and waxing of actual access to the NWHI, the islands continuously remained in oral tradition. "We always have these cycles in our stories. The sun rising at Kumukahi (Hawai'i Island) and then setting way over in the West. And this [Papahānaumokuākea] is the West," says Pualani Kanaka'ole Kanahale, one of the foremost Native Hawaiian cultural practitioners, during a Solstice Ceremony at Mokumanamana in 2004. Today, Native Hawaiians remain deeply connected to the NWHI on genealogical, cultural, and spiritual levels. These connections are reinforced by Hawaiian wayfinding efforts, the resurgence of Solstice Voyages, and in other efforts to reinforce bonds between the people and the place.

In 2003, *Hōkūle'a* became the first voyaging canoe to visit Nihoa in many years. Its navigators and cultural practitioners aboard voyaged for one express purpose: "We made that trip to let our ancestors know that we didn't forget them, and to apologize to our ancestors for having been away so long" (Wilhelm 2008, personal communication).

Today, Native Hawaiian practices and activities within Papahānaumokuākea are vibrant, and are experiencing a



period of rapid growth. Highlights of significant Native Hawaiian activities at Papahānaumokuākea since 1997 include these events:

- In 1997, an organization called Hui Mālama i Nā Kūpuna o Hawai‘i Nei repatriated to Nihoa sets of human remains that had been collected by archaeologists in the 1924–1925 Bishop Museum Tanager Expeditions (Ayau and Tengan 2002).
- In 2003, a cultural protocol group, Nā Kupu‘eu Paemoku, traveled to Nihoa on the voyaging canoe *Hōkūle‘a* to conduct traditional ceremonies.
- In 2004, *Hōkūle‘a* sailed more than 1,900 kilometers to the most distant end of the island chain to visit Kure Atoll as part of a statewide educational initiative called “Navigating Change.” The crew officially began their voyage into Papahānaumokuākea by performing cultural protocols at Nihoa. From there, they sailed up the chain, stopping to help remove invasive species and marine debris from the various atolls, pay their respects to each Kupuna Island, and document for school children and

resource managers a basis of comparison of the health of the main Hawaiian Islands’ coastal and reef ecosystems.

- In 2005, Nā Kupu‘eu Paemoku continued their cultural progress and sailed to Mokumanamana to conduct protocol ceremonies on the summer solstice.
- Nihoa serves as a present-day navigational test for traditional, voyaging wayfinders. The ‘Ohana Wa‘a (family of Hawaiian voyaging canoes) has begun testing apprentice navigators by determining if they can sail, without instrumentation, to Nihoa from Lehua, a small, 215-meter-high, crescent-shaped island near Kaua‘i and Ni‘ihau.
- Kekuewa Kikilo (Ph.D. dissertation, University of Hawai‘i at Mānoa) continues to conduct archaeological research at Papahānaumokuākea, studying the historic and cultural sites on Nihoa and Mokumanamana.

Presidential Proclamation 8031, which established the Papahānaumokuākea Marine National Monument, recognizes that the NWHI have great cultural significance to Native Hawaiians and provides a means to



The Hawaiian sailing canoe *Hōkūle‘a* navigating using traditional wayfinding methods (Photo: Monte Costa)

promote access to Papahānaumokuākea for cultural purposes by establishing a permit category specifically to allow Native Hawaiian practices. The Proclamation defines these practices as cultural activities conducted for the purposes of perpetuating traditional knowledge, caring for and protecting the environment, and strengthening cultural and spiritual connections to Papahānaumokuākea that have demonstrable benefits to the Native Hawaiian community. This may include, but is not limited to, the non-commercial use of Papahānaumokuākea resources for direct personal consumption while in the property.

The Monument Management Plan (MMP) implements the Proclamation and further outlines current and future planning, administrative and field activities to enhance the natural, cultural and historic resources in Papahānaumokuākea over a 15-year period. The Vision, Mission and two of the Goals outlined in the MMP reinforce the need to protect Native Hawaiian cultural access and recognize the cultural significance of Papahānaumokuākea to Native Hawaiians.

Monument Vision: “To forever protect and perpetuate ecosystem health and diversity and Native Hawaiian cultural significance of Papahānaumokuākea.”

Monument Mission: “Carry out seamless integrated management to ensure ecological integrity and achieve strong, long-term protection and perpetuation of NWHI ecosystems, Native Hawaiian culture and heritage resources for current and future generations.”

The following goals and strategies are excerpted from the Monument Management Plan, and are numbered accordingly.

Goal 6: “Support Native Hawaiian practices consistent with long-term conservation and protection.”

Goal 7: “Identify, interpret and protect Monument historic and cultural resources.”



Traditional Hawaiian blessing prior to conducting research in Papahānaumokuākea (Photo: Ann Bell)

Several strategies and activities in the MMP support access to Papahānaumokuākea for Native Hawaiian use and practices. Specifically, the MMP contains a Native Hawaiian Cultural and History Action Plan with a desired outcome to:

*“Increase understanding and appreciation of Native Hawaiian histories and cultural practices related to Papahānaumokuākea Marine National Monument and effectively manage cultural resources for their cultural, educational, and scientific value.”*

Several strategies are specifically targeted at ensuring Native Hawaiian cultural access is promoted:

**Strategy 2: Conduct, support, and facilitate Native Hawaiian cultural access and research of the NWHI over the life of the plan.**

Activity 2.1: Continue to compile information and conduct new cultural and historical research about the NWHI.

Activity 2.2: Support Native Hawaiian cultural research needs.

Activity 2.3: Facilitate cultural field research and cultural education opportunities annually.

Activity 2.4: Convene a Native Hawaiian nomenclature working group.

Activity 2.5: Incorporate cultural resources information into the Monument Information Management System.



# BRINGING THE PLACE TO THE PEOPLE NAVIGATING CHANGE

“No longer do we seek only the knowledge of how to voyage between islands. We seek lessons to carry home to our children - ways to inspire the present generation to love and preserve our Earth as a sanctuary for those who will inherit it.”

— Nainoa Thompson,  
Navigator, Hōkūle‘a



Navigator Nainoa Thompson at Pearl and Hermes Atoll. Photo: NOAA.



Kamehameha School students explore NWHI through interactive exhibits at Mokuapāpapa Discovery Center in Hilo. Photos: James Watt.



Mokuapāpapa Discovery Center for Hawai‘i’s Remote Coral Reefs, in Hilo, Hawai‘i. Photo: NOAA.

Painting by Hilo Artist, Layne Luna. This mural covers one large wall at Mokuapāpapa Discovery Center for Hawai‘i’s Remote Coral Reefs, in Hilo, Hawai‘i.

Geologically the oldest in the Hawaiian chain, the Northwestern Hawaiian Islands (NWHI) offer a glimpse back in time to when the lands and waters were healthy and teeming with life. These still-wild ecosystems contain powerful lessons for those of us in the main Hawaiian Islands who are witnessing the decline of our finite island resources. They teach us the importance of caring for the natural world on which our lives and livelihoods depend, and they give us a living model to guide restoration efforts. The Hawaiian Archipelago is one of the few places in the world where large-scale comparisons of impacted and un-impacted reef and island ecosystems of similar species and geography can be made.

But the remoteness of this vast ocean region presents special challenges as to how these lessons can be shared. With access strictly limited, most people are unable to experience the place directly. Thus, the monument and its partners have created a spectrum of educational and experiential opportunities that indirectly connect people with the NWHI and its biological, historical and cultural wonders – in effect, “bringing the place to the people,” rather than the people to the place.

The monument’s educational initiatives include distance learning, presentations and events promoting ocean conservation, teacher workshops, and the Mokuapāpapa Discovery Center for Hawai‘i’s Remote

Coral Reefs in Hilo. In addition, a few educators each year are able to participate in expeditions to the region and subsequently share their experience with their students and communities. Articles and lesson plans from the past few years can be found at: [www.hawaiianatolls.org](http://www.hawaiianatolls.org)

In 2001, the NWHI co-trustees, Bishop Museum, the Polynesian Voyaging Society and a host of other community and government agencies joined forces to form the Navigating Change educational partnership. Inspired by the vision of the late Pinky Thompson and his son Nainoa, the partnership built an educational program that extends Hōkūle‘a journeys to the NWHI into schools statewide. These classroom voyages of discovery challenge students to change their values, attitudes and behaviors, and encourage them to get actively involved in community efforts to mālama and restore the marine and terrestrial environments where they live.

The Hawai‘i Maritime Center, next to Aloha Tower, also hosts an interactive Navigating Change exhibit where visitors can role-play being a scientist exploring the NWHI on a research cruise.

**To learn more about Navigating Change curriculum or up-coming teacher workshops, visit: [www.navigatingchange.org](http://www.navigatingchange.org)**

*The new national monument creates a new opportunity for ocean education and research for decades to come. Successful ocean stewardship depends on informed policy makers and an informed public.*

— President George W. Bush



Polynesian Voyaging Society  
Bishop Museum  
U.S. Fish and Wildlife Service  
National Fish and Wildlife Foundation  
National Oceanic and Atmospheric Administration

Hawai‘i State Department of Land and Natural Resources  
Hawai‘i State Department of Education  
University of Hawai‘i Mānoa  
Harold K. L. Castle Foundation

Activity 2.6: Continue to facilitate Native Hawaiian cultural accesses.

Activity 2.7: Establish agreements with local universities and museums to address possible curation, research, use, return, and repatriation of collections.

***Strategy 4: Plan, develop, and implement a Monument Cultural Resources Program over the life of the plan***

Activity 4.1: Prepare a Cultural Resources Program Plan.

Activity 4.2: Develop and implement specific preservation and access plans, as appropriate, to protect cultural sites and collections at Nihoa and Mokumanamana.

Activity 4.3: Initiate implementation of the Monument Cultural Resources Program.

Active and meaningful engagement between the Native Hawaiian community and the management of Papahānaumokuākea preceded its establishment as a monument. Since that time, programs engaging the Native Hawaiian community and supporting Native Hawaiian practices have expanded, and new collaborations continue to be established. Native Hawaiian programmatic areas continue to progress and are accentuated by new efforts to meet MMP goals.

**Native Hawaiian Cultural Working Group**

The Executive Order that designated the NWHI Coral Reef Ecosystem Reserve (the Reserve) in 2000 required that Native Hawaiians, among others, provide advice regarding management of the Reserve and ensuring the continuance of Native Hawaiian practices. It did so through provisions allowing for “culturally significant, noncommercial subsistence, cultural, and religious uses” in the Reserve by Native Hawaiians, and set aside three voting seats on the Reserve Advisory Council for Native Hawaiians. During its first five years of operation, the Advisory Council established a Native Hawaiian Cultural Working Group, which broadened the inclusion of Native Hawaiians in the operations of the Reserve



*Mokupāpapa Discovery Center in Hilo, Hawaii*  
(Photo: PMNIM)

and in planning for a proposed National Marine Sanctuary.

The Monument Management Board (MMB) includes representation by the Office of Hawaiian Affairs (OHA). Currently, OHA is the only State agency with a statutory mandate to advocate for Native Hawaiians and to assess the policies and practices of other agencies’ impacts on Native Hawaiians. OHA, on behalf of the MMB, will continue to convene the Native Hawaiian Cultural Working Group to obtain advice and guidance from Native Hawaiian cultural experts, including *kūpuna* (respected elders) and practitioners, on all Monument actions affecting Native Hawaiians and cultural resources at Papahānaumokuākea. Over time, the MMB may develop other mechanisms to bring together Native Hawaiians to participate in Papahānaumokuākea’s activities and management.

The Native Hawaiian Cultural Working Group provides guidance to the MMB through OHA. This group provided Papahānaumokuākea with its name and has offered support on permit review and the continuing development of permit conditions and cultural protocols as it relates to Native Hawaiian practices. The incorporation of Native Hawaiian culture into Monument management will gain the long-term support of, and greater understanding from, the host culture of the Hawaiian Archipelago.



## 4.b Factors Affecting the Property

### (i) Development Pressures

There are no development pressures affecting the property, nor are any anticipated in the future. The site's remoteness, along with stringent conservation laws and robust management practices ensure that development pressures are not a factor in the



Over 586 tons of marine debris have been removed from Papahānaumokuākea over the last 10 years  
(Photo: CRED, NOAA)

on the footprints of existing structures. Any designs for new structures will utilize new sustainable technologies to set an environmentally responsible development standard regarding the inhabited areas of Papahānaumokuākea. Additionally, within the Monument Management Plan outlines are presented for further support of field camps at French Frigate Shoals and Kure Atoll to aid in the monitoring of seabirds, sea turtles and monk seals.



(Photo: Susan Middleton & David Liittschwager)

### (ii) Environmental Pressures

#### Marine pollution

The major form of marine pollution both inside and outside of Papahānaumokuākea Marine National Monument boundaries is marine debris. As with many marine ecosystems around the world, marine debris is a constant threat to certain components of the ecosystems of Papahānaumokuākea (Selkoe et al. 2008). Although no commercial or recreational fishing is permitted in Papahānaumokuākea's waters, derelict fishing nets and gear, plastics and other ocean-borne debris are concentrated by ocean currents and wash up on the reefs and beaches of the property. Entanglement in marine debris has been identified as a major threat to the endangered Hawaiian Monk Seal; debris entanglement also threatens sea turtles, seabirds, cetaceans and coral reef organisms. An ongoing multi-agency marine debris clean-up program has removed more than 586 tons of debris from the property in the past ten years (Figure 4.6).

Fishing elsewhere in the Pacific has the potential to harm Papahānaumokuākea's highly migratory marine species, such as tuna, sharks, seabirds, and marine mammals that may otherwise forage or travel outside of the Papahānaumokuākea's protective boundaries.

Birds are also harmed by debris. Smaller types of marine debris made of plastic, such

166

property's future. Presidential Proclamation 8031 specifically forbids activities such as mining or other extractive practices. In addition, with very limited exceptions, the federal regulations for Papahānaumokuākea prohibit anyone from removing, moving, taking, harvesting, possessing, injuring, disturbing or damaging any of its living or nonliving resources, or attempting any of these actions unless authorized by a Monument permit (50 CFR § 404.7(a)). Modification of existing facilities (e.g., on Midway's Sand Island or Tern Island in French Frigate Shoals) occurs in strict compliance with refuge laws and regulations, applicable historic regulations, and National Environmental Policy Act requirements. The natural, cultural and historic resources of the property are well protected.

All improvements planned for Midway Atoll in the Midway Atoll Conceptual Site Plan (Volume IV of Monument Management Plan) will be made in existing structures or built

as disposable lighters, bottle caps, and other fragments, are ingested by adult albatrosses, shearwaters, and other seabirds when they feed at sea (Fry et al. 1987). These objects are subsequently fed to chicks and can cause direct and indirect injuries, often resulting in the death of young albatrosses. Additionally, this debris may increase the birds' exposure to and ingestion of organochlorine contaminants from plastic surfaces (Carpenter and Smith 1972).

### Terrestrial pollution

Past uses have contributed to significant modification and contamination throughout the region, especially at French Frigate Shoals, Midway Atoll, and Kure Atoll. Contamination at all these sites includes offshore and onshore contaminated debris such as batteries (lead and mercury), transformers with PCBs, capacitors and barrels. Debris washing ashore is another source of contamination on the islands. Studies have shown that soil can constitute up to 30% of the material a bird consumes, and hence soil contamination from the above substances is a substantial threat to the bird populations (Hui and Beyer 1998; Beyer et al. 1994). Lead-based paints on the former naval buildings at Midway can affect nearby albatross chicks; chicks that ingest paint chips have been found to have blood lead concentrations that cause immunological, neurological, and renal impairments, significantly decreasing their chances of survival. A significant effort is underway to remove the lead paint and to monitor the contaminated sites.



Marine debris are an ever-present threat for both terrestrial and marine species (Photo: James Watt)

Uncharacterized, unlined landfills remain on some of these islands. Kure Atoll and French Frigate Shoals both have point sources of PCBs due to former U.S. Coast Guard LORAN stations. While the Coast Guard has mounted cleanup actions at both sites, elevated levels of contamination remain in island soils, nearshore sediment, and biota. Additional continued landfills were left behind by the Navy on Midway Atoll. In response to these threats, emergency response mechanisms and ongoing cleanup and restoration activities will be maintained and enhanced.

### Alien species

The waters surrounding Papahānaumokuākea are nearly pristine. A total of 11 marine alien fish, invertebrates and algal species have been recorded in the NWHI (Table 4.2). Alien species may be introduced accidentally, such as with

vessel discharge, marine debris, or aquaculture, or intentionally, as in the case of a few species of snappers, grouper and algal species.

The magnitude of the problem of marine invasive species is far greater in the MHI than the NWHI. Efforts to control the accelerated introduction of alien species in the NWHI will focus on transport

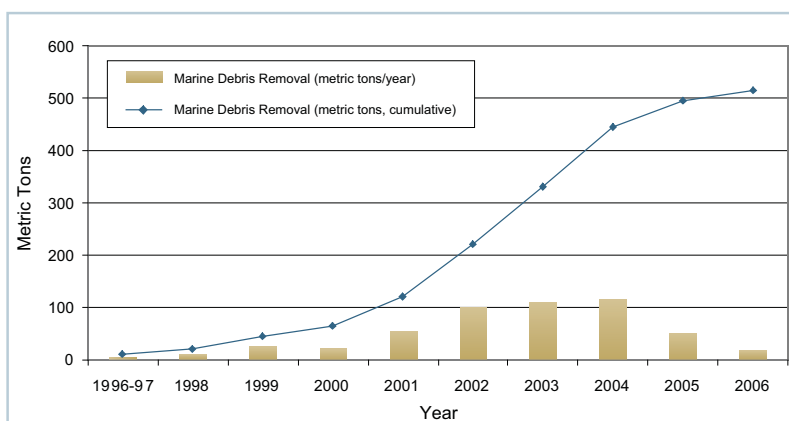


Figure 4.6: Quantity of marine debris removal in Papahānaumokuākea (Source: PIFSC-CRED unpublished data)





Reef Assessment and Monitoring Program team preparing for rapid ecological assessments  
(Photo: James Watt)

mechanisms, such as marine debris, ships' hulls, and the discharge of bilge water from vessels originating from the main Hawaiian Islands and other ports. Existing Monument regulations and permitting requirements greatly reduce the chance of new introductions (for complete details see Appendix F, Appendix K Volume 1).

However, several of the islands and atolls of Papahānaumokuākea have been, in the past, heavily inundated by terrestrial alien species. Both Midway Atoll and Laysan Island have incurred multiple introductions, many of which transformed the landscapes. Some of the most invasive introductions were intentional, such as vegetation, rats, and rabbits that caused extensive damage. To date, rats and rabbits have been successfully exterminated in Papahānaumokuākea, but various other alien species still plague the inhabited islands and atolls. The number of alien land plants in Papahānaumokuākea varies from only three

introduced at Nihoa, to 249 introduced at Midway Atoll. Numerous efforts have been made to eradicate and restore the emergent lands to their native conditions, particularly at Laysan Island and Midway Atoll. Other management and restoration efforts are undertaken annually during the late spring through mid-fall field season. To prevent further importation of invasive plants, animals or insects, mandatory quarantine protocols are enforced for any visitors to all the islands of Papahānaumokuākea, with the exception of Midway Atoll and French Frigate Shoals. These protocols require the use of new or island-specific gear at each site and treatments such as cleaning, using insecticide, and freezing to minimize the transport of potential invasive species to the islands. For a full listing of terrestrial protocols, see Appendix F.

### Climate change

Climate change poses a threat to all coral reef ecosystems throughout the world, and the Papahānaumokuākea Marine National Monument is no exception. The increase in average global temperatures, sea-level rise and change in chemical concentrations in the world's oceans are typically cited as the results of global climate change. Regional predictions for the North Central Pacific Gyre area within the next 15 years are for surface temperature increases of 0.5 to 1.0 degrees Celsius, which is a smaller increase than that predicted for the Arctic and Northern hemisphere continental areas. Elevated sea surface temperatures such as those projected can lead to coral bleaching events, when corals expel their symbiotic algae and become white, or bleached. This



Ta'ape (*Lutjanus kasmirus*), a lutjanid snapper introduced in the main Hawaiian Islands in the 1950s, has spread to the waters of Papahānaumokuākea  
(Photo: James Watt)

Table 4.2: Marine alien species in Papahānaumokuākea

Species	Taxa	Native Range	Present Status in Papahānaumokuākea <sup>2</sup>	Mechanism of Introduction
<i>Hypnea musciformis</i>	Algae	Unknown; Cosmopolitan	Not Established; in drift only (MAR)	Intentional introduction to main Hawaiian Islands (documented)
<i>Diadumene lineata</i>	Anemone	Asia	Unknown; on derelict net only (PAH)	Derelict fishing net debris (documented)
<i>Pennaria disticha</i>	Hydroid	Unknown; Cosmopolitan	Established (PAH, LAY, LIS, KUR, MID)	Fouling on ship hulls (hypothesized)
<i>Balanus reticulatus</i>	Barnacle	Atlantic	Established (FFS)	Fouling on ship hulls (hypothesized)
<i>Balanus venustus</i>	Barnacle	Atlantic and Caribbean	Not Established; on vessel hull only (MID)	Fouling on ship hulls (documented)
<i>Chthamalus proteus</i>	Barnacle	Caribbean	Established (MID)	Fouling on ship hulls (hypothesized)
<i>Amathia distans</i>	Bryozoan	Unknown; Cosmopolitan	Established (MID)	Fouling on ship hulls (hypothesized)
<i>Schizoporella errata</i>	Bryozoan	Unknown; Cosmopolitan	Established (MID)	Fouling on ship hulls (hypothesized)
<i>Lutjanus kasmira</i>	Fish	Indo-Pacific	Established (NIH, MMM, FFS, MAR, LAY, and MID)	Intentional introduction to Main Hawaiian Islands (documented)
<i>Cephalopholis argus</i>	Fish	Indo-Pacific	Established (NIH, MMM, FFS)	Intentional introduction to Main Hawaiian Islands (documented)
<i>Lutjanus fulvus</i>	Fish	Indo-Pacific	Established (NIH and FFS)	Intentional introduction to Main Hawaiian Islands (documented)
<i>Cnemidocarpa irene</i>	Tunicate	Indo-Pacific	Established (FFS)	Fouling on ship hulls (hypothesized)
<i>Polycarpa aurita</i>	Tunicate	Indo-Pacific and Western Atlantic	Established (FFS)	Fouling on ship hulls (hypothesized)

Notes:

1 Zabin et al. 2003, Godwin 2002, DeFelice et al. 2002, Godwin 2000, DeFelice et al. 1998, McDermid (pers. com.)

2 NIH=Nihoa, MMM=Mokumanamana, FFS=French Frigate Shoals, MAR=Maro, PAH=Pearl and Hermes, LAY=Laysan Island, LIS=Lisianski Island, MID=Midway, KUR=Kure Atoll

phenomenon, which has already been observed in Papahānaumokuākea (Aeby et al. 2003; Kenyon and Brainard 2006), generally leads to partial or total mortality of the bleached coral and increases corals' susceptibilities to various diseases.

Ocean acidification, resulting from elevated CO<sub>2</sub> levels that occur in conjunction with climate change, would have multiple impacts to coral reef ecosystems, including decreased abundance of aragonite (a major building block for coral reefs) and the dissolution of coral substrate and structures (Vitousek 1994). These effects lead to pronounced decreases in coral growth rates (Hoegh-

Guldberg 2005; Henderson 2006). Ocean acidification does not only affect submerged reefs; it would similarly affect the carbonate-based island atolls, further expediting the natural subsidence of these islands and atolls.

Additionally, sea-level rise poses a significant threat to the terrestrial ecosystem. Recent modeling scenarios indicate that between 5% and 69% of some terrestrial habitats in Papahānaumokuākea could be lost due to rising sea levels by the year 2100 (Baker et al. 2006). Sea-level rise is likely to have a significantly deleterious effect on Hawaiian Monk Seal pupping sites, Green Turtle nesting areas



and Laysan Finch habitat, in addition to numerous other endangered and endemic species (Selkoe et al. 2008).

It should be noted that these environmental pressures are global in nature, and arise predominantly outside the boundaries of the property. The property includes all the key areas and ecosystems to maintain its ecological



*A fragile balance* (Photo: James Watt)

integrity, and is of sufficient size to maintain associated biological and ecological processes to assure resilience in the face of effects from climate change.

170

The possibility of cultural resilience, and managing for social-ecological resilience, in the face of global climate change has received increasing attention from academics, managers, and communities worldwide (e.g., MEA 2005) and has become a major topic in the science and management of coral reefs (Hughes et al. 2005). The coupled social-ecological resilience of Papahānaumokuākea remains an area of great concern. Engaging with traditional ecological knowledge and local ecological knowledge is increasingly considered integral to enhancing and managing for resilience (Berkes et al. 2003; Davis & Wagner 2003; Folke 2006).

Traditional Native Hawaiian knowledge and practice can provide a rich example of resilience in the face of extreme environmental and socio-cultural change. To address these current concerns, Monument staff are working

to interweave multiple forms of knowledge into the management of Papahānaumokuākea, as exemplified by the MMP vision, goals and strategies described in preceding sections. For example, Monument staff and Native Hawaiian practitioners hosted a workshop for Hawai'i-based coral reef managers entitled "Response to Climate Change (RtCC)." This five-day workshop, based on one designed by the Great Barrier Reef Marine

Park Authority, was re-designed to incorporate traditional Native Hawaiian knowledge into modern reef management practices.

### Diseases

The incidence of diseases affecting marine organisms is increasing globally, but the factors contributing to disease outbreaks remain poorly known. The overall average prevalence of coral disease is quite low in the NWHI as compared to other coral reef areas (Aeby 2006, Friedlander et al. 2005).

Most diseases are presumed to be caused by anthropogenic impacts. Hence, the nearly pristine nature of the coral reefs of the NWHI provides a unique opportunity to document baseline levels of disease in coral reefs (Aeby 2006). Recent studies have begun to document these disease baselines in corals and other associated marine animals such as fish and sea turtles. With documented cases of disease in the NWHI, protocols have been developed and are now incorporated in all permitted activities (see Appendix F for complete details).

### Transportation hazards and groundings

Hazards to shipping and other forms of maritime traffic such as shallow submerged reefs and shoals are inherent in the NWHI. The region is exposed to open-ocean weather and sea conditions year-round, punctuated by severe storm and wave events in winter. Hence vessel groundings and the release of fuel, cargo, and other items would pose real threats to the NWHI (Selkoe et al. 2008). Likewise, aircraft landing at Midway Atoll or Tern Island pose certain risks to



(Photo: James Watt)

wildlife and other resources, including bird strikes, introduction of alien species, aircraft crashes, and fuel spills. Certain management practices, such as requiring night landings and runway sweeps during albatross season at Midway, as well as alien species inspections, minimize these risks.

Historically, there have been numerous spills and shipwrecks in the property, and a few in more recent times. In April 2008, a designation by the International Maritime Organization (IMO), declared the waters of Papahānaumokuākea a “Particularly Sensitive Sea Area” (PSSA), implemented a mandatory ship reporting system and expanded and consolidated existing Areas To Be Avoided (ATBA) into four larger ATBAs. The designation puts into effect internationally recognized measures designed to protect marine resources of ecological or cultural significance from damage by ships, while helping keep mariners safe (see Sections 1.e, 5.a and 5.b). While accidents may still happen, careful permitting procedures, restrictions on entry to Papahānaumokuākea Marine National Monument, vast improvements in nautical charts, and vessel safety regulations now in place should keep this threat to a minimum.

### **Military presence**

Activities and exercises of the Armed Forces (including those of the United States Coast Guard) are conducted occasionally within Papahānaumokuākea’s boundaries. Navy vessels conduct training and participate in testing activities in the Hawai’i Range Complex (area encompasses North Central Pacific, within which Papahānaumokuākea

lies). These activities are described and analyzed in detail in the Hawai’i Range Complex Final Environmental Impact Statement (May 2008). In addition, vessels that support missile defense tests occasionally operate in Papahānaumokuākea’s waters.

Although Presidential Proclamation 8031 exempts activities and exercises of

the Armed Forces from the Proclamation’s prohibitions, all activities must be consistent with applicable laws. The Proclamation further states that “All activities and exercises of the Armed Forces shall be carried out in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on the monument resources and qualities. In the event of threatened or actual destruction of, loss of, or injury to a monument resource or quality resulting from an incident, including but not limited to spills and groundings, caused by a component of the Department of Defense or the USCG, the cognizant component shall promptly coordinate with the Secretaries for the purpose of taking appropriate actions to respond to and to mitigate the harm, and if possible, restore or replace the monument resource or quality.”

These terms establish strong requirements to avoid adverse impacts to Papahānaumokuākea resources, if practicable and consistent with operational requirements, and require prompt coordination with the federal Co-Trustees if a resource loss or injury



3-inch gun, a remnant of the Battle of Midway  
(Photo: Michael Lusk, FWS)



occurs or is threatened. Furthermore, the military must adhere to all other applicable laws and regulations such as the Endangered Species Act, the Marine Mammal Protection Act, the National Wildlife Refuge System Administration Act, the National Historic Preservation Act, and the Migratory Bird Treaty Act.

The Monument Management Board (MMB) is working with representatives of the military to develop a consultation process prior to undertaking activities in Papahānaumokuākea, which will ensure that the resources and qualities of the property are not harmed.

#### **Native Hawaiian archaeological sites**

Ecological damage to Native Hawaiian archaeological sites to date is limited to that caused by burrowing birds and the root systems of loulou palms. A balance in preserving all of these natural and archaeological resources will be found. Any restoration undertaken should be planned and carried out with consideration to indigenous knowledge and approaches.

#### **The living cultural connection to Papahānaumokuākea**

Nature and culture are inseparable in the Native Hawaiian worldview. Thus, to Native Hawaiians, factors affecting the site's natural resources also affect the living cultural association to the site.

In addition, a variety of socioeconomic, political, and other factors have the potential to negatively impact the living cultural association between Native Hawaiians and Papahānaumokuākea. Some of these potential negative effects are exogenous (e.g., global economy; a decline in cultural transmission). However, the MMP has been proactive in its efforts to foster and enhance Native Hawaiian relationships to Papahānaumokuākea, addressing issues like Native Hawaiian access and the ability to practice culture, conduct research and meaningfully engage in Monument management. These activities are addressed thoroughly in Section 4.a, above, and the MMP (see Appendix K, Supporting Materials).

#### **(iii) Natural Disasters and Risk Preparedness**

Tropical storms and hurricanes are natural hazards that may occur at Papahānaumokuākea. However, only three hurricanes have approached the land masses in the property in the last fifty years. In 1959, Hurricane Patsy passed between Kure and Midway atolls. The last recorded hurricane affecting Papahānaumokuākea was Nele, which passed near Gardner Pinnacles in 1985. Damage from these rare events is likely to affect each of the islands differently, depending on the nature and severity of the event.

It is possible that the property could be adversely affected by a tsunami such as that experienced in Southeast Asia in 2004. Sea level measurement stations have been established at Midway and French Frigate Shoals as part of the Pacific Tsunami Warning Center's network. These stations provide information during tsunami events to help track the size and paths of tsunamis generated in the Pacific. At least six major tsunamis have affected the main Hawaiian Islands in the past sixty years. Of these six, four were generated in Alaska, one in Chile, and one near the southern coast of Hawai'i Island. In addition to damages caused by terrestrial inundation, tsunamis could also result in broken coral reef structures, as well as damage by sedimentation and piling of debris. As the marine ecosystem has evolved with periodic disturbance by tsunamis and seasonally high wave energy events, its capacity to recover fully from tsunamis and other wave events would be expected.

#### **Contingency plans for dealing with disasters**

The U.S. Fish and Wildlife Service (FWS) has various contingency plans for dealing with disasters. There are emergency plans and protocols for staff at Laysan, French Frigate Shoals, and Midway, in case of tsunami or hurricane (FWS 2007; FWS 2006) (see Appendix N). A full plan for Midway is laid out in the Midway Atoll NWR Facility Response Plan, (FWS 1999) (see Appendix N). For general emergency response at Midway, there is a Midway

Airport Emergency Response Plan; Appendix I of the Henderson Field Airport Certification Manual; November 30, 2006. On Laysan, an engineered hurricane shelter is provided for refuge in case of a hurricane. The FWS has also drafted a Rat Spill Contingency Plan (FWS 2000), outlining response protocols to be followed in the event of a ship grounding and subsequent introduction of rats to any of the islands or atolls.

The National Marine Fisheries Service (NMFS) also has extensive emergency plans for its operations conducted within the property (see Appendix N). Plans exist to provide support and guidance in the event of a medical emergency or severe weather event. Field personnel are trained in wilderness first aid and the use of emergency equipment in case of a medical emergency, hurricane, or tsunami. Through satellite phone/email communication with NMFS personnel in Honolulu as well as cooperating agencies (U.S. Coast Guard, Health Force Partners, FWS, DLNR) field personnel would work to determine the best course of action depending on the situation and location.

#### (iv) Visitor/tourism Pressures

The MMP contains a long-term visitor services plan, which in accordance with Presidential Proclamation 8031 allows recreational visitors only on Midway Atoll. Numbers of overnight visitors are limited to no more than 50 at any one time. The availability of transportation to Midway means that visitation levels are actually much lower than the maximum number allowed. Flights to Midway are infrequent and occur usually no more than once per week on a small, chartered plane. Visitor



programs are closely monitored to ensure they are causing no adverse effects. The property's managers have the ability to wholly control access by visitors through the permitting process. Midway's visitor program, which allows the public to learn about and experience this unique ecosystem, is expected to only bring benefits to Papahānaumokuākea.

In addition to provision for overnight visitors, it is equally important to allow day visitors to come to Midway Atoll—considered the window to Papahānaumokuākea. All visitors learn about and experience its unique wildlife and historic resources, as well as the natural and cultural resources of Papahānaumokuākea and its importance to Native Hawaiians. Day visits via larger aircraft or small passenger vessel allow a broader range of visitors, including World War II veterans and their families, many of whom have close direct ties with the atoll and who might otherwise have difficulty getting to Midway. The number of larger day visits of 50-800 people to Midway is limited to no more than three per year, with no more than 400 people ashore at any one time. In the past, Midway has hosted numerous large groups, numbering from 250 to 1,800 visitors each. However, the largest groups



taxed the ability to provide the high-quality visitor experience desired. Because groups are limited to existing roads and trails and are typically divided into smaller groups for walking tours, no negative impacts from these visits have been documented. Visitors remain in areas where albatrosses are already acclimated to human presence, and they are restricted from any area where Hawaiian Monk Seals or Green Turtles may be present.

These visits have had a strong positive effect on Midway’s guests, with many expressing their commitment to maintaining such special wildlife habitats, doing their part to reduce threats to wildlife, and their appreciation for those who valiantly fought the Battle of Midway. All groups must meet all Monument findings and requirements as specified in Presidential Proclamation 8031 and its implementing regulations at 50 CFR 404.11, including obtaining the appropriate (usually Special Ocean Use) Monument permit. In addition, passenger vessels and aircraft must meet specific Refuge requirements (see Section 5).

**(v) Number of Inhabitants Within the Property and the Buffer Zone**

174

Only three sites within Papahānaumokuākea are inhabited year-round and these are Midway Atoll, Laysan Island and Tern Island within French Frigate Shoals. The Laysan Island site is a temporary field camp with tents and other non-permanent structures that house staff and volunteers for up to 12 months at a time (see Table 4.3 for island-by-island occupancy details). Midway Atoll houses FWS staff and volunteers as well as up

to 50 contract workers who manage the daily operations at this site. At Tern Island, French Frigate Shoals, a permanent facility houses a small (2-6) permanent staff. In addition to the permanent staff, a few NOAA biologists are stationed there each summer to undertake population assessments for Hawaiian Monk Seals and Green Turtles.

Annual field camps to undertake population assessments and restoration activities have been set up for several years at Kure Atoll, Pearl and Hermes Atoll and Lisianski Island. The temporary field camps range in size from two to six staff and volunteers for up to six months during the late spring to early fall. The number of camps and personnel is subject to annual funding allocations and opportunities for access to these remote locations. See Appendix O for complete details on island-by-island staffing numbers.

Specifically:

**Number of inhabitants within the property and buffer zone**

Estimated population located within:

Area of nominated property: 130 (permanent and seasonal staff)

Buffer zone: N/A

Total: 130

Year: 2008

*Table 4.3: Anticipated staff on each island/atoll under the Monument Management Plan*

	Kure Atoll	Midway Atoll	Pearl and Hermes	Lisianski Island	Laysan Island	French Frigate Shoals	Nihoa	Total
Permanent Staff	0	75	0	0	4	6	0	85
Seasonal Staff	6	20	3	3	3	6	4	45
<b>Total:</b>	<b>6</b>	<b>95</b>	<b>3</b>	<b>3</b>	<b>7</b>	<b>12</b>	<b>4</b>	<b>130</b>



Makamaloa ka la'au a Kani-puka i Ha'eua i  
Apakau ke kukuna i ka 'ili kai o na kai 'ewalu  
He 'ike makawalu ka'u e 'ano'i nei,

'O na au walu o Kanaloa Haunawela noho i ka moana nui  
He Ha'akai ka makani o Lehua 'au i ke kai

Ku'ono'ono ka lua o Kuhaimoana i ke kapa 'ehukai o Ka'ula  
'O Ku i ka loulou, ulu a'e ke aloha no Nihou moku manu  
Manu o ku i ka 'akui, he alaka'i na ka lahui

'O Hinapuko'a

'O Hinapuhalako'a

'O Hina kapukapu

'O Hinaikamalama

Hua ka 'ohua, la'u ke kohola

Aloha kahi limu kala, kua i 'ia e ka 'akala noho i uka

Hana'u ka pe'a, puka ka pe'ape'a ke kai

He 'ina'i ka 'ina, 'ono i ka hana o ka pa'akai

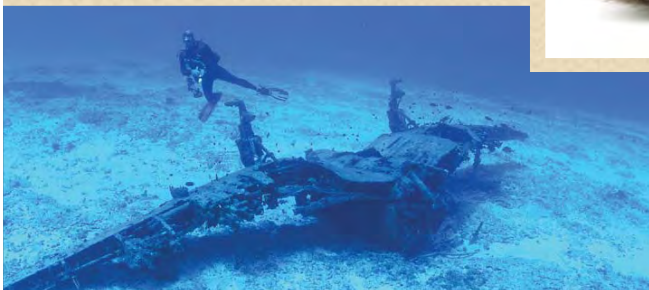
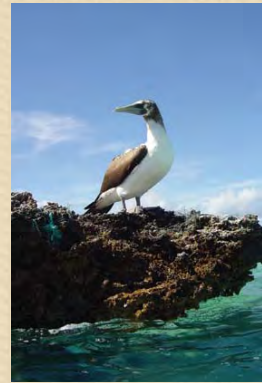
Manomano ka 'ono'ono i ke hana o Kanaloa

Koiko'i lua ho'i i ka lulu'ulu i ke hana

Hanohano wale ka 'aina kapa, 'ono noku te'u

No Papahānaumokuākea la hana

Na Kainani Kōhauākea me Halealoha



Protection and Management



## 5. Protection and Management

### 5.a Ownership

All of the Papahānaumokuākea Marine National Monument property is owned or controlled by the Governments of the United States and the State of Hawai‘i. Pursuant to Presidential Proclamations 8031 of June 15, 2006 and 8112 of February 28, 2007, applicable laws and agreements, the U.S. Department of Commerce through the National Oceanic and Atmospheric Administration (NOAA), the U.S. Department of the Interior through the U.S. Fish and Wildlife Service (FWS), and the State of Hawai‘i are the government entities with legal authority, jurisdiction or control of Papahānaumokuākea. These three government entities are the Co-Trustees of the public interest. There is no private ownership of the Papahānaumokuākea Marine National Monument property.

#### Representatives of the Papahānaumokuākea Marine National Monument Co-Trustees:

Governor of the State of Hawai‘i  
Executive Chambers  
State Capitol  
Honolulu, Hawai‘i 96813  
USA

Director  
U.S. Fish and Wildlife Service  
1849 C Street N.W. (3256 MIB)  
Washington, D.C. 20240  
USA

Under Secretary of Commerce for Oceans  
and Atmosphere  
U. S. Department of Commerce and  
Administrator of National Oceanic and  
Atmospheric Administration  
1401 Constitution Avenue, N.W.  
[HCHB 6217]  
Washington, D.C. 20230  
USA



Wedge-tailed Shearwater or 'ua'u kani  
(Photo: Susan Middleton & David Liittschwager)

#### Traditional or Customary Ownership

In 1893, the Kingdom of Hawai‘i, which included most of the Northwestern Hawaiian Islands, was overthrown with the involvement of certain United States officials and others. Some involved in the overthrow and others went on to create a provisional government and then the Republic of Hawai‘i, which assumed control of approximately 1.8 million acres of crown, government, and public lands of the Kingdom of Hawai‘i, including certain submerged and fast lands of the Northwestern Hawaiian Islands. Upon its annexation, the Republic ceded these lands to the United States in 1900. A majority of these lands were again ceded, this time to the State of Hawai‘i, upon statehood in 1959.

Under the terms of the statute admitting Hawai‘i as a state in 1959, the federal government granted title to Hawai‘i to most of the previously ceded lands and mandated that these ceded lands be held by Hawai‘i in public trust. In accordance with the Hawaii Organic Act of April 30, 1900, c 339, 31 Stat 141, and the Hawaii Admission Act of March 18, 1959, Pub L 86-3, 73 Stat 4, most of the islands of the Hawaiian Archipelago that were part of the Territory of Hawai‘i became part of the State of Hawai‘i as part of the public land trust. Hawai‘i’s lands continue to hold a considerable amount of legal, historical, and sentimental significance to Native Hawaiians. Pursuant to Section 5(f) of the Hawaii Admission Act, one purpose for which the ceded lands are held in trust by the State is “for the betterment of the conditions of native Hawaiians.”

The Native Hawaiian community has expressed a strong interest in participating in management decisions affecting Papahānaumokuākea. Respecting Native Hawaiian traditions and values and providing an effective degree of participation in the protection and stewardship of the area will provide an opportunity for Native Hawaiians to maintain ancestral connections to Papahānaumokuākea.

### *Representative Management Body*

The State of Hawai'i, FWS, and NOAA (collectively, the Co-Trustees) carry out coordinated management for the long-term comprehensive conservation and protection of the property. The representative body that manages, coordinates, plans and monitors activities within Papahānaumokuākea Marine National Monument is known as the Monument Management Board:

Monument Management Board  
Papahānaumokuākea Marine  
National Monument  
6600 Kalaniana'ole Highway, Suite 300  
Honolulu, Hawai'i 96825  
USA

The functional relationships among the Co-Trustees to coordinate management actions in Papahānaumokuākea are established and defined by a Memorandum of Agreement (MOA) that the Co-Trustees executed on December 8, 2006.

Per the MOA, policy guidance is provided by a Senior Executive Board, consisting of three senior level designees representing the Co-Trustees. In addition, the seven-member Monument Management Board coordinates management of the Papahānaumokuākea Marine National Monument at the field level, and includes designees from NOAA's Office of National Marine Sanctuaries and National Marine Fisheries Service, FWS's National Wildlife Refuge Program and Pacific Islands Fish and Wildlife Office, the State of Hawai'i Department of Land and Natural Resources' (DLNR) Division of Aquatic Resources and Division of Forestry and Wildlife, and the

Office of Hawaiian Affairs. Together, the Senior Executive Board and the Monument Management Board represent the combined policy and field-level management authority of the Co-Trustees, acting on behalf of the State of Hawai'i and the United States.

### *Restrictions on Public Access*

Presidential Proclamation 8031, which established Papahānaumokuākea Marine National Monument, as well as federal regulations promulgated by the U.S. Departments of the Interior and Commerce to implement the provisions of the Proclamation, prohibit entering the property unless permission has been granted by the Co-Trustees via a rigorous permit or notification system to manage activities that may affect Papahānaumokuākea's resources.

Any domestic vessel or persons passing through Papahānaumokuākea without interruption must notify an official designated by the Secretaries of Commerce and Interior at least 72 hours, but no longer than one month, prior to the entry date. Notification of departure from Papahānaumokuākea must be provided within 12 hours of leaving. Any vessel granted permission to enter and engage in activities within Papahānaumokuākea is required to have a vessel monitoring system (VMS).

As under international law, rights of navigation are respected, but regulated.



*A field party approaches their work site*  
(Photo: James Watt)





(Photo: State of Hawai'i Archives)

In this case, the regulation of access to Papahānaumokuākea by vessels has been reviewed and approved through processes of the International Maritime Organization (IMO). The IMO is a specialized agency of the United Nations responsible for measures to improve the safety and security of international shipping and protect the marine environment from threats associated with international shipping. Within the IMO, the Marine Environmental Protection Committee (MEPC) and the Maritime Safety Committee (MSC) have agreed that Papahānaumokuākea Marine National Monument be designated as a Particularly Sensitive Sea Area (PSSA).

The PSSA is complemented by the associated IMO protective measures of voluntary Areas To Be Avoided (ATBAs) and a ship reporting system (SRS). See Section 5.b for additional details.

178

There are, of course, the standard exceptions for official access that are necessary for certain emergency conditions, law enforcement purposes, and activities of the Armed Forces of the United States.

All Papahānaumokuākea prohibitions and restrictions are prescribed consistent with international law. The restrictions apply against foreign vessels and nationals within the territory and territorial sea, unless the application interferes with their international right of innocent passage. No prohibitions or restrictions are applied or enforced against a person who is not a citizen, national, or resident alien of the United States (including foreign flag vessels) outside of the 12-nautical-mile territorial sea unless in accordance with international law.

Consistent with international law, the U.S. has proclaimed a 12 nautical mile territorial sea, a 24-nautical-mile contiguous

zone, and a 200-nautical-mile Exclusive Economic Zone (EEZ). Foreign states are thus notified that U.S. laws regulating the exploration and exploitation of marine resources, such as oil and fisheries, also apply within the 200-nautical-mile EEZ/continental shelf. While it does not own the EEZ/continental shelf beyond its territorial sea, as a coastal state- the U.S. does have the necessary jurisdiction, authority and control over the resources and activities for long-term protection and management of Papahānaumokuākea resources as established under the Antiquities Act and other applicable laws.

In complement to federal law, Hawai'i State law administers the only public meeting process for permitting a limited access to Papahānaumokuākea areas and waters under state jurisdiction. Under the MOA, the Co-Trustees jointly issue permits for access and activities in Papahānaumokuākea.

## 5.b Protective Designations

Over the past century, the NWHI have been the focus of various conservation efforts by the United States, receiving increasing protections that have culminated in Proclamation 8031, which created Papahānaumokuākea Marine National Monument. In 1903, U.S. President Theodore Roosevelt sent in U.S. Marines to stop the slaughter of seabirds at Midway Atoll. In 1909, the remaining islets and reefs of the NWHI were placed within the Hawaiian Islands Reservation. And in 1940, the Reservation became the Hawaiian Islands National Wildlife Refuge through Presidential Proclamation 2416.

Within the last ten years, state and federal government have made the highest possible commitment to the long-term protection of this area, with the establishment and the designation of the area first as the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve under Presidential Executive Orders 13178 in 2000 and 13196 in 2001; the full protection of all State of Hawai'i waters in the Northwestern Hawaiian Islands upon creation of the Northwestern Hawaiian Islands Marine Refuge

**Table 5.1: Protections in Papahānaumokuākea Marine National Monument**

All commercial fishing eliminated as of 2011
All extractive activities restricted
Access only by permit or notification
No mining, drilling or exploring for oil or gas
No anchoring on coral
Tourism limited only to Midway Atoll
Vessel monitoring system required for all vessels permitted to enter Papahānaumokuākea
No use of explosives, poisons, or electrical charges
No introduction of non-indigenous species
Discharge or disposition of any materials prohibited or severely restricted
Quarantine protocols for moving between islands, access, disease, introduced species and organism sampling applied to all activities
Rigorous permit review system in place for approval of all activities
International Maritime Organization Particularly Sensitive Seas Area designation
Specific laws to protect endangered species, cultural and historic resources
Hull inspections and rat-free certification required for all vessels permitted to enter Papahānaumokuākea
Numerous general and specific permit conditions for all permitted activities

in 2005; and the creation of the Monument under Presidential Proclamation 8031 in 2006. The Co-Trustees are committed to preserving the ecological integrity of Papahānaumokuākea and perpetuation of the NWHI ecosystems, Native Hawaiian culture, and other historic resources. Table 5.1 summarizes many of the protections in Papahānaumokuākea.

In addition to the numerous overlays of protection designated within Papahānaumokuākea through the Hawaiian Islands National Wildlife Refuge, the Midway Atoll National Wildlife Refuge, the Battle of Midway National Memorial, the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, the Hawai'i State Seabird Sanctuary at Kure Atoll, and the Northwestern Hawaiian Islands Marine Refuge, the numerous laws detailed below are all in effect and enforced to ensure compliance. See Appendices G-J for full documents of measures listed below.

### *International Legal Measures*

#### **1. Areas to be Avoided “In the Region of the North-West Hawaiian Islands” (International Maritime Organization, 1981)**

Areas to Be Avoided (ATBAs) are navigation measures approved by the International

Maritime Organization (IMO). The IMO is the United Nations organization that promotes cooperation among governments and the international shipping industry to improve maritime safety and to prevent marine pollution. In 1981, six voluntary ATBAs were adopted by IMO to protect eight of the coral reef areas of the NWHI. Each of the ATBAs extend out 50 nautical miles from the islands to keep ships well away from the vibrant and integrated coral reef ecosystem and sensitive ecological resources. The ATBAs not only prevent groundings and oil spills, they also provide emergency response teams more time to mount a response to any maritime emergency developing outside of the ATBAs.



Reef fish at French Frigate Shoals (Photo: James Watt)



## 2. Papahānaumokuākea Marine National Monument designation as a Particularly Sensitive Sea Area (PSSA) by the International Maritime Organization (IMO), (April 3, 2008)

A PSSA is an area recognized by the IMO as requiring special protection because of its significance for recognized ecological, socioeconomic or scientific attributes which may be vulnerable to damage from international shipping activities. An area approved as a Particularly Sensitive Sea Area has specific measures that may be used to control the maritime activities, including routing measures, strict application of MARPOL discharge and equipment requirements for ships, such as oil tankers; and installation of Vessel Traffic Services (VTS).

The IMO's designation as a PSSA gives international recognition to the significance of the waters, coral and other resources of Papahānaumokuākea. The PSSA is complemented by associated IMO protective measures as voluntary Areas To Be Avoided (ATBAs) and a mandatory ship reporting system. The protective measures include amendments to the six existing Areas To Be Avoided (ATBAs), which were adopted by the IMO in 1981, and the adoption of additional ATBAs around Kure Atoll and Midway Atoll as well as three other areas between islands. The action expanded and consolidated the areas into four enlarged ATBAs. The ship reporting system, whose boundary extends an additional 10 nautical miles seaward of the PSSA/Papahānaumokuākea boundary, is mandatory for all ships 300 gross tonnage or greater that are going to or coming from a U.S. port or place, as well as for vessels involved in a developing emergency. Under the system, vessels are required to notify the U.S. when they cross into and out of the reporting area, including when they enter or exit an environmentally sensitive ATBA. The ship reporting area and related measures adopted by IMO provide additional notice to mariners of the significance and vulnerability of resources in Papahānaumokuākea, as well as potential hazards to navigation in the area, such as shallow coral reefs. The reporting requirements do not apply to sovereign immune vessels.

### *Federal Legal Measures Specific to Papahānaumokuākea and the Northwestern Hawaiian Islands*

#### 3. Executive Order 1019 – Hawaiian Islands Reservation (February 3, 1909)

Through this Executive Order, President Theodore Roosevelt set aside the islets and reefs of the Northwestern Hawaiian Islands (except for Midway Atoll) as a preserve and breeding ground for native birds. The order made it unlawful for any person to hunt, trap, capture, willfully disturb or kill any bird of any kind whatever, or take the eggs of such birds within the Hawaiian Islands Reservation. The reservation became known as the Hawaiian Islands National Wildlife Refuge on July 25, 1940, through Presidential Proclamation 2416.

#### 4. Executive Order 13022 – Administration of the Midway Islands, 61 FR 56875 (October 31, 1996)

Midway Atoll National Wildlife Refuge was created on April 22, 1988, as an “overlay” national wildlife refuge through a cooperative agreement with the U.S. Navy. Executive Order 13022 transferred jurisdiction and control over the atoll to the U.S. Fish and Wildlife Service. It required the atoll to be managed for the following purposes:

- (1) maintaining and restoring natural biological diversity within the refuge;
- (2) providing for the conservation and management of fish and wildlife and their habitats within the refuge;
- (3) fulfilling the international treaty obligations of the United States with respect to fish and wildlife;
- (4) providing opportunities for scientific research, environmental education, and compatible wildlife dependent recreational activities; and
- (5) in a manner compatible with refuge purposes, recognizing and maintaining the historic significance of the Midway Islands.

### **5. Department of the Interior Secretary's Order 3217 – Battle of Midway National Memorial (September 13, 2000)**

Congress provided the Secretary of the Interior the authority to designate Midway Atoll National Wildlife Refuge as the Battle of Midway National Memorial in Section 126 of Public Law 106-113, the Consolidated Appropriations Act for Fiscal Year 2000.

### **6. Executive Order 13178 - Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, 65 FR 76903 (December 4, 2000)**

On December 4, 2000, the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve (Reserve) was created by Executive Order 13178. The Reserve encompasses an area of the marine waters and submerged lands of the Northwestern Hawaiian Islands extending approximately 1200 nautical miles long (2,222.4 km) and 100 nautical miles (185.2 km) in width. As part of the establishment of the Reserve, Executive Order 13178 contains conservation measures that restrict some activities throughout the Reserve, and establishes Reserve Preservation Areas around certain islands, atolls, and banks where all consumptive or extractive uses are prohibited.

### **7. Executive Order 13196 - Final Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, 66 FR 7395 (January 18, 2001)**

On January 18, 2001, the process and establishment of the Reserve was finalized by issuance of Executive Order 13196. This Executive Order modified Executive Order 13178 by revising certain conservation measures and making permanent the Reserve Preservation Areas, with modifications. With this action, the establishment of the Reserve, including conservation measures and permanent Reserve Preservation Areas, was completed. The Reserve's outer boundary is essentially the same as the Papahānaumokuākea boundary. The Reserve prohibited certain activities that could harm natural and cultural resources and established preservation areas to provide additional protection in designated zones.

### **8. Presidential Proclamation 8031 of June 15, 2006, 71 FR 36443 (June 26, 2006)**

Presidential Proclamation 8031 of June 15, 2006 establishing the Northwestern Hawaiian

Islands Marine National Monument, by regulations at 71 FR 36443 (June 26, 2006); as amended by Presidential Proclamation 8112) (codified at 50 CFR Part 404) (2006) and under the authority of February 28, 2007, 72 FR 10031 (March 6, 2007) 16 U.S.C. 431 et seq.; 16 U.S.C. 460k-3; 16 U.S.C. 1801 et seq.; 16 U.S.C. 742f, 16 U.S.C. 742l, and 16 U.S.C. 668dd-ee; 16 U.S.C. 1361 et seq.; 16 U.S.C. 1531 et seq., Pub. L. No. 106-513, Sec. 6(g) (2000);

The Northwestern Hawaiian Islands Marine National Monument was established on June 15, 2006, by Presidential Proclamation 8031 under the authority of the Antiquities Act. The Proclamation reserves approximately 139,793 square miles of emergent and submerged lands and waters of the Northwestern Hawaiian Islands from all forms of entry, location, selection, sale or leasing or other disposition under public land laws. Presidential Proclamation 8112, dated February 28, 2007, amended Proclamation 8031 to give the property a Native Hawaiian name, Papahānaumokuākea, which was developed by Native Hawaiians.

There are numerous prohibitions against exploitation of Papahānaumokuākea resources and introduction of non-native species as well as restrictions on activities that may impact or injure area resources. See Table 5.1 at the end of this section.

### **9. Northwestern Hawaiian Islands Marine National Monument codifying regulations, 50 CFR Part 404 (2006)**

Federal regulations codifying the provisions of Proclamation 8031 were published on August 29, 2006 (50 CFR Part 404). The regulations generally prohibit exploitation or extractive use of natural, historical and cultural resources. With exceptions for law enforcement, emergency personnel, armed forces, and uninterrupted passage, access to Papahānaumokuākea is restricted to persons who have applied for and received permits to conduct approved activities. Commercial fishing is prohibited except for a small commercial fishery consisting of eight boats that will be allowed to continue fishing in certain areas of Papahānaumokuākea until June 2011. Thereafter, commercial fishing



will be completely prohibited. Limited fishing for Native Hawaiian cultural reasons and sustenance fishing for bottomfish and pelagic species in certain areas of Papahānaumokuākea may be authorized by permit.

**10. Northwestern Hawaiian Islands Marine National Monument regulations implementing IMO PSSA Mandatory Ship Reporting System, 50 CFR Part 404 (2008)**

Federal regulations implementing the IMO mandatory ship reporting system were published on December 3, 2008. The regulations amend the Monument reporting requirements at 50 CFR 404.4 to be consistent with and to implement the IMO ship reporting system as follows. The regulations establish a reporting area around the Monument that extends outward ten nautical miles from the Monument boundary but that excludes the ATBA's within the Monument. Vessel passing through the Monument without interruption must notify the United States by e-mail upon crossing into the Reporting Area and again upon exiting the Reporting Area. The notification must provide specific information regarding the vessel, its location, etc., and must be sent in a reporting format that is consistent with the reporting system adopted by IMO. Vessels that do not have e-mail capability remain subject to current regulations that require notification by various means (telephone, fax, e-mail) at least 72 hours but not more than one month before passing through the Monument without interruption. The ship reporting requirements do not apply to sovereign immune vessels including vessels of the United States Armed Forces (and the United States Coast Guard) but voluntary participation in the reporting system is recommended for all vessels.



*White Tern  
or manu o Kū*  
(Photos: Susan Middleton  
& David Liittschwager)

The Act authorizes the President to declare by proclamation such resources to be national monuments, and may reserve parcels of land for the proper care and management of such resources.

The Act provides criminal penalties for unlawful appropriation, excavation, injury or destruction of certain monument resources including but not limited to coral and cultural resources. It also provides authority for regulations and a permit system at each monument site created.

**12. Migratory Bird Treaty Act of 1918, as amended, 16 U.S.C. §§703-712**

This statute makes it unlawful to pursue, hunt, take, capture, kill or sell parts of live or dead migratory birds, giving equal and full protection to bird parts, such as feathers, eggs and nests. This law originally implemented a convention between the United States and Great Britain (for Canada). Later, the United States entered into similar agreements with Canada, Mexico, Japan, and Russia to protect migratory birds.

More than 800 species are currently on the list of protected migratory birds, some of which currently migrate to or through Papahānaumokuākea.

**13. Historic Sites, Buildings, Objects and Antiquities Act of 1935, 16 U.S.C. §§461-462, 464-467**

The Historic Sites Act declares it a national policy to preserve historic sites and objects of national significance and provides procedures for designation, administration and protection of such sites.

National Historic Landmarks, such as the World War II facilities designated on Midway Atoll on May 28, 1987, are named under the authority of this act.

**11. Antiquities Act of 1906, 16 U.S.C. § 431, et seq.**

The Antiquities Act of 1906 was the first general federal preservation law in the United States and provides protection for archaeological, historic or scientifically interesting resources on lands owned or controlled by the federal government.

**14. Fish and Wildlife Act of 1956, as amended, 16 U.S.C. § 742f**

The Fish and Wildlife Act establishes a comprehensive national fish, shellfish and wildlife resources policy with emphasis on the commercial fishing industry but also with a direction to administer the Act with regard to the inherent right of every citizen and resident to fish for pleasure, enjoyment and betterment and to maintain and increase public opportunities for recreational use of fish and wildlife resources. Among other things, it directs a program of continuing research, extension, and information services on fish and wildlife matters, both domestically and internationally.

**15. National Historic Preservation Act (NHPA) of 1966, 16 U.S.C. § 470 *et seq.***

The National Historic Preservation Act is intended to preserve historical and archaeological sites in the United States. Among other things, the act requires Federal agencies to evaluate the impact of all federally funded or permitted projects through a process known as Section 106 Review.

Section 106 of the NHPA is of particular importance since it requires Federal agencies to take into account the effects of their undertakings on historic properties. It also provides a process whereby representatives of Native Hawaiian organizations are afforded opportunity to comment on federal undertakings that may adversely affect Native Hawaiian historic properties.

**16. National Wildlife Refuge System Administration Act of 1966, as amended, 16 U.S.C. § 668dd-ee**

The National Wildlife Refuge System Administration Act of 1966, together with the Refuge Recreation Act of 1962, provides the principal management authority for the Midway Atoll and the Hawaiian Islands National Wildlife Refuges. The refuges are managed in order to conserve and enhance their fish, wildlife and plant resources and habitats. Islands, reefs and atolls administered as part of these refuges include Nihoa, Mokumanamana (Necker), French Frigate Shoals, Gardner Pinnacles, Maro Reef, Laysan Island, Lisianski Island, Pearl and Hermes Atoll, and Midway Atoll.

**17. Refuge Recreation Act of 1962, as amended, 16 U.S.C. § 460k-460k-4**

The Refuge Recreation Act authorizes the Secretary of the Interior to administer refuges, hatcheries, and other conservation areas for recreational use, when such uses do not interfere with the area's primary purposes. It provides for public use fees and permits, and penalties for violation of regulations. It also authorizes the acceptance of donations of funds and real and personal property to assist in carrying out its purposes. Enforcement provisions were amended in 1978 and 1984 to make violations misdemeanors in accordance with the uniform sentencing provisions of 18 U.S.C. §§3551-3586.

This Act applies in the two National Wildlife Refuges within Papahānaumokuākea: the Hawaiian Islands National Wildlife Refuge extending from Nihoa to Pearl and Hermes Atoll, and Midway Atoll National Wildlife Refuge.

**18. Coastal Zone Management Act of 1972, 16 U.S.C. § 1451, *et seq.***

In an effort to encourage states to better manage coastal areas, Congress enacted the Coastal Zone Management Act (CZMA). CZMA



*The Hawaiian Monk Seal (Monachus schauinslandi) and its critical habitat are protected by various federal laws (Photo: Susan Middleton & David Liittschwager)*





Laysan Ducks  
(Photo: James Watt)

provides grants to states that develop and implement federally approved coastal zone management plans. It also allows states with approved plans the right to review Federal actions to ensure they are consistent with those plans, and it authorizes the National Estuarine Research Reserve System. Hawai'i's coastal zone management program was approved in 1977 (Chapter 205A, Hawai'i Revised Statutes).

**19. Marine Mammal Protection Act of 1972, 16 U.S.C. § 1361, et seq.**

The Marine Mammal Protection Act makes it unlawful to harass, hunt, capture or kill any marine mammal in waters or on lands under the jurisdiction of the United States.

The Act applies to all marine mammals in Papahānaumokuākea, including all species of seals, dolphins and whales, thus some species enjoy protections in addition to those under the Endangered Species Act.

**20. Endangered Species Act of 1973, as amended, 16 U.S.C. § 1531, et seq.**

The Endangered Species Act was enacted in 1973 to provide protection for critically imperiled species from extinction. It provides for the conservation of species of fish, wildlife, and plants identified by NOAA or FWS as threatened or endangered species. The species listing is based on a number of factors including the scientific and other information available on the species and the ecosystems upon which they depend. Activities prohibited by the Act include harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing or collecting, any species officially listed as endangered or threatened, or attempting any of these activities.

Animals in Papahānaumokuākea that are currently protected under the Act include the Hawaiian Monk Seal, sea turtles, great whales, Short-tailed Albatross, and four species of land birds—the Nihoa Finch, Nihoa Millerbird, Laysan Finch, and the Laysan Duck. In addition, six plant species found in Papahānaumokuākea are listed as endangered species. In 1988, the waters surrounding each of the islands and atolls in Papahānaumokuākea (except Sand Island, Midway Atoll) to a depth of 20 fathoms were designated as critical habitat for the Hawaiian Monk Seal.

**21. Magnuson-Stevens Fishery Conservation and Management Act of 1976, 16 U.S.C. § 1801, et seq.**

The Magnuson-Stevens Fishery Conservation and Management Act was enacted in 1976 and is the primary legal authority for the United States to manage fish stocks within federal waters out to the limit of the 200 nautical mile exclusive economic zone.

Eight commercial fishing boats are allowed to continue to fish for bottomfish and associated pelagic species in certain areas of Papahānaumokuākea until June 2011. The on-going fishing activities of these boats are regulated under the Magnuson-Stevens Act to prevent overfishing and to maintain the sustainability of the fish stocks.

**22. Fish and Wildlife Improvement Act of 1978, as amended (16 U.S.C. § 742I)**

The Fish and Wildlife Improvement Act authorizes the Secretaries of the Interior and Commerce to establish, conduct and assist with national training programs for State fish and wildlife law enforcement personnel. It also authorized funding for research and development of new or improved methods to support fish and wildlife law enforcement. The law also provides authority to the Secretaries to enter into law enforcement cooperative agreements with State or other Federal agencies.

**23. Archaeological Resources Protection Act (ARPA) of 1979, 16 U.S.C. § 470aa-mm**

The Archaeological Resources Protection Act was enacted to strengthen federal law prohibiting the looting and unwanted recovery



*Papahānaumokuākea contains over 120 sunken vessels and aircraft (Photo: James Watt)*

of archaeological resources from federal public lands. A main focus of ARPA is the regulation of legitimate archaeological investigation in accordance with professional archaeological standards for research, conservation and curation. The Act also strengthened the enforcement of penalties against those who loot or vandalize archaeological resources that exist under the Antiquities Act.

#### **24. Abandoned Shipwreck Act (ASA) of 1987, 43 U.S.C. §§ 2101-2106**

The Abandoned Shipwreck Act is a United States law meant to protect historic shipwrecks from treasure hunters and salvagers by transferring the title of the wreck to the state whose waters it lies in.

The ASA protects abandoned shipwrecks on the submerged lands of Hawai'i including those State submerged lands within the boundaries of Papahānaumokuākea. Abandoned shipwrecks on state submerged lands are owned and controlled by the State but jointly managed as a Papahānaumokuākea resource.

#### **25. Native American Graves Protection and Repatriation Act (NAGPRA) of 1990, 25 U.S.C. §3001 *et seq.***

NAGPRA provides a process for museums and Federal agencies to return certain Native American cultural items, such as human remains, funerary artifacts, sacred objects and objects of cultural patrimony, to lineal descendants and culturally affiliated Indian tribes and Native Hawaiian organizations. It also includes provisions for intentional and inadvertent discoveries of such cultural items, and penalties for noncompliance and illegal trafficking.

#### **26. Sunken Military Craft Act (SMCA) of 2004, Public Law 108-375**

The Sunken Military Craft Act provides for the protection of sunken U.S. military ship and aircraft wherever they are located; protection of sensitive archaeological artifacts and historical information; codification of existing case law, which supports federal ownership of sunken U.S. military ship and aircraft wrecks; provides a mechanism for permitting and civil enforcement to prevent unauthorized disturbance; and encourages the Secretary of State, in consultation with the Secretary of Defense, to enter into bilateral and multilateral agreements with foreign countries for the protection of sunken military craft. It does not affect salvage of commercial merchant shipwrecks, recreational diving, commercial fishing, or the laying of submarine cables; and does not relate to the routine operation of ships.



*A diver surveys the site of sunken WWII Corsair aircraft (Photo: James Watt)*



**27. National Environmental Policy Act of 1969, 42 U.S.C. 4321 et seq.**

NEPA requires federal agencies that are proposing a major action significantly affecting the quality of the human environment to prepare a detailed environmental impact statement (EIS) describing the impacts of the proposed action. NEPA provides a mandate and a framework for federal agencies to consider all reasonably foreseeable environmental effects of their proposed actions and to involve and inform the public in the decisionmaking process.

*State Legal Measures*

**28. Hawaii Organic Act of April 30, 1900, c339, 31 Stat. 141 Section 2; and Hawaii Admission Act of March 18, 1959, Pub. L. 86-3, 73 Stat. 4 Section 2**

The Organic Act of April 30, 1900 established the Territory of Hawai‘i, transferring sovereignty over the Hawaiian Islands from the Republic of Hawai‘i to the United States of America. The constitution and statutory law of the Republic of Hawai‘i were adopted in the Organic Act as the laws of Hawai‘i.

The Admission Act of March 18, 1959 (Admission Act) admitted Hawai‘i to the Union of the United States of America, and

established statehood status for Hawai‘i on an equal footing with the other states. Upon admission, most of the Northwestern Hawaiian Islands that were part of the Territory of Hawai‘i became part of the State of Hawai‘i.

**29. Constitution of the State of Hawai‘i, Article XI, Sections 1, 2, 6, and 9; and Article XII, Section 7**

The Constitution of the State of Hawai‘i, Article XI, Section 1, entitled “Conservation, Control and Development of Resources,” provides that “the State and its political subdivisions shall conserve and protect Hawaii’s natural beauty and all natural resources,” and also provides that “all public natural resources are held in trust by the State for the benefit of the people.”

Article XI, Section 2, establishes the management authority of one or more executive boards or commissions to manage natural resources including public lands set aside for conservation purposes.

Article XI, Section 6, establishes the State’s authority to manage and control “marine, seabed and other resources within the boundaries of the State, including the archipelagic waters of the State....”

Article XI, Section 9, provides that “each person has the right to a clean and healthful environment, as defined by laws relating to environmental quality, ....”

Article XII, Section 7 provides that the State shall “protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by ahupua‘a tenants who are descendants of native Hawaiians” “subject to the right of the State to regulate such rights.”

**30. Hawaii Revised Statutes (HRS): Title 1 - Chapter 6E; Title 10 - Chapter 128D; Title 12 - Chapters 171, 183C, 183D, 187A, 188, 190, 195D, 200; Title 13 – Chapter 205A; Title 19 - Chapters 339, 342D, 343;**

HRS Chapter 6E – Historic Preservation. Establishes the State’s Historic Preservation Division, and declares the intent to preserve, restore and maintain historic and cultural

Papahānaumokuākea is home to 14 million seabirds  
(Photo: Dan Suthers)





*Leopard Blenny or pō'o kauila*  
(Photo: Susan Middleton  
& David Liittschwager)

property through stewardship and trusteeship for future generations; claims state ownership to all historic, cultural and burial sites within its jurisdiction; establishes civil, administrative, and criminal (misdemeanor) penalties for violations of this chapter.

**HRS Chapter 128D – Environmental Response Law.** Creates a duty to report a release of a hazardous substance from a vessel; authorizes an appropriate state response to protect the public health, safety, and the environment. Civil penalties and injunctive relief may be sought for violations of this chapter. Knowing releases may be prosecuted as a Class C felony.

**HRS Chapter 171 – Public Lands, Management and Disposition of.** Establishes state authority for management of public lands, including preventing illegal activities and trespass. Administrative penalties may be sought for violations of this chapter. On July 7, 2008, Act 215 was signed into law, increasing the per day fines for encroachments upon public lands to \$1,000 per day for a first offense. Fines for prohibited use or activity on of public lands were also significantly increased, from \$500 per day, to \$5,000 per violation for a first violation. Repeat offenders may be liable for up to \$20,000 per violation and additional \$4,000 per day after notice is given if the violation persists.

**HRS Chapter 183C – Conservation District.** Recognizes the importance to conserve, protect, and preserve important natural resources, including fragile natural ecosystems, through appropriate management and use. All submerged lands in state territorial waters are zoned in the conservation district. Administrative fines and costs are

available for violations of this chapter. On July 7, 2008, Act 217 was signed into law revising Chapter 183C, HRS. It increased fines assessed from up to \$2,000 per violation, to up to \$15,000 per violation, and the possibility of fines of up to \$15,000 per day after notice is given and the violation persists.

**HRS Chapter 183D – Wildlife.** Gives DLNR authority for the management and administration of wildlife and wildlife resources of the state, including the establishment and maintenance of wildlife sanctuaries, forest reserves, and natural area reserves. Prohibits the taking or injury of wild birds. Criminal violations may be prosecuted as petty misdemeanors or misdemeanors. Administrative penalties are also applicable.

**HRS Chapter 187A – Aquatic Resources.** Allows the state to adopt regulations for the conservation and management of aquatic life in any area as appropriate, and encourages cooperation between DLNR and other governmental authorities; prevents or controls the introduction of alien aquatic organisms via handling of ballast water discharges. Criminal violations may be prosecuted as petty misdemeanors. Administrative penalties are also available under this chapter.

**HRS Chapter 188 – Fishing Rights and Regulations.** Regulates or prohibits the use or possession of certain types of fishing gear or methods. Section 188-37 was formerly used to regulate commercial fisheries in the Northwestern Hawaiian Islands by license and permit. Section 188-53, HRS, gives DLNR authority to establish such areas as the Northwestern Hawaiian Islands Marine Refuge (under Chapter 60.5, Hawaii Administrative Rules) for the purposes of managing, preserving, protecting, and conserving marine life. Criminal violations of this chapter are petty misdemeanors, with certain exceptions prosecuted as felonies.

**HRS Chapter 190 – Marine Life Conservation Program.** By this chapter, all marine waters of the State are marine life conservation areas administered by the State. Authorizes rules governing the take of marine resources such as fish, invertebrates, and algae. Violations of this chapter are petty misdemeanors.



**HRS Chapter 195D – Conservation of Aquatic Life, Wildlife, and Land Plants.** The Hawai'i State counterpart to the Endangered Species Act of 1973, but affords additional safeguards through determinations that certain indigenous species believed to need protection, may be additionally listed as threatened or endangered. Provides for separate state administrative enforcement and criminal misdemeanor penalty proceedings for violations.

**HRS Chapter 200 – Ocean Recreation and Coastal Areas Program.** Allows certain derelict, abandoned, or vessels aground to be immediately removed from state waters under certain conditions such as when posing an imminent danger to life or property. In addition to administrative penalties, certain violations of this chapter may be prosecuted as a misdemeanor.

**HRS Chapter 205A – Coastal Zone Management.** Creates a comprehensive and coordinated approach to regulation of development in coastal special management areas; including shoreline setback; and managing marine and coastal resource issues including recreation, historic preservation, scenic and open space preservation, protection of ocean ecosystems, reduction of coastal hazards, and beach protection. Civil fines may be available for violations of this chapter.

**HRS Chapter 339 – Litter Control.** Prohibits the disposal of refuse or waste material into the waters of the State. Infractions of this chapter may be prosecuted as violations.

**HRS Chapter 342D – Water Pollution. Prohibits discharge of a water pollutant into state waters.** Violations of this chapter may result in imposition of fines. Knowing violations may be criminally prosecuted as a Class C felony.

**HRS Chapter 343 – Environmental Impact Statements.** Provides for a state environmental review process, including proposed land uses within the conservation district or shoreline area defined by section 205A-41, HRS, or for certain uses of state funds.

**31. Hawaii Administrative Rules (HAR): Title 11 - Chapters 54, 55, 60.1, 200; Title 13 - Chapters 5, 60.5, 75, 76, 124, 125, 221, 275, 277, 280, and 300**

**HAR Chapter 54 – Water Quality Standards.** Creates state water quality standards including the policy mandate that where high quality waters constitute an outstanding national resource, such as waters of national and state parks and wildlife refuges and waters of exceptional or ecological significance, that water quality shall be maintained and protected. Section 11-54-7, HAR, classifies all beaches of the Northwestern Hawaiian Islands to be protected as “Class I” water areas.

**HAR Chapter 55 – Water Pollution Control.** Further elaborates water pollution discharge prohibitions defined under § 342D-50, HRS, and under NPDES permit criteria issued under this chapter.

**HAR Chapter 60.1 – Air Pollution Control.** Creates air quality emission standards; prohibitions against activities by any person causing air pollution also apply to any public body

**HAR Chapter 200 – Environmental Impact Statement Rules.** Provides agencies and persons with procedures, specifications of contents of environmental assessments and environmental impact statements, and criteria and definitions of statewide application.

**HAR Chapter 5 – Conservation District.** Regulates land uses in the conservation district (submerged lands are zoned in the conservation district) for the purpose of conserving, protecting, and preserving important natural resources of the State through appropriate management and use to promote their long-term sustainability. Any placement or erection of any solid material on land is a land use if that material remains on the land more than 14 days, or causes a permanent change in the land area on which it occurs.

**HAR Chapter 60.5 – Northwestern Hawaiian Islands Marine Refuge.** Creates the State of Hawai'i's Northwestern Hawaiian Islands Marine Refuge; requires a permit for access, and creates a fully protected zone to the extent of the State's jurisdiction.

**HAR Chapter 75 – Rules Regulating the Possession and Use of Certain Fishing Gear.** Regulates the use of certain fishing gear and methods, including a prohibition of use of poisonous substances, explosives, electrofishing devices, and firearms.

**HAR Chapter 76 – Non-indigenous Aquatic Species.** Protects against introduction of non-indigenous aquatic species by requiring ballast water management practices for shipping vessels

**HAR Chapter 124 – Indigenous Wildlife, Endangered and Threatened Wildlife, and Introduced Wild Birds.** Promotes conservation, management, protection, and enhancement of indigenous wildlife; and management of introduced wild birds.

**HAR Chapter 125 – Rules Regulating Wildlife Sanctuaries.** Establishes a Hawai'i State Seabird Sanctuary on various offshore islands in the main Hawaiian Islands as well as at Kure Atoll, to conserve, manage, and protect indigenous wildlife in sanctuaries.

**HAR Chapter 221 – Unencumbered Public Lands.** Regulates public activities on unencumbered public lands.

**HAR Chapter 275 – Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-7 and 6E-8, HRS.** Requires historic properties to be evaluated and classified for potential impacts, mitigation, and conservation through a review process.

**HAR Chapter 277 – Rules Governing Requirements for Archaeological Site Preservation and Development.** Creates standards for preservation of historic property or cultural sites.

**HAR Chapter 280 – Rules Governing General Procedures for Inadvertent Discoveries of Historic Properties During a Project Covered by the Historic Preservation Review Process.** Provides rules for inventory, assessment, and potential mitigation upon inadvertent discovery of historical property.

**HAR Chapter 300 – Rules of Practice and Procedure Relating to Burial Sites and Human Remains.** Is the Hawai'i counterpart to the federal Native American Graves Protection and Repatriation Act, and it sets out the rules relating to burial sites and human remains.

#### *Traditional Customs that Safeguard the Property*

Under the Proclamation, the implementing regulations, and Monument Management Board policy, cultural and historic resources receive the same stringent protection as do the natural resources within Papahānaumokuākea. To Native Hawaiians, natural resources are cultural resources, and they are genealogically linked to those natural resources, including all of the Hawaiian Islands in the archipelago. Thus, the area must be treated with appropriate reverence and honor.

Under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470f, the Co-Trustees must consult with the State Historic Preservation Division, the Office of Hawaiian Affairs (OHA) and other Native Hawaiian organizations and individuals to avoid or minimize adverse impacts to historic properties that may arise from permitted and management activities. In addition, the Co-Trustees, OHA and other Native Hawaiian organizations and individuals will help ensure that Native Hawaiians have appropriate access to natural and cultural Papahānaumokuākea resources to continue practices that are important for the preservation and perpetuation of Native Hawaiian culture.

The Office of Hawaiian Affairs facilitates the Native Hawaiian Cultural Working Group, which provides input into Papahānaumokuākea management, permits and activities. Within the Monument Management Plan, two action plans are devoted to Native Hawaiian participation in management and access to the resources of Papahānaumokuākea.



# Cultural Research Cruise

From the Blog: Papahānaumokuākea Marine Educators and Cultural Practitioners Cruise, July 23rd, 2008  
by Andy Collins

In celebration of International Year of the Reef, Papahānumokuākea Marine National Monument took ten educators from across Oceania to the Northwestern Hawaiian Islands. Along with Oceania's educators, several Native Hawaiian cultural practitioners were offered berths on the cruise to conduct cultural research. Below are blog entries written by cruise participants that were published *Honolulu Advertiser*, and online at <http://hawaiianatolls.org>.

## The Waters of the NWHI Prove Very Refreshing



By expedition member  
Craig McGrogan (Australia)

[On] an expedition to Papahānaumokuākea Marine National Monument (PMNM)... a stimulating mix of marine educators, from throughout Oceania, coupled with the expansive waters of PMNM are ideal conditions in which to take a step back and reflect on my position and responsibilities as a Marine Educator.

I'm reminded that no matter how far apart the different islands we represent may be throughout Oceania, we have in common the same concerns and issues facing us in our field of marine education. From overfishing to declining water quality, these are challenges all coral reef managers are facing, and we as educators are tasked with communicating to others as we raise awareness and hopefully stimulate positive behavioral changes.

It is enriching for all to learn how different regions of our Pacific community are responding to these challenges, allowing us all to compare our own approach and the sort of messages (themes) we are communicating through our education and conservation work. Take, for instance, subsistence agriculture in Palau using composting techniques passed down from one generation to the next, not only to nourish crops, but to retain water and reduce soil erosion at times of high rainfall. A simple, yet effective means of improving crop production, whilst reducing nutrient and sediment run-off into coastal waters.

The use of fish ponds, a form of traditional aquaculture in Hawai'i, is yet another example of how coastal communities are able to enhance subsistence food production

in an environmentally sustainable way. By introducing such cross-cultural awareness and appreciation into our individual educational activities, we will in turn be able to offer a far richer learning experience.

We are all linked by the very ocean that separates us, no matter how far apart our countries may be. Strengthening these connections within the group that we are, on this expedition to the NWHI, will prove a valuable first step towards developing a collaborative network of marine educators throughout Oceania.

Practitioners hoped relationships built across Oceania would better enable management of the Pacific's fragile ecosystems.



Nai'a Watson, expedition member and Monument staff, and Uncle Mervin Dudoit from Moloka'i



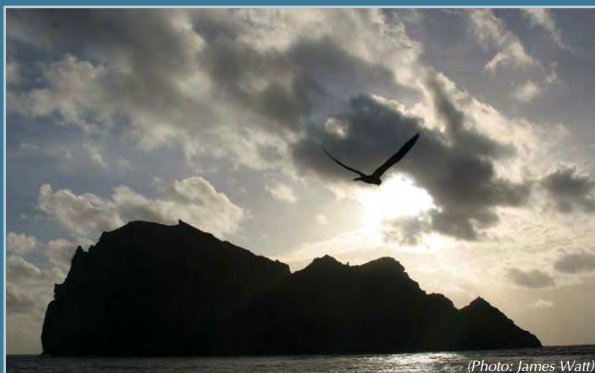
## My Treasured of Memories of the National Monument



*By expedition member  
Fatima Saua'fea-Le'au*

The purpose of the expedition is “to build a network of marine educators across Oceania committed to forwarding the goals of marine conservation and in inspiring future generations to be better stewards of their natural resources”. The expedition to the national monument... reached its purpose. The most inspiring moments that I have witnessed in the national monument are the snorkeling activities... I swam around looking at live corals in Shark Island and saw a huge green turtle sitting on the sand looking at me as if she is saying “I got here first...find your own spot”. It is just so amazing to swim in the water with fish that come up close to your face. I will always remember too the hiking up Nihoa. When our group reached the top of the plateau.... It was such a beautiful site to watch the birds flying all over.

This expedition has been an exciting and once in a lifetime opportunity for me. I have learned so much from the expedition and I have also built a network of friends that, I hope, we will continue on our journey in sharing and exchange of our knowledge and ideas to conserve, protect and manage our resources for the future generations of the Pacific Islands.



*(Photo: James Watt)*



*Marine educators and cultural practitioners after snorkeling in the Monument.*

## Our Kupuna Islands

*By expedition member  
Legario “Hank” Eharis*



The Northwestern Hawaiian Islands is definitely remote, yet still a part of the Hawaiian people; they signify connections to the beliefs and cultural ties to the land and seas. When I first set foot upon the island of Nihoa, there came an overwhelming feeling of peacefulness. It was like being away from home for a very long time and suddenly you’re home and everyone is sad but yet happy to see you again. Awesome feeling! You look around and fish rise to the surface of the water; monk seals come up to greet you; birds hover in your presence.

My most memorable moments will be the diving at the many off-shore reefs, in the coral lagoons, and to see the abundance of fish species still in a natural, pristine habitats, diving in the blue waters off of Mokumanamana and Mokupāpapa Atolls. I’m at a loss for words of the vast open blue planet I am just beginning to experience and see.

I have learned a lot from the different teachers and educators from throughout Oceania. There are similarities we encounter in the fight to better our land and ocean resources and in how to take care and promote malama ka aina, malama i ke kai (caring for the land, caring for the ocean). Hopefully this expedition will allow the doors to be open for more practitioners, educators and maka’ainana (people of the land–Hawaiians) to see and experience our Kupuna Islands.



## 5.c Implementation of Protective Measures

### Permitting System

One of the means by which the integrity of this property is upheld is through the restriction of access to only those who can demonstrate a convincing need to enter. Access to Papahānaumokuākea Marine National Monument is regulated through a rigorous permitting system, and permits are limited to activities that fall under the following permit types:

- **Research:** for activities designed to enhance the understanding of Papahānaumokuākea's resources and activities and improve resource management decision-making.
- **Conservation and Management:** for activities that make up the general management of Papahānaumokuākea, such as field station operations and marine debris removal.
- **Education:** for activities that further the educational value of Papahānaumokuākea.
- **Native Hawaiian Practices:** for activities that constitute Native Hawaiian cultural practices.
- **Special Ocean Use:** for activities related to commercial ocean uses that generate revenue or profits, including ecotourism and documentary filmmaking, which have a net benefit to Papahānaumokuākea.
- **Recreation (Midway only):** for all recreational activities.

Review of all permit applications is thorough, conducted by members of all State and Federal agencies involved. The Co-Trustees are required to determine that issuing the requested permit is compatible with the findings of Presidential Proclamation 8031 to ensure the conservation and management of the natural, historic and cultural resources of Papahānaumokuākea. To be granted a permit for access to the site, the proposed activities must be found by the Co-Trustees to be compatible with the stringent requirements codifying Presidential Proclamation 8031 and the federal and state regulations for Papahānaumokuākea Marine National Monument (referred to below as the Monument, as taken from the Proclamation):

- a. The activity can be conducted with adequate safeguards for the resources and ecological integrity of the Monument;
- b. The activity will be conducted in a manner compatible with the management direction of Presidential Proclamation 8031, considering the extent to which the conduct of the activity may diminish or enhance Monument resources, qualities, and ecological integrity, any indirect, secondary, or cumulative effects of the activity, and the duration of such effects;
- c. There is no practicable alternative to conducting the activity within the Monument;
- d. The end value of the activity outweighs its adverse impacts on Monument resources, qualities, and ecological integrity;



Establishing reef monitoring sites (Photo: James Watt)

- e. The duration of the activity is no longer than necessary to achieve its stated purpose;
- f. The applicant is qualified to conduct and complete the activity and mitigate any potential impacts resulting from its conduct;
- g. The applicant has adequate financial resources available to conduct and complete the activity and mitigate any potential impacts resulting from its conduct;
- h. The methods and procedures proposed by the applicant are appropriate to achieve the proposed activity's goals in relation to their impacts to Monument resources, qualities, and ecological integrity;
- i. The applicant's vessel has been outfitted with a mobile transceiver unit approved by OLE and complies with the requirements of Presidential Proclamation 8031; and
- j. There are no other factors that would make the issuance of a permit for the activity inappropriate.

In addition to meeting the findings of the Proclamation, each activity is reviewed to ensure that it is both biologically sound and culturally appropriate,

As a matter of policy, permit applications are sent to a select group of Native Hawaiian cultural experts and are also reviewed by the Office of Hawaiian Affairs (OHA) to determine if the activity will have any detrimental impacts to the culture. In addition, under Section 106 of the National Historic Preservation Act (NHPA), the Co-Trustees coordinate and consult with the State Historic Preservation Division, and seek input from OHA and other representatives of Native Hawaiian organizations to avoid or minimize the adverse impacts to historic properties that may arise from permitted activities.

Before the designation of Papahānaumokuākea, separate permits were issued by each agency; currently, all Papahānaumokuākea

permits are jointly issued as single unified permits and are signed by all three Co-Trustee agency designees. Each agency, as laid out in the Proclamation establishing Papahānaumokuākea, retains its sphere of jurisdiction, responsibility and expertise. Each brings different knowledge and strengths to this process. They work together on many aspects of the management process. Throughout this process however, each partner agency continues to carry out its statutory and enforcement responsibilities. Even where one of the MMB member agencies has primary responsibility, input from the other agencies is presumed as part of overall management.

#### **Permit requirements and protocols**

In addition to the required review of each activity to ensure that it meets the findings of the Proclamation and is both biologically sound and culturally appropriate, there are several permit requirements and protocols that must be complied with.

**Cultural:** All permittees are required to participate in a Native Hawaiian cultural briefing prior to departure for Papahānaumokuākea. They are also encouraged to provide opportunities for cultural monitors and practitioners to accompany them in the property.

**Vessels:** All permitted vessels must undergo a hull inspection, and hull cleaning if necessary, prior to entering Papahānaumokuākea. In addition, all vessels must be certified as rat-free. All vessels must also be equipped with an approved Vessel Monitoring System (VMS) for tracking purposes.

**Gear and Supplies:** All tenders, dive gear, clothes, and even food that will be eaten ashore must undergo additional quarantine requirements before entering all areas except Midway Atoll and French Frigate Shoals. The protocols are intended both for activities at a single site and for moving between sites within Papahānaumokuākea. See Appendix F for the full protocols regarding the special conditions and rules for moving between islands and atolls and packing for field camps, as well as for disease and introduced species prevention for permitted activities in the marine environment.



# Day 3: Images from the Nihoa Expedition

From the Blog of the Marine Educators and Cultural Practitioners Cruise to PMNM, July 2008. Published online and in the newspaper, The Honolulu Advertiser.



Nihoa's sea cliffs are hundreds of feet high, with the highest point approaching 900 feet.

Frontal view of Nihoa just prior to access as the crew of the NOAA ship *Hi'ialakai* prepares to take the



educators ashore. Expedition members are first loaded into safe boats, then lowered into the water and finally driven to meet an even smaller zodiac boat that will take them to shore at Nihoa.

Once on Nihoa, the group is lead by Kekuewa Kikiloi, a Ph.D. candidate in archaeology who has done the most recent research and study of the archaeological sites on both Nihoa and Mokumanamana. Kikiloi prepped the group with detailed instructions and then asked the ancestors for permission to enter with an *oli*, or chant.



The groups accessed the island in two small groups to minimize disturbance to the birds and cultural sites. Each group hiked in single file, again to minimize disturbance. The initial part of the trail was very steep; the group had to work as a team to ensure everyone's safety.



About half-way up the Middle Valley trail, Kikiloi spoke to the group

**Biological Samples:** Commonly collected samples (coral, fish, invertebrates, etc.) are subject to protocols developed to ensure the proper handling, storage, and transport of biological samples within Papahānaumokuākea. See Appendix F for the full protocol regarding general storage and transport for scientific collection in Papahānaumokuākea.

A major factor in the development of these requirements and protocols is the fact that the islands and atolls of Papahānaumokuākea provide habitat for many rare, endemic plants and animals. Many of these species are formally listed as endangered under the Endangered Species Act and/or by the IUCN. Endemic plants and insects, and the predators they support, are especially vulnerable to the introduction of competing or consuming species. Such introductions may cause the extinction of island endemics or even the destruction of entire island ecological communities. The protocols listed above detail the rigorous policies and procedures that must be strictly adhered to when access to particular islands and atolls is given. Restrictions are included on the movement of not only personnel, but all materials, vessels, dive and monitoring equipment, camping and terrestrial supplies, and food to these islands and atolls. For example, all cloth items (clothes, camera straps, hats, shoes, under garments, etc.) must be purchased new and frozen for 48 hours prior to going ashore at any of the islands and atolls, except Midway. All dive gear must be soaked in an approved solution at the end of each day. Transport protocols include the collection of samples and their disposition.

## Enforcement and Resources

NOAA and FWS both have law enforcement officials who investigate violations of Papahānaumokuākea resources or quality. Both these agencies work in partnership cooperatively with the State of Hawai'i Division of Conservation and Resources Enforcement within the Department of Land and Natural Resources to investigate and cite parties who have violated Papahānaumokuākea regulations. Systems to monitor both domestic and international

maritime traffic have been implemented. NOAA works in concert with the U.S. Coast Guard (USCG) to monitor all vessel activity in Papahānaumokuākea and to track movement via the required VMS. The USCG regularly sends ships and planes to patrol and monitor activity in the area.

Staff are in Papahānaumokuākea year-round at three sites: Midway Atoll, French Frigate Shoals, and at a field camp at Laysan Island. In addition, field camps are staffed for at least six months of the year at other locations such as Kure Atoll. This presence also ensures that any unauthorized vessel or activity near these islands will be observed promptly and reported, as each of these islands are equipped with communications technology.

Additional innovative enforcement technology and programs are being considered in the Monument Management Plan. In the past two years, the USCG and NOAA-Fisheries OLE have taken swift action on alleged fishing violations, resulting in over \$100,000 in combined fines.

Adequate resources are available to ensure the property is protected. Resources are available from both the Federal government of the United States and the government of the State of Hawai'i. In addition, myriad government agencies can and do provide additional resources, both in financial terms and in-kind services.

## 5.d Existing Plans

All plans related to the conservation and management of Papahānaumokuākea Marine National Monument are developed by the Co-Trustees. The islands of Papahānaumokuākea that are part of the State of Hawai'i remain under the jurisdiction of the City and County of Honolulu; however, no current municipal plans address the property.

Please refer to Section 5.e "Monument Management Plan" regarding preparation of the management plan for the property.

The following list provides an overview of some of the existing plans for resource

about the many agricultural terraces located on this particular side of the island. As a group, they have not yet been mapped in detail.

The group continues to hike in single file to the top of the ridge crest above Middle Valley.



This picture does not fully convey the feeling of thousands of birds flying overhead, but it provides an opportunity to understand just how many birds call this small rocky island home.



An immature great frigate bird rests in its nest amongst the thick 'ilima bushes that cover the entire island.

In the foreground is an agricultural terrace. In the background is "Dogs Head Peak" a name given by the Tanninger expedition (1923-1924); atop this peak sits the largest *heiau*, or ceremonial temple, on the island. Kikilo'i said that as many as 40 coral heads often a key feature of ceremonial sites—were found there.



A group shot of the first access group.

After two-hours on-island the group headed back to the landing area for pick up by the zodiac.





management in Papahānaumokuākea that demonstrate the breadth and depth of protective plans already in operation (see Appendix L for full documents). As discussed in Section 5.b “Protective Designations”, a range of applicable protective laws and current management strategies already provide comprehensive and long lasting protective measures for the property. These plans were in existence prior to designation of Papahānaumokuākea; many are site- or species-specific. The Monument Management Plan is a comprehensive, overarching approach to management which incorporates, by reference or action plan, all of these plans. For example, the actions and strategies of the Threatened and Endangered Species Action Plan incorporate many of the activities outlined in each of the stand-alone species recovery plans listed below.

#### **Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve Operations Plan**

This plan was written to guide the operations within the NWHI Coral Reef Ecosystem Reserve. It was the basis for the day-to-day management decisions during the first five years of reserve operation. All components of this plan that were not already implemented were incorporated into the Monument Management Plan. The NOAA Office of National Marine Sanctuaries was the lead agency for this plan.

#### **Visitor Services Plan for Midway Atoll**

This plan documents approved recreational activities at Midway Atoll and identifies the structure of the visitor services program managed by the U.S. Fish and Wildlife Service, the lead Co-Trustee agency. The plan also addresses activities that honor and interpret World War II history as recognized by the Battle of Midway National Memorial. It discusses operational limitations, biological constraints and partnership opportunities beyond Midway Atoll. A key feature of the plan is that it limits the total number of overnight visitors to 50 people per night for 2009 and beyond.

#### **Hawaiian Islands National Wildlife Refuge Master Plan**

Since its approval in 1986, this plan has guided the management of the Hawaiian

Islands National Wildlife Refuge. It places primary emphasis on protecting and enhancing refuge wildlife resources, particularly threatened and endangered species. It also includes a strategy to evaluate and nominate, if appropriate, lands and waters of the refuge for status as a World Heritage site. Primary responsibility for implementation of the plan is with the FWS as the lead agency.

#### **Fish and Wildlife Service Draft Laysan Island Ecosystem Restoration Plan**

In 1998, the draft Laysan Restoration Plan was developed in response to a need for coordinated ecosystem restoration that takes an integrated approach to managing the island’s entire biota rather than a species-by-species approach. It includes recommendations that are helping FWS attain the following objectives:

- (1) Stabilize the present ecosystem by preventing any new introductions.
- (2) Recreate as nearly as possible the Laysan Island ecosystem that was present prior to major human caused habitat modification during the 1890s and early 1900s.
- (3) Whenever possible, eliminate nonnative species, prioritizing those that cause obvious or significant ecosystem alterations.
- (4) Replant or reintroduce native species that are were extirpated from Laysan.
- (5) Establish regular comprehensive ecosystem monitoring, so that any nonnative introductions or declines in native species will be detected early enough for management to react in a cost-effective manner.

#### **Fish and Wildlife Service Regional Seabird Conservation Plan, Pacific Region**

The purpose of the Pacific Region’s Regional Seabird Conservation Plan is to identify the Fish and Wildlife Service’s priorities for seabird management, monitoring, research, outreach, planning and coordination. The plan includes a review of seabird resources and habitats, a description of issues and

threats, and a summary of current management, monitoring and outreach efforts. All species are prioritized by conservation concern at the regional scale, and recommendations for conservation actions are identified and prioritized. Papahānaumokuākea populations of five species discussed in the plan are considered globally significant, including two listed as vulnerable by the IUCN.



*From the tiniest flatworm to grandest coral-scape, the colors of Papahānaumokuākea are unforgettable*  
(Photo: James Watt)

**Fish and Wildlife Service Contingency Plans for Disasters – Covering the Pacific Remote Island National Wildlife Refuge Complex**

The purpose of this document is to establish communications procedures and delegation of authority procedures for emergency situations that may affect the safety of the staff or operation of the Pacific Remote Islands National Wildlife Refuge Complex.

**National Marine Fisheries Service - Final Environmental Impact Statement: Bottomfish and Seamount Groundfish Fisheries of the Western Pacific Region**

NOAA first implemented a federal bottomfish fishery management plan in the early 1980s, and has since added several amendments to the plan. The management regime for the waters around the property have been divided into the Ho'omalulu zone (area west of 165° 00' W longitude) and the Mau zone (area between 161° 20' W longitude and 165° 00' W longitude); a limited-entry fishery has been established to carefully manage and control fishing effort. Additional restrictions, including limits on vessel size, have also limited fishing pressure within the property. A total of 17 fishery permits were authorized under the limited-entry program for the two management zones, but only eight of these fishery permits were still in effect when the Proclamation was issued on June 15, 2006. No additional permits will be issued before the fishery is phased out in 2011.

**Fish and Wildlife Service - Prehistoric Cultural Resources and Management Plan for Nihoa and Necker Islands, Hawai'i**

This plan outlines management strategies for the cultural resources of the islands of Nihoa and Mokumanamana.

**Hawai'i's Comprehensive Wildlife Conservation Strategy (CWCS)**

Hawai'i's CWCS is a comprehensive review on the status of the full range of the State's native species, both terrestrial and aquatic. In addition to identifying major threats, it also presents strategies for long-term conservation of these species and their habitats. The mission of this strategy is to guide conservation efforts across the State, including the Northwestern Hawaiian Islands, to ensure protection of Hawai'i's wide range of native wildlife and the diverse habitats that support them. Congress requires states to develop such strategies as an eligibility condition for state wildlife grants.

**State of Hawai'i Aquatic Invasive Species Management Plan**

The goal of this plan is to minimize the harmful ecological, economic and human health impacts of aquatic invasive species through the prevention and management of their introduction, expansion, and dispersal into, within, and from Hawai'i. To accomplish this goal, the plan identifies seven objectives (ranging from collaboration and prevention, to research and policy) as well as associated strategies for each.



### Various Species Recovery Plans

Pursuant to the Endangered Species Act, recovery plans for numerous species within the property have been developed by FWS and the National Marine Fisheries Service. A recovery plan develops goals, objectives, criteria, and actions needed for protecting and enhancing rare and endangered species populations. The plans provide for the conservation of species at risk of extinction throughout all or a significant portion of their range, and the conservation of the ecosystems on which they depend. Summaries of the various recovery plans are outlined below (see Appendix M for full recovery plans).

**Hawaiian Monk Seal:** As a species, the Hawaiian Monk Seal is in crisis. The population remains in a grave decline that has lasted 20 years; only about 1,200 monk seals remain. Modeling predicts that the total monk seal population will fall below 1,000 animals by the year 2012. Actions to date have not been sufficient to result in a recovering population. Most of the total world population of Hawaiian Monk Seals breeds and forages inside Papahānaumokuākea. A recent revision of the recovery plan for the Hawaiian Monk Seal provides guidance for the lead agency in this recovery program, NOAA Fisheries. The Hawaiian Monk Seal Recovery Plan details the ways in which the MMB can facilitate and support those efforts (NOAA Fisheries 2007).

**Cetaceans:** In the NWHI, sighting and acoustic recordings of baleen whales as well as toothed whales and dolphins have been documented. Five species of baleen whales listed as “endangered” under the Endangered Species Act of 1973, and as “depleted” under the Marine Mammal Protection Act of 1972, have been sighted or heard in Papahānaumokuākea. In addition to these five, the endangered sperm whale and at least 18 other non-ESA listed species are found in Papahānaumokuākea. It has now been documented that humpback whales are calving in the eastern portion of the property (Johnston et al. 2007). Recovery actions for this listed species are summarized in the final recovery plan for the humpback whale,

*Megaptera novaeangliae* (NOAA Fisheries 1991). Draft recovery plans are available for the fin whale and sperm whale (NOAA Fisheries 2006a, 2006b), and a final plan is available for the recovery of the blue whale (NOAA Fisheries 1998).

**Marine Turtles:** The marine turtles known to occur in Papahānaumokuākea are the Hawaiian population of the Green, Hawksbill, Loggerhead, and Leatherback turtles. While there are no records of the endangered Olive Ridley Turtle within Papahānaumokuākea waters, their wide distribution throughout the tropical Pacific makes it likely that they do also occur there. Green and Loggerhead turtles are listed as threatened species; the Hawksbill and Leatherback turtles are classified as endangered species. Recovery plans are in place for each of these species in the Pacific and five-year reviews were jointly published in 2007 (NOAA Fisheries and FWS 1998a; 1998b; 1998c; 1998d; 1998e; 2007). Nesting habitat loss, the harvesting of eggs and turtles for commercial and subsistence purposes, and fishery interactions have caused sea turtle populations to decline across the Pacific. About 90% of the Green Turtles in the Hawaiian Islands are known to nest in the NWHI, the majority on a few islets at French Frigate Shoals (Balazs and Chaloupka 2003).

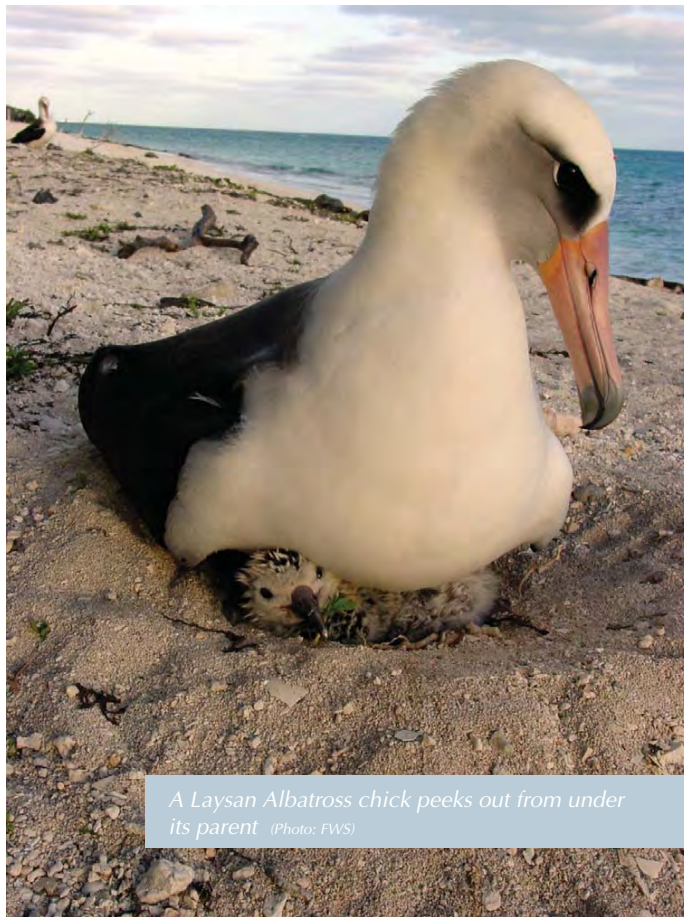
**Birds:** Five bird species in Papahānaumokuākea are afforded protection under the Endangered Species Act. Three species are passerines: the Laysan Finch, found on Laysan Island and Pearl and Hermes Atoll, and the Nihoa Finch and the Nihoa Millerbird, which are endemic to Nihoa. Research, recovery, and management for these species takes into consideration the recommendations of the Northwestern Hawaiian Islands Passerines Recovery Plan (FWS 1984) and ongoing input from species experts. Numerous sites were evaluated and ranked for translocation of these species to establish additional populations; this information and some recommendations for proceeding with translocation were provided recently by Morin and Conant

(2007). This plan is implemented by FWS.

The Laysan Duck has the most restricted range of any duck species and is especially vulnerable to extinction because of its small population size (fewer than 800 individuals) and extremely limited range. In 2004 and 2005, 42 Laysan Ducks were translocated to Midway Atoll NWR, where their population has grown to 200 birds (Reynolds et al. 2007).

The Short-tailed Albatross was first observed at Midway Atoll between 1936 and 1941. Since then, between one and three individuals have been observed every year in Papahānaumokuākea. While the Short-tailed Albatross primarily breeds on Torishima, an island owned and administered by Japan, the *Short-tailed Albatross Draft Recovery Plan* (FWS 2005) provides suggestions for ways in which Monument staff can facilitate recovery of this species.

**Plants:** Six plant species known historically from the NWHI are listed as endangered. Three plant taxa have probably always been rare and restricted to Nihoa, although one species, the loulou or fan palm, also occurred on Laysan Island. *Mariscus pennatiformis* ssp. *bryanii* is known only from Laysan Island. *Cenchrus agrimonioides* var. *laysanensis* was historically known from Laysan Island and Midway and Kure Atolls, but has not been seen there since about 1980 (O'Connor 1999; HBMP database 2007). A recovery plan for three species found only at Nihoa (the Nihoa fan palm, *Schiedea verticillata*, and *Amaranthus brownii*) was finalized in 1998 (FWS 1998). Recovery actions for the other three species (*Cenchrus agrimonioides*, *Mariscus pennatiformis*, and *Sesbania tomentosa* or 'ohai) are described in the *Recovery Plan for the Multi-Island Plants* (FWS 1999).



A Laysan Albatross chick peeks out from under its parent (Photo: FWS)

### 5.e Monument Management Plan

The Co-Trustees have developed a joint agency Monument Management Plan to serve as the guiding document for coordinated conservation and management actions in Papahānaumokuākea over the next 15 years. The final plan will be released in late 2008. The Monument Management Plan focuses on coordinated management across Co-Trustee agencies and addresses issues such as conservation, research, monitoring, enforcement, education, Native Hawaiian practices, cultural resources, permitting and field operations. As it was developed, the Monument Management Plan incorporated many of the plans that had been previously developed to guide current management actions within the NWHI. These plans are listed in Section 5.d.



The Monument Management Plan is organized into three sections:

Section 1, the introduction, describes Papahānaumokuākea’s setting and the current status and condition of the ecosystem and cultural resources based on existing scientific and historic knowledge. It also describes known anthropogenic stressors that affect Papahānaumokuākea’s resources or may do so in the future.

Section 2, the management framework, includes key elements to move toward an ecosystem approach to management. The framework comprises the following elements:

- The legal and policy basis leading to the establishment of Papahānaumokuākea
- Vision, mission and guiding principles that provide an overarching policy direction for Papahānaumokuākea
- Goals to guide the implementation of specific action plans to address priority management needs
- Institutional arrangements for management among the Co-Trustees and other stakeholders
- Regulations and zoning to manage human activities and threats
- Concepts and direction to move toward a coordinated ecosystem approach to management

Section 3 presents action plans to address six priority management needs over a 15-year planning horizon. These priority management needs are:

- Understanding and interpreting NWHI resources
- Conserving wildlife and their habitats
- Reducing threats to Papahānaumokuākea’s resources
- Managing human activities
- Facilitating coordination
- Achieving effective operations

Each action plan consists of multiple strategies and activities to address one or more priority management needs and achieve a desired outcome. Performance measures will be developed to evaluate implementation of the Monument Management Plan. Papahānaumokuākea regulations and other policy and operating instruments are provided in the Appendices, along with references.

*The Vision, Mission, Guiding Principles, and Goals for Managing Papahānaumokuākea Marine National Monument*

The Papahānaumokuākea Marine National Monument vision, mission and guiding principles establish the overarching policy direction and guidance for Papahānaumokuākea’s management (see Table 5.2). The vision describes the long-term management desire of the Co-Trustees to maintain the ecosystem health and diversity and Native Hawaiian cultural significance of Papahānaumokuākea in perpetuity. The mission establishes the need for integrated management in order to ensure ecological integrity and achieve strong, long-term protection and perpetuation of NWHI ecosystems, Native Hawaiian culture, and heritage resources for current and future generations. The guiding principles provide direction for making informed decisions about human activities consistent with the vision and mission for Papahānaumokuākea. The goals are the unifying elements of successful property management. They identify and focus management priorities, resolve issues, and link to the public interest in preserving and caring for the historic and scientific objects within Papahānaumokuākea.



(Photo: James Watt)

*Table 5.2: Monument vision, mission, guiding principles, and goals*

Vision
To forever protect and perpetuate ecosystem health and diversity and Native Hawaiian cultural significance of Papahānaumokuākea.
Mission
Carry out seamless integrated management to ensure ecological integrity and achieve strong, long-term protection and perpetuation of NWHI ecosystems, Native Hawaiian culture, and heritage resources for current and future generations.
Guiding Principles
<p>Papahānaumokuākea shall be managed in a manner that—</p> <ul style="list-style-type: none"> <li>• Is consistent with the Vision and Mission;</li> <li>• Recognizes that the resources of the NWHI are administrated by the Co-Trustees for the benefit of present and future generations;</li> <li>• Affirms that the NWHI and its wildlife are important, unique, and irreplaceable;</li> <li>• Honors the significance of the region for Native Hawaiians;</li> <li>• Honors the historic importance of the region;</li> <li>• Incorporates best practices, scientific principles, traditional knowledge, and an adaptive management approach;</li> <li>• Errs on the side of resource protection when there is uncertainty in available information on the impacts of an activity;</li> <li>• Enhances public appreciation of the unique character and environment of the NWHI;</li> <li>• Authorizes only uses consistent with Presidential Proclamation 8031 and applicable laws;</li> <li>• Coordinates with federal, state, and local governments, Native Hawaiians, relevant organizations, and the public; and</li> <li>• Carries out effective outreach, monitoring, and enforcement to promote compliance.</li> </ul>
Goals
<b>Goal 1:</b> Protect, preserve, maintain, and where appropriate restore the physical environment and the natural biological communities and their associated biodiversity, habitats, populations, native species, and ecological integrity.
<b>Goal 2:</b> Support, promote, and coordinate research, ecosystem characterization, and monitoring that increases understanding of the NWHI, improves management decision-making, and is consistent with conservation and protection..
<b>Goal 3:</b> Manage and only allow human activities consistent with Proclamation 8031 to maintain ecological integrity and prevent or minimize negative impacts for long-term protection.
<b>Goal 4:</b> Provide for cooperative conservation including community involvement that achieves effective property operations and ecosystem-based management.
<b>Goal 5:</b> Enhance public understanding, appreciation, and support for protection of the natural, cultural, and historic resources.
<b>Goal 6:</b> Support Native Hawaiian practices consistent with long-term conservation and protection.
<b>Goal 7:</b> Identify, interpret, and protect Papahānaumokuākea’s historic and cultural resources.
<b>Goal 8:</b> Offer visitors opportunities at Midway Atoll to discover and appreciate the wildlife and beauty of the NWHI, enhance conservation, and honor its unique human history.



**Toward ecosystem-based management**

An ecosystem approach to management for Papahānaumokuākea requires that multiple steps be implemented in a comprehensive and coordinated way. The Papahānaumokuākea Marine National Monument approach is unique in that it includes:

- Ecosystem level planning;
- Cross-jurisdictional management goals;
- Co-management;
- Adaptive management;
- Marine zoning;
- Habitat restoration;
- Incorporation of traditional knowledge; and
- Long-term ocean and coastal observing, monitoring and research.

**Effective management plan implementation**

The Monument Management Plan has recently been finalized. A key component of overall management effectiveness will be a review and updating of the plan every five years, as described below. In addition, an entire action plan is devoted specifically to developing measures of effectiveness across all Papahānaumokuākea activities. Additional activities to assess the health of the resources of Papahānaumokuākea are outlined in Section 6 “Monitoring”.

**Monument Management Plan development and review**

The management plan will be reviewed every five years. The review represents an essential element of the adaptive management process and includes public involvement, characterization of issues, and review and evaluation of action plans.

The Monument Management Plan was developed based on the current state of knowledge regarding the most appropriate management measures. These management measures consist of regulations and action plans to govern the first five years of Papahānaumokuākea management, and project activities over a 15-year time frame where appropriate. Action plans will be implemented, and where regulations apply, enforced, through interagency collaborative

mechanisms based on the jurisdiction of each government agency. After five years, the Monument Management Plan will be reviewed, incorporating lessons learned and new data and information from monitoring, ecosystem science, and traditional knowledge, along with a comprehensive evaluation to develop or refine management strategies and actions.

**Achieving effective property operations**

A key priority management need in the management plan focuses on property operations, including central and field operations, information management, and overall program evaluation. Central and field operations are essential to support action plans to address all other priority management needs. Monument staff and facilities provide essential operational capacity for effective collaboration between the MMB and other stakeholders. Operational effectiveness will be evaluated and improved through an adaptive management process that captures lessons learned and transforms them into action.

The Co-Trustees are committed to developing management plan performance measures, which fall into three categories: annual benchmarking, management capacity assessment and outcome assessment.

Annual benchmarking measures will be used to determine whether activities have occurred as planned. Management capacity assessment measures will be used every two to three years to determine the adequacy of implementation mechanisms and processes, including interagency coordination and stakeholder and community participation. Outcome assessment measures will be used every four to five years to evaluate the impacts of management actions on the resources and ecosystem status.

**5.f Sources and Levels of Finance**

The primary sources of funding for the property come from the Co-Trustee agencies. Budgets are appropriated annually from the U.S. Congress or the State of Hawai‘i Legislature to the federal

and state administrations. NOAA's Office of National Marine Sanctuaries annual operating budget for the Monument is approximately \$7.1 million. FWS has an annual Monument budget of approximately \$6.8 million, including operations and deferred maintenance funds, roughly half of which administers contracts (including a portion of airport operations) at Midway Atoll. The Federal Aviation Administration also finances a portion of the airport management at Midway Atoll. While the State of Hawai'i does not have a budget that is solely devoted to the Monument, they allocate nearly \$462,000 of staff and resources annually with in-kind services. NOAA-Fisheries also does not have a budget that is solely devoted to the Monument, but allocates considerable funds to protected species restoration, monitoring and protection through the Hawaiian Monk Seal programs, programs for turtles, marine debris removal, and coral reef monitoring. The combined funding for these NOAA-Fisheries programs is \$11 million annually.

In addition to the Co-Trustee agencies, numerous other agencies provide added resources to support the management of Papahānaumokuākea. NOAA's Office of Law Enforcement and FWS' refuge law enforcement staff both support enforcement actions in Papahānaumokuākea. The USCG regularly patrols the area with ships and planes; these assets cost on average \$5,600/hour for patrols and/or emergency response. The Hawai'i Undersea Research Lab of the University of Hawai'i has a deep diving submersible and remotely operated vehicles that are used to assess deep ocean resources in Papahānaumokuākea. Funding for these efforts comes from numerous sources, including National Science Foundation grants, NOAA's Ocean Exploration Program and NOAA's Undersea Research Center. The Hawai'i Institute of Marine Biology of the University of Hawai'i has received an annual appropriation in the last four years, ranging from \$1.2–\$2.5 million to assist in characterizing, understanding and assessing connectivity between islands and throughout the Hawaiian Archipelago. Additional resources have been allocated by various entities to document and find many of the maritime heritage resources within

Papahānaumokuākea. These funds come from both government and private sources. The total financial allocation to manage, restore and enforce the property's resources is difficult to quantify exactly, but ranges from about \$34 million to more than \$50 million annually.

While the funding to manage Papahānaumokuākea is adequate, recent cuts have diminished the Co-Trustees' ability to address the threat of marine debris. In addition, funding for the restoration and annual population assessments of an iconic Papahānaumokuākea species, the Hawaiian Monk Seal, has decreased in the past few years, raising additional concerns about the ability of the management agencies to halt the decline of this critically endangered species.

### 5.g Expertise and Training

Staff expertise and training in conservation and management is extensive and often complex. The FWS and NOAA establish strict eligibility requirements for their scientific and management positions. Current staff have extensive experience in wildlife biology and fish and wildlife management, or policy; some are recognized worldwide as experts in their field. In addition to this expertise, the FWS operates the National Conservation Training Center in Shepherdstown, West Virginia, where training courses in a wide range of sciences, technologies and management are offered. NOAA has laboratories and training programs around the country. Many staff are members of professional organizations and have close contact with their peers in other agencies and organizations, often far beyond the boundaries of the United States. All are highly educated; most possess at least a bachelor's degree from an accredited University.

Coordination with other agencies for training is ongoing and undertaken frequently, depending on the discipline. All field staff from the agencies are trained together in wilderness first aid, small vessel operations, and other emergency response protocols. NOAA ship operations are on par with military efficiency levels, and all officers are part of a quasi-military corps. Emergency response



for oil and vessel events is coordinated via the USCG area command, and all agencies participate in these exercises.

The USCG has developed area contingency plans for response to oil spills and vessel groundings throughout Papahānaumokuākea. Because of the extensive infrastructure found at Midway Atoll National Wildlife Refuge, FWS has also developed several Midway-specific contingency plans, including an Emergency Spill Response Plan, Spill Prevention and Control Countermeasure Plan, and an Airport Emergency Action Plan. A team made up of staff from each Co-Trustee agency works together to train and develop response plans for both anticipated and unanticipated events. This includes evacuation protocols for emergencies and weather, as well as for response to natural events such as disease outbreaks. While not all response plans have been developed, many are called for and outlined in the Monument Management Plan.

Education and outreach staff are trained in communications techniques; many of the education staff are former teachers. Papahānaumokuākea Marine National Monument staff are also reaching out to colleagues in other marine protected areas, such as the Great Barrier Reef Marine Park Authority in Australia, to gain knowledge from their management experiences. Conferences such as Our Sea of Islands, held in November 2006, allow for sharing of experiences across the Pacific.

Monument staff have contributed resources as well as logistical and technical support to projects that have helped to bring the majesty of this coral reef and Pacific island area to a broad audience. Films such as Ocean Futures' "Voyage to Kure," BBC and National Geographic features, and Susan Middleton and David Liittschwager's photographic works in *National Geographic* and their book *Archipelago* are several examples. Monument managers, research and education staff, and field support personnel were instrumental in assisting

in the production of these visual journeys, and continue to support projects like these, that reach a broad audience.

Multiple staff have expertise in Native Hawaiian cultural resource management and practices. Within NOAA, there is a team that works explicitly on Native Hawaiian traditional knowledge and management as it pertains to Papahānaumokuākea. Several staff work exclusively with Native Hawaiian cultural research and constituency relations, and multiple staff are Native Hawaiian practitioners themselves. Additionally, the December 2006 Memorandum of Agreement for Promoting Coordinated Management of the Northwestern Hawaiian Islands Marine National Monument (agreement) provided for the inclusion of the Office of Hawaiian Affairs into the Monument management process to provide a voice for Native Hawaiians and their cultural rights and practices. Through this Agreement and as described in the MMP, the Co-Trustees will undertake coordinated, integrated management to achieve strong, long-term protection and perpetuation of NWHI ecosystems, Native Hawaiian traditional and customary cultural and religious practices, and heritage resources for current and future generations.

## 5.h Visitor Facilities and Statistics

One of the management principles of Papahānaumokuākea Marine National Monument is to bring the place to the people rather than the people to the place. As provided in the Presidential Proclamation establishing Papahānaumokuākea, Midway Atoll is the only place where the public is welcomed to learn about and experience this remote island ecosystem, and hopefully to return home with a newfound knowledge of how their actions far from these shores can affect Papahānaumokuākea's resources.

Visitation at Midway Atoll is managed under a Visitor Services Plan incorporated into the overall Monument Management Plan. It provides for a very small-scale

program, with no more than 50 overnight visitors present at any one time. Currently, that number is much lower based on limited transportation availability to the atoll (see Table 5.3).

Visitors are housed in a converted U.S. Navy Bachelor Officers' Quarters; 24 rooms are currently available. In the future, one of the historic officers' houses may also be converted to accommodate visitors. All meals are served in the Clipper House restaurant. A small food and supply store and a separate gift shop are available. Transportation is almost entirely by bicycle or on foot, although a limited number of golf carts are available to visitors.

In addition to overnight visitors, Midway occasionally hosts larger groups for less than a day, generally to commemorate the Battle of Midway. These visitors are offered guided walking tours along existing roadways with interpretive programs at specific historic or wildlife stops. The management plan and Midway Visitor Services Plan limit such larger day visits to three per year.

At Midway Atoll, a small visitor center interprets natural and historic resources, and visitors participate in a mandatory orientation session that furthers their knowledge about Papahānaumokuākea resources and their importance to Native Hawaiian culture. Several guided tours are offered by FWS staff. Guided tours focus on refuge management, historic resources, restoration activities, and biological resources. Other visitor facilities include a road/trail system throughout Sand Island, a "trail" along the historic runways of Eastern Island, a theater, library, gymnasium, bowling alley and small community center. In the future, a new museum and expanded interpretive programs are planned. Many of the current visitors come to Midway with a guided tour operator, providing additional programs and information for guests.

The Midway visitor services plan and all proposed visitor experiences meet all seven criteria for sustainable tourism proposed by the World Heritage Alliance.

Visitation at Midway Atoll over the past several years is as follows:

*Table 5.3: Visitation at Midway Atoll, 2005 - present*

Fiscal Year	Visitor Count
2005	610
2006	250
2007	1,861*
2008 (to date)	310

\*This number is due largely to a 1-day event to commemorate the 65th anniversary of the Battle of Midway.

Other than Midway Atoll, Papahānaumokuākea is closed to public visitation, although occasionally small groups of educators, documentary filmmakers, or government officials visit some of the islands under permit.

### 5.i Property Promotion and Presentation

As outlined in the Monument Management Plan, the Co-Trustees plan to continue and strengthen their outreach, interpretation and educational efforts in the coming years. Educational programs such as Navigating Change focus not just on Papahānaumokuākea's natural, cultural and historic resources, but on raising awareness and motivating students to change their attitudes and behaviors to better care for all of Hawai'i's land and ocean resources. Workshops on Midway Atoll for teachers and other community leaders and educators offer participants the opportunity to experience Papahānaumokuākea and bring it back to their students and lifetime learners. Colleges, universities and private organizations also have the opportunity to conduct college-level classes or informal educational camps on Midway Atoll to bring Papahānaumokuākea to life for students.

As stated earlier, to limit impact on the property's resources, among other goals, promotion and presentation of Papahānaumokuākea largely brings the place to the people rather than the people to the place.



# Our Sea of Islands:



## A Regional Forum for Oceania on Marine Managed Areas and World Heritage

29 January – 2 February, 2007  
Honolulu, Hawai'i

The forum, organized by Papahānaumokuākea Marine National Monument and the United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Centre, together with their partners, provided an opportunity for Pacific island leaders to work together for better marine and heritage conservation.

More than 100 delegates from over 20 Pacific nations, including the United States, Solomon Islands, Cook Islands, Fiji, Sāmoa and the Federated States of Micronesia came together to enhance natural and cultural heritage and management of marine managed areas (MMAs). The Our Sea of Islands Forum was the first opportunity in over a decade for people across Oceania to meet and discuss the diversity of types, scales, approaches and status of MMA development and management across the region. Participants valued this opportunity for dialogue as an interconnected Oceania and recognized the need to work together to protect our ocean home.

The Pacific Ocean spans more than one-third of the Earth's surface and is known for its vast marine resources, high biological diversity and diverse cultural heritage. The islands of Oceania are connected by common history, culture and ancestry: indigenous Oceanic cultures and traditions, their proud history of distant ocean navigators who utilized the wind, sea and stars to maintain regional connections over centuries, and their rich heritage in natural resource stewardship, management practices and knowledge.

Oceania has demonstrated global leadership in their commitment to marine conservation and the sustainable use of marine resources. Approximately 25% of the world's marine protected areas are located in Oceania, and all the jurisdictions in Oceania have established MMAs, particularly using community-based and traditional approaches. The three largest MMAs in the world are in Oceania: Australia's well-known Great Barrier Reef Marine Park, the Phoenix Islands Protected Area (PIPA) in Kiribati, and NWHI Papahānaumokuākea Marine National Monument.

Participants at the Forum identified and recognized critical needs, gaps and opportunities that must be addressed to sustain Oceania's people and environment. Outcomes focused in six key areas of marine area management - progress and status in MMA development, customary practices, surveillance and enforcement, science to inform management, conservation finance, and the application of the World Heritage Convention.

The participants affirmed that traditional knowledge and management practices are integral to the maintenance, development and management of MMAs in Oceania. This principle underpins all of the commendations, proposed participant actions and recommendations to governments and organizations by the Our Sea of Islands Forum.



Our Sea of Islands participants came from over 20 Pacific nations (Photo: Papahānaumokuākea Marine National Monument)

### *Telepresence*

As technologies develop, telepresence is one way to vividly bring the place to the people. Underwater video cameras, real-time video transmission, virtual field trips, formal distance learning, Web site interfaces, etc., offer many promising options for the creation of educational programs about this remote area.

### *Mokupāpapa: Discovery Center*

In the main Hawaiian Islands, Hilo's Mokupāpapa: Discovery Center for Hawai'i's Remote Coral Reefs interprets the natural science, culture and history of the Northwestern Hawaiian Islands and surrounding marine environment. More than 200,000 people have learned about the wonders of Papahānaumokuākea through the Center, including thousands of students and community groups. Since opening, the Center has hosted at least 60,000 visitors and 3,500 schoolchildren per year. In addition to school visitations during the school year, Mokupāpapa: Discovery Center offers a week-long summer course to more than 7,000 students each summer. Monument staff also participate in community events and forums to share their knowledge of the region's resources.

### *Information Kiosks*

Cooperative arrangements have been made with other facilities to host displays about the reefs and resources of the Papahānaumokuākea Marine National Monument. These include an aquarium display at the Waikīkī Aquarium on coral reef resources, as well as displays at the Hawai'i Maritime Center depicting life on a field camp and on a research vessel in Papahānaumokuākea. Additional interpretive displays are planned in concert with the new Visitor and Interpretive Center on Maui at the Hawaiian Islands Humpback Whale National Marine Sanctuary offices. Additional collaborative interpretive projects are being considered at other sites around the state.

### *Film and Internet*

The Co-Trustees also work with commercial and nonprofit filmmakers to develop documentaries and news programs that reach audiences around the world. A new Papahānaumokuākea Web site ([papahanaumokuakea.gov](http://papahanaumokuakea.gov)) has been developed to provide a virtual visit to the region. Additional informative materials are prepared and distributed as needed.

### *Teacher at Sea Program*

Since 2001, the Papahānaumokuākea Co-Trustees, along with a host of educational partners, have facilitated field-based educational experiences for teachers and other educators within the Northwestern Hawaiian Islands. These experiences have ranged from educator-at-sea voyages aboard NOAA research vessels to island- and atoll-based field trips. From 2001 to 2008, more than 70 educators have experienced Papahānaumokuākea's relatively pristine environments and cultural treasures, from flourishing coral reefs to sacred Native Hawaiian archaeological sites. Through blogging and online journaling to video podcasting and teleconferencing with classrooms, Papahānaumokuākea has provided mechanisms for these individuals to share their personal experiences with the world. Every year, a new cadre of ambassadors returns home with personal experience of Papahānaumokuākea and the skills to share this knowledge widely with those who can benefit from it most.

### *School Curriculum: Navigating Change*

In addition to the interpretive programs and documentaries, one of the key programs of Papahānaumokuākea is Navigating Change, an educational program offered to schoolchildren throughout the state, which predates the inception of the property. At this program's core is *Hōkūle'a*, a modern-day reincarnation of a double-hulled sailing vessel that has been instrumental in the accomplishment of superlative modern-day feats of navigation, using science built upon a foundation of ancestral knowledge. In 2001, *Hōkūle'a's* navigator, Nainoa



Thompson, envisioned sailing *Hōkūleʻa*, a replica of an ancient Polynesian voyaging canoe, among the wild and protected Northwestern Hawaiian Islands. Calling his idea “Navigating Change,” he wrote that he wanted to “bring the beauty of the Earth’s rare wildlife to living rooms and classrooms to create an awareness of the difference between where nature is protected and what happens when it is not.”

Navigating Change is currently made possible by a partnership of private and government organizations called the Navigating Change Educational Partnership (NCEP). Through environmental education that utilizes place-based stewardship components, it continues to focus on influencing attitudes and behaviors to understand, protect and care for all our islands and ocean resources. The NCEP includes: the Polynesian Voyaging Society, the Hawaiʻi Department of Land and Natural Resources, the U.S. Fish and Wildlife Service, NOAA, Bishop Museum, University of Hawaiʻi at Manoa, and the Pacific American Foundation. This group partners with many others, including the Hawaiʻi Department of Education, to bring the curriculum to the teachers and into the classrooms.

208

Beginning in 2001, pre-voyage preparation for this program involved a statewide “warm-up” sail and a week-long summer workshop that engaged over 200 teachers in workshops throughout the state on the basic principles of Navigating Change. During the 18-day voyage in May 2004 to the NWHI, NCEP acted as “mission control,” connecting 1,800 students and 80 classrooms across America and the Pacific with the vessel’s crew for an hour-long satellite link-up. Through these teleconferences, students participated in the excitement of voyaging. Teachers could extend that experience into the everyday classroom using a Teacher’s Guide to Navigating Change curriculum, with carefully designed interfacing DVD modules and video clips.

More than 300 teachers, principals, and administrators (including participation by family members) have attended full-day workshops—reaching an estimated 4,000

students in the State of Hawaiʻi. Workshops often interface with cultural components (for instance, an opportunity to sail on a voyaging canoe). In addition, over 50 teachers have provided feedback and encouragement by continuing to contact the NCEP through e-mails and by sharing their project work and examples of how their students have been positively influenced by the program.

In August 2005, seven teachers who were previously involved in developing and field testing the Navigating Change Teacher’s Guide were chosen to sail on a NOAA ship to explore and produce lessons about the Northwestern Hawaiian Islands.

The current focus for Navigating Change is the Ahupuaʻa Alliance Program, a year long strategy to help students, teachers, nonprofit organizations, private businesses and government agencies focus on specific place-based learning sites. A field site that safely provides rich learning activities (including an opportunity to conduct stewardship activities) will be developed or enhanced in each *ahupuaʻa* (a traditional Hawaiian land division, which usually runs from the deep sea to the mountaintops) with members of the local community.

#### Participation at Conferences and Events

An important part of promotion of the property is the participation of Monument staff at various conference, workshops, and events. A sample of recent events attended includes:

**Our Sea of Islands: A Regional Forum for Oceania on Marine Managed Areas and World Heritage, January 29–February 2, 2007.** Our Sea of Islands brought together participants from over 20 countries, states and territories around the Pacific and was co-sponsored by NOAA, the Department of Interior, and UNESCO World Heritage Programme. Its purpose was to highlight current efforts to protect important marine areas in Oceania, to share and expand technical expertise, and to develop balanced management practices by incorporating science and customary marine management techniques. The forum was also an

opportunity to build upon and collaborate with ongoing marine managed area networks across Oceania. Of the forum's multiple specific outcomes and recommended actions, the one most significant and relevant to this section is the need to integrate customary resource management into national and regional marine management policies.

**Traditional Ecological Knowledge Workshop, Kona, Hawai'i Island, August 21–24, 2008 (Prior to the 2008 U.S. Coral Reef Task Force Meeting).** Addressing concerns about the erosion of traditional ecological knowledge (TEK) and its transfer to younger generations, Monument staff hosted a Traditional Ecological Knowledge Workshop prior to the 2008 U.S. Coral Reef Task Force Meeting. This inter-agency and cross-cultural learning exchange hosted participants from six countries, including 30 traditional practitioners and youth from their communities across the Pacific. Responding directly to the forum's recommended actions, the TEK workshop aimed to promote and strengthen traditional knowledge and customary practices in Oceania, foster the intergenerational transfer of traditional knowledge and customary marine management practices, and share lessons about the importance of incorporating traditional knowledge into modern management at the 2008 U.S. Coral Reef Task Force Meeting in Kona, Hawai'i Island. Additionally, each community represented at the TEK Workshop received a "TEK Toolkit," including digital cameras and voice recorders, and instruction on how to (1) collect oral histories relevant to traditional marine management, and (2) instructions on the incorporation of TEK into marine management.

**U.S. Coral Reef Task Force Meeting, 2008.** At the 2008 U.S. Coral Reef Task Force Meeting, Monument staff worked to foster broader engagement between coral reef management and TEK. In particular, a Native Hawaiian practitioner presented a video of outcomes from the TEK Workshop (which had been held the week before). The objective was to inspire marine managers from across the United States and partner nations to more fully



*Pristine Papahānaumokuākea reef with numerous Acropora coral colonies, a species extremely rare in the main Hawaiian Islands (Photo: James Watt)*

incorporate TEK into marine management policies and regulations.

**Response to Climate Change Workshop, Kāne'ohe, Hawai'i September 2–5, 2008.** The Co-Trustees hosted the fourth-ever Response to Climate Change (RtCC) workshop in September 2008. It discussed implications for climate change on coral reefs and practical steps reef managers can undertake to build resiliency and reduce the threat of global climate change. The curriculum was customized to provide information specifically relevant to Pacific reefs, including the vital role traditional ecological knowledge can play in managing Hawai'i's reefs. The workshop sought to build a bridge between Western science and traditional management approaches, as well as supporting resiliency and management efforts. RtCC participants included cultural practitioners, marine managers, scientists and academics.

**National Institute of Water and Atmosphere (New Zealand) and National Oceanic and Atmospheric Administration (U.S.A.) exchange, July 2008.** Aiming to foster direct relationships with other indigenous peoples of the Pacific, the National Oceanic and Atmospheric Administration hosted an information exchange with indigenous representatives from the National Institute of Water and Atmosphere (New Zealand) in July 2008. During this exchange, managers focused on indigenous management framework tools for managing marine resources.



### *Presentation of Research to the Public*

As is discussed in Sections 2 and 4, research in Papahānaumokuākea has been ongoing for a number of years. Since the 1970s, one of the key aspects of this research has been to provide data to inform management decisions. In the mid 1970s through the mid 1980s, the Tripartite NWHI Fishery Expeditions resulted in significant new findings and the hosting of two major scientific symposia where results were presented to researchers, representatives of management agencies, and the general public. In addition, two publications from these symposia were produced, which collectively presented the results of more than 50 peer-reviewed papers documenting the scientific findings to date. The documents were the 1980 and 1984 Proceedings of the Symposium on Status of Resource Investigations in the Northwestern Hawaiian Islands, both published by the University of Hawai'i (UH) Sea Grant College Program.

Patterned after the first two successful symposia held in the 1980s, a third symposium was held in Honolulu, Hawai'i during November 2004, under the joint sponsorship of NOAA's Pacific Islands Fisheries Science Center, NOAA's National Ocean Service, the U.S. Fish and Wildlife Service, the Western Pacific Fishery Management Council, and the State of Hawai'i's Department of Land and Natural Resources. The Symposium covered a range of scientific themes, including the history

of research and management in the NWHI; protected species; fish, shellfish, and fisheries; oceanography and mapping; and ecology and environmental impacts. The symposium was attended by more than 300 representatives from research institutions, agencies and the public at large. The proceedings of the Northwestern Hawaiian Islands Third Scientific Symposium are published in the Atoll Research Bulletin No. 543, issued by the Smithsonian Institution's National Museum of Natural History.

Additional emerging findings from studies undertaken by the University of Hawai'i's Hawai'i Institute of Marine Biology, NOAA and others have been presented each year since 2006 at an annual mini-symposium held in conjunction with the Hawai'i Conservation Conference, which is attended by up to 300 participants. In addition, NOAA's Pacific Islands Fisheries Science Center (PIFSC), the Hawai'i Institute of Marine Biology (HIMB), and Papahānaumokuākea Marine National Monument host a Semi-Annual Northwestern Hawaiian Islands Joint Symposium and have been doing so for the past few years. Overall, significant efforts have been undertaken to bring the science to the managers and to inform the general public on the state of conservation and the health of the resources in Papahānaumokuākea.

### *Programs and Events Engaging the Native Hawaiian Community*

Engaging the Native Hawaiian community in Papahānaumokuākea management is a priority for the Co-Trustees. Success in this effort will promote long-term support and greater understanding from the host culture of the Hawaiian Archipelago. In addition to seeking input from the Native Hawaiian Cultural Working Group, some of the ways in which Papahānaumokuākea engages with the Native Hawaiian Community include:

**Aloha 'Āina: Cultural resilience and cultural connectivity.** An array of research and outreach activities with Native Hawaiian communities, the Aloha 'Āina

210

*Reef Assessment and Monitoring Program Team preparing for Rapid Ecological Assessments*  
(Photo: James Watt)



(Love of the Place) programs involve Monument staff working to assess the needs of, and to facilitate, a Native Hawaiian Research Plan looking at questions common to all. “It’s simple, really,” says Mahina Paishon-Duarte, cultural practitioner and Monument liaison to Native Hawaiian communities. “It’s helping people to remember their love for the place.” This series of programs engages in multiple activities, which include securing research berths for cultural practitioners; facilitating collaborations between Native Hawaiian practitioners and scientists at the University of Hawai‘i’s Hawai‘i Institute of Marine Biology; ensuring that communities from each of the main Hawaiian Islands are involved in the discussion; and that lessons learned are shared throughout communities. Program directions stem from roundtable discussions in Native Hawaiian communities on Moloka‘i, Maui, Hawai‘i Island, O‘ahu, and Kaua‘i, which were facilitated by Monument staff and help to ensure that major Papahānaumokuākea program areas (e.g., the Native Hawaiian Research Plan) address questions and concerns shared with Native Hawaiian communities across the state.

**Native Hawaiian Cultural Research Plan.** Preliminary development of the Native Hawaiian Cultural Research Plan (NHCRP) is being fostered by Native Hawaiian community roundtable discussions and initial results from the Native Hawaiian Cultural Research programs (2008). The vision for the NHCRP is stated in the Monument Management Plan. A formal workshop to begin the NHCRP’s development is planned for the fall/winter of 2008.

**Ongoing information exchange between Native Hawaiian program leaders and academia, governmental and/or marine management agencies, the public and others.** For several years, Native Hawaiian practitioners working for the Monument (e.g., in the position of Native Hawaiian programs and outreach) have been engaged in a wide variety of collaborations with governmental, academic, non-governmental, and community organizations, and other entities in Hawai‘i. Other collaborative

exchanges include giving presentations about TEK and social-ecological resilience. Future plans include expanding the existing partnership with the Hawai‘i Institute of Marine Biology to establish a traditional knowledge internship program, in which Native Hawaiian youth (e.g., college students) apply for paid internships to spend time in traditional communities and learn traditional ecological knowledge and practices from elders.

## 5.j Staffing Levels

The level of training and staff expertise required is significant, complex, and difficult to adequately describe. Each of the Co-Trustees and many of the partner agencies, such as the law enforcement offices or USCG, have their own training programs, many that span multiple years. A basic description of the primary agency roles is outlined here and many of the specific tasks are further described in the Monument Management Plan (Appendix K).

For the National Oceanic and Atmospheric Administration (NOAA), day-to-day management of Papahānaumokuākea at the field level is through the Office of the National Marine Sanctuaries (ONMS) and the National Marine Fisheries Service Pacific Islands Regional Office (PIRO). The NOAA-ONMS Papahānaumokuākea Superintendent operates out of the central office in Honolulu, with support from 25 additional staff to implement programs in policy, research, permits, education and outreach, and information management. NOAA-ONMS also has four full-time staff in the office on the Island of Hawai‘i in the main Hawaiian Islands to manage the Mokupāpapa Discovery Center. PIRO staff include a full-time Management Officer and a policy specialist, both based in Honolulu. NOAA-ONMS have four full-time contractors dedicated to the development of the centralized Monument Information Management System, which will standardize and make available data necessary for the effective management of Papahānaumokuākea.



For the U.S. Fish and Wildlife Service, Papahānaumokuākea is managed both from Honolulu, Hawai'i, and onsite at Tern Island in French Frigate Shoals, Laysan Island, and Midway Atoll.

The FWS Papahānaumokuākea Superintendent is based in Honolulu, along with a permits manager, logistics coordinator, and administrative staff. Midway Atoll staffing includes a Refuge Manager, Deputy Refuge Manager, wildlife biologists, a visitor services manager, interpretive ranger, law enforcement ranger, and equipment operator. In addition, FWS contracts with a private entity to operate the infrastructure of the island, including airport operation, medical facilities, food preparation, electrical generation and distribution, water system, sewage system, etc. This company has approximately 50 workers on Midway, fully trained in their particular skill. In addition, upon first arriving on Midway, they receive a full orientation about working on a National Wildlife Refuge and within Papahānaumokuākea Marine National Monument.

Staffing at French Frigate Shoals consists of a Refuge Manager and Assistant Refuge Manager. Biological science technicians and volunteers are also stationed at French Frigate Shoals and Laysan Island.

The State of Hawai'i staff is mainly located in Honolulu, however, field staff are on site at Kure Atoll each summer for an extended period of time (up to six months). The State

Papahānaumokuākea Superintendent is based in Honolulu, along with a permits coordinator, a research coordinator, policy specialists and administrative staff. The Kure Atoll Field Manager is based part of the year in Honolulu and part of the year on site at Kure Atoll. A team of two to three volunteers works alongside the Kure Atoll Manager during the field season to manage activities at the site.

As previously indicated, all field staff from each agency undergo rigorous training in wilderness first aid, small vessel operations and other safety procedures to ensure that they are well equipped to handle emergencies in remote field sites. All researchers and crew on all agency vessels must engage in emergency response training on every voyage into Papahānaumokuākea. Coordination of oil and other hazardous material response procedures and simulated response activities are scheduled regularly by the USCG. All agencies are required to follow standard operating procedures for diving, operation of heavy equipment, food handling, hazardous materials handling and disposition, and the like as required by national and state occupational health and safety regulations. All persons entering Papahānaumokuākea are also required to attend a briefing in which the important cultural significance and consideration of protocols is discussed. Similarly, any activities that occur on the most sensitive sites usually require accompaniment by a staff member from one of the agencies who is trained in both the biological and cultural considerations of the site.



*Jeweled Anemone Crab or unauna*  
(Photo: Susan Middleton & David Liittschwager)







# 6. Monitoring

## 6.a Key Indicators for Measuring State of Conservation

As detailed in previous sections, Papahānaumokuākea is unrivaled in its combination of high levels of endemism, overall intact ecosystems, and cultural significance. As a result, the conservation of Papahānaumokuākea’s natural and cultural resources is paramount and a guiding principle of its vision: to forever protect and perpetuate the ecosystem health and diversity and Native Hawaiian cultural significance of Papahānaumokuākea.

Within Papahānaumokuākea’s spacious boundaries, there is phenomenal variation in both landscapes and associated biota. Both the region’s wide latitudinal span and the long geologic succession of islands and atolls create diverse terrestrial habitats and result in a multitude of ecological niches. This geologic succession has also



(Photo: James Watt)

given rise to abundant and diverse marine habitats, from shallow atoll lagoons to submerged seamounts. A central priority of Papahānaumokuākea Marine National Monument is to protect, maintain and preserve this rare ecological integrity as well as ecosystem health and function.

Another management priority of the Monument is to support Native Hawaiian practices and protect cultural resources. The monitoring efforts listed in Table 6.1 strive to deduce key components of the environmental conservation goals while also ensuring the long-term mission of supporting Native Hawaiian cultural practices and resources.

Table 6.1a: Indicators of Conservation for Natural Resources

Indicator	Parameter Group	Parameters	Periodicity	Location of Records
Marine Ecosystem Monitoring	Algae	Endemism Community composition Abundance and diversity Alien, invasive species	Annual	DLNR, NOAA, FWS
	Corals	Endemism Community composition Abundance and diversity Disease	Annual	DLNR, NOAA, FWS, HIMB
	Deepwater Corals	Abundance and diversity	Annual	NOAA, HURL
	Shallow Water Invertebrates	Endemism Community composition Abundance and diversity Alien, invasive species Lobster monitoring	Annual	NOAA, FWS
	Fish	Endemism Community composition Abundance and diversity Biomass Alien, invasive species Movement patterns	Annual	DLNR, NOAA, FWS, HIMB

Table 6.1a (continued): Indicators of Conservation for Natural Resources

Indicator	Parameter Group	Parameters	Periodicity	Location of Records
Marine Ecosystem Monitoring	Oceanography	Water quality Rainfall Wave height Chlorophyll a, b Dissolved oxygen Sea level change	Annual	NOAA, FWS, UH
		Temperature (water and air) Salinity Wind velocity	Real-time	NOAA
		Ambient sounds	Continuous	NOAA
Threatened, Endangered and Protected Species Monitoring	Reptiles	Turtle nesting	Seasonal (May-October)	FWS, NOAA
	Monk Seals	Population assessments Reproductive success Survivorship	Seasonal (May-October)	FWS, NOAA
	Seabirds	Survivorship Reproductive success Abundance Breeding pairs Movement patterns	Seasonal (May-October)	FWS, NOAA, DLNR
	Cetaceans	Population assessments Acoustic recordings	Seasonal Continuous	FWS, NOAA, DLNR
Terrestrial Ecosystem Monitoring	Terrestrial Birds	Abundance Survivorship	Seasonal (May-October)	FWS
	Terrestrial Plants	Endemism Species composition Abundance and distribution Alien, invasive species	Seasonal (May-October)	FWS
	Terrestrial Invertebrates	Endemism Species composition Distribution and abundance of ants Distribution and abundance of Grey Bird Locust	Annual	FWS
Threat Assessment Monitoring	Marine Debris	Accumulation rates Composition Alien, invasive species	Annual	FWS, DLNR, NOAA, UH, USGS
	Alien Species	Distribution and abundance	Annual	FWS, DLNR, NOAA, UH, USGS
	Disease	Distribution and abundance Prevalence Lethality	Annual	FWS, DLNR, NOAA, UH, USGS
	Human Impacts	Restrict access Review permitted activities Cumulative impacts	Continuous	PMNM Office
	Climate Change	Sea level change Water chemistry Sea surface temperature	Annual	NOAA, FWS, UH



Table 6.1b: Indicators of Conservation for Cultural Resources

Indicator	Parameter Group	Parameters	Periodicity	Location of Records
Public understanding of Native Hawaiian cultural significance to Papahānaumokuākea is increasing	Appreciation and understanding of local values and beliefs about the site	Perceptions of the intrinsic and/or non-market value of Papahānaumokuākea to the continuity of the Native Hawaiian culture	Annual	PMNM Office
		Appreciation of Native Hawaiian cultural, historical and cosmological relationship to Papahānaumokuākea by (1) Native Hawaiian community and (2) broader community	Annual	PMNM Office
	Outreach and education about the importance of natural integrity to cultural protection	Number of permittees educated	Annual	PMNM Office
		Trends in broader community's values about natural and cultural importance of the site	Annual	PMNM Office
	Distribution of formal knowledge about cultural research in PMNM to the community, including (a) the Native Hawaiian community, and (b) where culturally appropriate, the broader community	Measuring the degree of community's awareness about activities of, and information generated by, Native Hawaiian cultural practitioners in PMNM	Annual	PMNM Office
		Facilitating interactions between Native Hawaiian practitioners, Western scientists, resource managers (including Monument staff) and broader community	Annual	PMNM Office
Outreach & education about Native Hawaiian sea-uses in Papahānaumokuākea	Visitor numbers to Mokupāpapa Interpretive Center; Number of classrooms utilizing Navigating Change curriculum and/or other curricula relating to PMNM's natural and cultural resources	Annual	PMNM Office	
Native Hawaiian stakeholder engagement with Papahānaumokuākea	Cultural practitioners' access to the site	Number of berths provided to cultural practitioners by PMNM to access and practice in Papahānaumokuākea; When appropriate, type of cultural access to the PMNM and demographics of individuals participating in cultural access in PMNM (e.g., gender, age, island of origin)	Annual	PMNM Office, OHA Office
		PMNM's commitment to fostering cultural research and practices in Papahānaumokuākea	Annual	PMNM Office, OHA Office
		Native Hawaiian cultural research needs identified and prioritized	Annual	PMNM Office, OHA Office

Table 6.1b (continued): Indicators of Conservation for Cultural Resources

Indicator	Parameter Group	Parameters	Periodicity	Location of Records
Native Hawaiian stakeholder engagement with Papahānaumokuākea	Engagement of Native Hawaiian traditional knowledge and practices in the management of Papahānaumokuākea	Degree and type of integration of Native Hawaiian management practices with Western scientific practices in PMNM	Annual	PMNM Office
		Interactions between Monument staff and Native Hawaiian Cultural Working Group	Annual	PMNM Office
		Interactions between Monument staff and broader Native Hawaiian community regarding integrated traditional-Western scientific management of the site	Annual	PMNM Office
		Continued review of all PMNM use permits by Native Hawaiian cultural practitioners	Annual	PMNM Office
		Number of PMNM permits reviewed by Native Hawaiian practitioners	Annual	PMNM Office
		Protections enacted by Native Hawaiian review of permits	Annual	PMNM Office
	Access to site by Hawaiian wayfinders	Number of wayfinding trips allowed in Papahānaumokuākea	Annual	PMNM Office
		If applicable, number and reason for restrictions of wayfinding in Papahānaumokuākea	Annual	PMNM Office
Review of human impacts on the cultural resources.	Integrity of archaeological sites on Nihoa and Mokumanamana	Tracking and evaluating Section 106 consultations (consultation process required under National Historic Preservation act, in the event of use of Nihoa or Mokumanamana)	Annual	PMNM Office, OHA Office

While the natural and cultural resources in Papahānaumokuākea exist in a nearly pristine environment, and are thus removed from major pressures of extensive human population, they are not entirely threat-free. As a result, it is just as important to monitor the threats to Papahānaumokuākea as it is to monitor the state of its natural and cultural resources. Detailed in Section 4.b, the most worrisome threats to resources originate outside the boundaries of Papahānaumokuākea. Marine debris consistently washes up on the reefs and shores of these islands and atolls. On par with these external threats are the imposing effects of climate change, namely sea-level rise, ocean acidification and sea surface temperature increases. It is therefore imperative to monitor both the natural and cultural resources as well as the threats facing these resources on a frequent basis.

## 6.b Administrative Arrangements for Monitoring Property

Prior to the inception of Papahānaumokuākea, the State of Hawai‘i, U.S. Fish and Wildlife and NOAA managed separate jurisdictions in the waters and lands of the NWHI and were responsible for their respective monitoring programs. Since Papahānaumokuākea’s designation, the Co-Trustees collectively have administered Papahānaumokuākea Marine National Monument. Each Co-Trustee has maintained their respective monitoring and research regimes but now works in a coordinated fashion to facilitate overall management efforts. The comprehensive Monument Management Plan (MMP), which directs and guides all monitoring efforts in



Table 6.2: Relationship Between Management and Monitoring

Monument Management Goals	Indicators	Criterion
Protect, preserve, maintain, and where appropriate, restore the physical environment and natural biological communities and their associated biodiversity, habitats, populations, native species, and ecological integrity.	Marine Ecosystem Monitoring	ix, x
	Threatened and Endangered Species Monitoring	x
	Terrestrial Ecosystem Monitoring	ix, x
	Threat Assessment Monitoring	viii, ix, x
Support, promote, and coordinate research, ecosystem characterization, and monitoring that increases understanding of the NWHI, improves management decisionmaking, and is consistent with conservation and protection.	Marine Ecosystem Monitoring	ix, x
	Threatened and Endangered Species Monitoring	x
	Terrestrial Ecosystem Monitoring	ix, x
	Threat Assessment Monitoring	viii, ix, x
Manage and only allow human activities consistent with Proclamation 8031 to maintain ecological integrity and prevent or minimize negative impacts for long-term protection.	Threat Assessment Monitoring	viii, ix, x
Provide for cooperative conservation including community involvement that achieves effective Monument operations and ecosystem-based management.	Marine Ecosystem Monitoring	ix, x
	Threatened and Endangered Species Monitoring	x
	Terrestrial Ecosystem Monitoring	ix, x
	Threat Assessment Monitoring	viii, ix, x
Enhance public understanding, appreciation, and support for protection of the natural, cultural and historic resources.	Increased public understanding of Papahānaumokuākea’s cultural significance to Hawaiians	iii, vi
Support Native Hawaiian practices consistent with long-term conservation and protection.	Maintain or increase Native Hawaiian engagement	iii, vi
Identify, interpret, and protect Monument historic and cultural resources.	Review of human impacts on cultural resources	iii, vi

218

Papahānaumokuākea, encompasses all of the respective agencies’ goals to manage and conserve Papahānaumokuākea resources. Table 6.2 illustrates how the MMP will facilitate World Heritage monitoring efforts to ensure a responsible and lasting monitoring program.

Examples of enhanced management facilitation include the establishment of a unified permitting process to restrict access and ensure sound research and activities in Papahānaumokuākea. In addition, plans are underway for the creation of a centralized Monument Information Management System which will standardize all monitoring data for managers to evaluate Papahānaumokuākea’s resources in a true ecosystem-based fashion. Proprietary cultural information, however, will be housed in the Office of Hawaiian Affairs’ Wahi Pana Database to offer additional protections that federal and state executive branch agencies are unable to provide.

The overall management and protection of Papahānaumokuākea is under the administrative authority of the following three agencies:

United States Fish and Wildlife Service  
300 Ala Moana Blvd., Room 5-231  
Honolulu, HI 96850  
USA

National Oceanic and Atmospheric Administration  
6600 Kalaniana’ole Hwy, Suite 300  
Honolulu, HI 96825  
USA

State of Hawai’i, Department of Land and Natural Resources  
1151 Punchbowl St, Room 130  
Honolulu, HI 96813  
USA

These three agencies, both independently and on a collaborative basis, have had management responsibility for monitoring resources in Papahānaumokuākea for decades (and in two cases, nearly a century). Much of the monitoring effort has been carried out by these agencies' various subsidiaries and partners, and credit must be given to the following organizations and institutions for their contributions to the enhancement of knowledge of natural and cultural resources found in Papahānaumokuākea:

- Bishop Museum
- Joint Institute for Marine and Atmospheric Research
- Hawai'i Institute of Marine Biology
- Hawai'i Undersea Research Laboratory
- NOAA National Marine Fisheries Service
- NOAA Coral Reef Conservation Program
- NOAA/National Marine Fisheries Science/Pacific Islands Fishery Science Center
- NOAA National Ocean Service/National Center for Coastal Ocean Science
- The Oceanic Institute
- Office of Hawaiian Affairs
- Smithsonian Institution
- State of Hawai'i Division of Aquatic Resources
- United States Geological Survey
- University of Hawai'i

### 6.c Results of Previous Reporting Exercises

The following list, arranged in reverse chronological order, represents a compilation of status reports for the NWHI derived from monitoring data. In the past century, hundreds of scientific papers have been published incorporating data collected in the NWHI, but this list has been restricted to only those published documents that clearly depict the status and trends of monitoring data in the NWHI.

U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Sanctuary Program. 2008.

Papahānaumokuākea Marine National Monument condition report 2008. Silver Spring, MD. 41 pp.

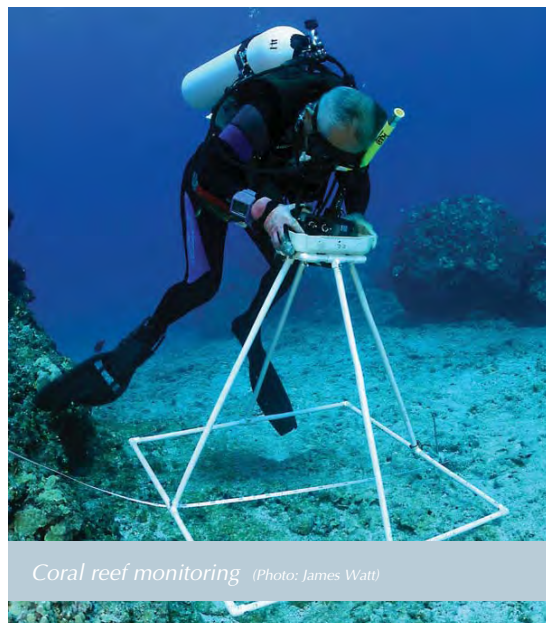
Waddell, J.E. and A.M. Clarke, eds. 2008. (NOAA/NCCOS Center for Coastal Monitoring and Assessment's Biogeography Team) The state of coral reef ecosystems of the United States and Pacific Freely Associated States: 2008. NOAA Technical Memorandum NOS NCCOS 73. Silver Spring, MD. 569 pp.

Athens, J.S., J.V. Ward, and D.W. Blinn. 2007. Vegetation history of Laysan Island, Northwestern Hawaiian Islands. *Pacific Science* 61: 17–37.

Dameron, O.J., M. Parke, M.A. Albins, and R. Brainard. 2007. Marine debris accumulation in the Northwestern Hawaiian Islands. *Marine Pollution Bulletin* 54: 423–433.

Morishige, C., M.J. Donohue, E. Flint, C. Swenson, and C. Woolaway. 2007. Factors affecting marine debris deposition at French Frigate Shoals, Northwestern Hawaiian Islands Marine National Monument, 1990–2006. *Marine Pollution Bulletin* 54: 1162–1169.

NOAA Fisheries. 1999–2007 Stock assessment reports: Hawaiian Monk Seal (*Monachus schauinslandi*). Available: [www.nmfs.noaa.gov/pr/sars/species.htm#phocids](http://www.nmfs.noaa.gov/pr/sars/species.htm#phocids)



Coral reef monitoring (Photo: James Watt)





Maritime archaeology monitoring (Photo: James Watt)

Waddell, J.E. ed. 2005. (NOAA/NCCOS Center for Coastal Monitoring and Assessment's Biogeography Team) The State of coral reef ecosystems of the United States and Pacific Freely Associated States: 2005. NOAA Technical Memorandum NOS NCCOS 11. Silver Spring, MD. 522 pp.

Balazs, G.H. and M. Chaloupka. 2004a. Thirty-year recovery trend in the once depleted Hawaiian Green Sea Turtle stock. *Biological Conservation* 117: 491–498.

Antonelis, G.A., J.D. Baker, T.C. Johanos, R.C. Braun, A.L. Harting. 2006. Hawaiian Monk Seals (*Monachus schauinslandi*): Status and conservation issues. In: Macintyre, I.G., ed., Northwestern Hawaiian Islands third scientific symposium. *Atoll Research Bulletin* 543: 75–101.

Citta, J., M.H. Reynolds, and N.E. Seavy (USGS Pacific Island Ecosystems Research Center). 2006. Seabird monitoring assessment for Hawaii and the Pacific Islands. Rept. to U.S. Fish and Wildlife Service, Migratory Birds and Habitat Programs, Portland, Oregon.

Keenan, E.E., R.E. Brainard, and L.V. Basch. 2006. Historical and present status of the pearl oyster, *Pinctada margaritifera*, at Pearl and Hermes Atoll, Northwestern Hawaiian Islands. *Atoll Research Bulletin* 543: 333–344.

Firing, J. and R.E. Brainard. 2006. Ten years of shipboard ADCP measurements along the Northwestern Hawaiian Islands. *Atoll Research Bulletin* 543: 347–364.

National Oceanic and Atmospheric Administration. 2006. State of the Reserve: Northwestern Hawaiian Islands coral reef ecosystem reserve 2000–2005. Silver Spring, MD. 41pp.

Vroom, P.S. and K.N. Page. 2006. Relative abundance of macroalgae (RAM) on Northwestern Hawaiian Island reefs. *Atoll Research Bulletin* 543: 533–548.

Maragos, J., D. Potts, G. Aeby, D. Gulko, J. Kenyon, D. Siciliano, and D. VanRavenswaay. 2004. 2000–2002 rapid ecological assessment of corals on the shallow reefs of the Northwestern Hawaiian Islands. Part 1: Species and distribution. *Pacific Science* 58(2): 211–230.

Wilkinson, C. ed. 2004. Status of coral reefs of the world: 2004. Volume 2. Australian Institute of Marine Science, Townsville, Queensland AUS. 301pp.

Boland, R.C., and M. Donohue. 2003. Marine debris accumulation in the nearshore marine habitat of the endangered Hawaiian monk seal, *Monachus schauinslandi* 1999–2001. *Marine Pollution Bulletin* 46(11): 1385–1394.

Bishop Museum. 2002. Hawaiian terrestrial arthropod checklist, 4th Edition. Bishop Museum Technical Report 22., Bishop Museum Press, Honolulu. pp i–iv, 1–313.

DeFelice, R.C. D. Minton, and L.S. Godwin. 2002. U.S. Fish and Wildlife Service. Records of shallow-water marine invertebrates from French Frigate Shoals, Northwestern Hawaiian Islands, with a note on non-indigenous species. Technical Report No. 23. Contribution No. 2002–01 to the Hawai'i Biological Survey Bishop Museum, Honolulu.

Eldredge, L.G. 2002. Literature review and cultural, geological, and biological history for the Northwestern Hawaiian Islands coral reef ecosystem reserve. Contribution to the Hawaii Biological Survey No. 2002–026. Bishop Museum, Honolulu, HI.

Maragos J. and D. Gulko eds. 2002. U.S. Fish and Wildlife Service and the Hawai'i Department of Land and Natural Resources. Coral reef ecosystems of the Northwestern Hawaiian Islands: Interim results emphasizing the 2000 surveys.

Wilkinson, C. ed. 2002. Status of coral reefs of the world: 2002. Australian Institute of Marine Science, Townsville, Queensland AUS. 388 pp.

Starr, F. K. Martz, and L. Loope. 2001. Department of Land and Natural Resources, Division of Forestry and Wildlife. Botanical inventory of Kure Atoll.

United States Fish and Wildlife Service (USFWS). 2001. NOWRAMP 2000 Terrestrial arthropod report. Honolulu, HI.

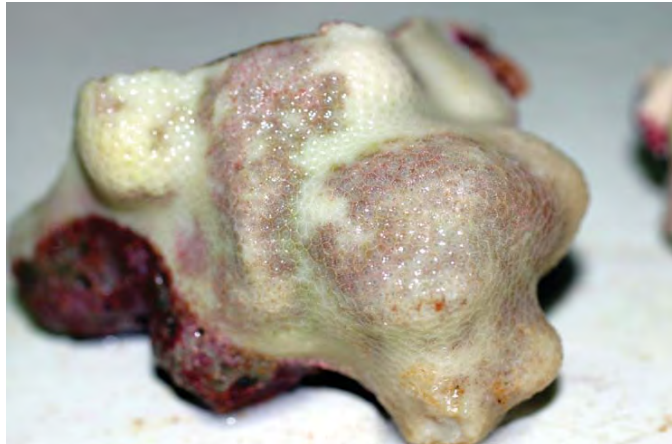
Wilkinson, C. ed. 2000. Status of coral reefs of the world: 2000. Australian Institute of Marine Science, Cape Ferguson, Queensland, AUS. 363 pp.

Starr, F. and K. Martz. 1999. Midway Atoll National Wildlife Refuge. Botanical survey of Midway Atoll. 1999 Update. Prepared for USFWS.

DeFelice, R.C. S.L. Coles, D. Muir, and L.G. Eldredge, 1998. Investigation of the marine communities of Midway Harbor and adjacent lagoon, Midway Atoll, Northwestern Hawaiian Islands. Hawai'i Biological Survey Contribution No. 1998-014. Bishop Museum, Honolulu.

Nishida, G. 1998. Hawaii Biological Survey, Bishop Museum. Midway terrestrial arthropod survey, Final Report prepared for USFWS.

Hope, B., S. Scantolini, E. Titus, and J. Cotter. 1997. Distribution patterns of polychlorinated biphenyl congeners in water, sediment and biota from Midway Atoll (North Pacific Ocean). Marine Pollution Bulletin 34(7): 548–563.



*Diseased coral* (Photo: PMNM)

Cleghorn, P. 1988. The settlement and abandonment of two Hawaiian outposts: Nihoa and Necker. In: *Bishop Museum Occasional Papers* 28: 35–49. Bishop Museum Press, Honolulu.

Newman, A.L. 1988. Mapping and monitoring vegetation change on Laysan Island (dissertation). University of Hawai'i. Available from: University of Hawai'i Geography Department.

Riley, T.J. 1982. U.S. Fish and Wildlife Service, Honolulu, Hawai'i. Report of a reconnaissance of archaeological sites on Nihoa Island, Hawai'i, June 1980. Department of Anthropology, University of Hawai'i Manuscript #031882 (Project 286). Honolulu, HI.

Clapp, R. B., and E. Kridler. 1977. The natural history of Necker Island, Northwestern Hawaiian Islands. *Atoll Research Bulletin* 207: 1–147.



*Photographic quadrat sampling* (Photo: James Watt)





Monitoring such an expansive archipelago requires all eyes on the resource - including those of our underwater cousins (Photos: James Watt, lower left: FWS)



Amerson, A.B. Jr., R.C. Clapp, and W.O. Wirtz, II. 1974. The natural history of Pearl and Hermes Reef, Northwestern Hawaiian Islands. *Atoll Research Bulletin* 174: 1–306.

Ely, C.A. and R.B. Clapp. 1973. The natural history of Laysan Island, Northwestern Hawaiian Islands. *Atoll Research Bulletin* 171: 1–361.

Clapp, R.B. 1972. The natural history of Gardner Pinnacles, Northwestern Hawaiian Islands. *Atoll Research Bulletin* 163: 1–25.

Woodward, P.W. 1972. The natural history of Kure Atoll, Northwestern Hawaiian Islands. *Atoll Research Bulletin* 164: 1–318.

Amerson, A.B. 1971. The natural history of French Frigate Shoals, Northwestern Hawaiian Islands. *Atoll Research Bulletin* 150: 1–383.

Emory, K. 1928. The archaeology of Nihoa and Necker Islands. *Bishop Museum Bulletin* 53. Bishop Museum Press, Honolulu.



Aialamaloana ka lu'au a Kona puka i Hilo oia i  
 Apakau ke kakina i ka 'ili kai o na kai iwalu  
 He ike makawala ka'u e 'ano'i nei,  
 'O na au walu o Kanaloa Hannawela noho i ka moana nui  
 He Hu'akai ka makani o Lehua 'au i ke kai  
 Ku'ono'ono ka lua o Kuhaimoana i ke kapa 'ehukai o Ka'ula  
 'O Ku i ka loulou, ulu a'e ke aloha no Nihou moku manu  
 Manu o ku i ka 'ahui, he alaka'i na ka lahui  
 'O Hinapuko'a  
 'O Hinapuhalako'a  
 'O Hina kupukupu  
 'O Hinaikamalama



Documentation



# 7. Documentation



## 7.a Photographs, Image Inventory and Other Audiovisual Materials

Table 7.1: Image inventory and authorization

Id. No.	Format	Caption	Date	Photographer / Director of the video	Copyright owner (if different than photographer/director of video)	Contact details: copyright owner	Non-exclusive cession of rights
Birds 1	JPEG	French Frigate Shoals - Red Footed Boobie Sunset	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Birds 2	JPEG	Kure - Laysan Albatross	2005	NOAA		Andy.Collins@NOAA.gov	Y
Birds 3	JPEG	Laysan - Great frigatebird	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Birds 4	JPEG	Laysan - Laysan Duck	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Birds 5	TIF	Midway Atoll - White Tern Chick	2007	Sandra Hall	USFWS	Barbara_Maxfield@fws.gov	Y
Cetaceans 1	JPEG	Humpback Whale Mother and Calf	2007	Doug Perrine	HIHWNMS	Naomi.Mcintosh@NOAA.gov	2
Cetaceans 2	JPEG	Leaping Dolphin	2005	Andy Collins	NOAA	Andy.Collins@NOAA.gov	Y
Cetaceans 3	JPEG	Midway - Spinner Dolphin bottom view	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Coral & Invertebrates 1	JPEG	French Frigate Shoals - Acropora Coral	2007	JE Maragos	USFWS	Barbara_Maxfield@fws.gov	Y
Coral & Invertebrates 2	JPEG	French Frigate Shoals - Table coral	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Coral & Invertebrates 3	JPEG	Hertwigia Sponge	2007	NOWRAMP	NOAA	Andy.Collins@NOAA.gov	Y
Coral & Invertebrates 4	JPEG	Kure - Triton Trumpet	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Coral & Invertebrates 5	JPEG	Kure-Banded Spiny Lobster	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1

Table 7.1 (continued): Image inventory and authorization

Id. No.	Format	Caption	Date	Photographer / Director of the video	Copyright owner (if different than photographer/director of video)	Contact details: copyright owner	Non-exclusive cession of rights
Coral & Invertebrates 6	JPEG	Laysan - Spanish Dancer	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Coral & Invertebrates 7	JPEG	Midway - <i>Padina australis</i>	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Coral & Invertebrates 8	JPEG	Midway - Red Pencil Urchin	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Coral & Invertebrates 9	JPEG	Midway- Divided Flatworm	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Fish 1	JPEG	French Frigate Shoal - Hawaiian Squirrel Fish	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Fish 2	JPEG	French Frigate Shoals - Blackside Hawkfish	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Fish 3	JPEG	French Frigate Shoals - Milletseed Butterfly Fish	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Fish 4	JPEG	Kure - Giant Trevally (Ulua)	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Fish 5	JPEG	Midway - Bluestripe Snapper	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Fish 6	JPEG	Midway - Potters Angelfish	2002	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Fish 7	JPEG	Midway - Scorpionfish	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Fish 8	JPEG	Midway - Spectacled Parrot Fish	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Fish 9	JPEG	Pearl & Hermes Atoll - Stout Moray	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Fish 10	JPEG	Yellow Goatfish	2007	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Hawaiian Monk Seals 1	JPEG	Gardner Pinnacles - Monk Seal	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Hawaiian Monk Seals 2	JPEG	Lisianski -Young Monk Seal	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Hawaiian Monk Seals 3	JPEG	Midway Atoll - Hawaiian Monk Seal and Pup	2007	Rob Shallenberger	USFWS	Barbara_Maxfield@fws.gov	3



Table 7.1 (continued): Image inventory and authorization

Id. No.	Format	Caption	Date	Photographer / Director of the video	Copyright owner (if different than photographer/director of video)	Contact details: copyright owner	Non-exclusive cession of rights
Historic Events 1	JPEG	Battle of Midway Atoll Memorial on Sand Island	2007	Rob Shallenberger	USFWS	Barbara_Maxfield@fws.gov	3
Historic Events 2	JPEG	Laysan - Guano Dig, 1890	2007	Bishop Museum		Bishop Museum Archives 808-848-4182	4
Historic Events 3	JPEG	Midway - Commercial Pacific Cable Company 1923	2007	Bishop Museum		Bishop Museum Archives 808-848.4182	4
Historic Events 4	JPEG	Midway - World War II Gun	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Historic Events 5	JPEG	Midway Atoll - Battle of Midway Memorial Sand Island	2007	Barbara Maxfield	USFWS	Barbara_Maxfield@fws.gov	Y
Historic Events 6	JPEG	Midway Atoll - Historic ARMCO Hut	2007	USFWS		Barbara_Maxfield@fws.gov	Y
Historic Events 7	JPEG	Midway Atoll - World War II Antiaircraft Gun on Eastern Island	2007	Michael Lusk	USFWS	Barbara_Maxfield@fws.gov	Y
Historic Events 8	JPEG	Mokumanamana Island - Heiau Model	2007	Bishop Museum Press	Bishop Museum	Bishop Museum Archives 808-848.4182	4
Historic Events 9	JPEG	Necker island 1923	2007	Bishop Museum		Bishop Museum Archives 808-848.4182	4
Historic Events 10	JPEG	Nihoa – Map of Archaeological Sites	2007	Paul Cleghorn	USFWS	kekikilo@ksbe.edu	Y
Historic Events 11	JPEG	Postwar Fishing	2007	Bishop Museum		Bishop Museum Archives 808-848.4182	4
Historic Events 12	JPEG	World War II Pillbox on Midway Atoll South Beach Sand Island	2007	Barbara Maxfield	USFWS	Barbara_Maxfield@fws.gov	Y
Human Interaction 1	JPEG	Coral Surveys	2007	J.E. Maragos	USFWS	Barbara_Maxfield@fws.gov	Y
Human Interaction 2	JPEG	Diving Amongst the Coral 2003	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Human Interaction 3	JPEG	Midway Debris Clean Up	2003	Greg	NOAA	Andy.Collins@NOAA.gov	Y
Human Interaction 4	JPEG	Midway Atoll Planting Naupaka	2007	Rob Shallenberger	USFWS	Barbara_Maxfield@fws.gov	3
Human Interaction 5	JPEG	Monk Seal Entanglement	2004	Ray Boland	NOAA	Andy.Collins@NOAA.gov	Y

Table 7.1 (continued): Image inventory and authorization

Id. No.	Format	Caption	Date	Photographer / Director of the video	Copyright owner (if different than photographer/director of video)	Contact details: copyright owner	Non-exclusive of rights
Human Interaction 6	JPEG	Working Amongst Albatross	2005	NOAA		Andy.Collins@NOAA.gov	Y
Land/Aerial Shots 1	JPEG	French Frigate Shoals, Old Seawall	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Land/Aerial Shots 2	JPEG	Gardner Pinnacles	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Land/Aerial Shots 3	JPEG	Kure - Green Island	2005	Rob Shallenberger	USFWS	Barbara_Maxfield@fws.gov	3
Land/Aerial Shots 4	JPEG	Laysan - Shallows	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Land/Aerial Shots 5	JPEG	Mokuanamana - Uprights	2005	Andy Collins	NOAA	Andy.Collins@NOAA.gov	Y
Land/Aerial Shots 6	JPEG	Mokumanamana	2005	Andy Collins	NOAA	Andy.Collins@NOAA.gov	Y
Land/Aerial Shots 7	JPEG	Nihoa	2007	Hawaii DLNR	Hawaii DLNR	Athline.M.Clarke@hawaii.edu	Y
Map/Satellite Image 1	JPEG	NWHI atop U.S.	2005	NOAA		Andy.Collins@NOAA.gov	Y
Map/Satellite Image 2	JPEG	Laysan Island	2007	Rob Shallenberger	USFWS	Barbara_Maxfield@fws.gov	3
Sharks & Rays 1	JPEG	Gray Reef Shark	2007	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Sharks & Rays 2	JPEG	Maro-Galapagos Shark	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Sharks & Rays 3	JPEG	Mokumanamana – Manta Ray	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Sharks & Rays 4	JPEG	Spotted Eagle Ray	2007	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Ships & Ship Wrecks 1	JPEG	Hökūle'a	2004	NWHI	NOAA	Andy.Collins@NOAA.gov	Y
Ships & Ship Wrecks 2	JPEG	Kure - Houei Maru Wreck	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Ships & Ship Wrecks 3	JPEG	Kure Atoll - Dunnottar Castle Wreckage	2007	NOAA & ONMS		Andy.Collins@NOAA.gov	Y
Ships & Ship Wrecks 4	JPEG	Midway - Carrolton Ship Wreck	2007	NOAA & ONMS		Andy.Collins@NOAA.gov	Y



Table 7.1 (continued): Image inventory and authorization

Id. No.	Format	Caption	Date	Photographer / Director of the video	Copyright owner (if different than photographer/director of video)	Contact details: copyright owner	Non-exclusive cession of rights
Ships & Ship Wrecks 5	JPEG	Midway Atoll - Brooks filming USS Macawa	2007	NOAA & ONMS		Andy.Collins@NOAA.gov	Y
Ships & Ship Wrecks 6	JPEG	MV Rapture	2005	NWHI	NOAA	Andy.Collins@NOAA.gov	Y
Ships & Ship Wrecks 7	JPEG	Pearl & Hermes Atoll - Archaeologists' Film Team	2007	NOAA & ONMS		Andy.Collins@NOAA.gov	Y
Ships & Ship Wrecks 8	JPEG	Pearl & Hermes Atoll - Casserley and Gleason Mapping Whaling Shipwreck	2007	NOAA & ONMS		Andy.Collins@NOAA.gov	Y
Turtles 1	JPEG	French Frigate Shoals - Green Sea Turtles	2007	G. Ludwig	USFWS	Barbara_Maxfield@fws.gov	Y
Turtles 2	JPEG	Turtle Face	2007	Rob Shallenberger	USFWS	Barbara_Maxfield@fws.gov	3
Vegetation 1	JPEG	Lisianski - Naupaka	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Vegetation 2	JPEG	Lisianski - Tree heliotrope 2	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Vegetation 3	JPEG	Mokumanamana (Necker Island) - Ihi ( <i>Portulaca lutea</i> )	2005	James Watt	Sue Watt	Sue@Seapics 808-329-4253	1
Vegetation 4	JPEG	Nihoa - East Palm Valley Sites	2007	Kekuewa Kikiloi		kekikilo@ksbe.edu	Y
Video 1		Safe Haven North-western Hawaiian Islands Coral Reef Ecosystem Reserve	2006	Ocean Futures Society		contact@oceanfutures.org	5
Video 2		Papahānaumokuākea Marine National Monument B-Roll Footage	2006	PMNM		Andy.Collins@NOAA.gov	Y
Video 3		Following the Sun, Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve	2005	PMNM		Andy.Collins@NOAA.gov	Y

- 1 – Unrestricted non-commercial, not for sale rights only. For commercial use, contact Sue@Seapics.com
- 2 – Unrestricted non-commercial, not for sale rights only.
- 3 – Unrestricted non-commercial, not for sale rights only. For commercial use, contact rshallenberger@TNC.org
- 4 – Contact Bishop Museum Archives (808-848-4182) regarding use
- 5 – Most footage copyright Ocean Futures Society and KQED San Francisco. Although NOAA retains unrestricted non-commercial use, it is not in the public domain.

## 7.b Texts Relating to Protective Designation, Copies of Property Management Plans and Extracts of Other Plans Relevant to the Property

The property is protected under a myriad of designations, including international, national and state legal measures. All of these protective measures are outlined as excerpts or links and can be found in Section 5 and the Appendices. Copies of the National Historic Register applications and links to or summaries of management plans and conservation polices to manage the site are also found in the Appendices.

### List of Appendices

**Appendix A.** NOAA Chart of Papahānaumokuākea

**Appendix B.** Selected Text from the Kumulipo: A Hawaiian Creation Chant (Beckwith ed. 1951)

**Appendix C.** National Historic Registers for Nihoa and Necker (Mokumanamana) Islands in Papahānaumokuākea

- *Necker Island Archaeological District.* National Register of Historic Places Inventory - Nomination Form for Federal Properties
- *Nihoa Island Archaeological District.* National Register of Historic Places Inventory - Nomination Form for Federal Properties

**Appendix D.** U.S. Congress Apology to Native Hawaiians on behalf of the United States for the overthrow of the Kingdom of Hawaii (U.S. Public Law 103-150. 103rd Congress Joint Resolution 19, 1993)

**Appendix E.** Summary of Submerged Historic Resources of Papahānaumokuākea

**Appendix F.** Operational Protocols and Best Management Practices for Papahānaumokuākea

- Papahānaumokuākea Marine National Monument Special Conditions & Rules for Moving Between Islands & Atolls and Packing for Field Camps
- Disease and Introduced Species Prevention Protocol for Permitted Activities in the Marine Environment
- Remote Islands Special Conditions and Rules for Marine Quarantine in Papahānaumokuākea Marine National Monument
- Precautions for Minimizing Human Impacts on Endangered Land Birds in Papahānaumokuākea Marine National Monument
- General Storage and Transport Protocol for Scientific Collection in Papahānaumokuākea Marine National Monument
- Papahānaumokuākea Marine National Monument National Marine Fisheries Service Best Management Practices
- Best Practices for Minimizing the Impact of Artificial Light on Sea Turtles
- Special Conditions & Rules for Small Boat Operations at Tern Island

**Appendix G.** International Legal Measures for Papahānaumokuākea

- Designation as a Particularly Sensitive Sea Area by the International Maritime Organization (adopted April 3, 2008)
- Areas to be Avoided “In the Region of the North-West Hawaiian Islands”
- Ship Reporting System for the Papahānaumokuākea Marine National Monument Particularly Sensitive Sea Area (PSSA)

**Appendix H.** Federal Legal Measures Specific to Papahānaumokuākea and the Northwestern Hawaiian Islands

- Executive Order 1019 – Hawaiian Islands Reservation (February 3, 1909)
- Executive Order 13022 – Administration of the Midway Islands, 61 FR 56875 (October 31, 1996)



- Department of the Interior Secretary's Order 3217 – Battle of Midway National Memorial, (September 13, 2000)
- Executive Order 13178 – Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, 65 FR 76903 (December 4, 2000)
- Executive Order 13196 – Final Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, 66 FR 7395 (January 18, 2001)
- Presidential Proclamation 8031 of June 15, 2006 establishing the Northwestern Hawaiian Islands Marine National Monument, by regulations at 71 FR 36443 (June 26, 2006); as amended by Presidential Proclamation 8112) (codified at 50 CFR Part 404)
- Northwestern Hawaiian Islands Marine National Monument codifying regulations, 50 CFR Part 404 (2006). Federal regulations codifying the provisions of Proclamation 8031 were published on August 29, 2006 (50 CFR Part 404)
- Domestic implementation of mandatory ship reporting measures associated with international PSSA designation including regulations and management plan amending the Areas to be Avoided “In the Region of the North-West Hawaiian Islands” initially established in 1981. Federal Register: December 3, 2008 (Vol. 73, No. 233 [Pages 73592-73605])
- National Wildlife Refuge System Administration Act of 1966, as amended, 16 U.S.C. §§ 668dd-ee
- Refuge Recreation Act, 16 U.S.C. § 460k-3
- Coastal Zone Management Act, 16 U.S.C. § 1451, *et seq.*
- Marine Mammal Protection Act of 1972, 16 U.S.C. § 1361, *et seq.*
- Endangered Species Act of 1973, as amended, 16 U.S.C. § 1531, *et seq.*
- Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. § 1801, *et seq.*
- Fish and Wildlife Improvement Act of 1978, 16 U.S.C. § 742I
- National Wildlife Refuge System Improvement Act of 1997, 16 U.S.C. §§ 668dd-ee
- Archaeological Resources Protection Act (ARPA) of 1979, 16 U.S.C. § 470aa-mm
- Abandoned Shipwreck Act (ASA) of 1988, 43 U.S.C. § 2101-2100
- Native American Graves Protection and Repatriation Act (NAGPRA) of 1990, 25 U.S.C. 3001 *et seq.*
- Sunken Military Craft Act (SMCA) of 2004, Public Law 108-375

#### **Appendix J.** State of Hawai'i Legal Measures Applicable to Papahānaumokuākea and Resources

#### **Appendix I.** General Federal Legal Measures Applicable to Papahānaumokuākea Resources

- Antiquities Act of 1906, 16 U.S.C. § 431, *et seq.*
- Migratory Bird Treaty Act of 1918, as amended, 16 U.S.C. 703-712
- Historic Sites, Buildings and Antiquities Act, 16 U.S.C. §461-462. 464-467
- Fish and Wildlife Act of 1956, 16 U.S.C. § 742f
- National Historic Preservation Act (NHPA) of 1966, 16 U.S.C. § 470-470b, 470c-470n
- Hawaii Organic Act of April 30, 1900, c339, 31 Stat. 141 Section 2
- Hawaii Admission Act of March 18, 1959, Pub. L. 86-3, 73 Stat. 4 Section 2
- Constitution of the State of Hawai'i, Article XI, Sections 1, 2, 6, and 9; and Article XII, Section 7
- Hawaii Revised Statutes Title 1 – Chapter 6E, Sections 6E-1 and 6E-7; Title 12, Chapter 171, Section 171-3, Chapter 183D, Section 183D-4, Chapter 187A, Section 187A-8, Chapter 188, Sections 188-37 and 188-53
- Hawaii Administrative Rules Title 13, Chapter 60.5, Chapter 125, Chapters 275-284, and Chapter 300

**Appendix K.** Papahānaumokuākea Monument Management Plan. U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration and Hawai'i Department of Land and Natural Resources. December, 2008

- Vol. 1. Papahānaumokuākea Monument Management Action Plans
- Vol. 2. Papahānaumokuākea Environmental Assessment
- Vol. 3. Appendices. Supporting Documents and References
- Vol. 4. Midway Atoll Conceptual Site Plan
- Vol. 5. Response to Comments

**Appendix L.** Existing Property Management Plans

- Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve Operations Plan
- Visitor Services Plan for Midway Atoll National Wildlife Refuge and the Battle of Midway National Memorial and the Papahānaumokuākea Marine National Monument's Midway Atoll Special Management Area
- Hawaiian Islands National Wildlife Refuge Master Plan
- Fish and Wildlife Service Draft Laysan Island Ecosystem Restoration Plan
- Fish and Wildlife Service Regional Seabird Conservation Plan, Pacific Region
- Final Environmental Impact Analysis on the Bottomfish and Seamount Groundfish Fisheries of the Western Pacific Region
- Prehistoric Cultural Resources and Management Plan for Nihoa and Necker Islands, Hawai'i
- Hawai'i's Comprehensive Wildlife Conservation Strategy
- Hawai'i Aquatic Invasive Species Management Plan

**Appendix M.** Species Recovery Plans for United States Federally Endangered and Threatened Species Applicable to Papahānaumokuākea

- Recovery Plans for the Hawaiian Monk Seal, the Humpback Whale and Blue Whale

- Recovery Plans for the Green and Loggerhead Sea Turtles, Hawksbill and Leatherback Turtles
- Recovery Plan for the Northwestern Hawaiian Islands Passerines
- Draft Revised Recovery Plan for the Laysan Duck
- Draft Recovery Plan for the Short-Tailed Albatross
- Hawaiian Dark-Rumped Petrel/Newell's Manx Shearwater Recovery Plan
- Recovery Plan for Three Plant Species on Nihoa Island
- Recovery Plan for the Multi-Island Plants

**Appendix N.** Emergency Response and Contingency Plans for Papahānaumokuākea

- US Fish and Wildlife Service Continuity of Operations Plan
- US Fish and Wildlife Service Tsunami Warning/Watch Preparedness Protocol
- National Marine Fisheries Communications – Emergencies
- Contingency Plan for Hawaiian Monk Seal Unusual Mortality Events

**Appendix O.** Assessment of Staffing Levels and Field Requirements for Management of Papahānaumokuākea

- Requirements Document. Report to Office National Marine Sanctuaries–NOAA. Honolulu, Hawai'i. Choi, F. and Associates, 2007

**Appendix P.** Property Promotion and Presentation Materials for Papahānaumokuākea

- A Citizens' Guide to the Monument
- Cultural Significance and Historical Background. Handout for visitors to Midway Island NWR
- Northwestern Hawaiian Islands Coral Reef Ecosystem: A National Treasure. Fact Sheet
- Northwestern Hawaiian Islands: A Resource Guide



- A Whale of a Journey – Poster of Whaling Shipwrecks of the Papahānaumokuākea Marine National Monument

#### Planning Updates and Online Newsletters

[http://www.papahanaumokuakea.gov/management/mp\\_updates.html](http://www.papahanaumokuakea.gov/management/mp_updates.html)

- Ka Palapala Ho'omaopopo: Papahānaumokuākea Planning Update 1 – Summer 2007
- Ka Palapala Ho'omaopopo: The Informative Letter: Papahānaumokuākea – February and April 2008

#### Educational Materials

- A Teachers Curriculum Guide to Navigating Change  
<http://www.hawaiianatolls.org/research/NavChange2002/index.php>

#### Videos and Documentaries

- Safe Haven
- Following the Sun. Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve
- Virtual Tours of Papahānaumokuākea Islands <http://papahanaumokuakea.gov/visit/welcome.html>
- Mokupapapa Discovery Center for Hawaii's Remote Coral Reefs  
<http://papahanaumokuakea.gov/education/center.html>
- No Papahānaumokuākea

### 7.c Form and Date of Most Recent Records or Inventory of Property

Recent records include results from a wide array of research and monitoring studies, surveys and inventories of bathymetrical, ecological, archaeological and cultural resources in Papahānaumokuākea. These are available in the form of published scientific articles, management plans, reports, databases and maps. Many are referenced below in the Reference List, or are included in the Appendices.

The most recent scientific literature, data sets and key management documents for Papahānaumokuākea are accessible through NOAA's extensive CoRIS (Coral Reef Information System) online library (<http://coris.noaa.gov/data/portals/nwhi.html#7>); mapping products are available through NOAA's nautical charts service (<http://www.nauticalcharts.noaa.gov/> and [http://www.oceangrafix.com/o.g/Charts/HI\\_PI/NOAA-Nautical-Charts.html](http://www.oceangrafix.com/o.g/Charts/HI_PI/NOAA-Nautical-Charts.html)); summaries of coral reef monitoring data are available through the NOAA Biogeography Branch (<http://ccma.nos.noaa.gov/stateofthereefs>). Updated information on management of Papahānaumokuākea is made available on the Monument web site ([www.papahanaumokuakea.gov](http://www.papahanaumokuakea.gov)).

### 7.d Locations of Inventory, Records and Archives are Held

#### Papahānaumokuākea Co-trustee Agencies:

- 1) United States Fish and Wildlife Service,  
300 Ala Moana Blvd., Room 5-231  
Honolulu, Hawaii 96850.  
USA
- 2) National Oceanic and Atmospheric Administration  
6600 Kalaniana'ole Highway, Suite 300  
Honolulu, HI 96825.  
USA
- 3) Hawai'i Department of Land and Natural Resources  
1151 Punchbowl Street, Room 330,  
Honolulu, HI 96813.  
USA

### 7.e Reference List

Act 50, Session Laws of Hawaii. 2000. A Bill for an Act Relating to Environmental Impact Statements.

Aeby, G.S., J.C. Kenyon, J.E. Maragos and D.C. Potts. 2003. First record of mass coral bleaching in the Northwestern Hawaiian Islands. *Coral Reefs* 22 (3): 256.

- Aeby, G.S. 2006. Baseline levels of coral disease in the Northwestern Hawaiian Islands. *Atoll Research Bulletin* 543:471-488.
- Agard, B. 2000. Public comment during Western Pacific Regional Fishery Management Council. 104th Western Pacific Regional Fisheries Management Council Meeting, June 16, 2000. Honolulu.
- Ainley, D.G., D.N. Nettleship, H.R. Carter and A.E. Storey. 2002. The birds of North America. In: *The Birds of North America* No. 666. Poole A. and F. Gill, eds. Philadelphia: The Birds of North America, Inc.
- Alexander, C., R. Kosaki, S. Gittings and M.S. Tartt. 2004. Information needs for conservation science and management of the Northwestern Hawaiian Islands: A product of the I Ke Āmio O Nā Wa'a Workshop. Silver Spring, MD: Marine Sanctuaries Division, National Ocean Service, NOAA.
- Allen, G. R. 2003. Reef fishes of Milne Bay Province, Papua New Guinea. *RAP Bulletin of Biological Assessment* 29: 46–55.
- . 2007. Conservation hotspots of biodiversity and endemism for Indo-Pacific coral reef fishes. *Aquatic Conservation: Marine and Freshwater Ecosystems*. Published online in Wiley InterScience (www.interscience.wiley.com) DOI: 10.1002/aqc.880
- Amerson, A.B. 1971. The natural history of French Frigate Shoals, Northwestern Hawaiian Islands. *Atoll Research Bulletin* 150:1-383.
- Amerson, A.B., R.C. Clapp and W.O. Wirtz, II. 1974. The natural history of Pearl and Hermes Reef, Northwestern Hawaiian Islands. *Atoll Research Bulletin* 174:1-306.
- Andrews, K.R., L. Karczmarski, W.W.L. Au, S.H. Rickards, C.A. Vanderlip and R.J. Toonen. 2006. Patterns of genetic diversity of the Hawaiian spinner dolphin. *Atoll Research Bulletin* 543: 65-73.
- Antiquities Act. 1906. As amended 16 U.S.C. § 431-433, *et seq.*
- Antonelis, G.A., J.D. Baker, T.C. Johanos, R.C. Braun and A.L. Harting. 2006. Hawaiian Monk Seals (*Monachus schauinslandi*): Status and conservation issues. *Atoll Research Bulletin* 543:75-101.
- Apology Resolution. 1993. Public Law 103-150 (Presidential and Congressional Resolution).
- Archaeological Resources Protection Act. 1979. Public Law 96-95; 16 U.S.C. 470 aa-mm.
- Ashmole, M.J. and N.P. Ashmole. 1967a. The use of food samples from seabirds in the study of seasonal variation in the surface fauna of tropical oceanic areas. *Pacific Science* 22: 1-10.
- . 1967b. Notes on the breeding season and food of the Red-footed Booby (*Sula sula*) on Oahu, Hawaii. *Ardea* 55: 265-267.
- Ashmole, N.P. 1963. The biology of the Wide-awake or Sooty Tern (*Sterna fuscata*) on Ascension Island. *Ibis* 103b: 297-364.
- Athens, J.S., J.V. Ward and D.W. Blinn. 2007. Vegetation history of Laysan Island, Northwestern Hawaiian Islands. *Pacific Science* 61: 17-37.
- Au, D.K. and R.L. Pitman. 1986. Seabird interactions with dolphins and tuna in the eastern tropical Pacific. *The Condor* 88 (3): 304-317.
- Auman, H.J., J.P. Ludwig, C.L. Summer, D.A. Verbrugge, K.L. Froese, T. Colborn and J.P. Giesy. 1997. PCBs, DDE, DDT, and TCDD-EQ in two species of albatross on Sand Island, Midway Atoll, North Pacific Ocean. *Environmental Toxicology and Chemistry* 16(3): 498-504.
- Auman, H.J., J.P. Ludwig, J.P. Giesy and T. Colborn. 1998. Plastic ingestion by Laysan albatross chicks on Sand Island, Midway Atoll, in 1994 and 1995. In: *Albatross Biology and Conservation*. Robertson G. and R. Gales, eds., pp. 239-244. Chipping Norton: Surrey Beatty & Sons.
- Ayau, H. and T.K. Tengan. 2002. Ka Huaka'i o Nā 'Ōiwi – The Journey Home. In: *The Dead and Their Possessions: Repatriation in*



- Principle, Policy and Practice*. Frode et al., eds. pp. 171-189. New York: Routledge Publications.
- Baco-Taylor, A., E. Yam, E.C. Kelley, Smith, J.R and S. Cairns. 2006. Distribution of deep-sea corals in relation to geological setting in the Northwestern Hawaiian Islands. *Eos Trans. AGU* 87 (36), *Ocean Sci. Meet. Suppl.*, Abstract OS11E-03.
- Baker, J.D., C.L. Littnan and D.W. Johnston. 2006. Potential effects of sea level rise on the terrestrial habitats of endangered and endemic megafauna in the Northwestern Hawaiian Islands. *Endangered Species Research* 4(1): 1-10.
- Baker, J.D., J.J. Polovina and E.A. Howell. 2007. Effect of variable oceanic productivity on the survival of an upper trophic predator, the Hawaiian Monk Seal *Monachus schauinslandi*. *Marine Ecology Progress Series* 346: 277-283.
- Bakun, A. 2006. Fronts and eddies as key structures in the habitat of marine fish larvae: Opportunity, adaptive response and competitive advantage. *Scientia Marina* 70 (S2): 105-122.
- Balazs, G.H. and S.G. Pooley. 1991. Research plan for marine turtle fibropapilloma. NOAA Technical Memorandum NMFS-SWFSC-156.
- Balazs, G.H. and D.M. Ellis. 2000. Satellite telemetry of migrant male and female green turtles breeding in the Hawaiian Islands. In: *Proceedings of the 18th International Sea Turtle Symposium*, 3-7 March 1998. Abreu-Grobois A., R. Briseño-Dueñas, R. Márquez-Millán, L. Sarti-Martínez eds., pp. 281-283. U.S. Dept. of Comm., NOAA Tech. Memo. NOAA-TM-NMFS-SEFSC-436.
- Balazs, G.H. and M. Chaloupka. 2004a. Thirty-year recovery trend in the once depleted Hawaiian green sea turtle stock. *Biological Conservation* 117: 491-498.
- . 2004b. Spatial and temporal variability in somatic growth of green sea turtles (*Chelonia mydas*) resident in the Hawaiian Archipelago. *Marine Biology* 145 (5): 1043-1059.
- Ballantine, W.J. 1991. *Marine reserves for New Zealand*. Auckland: University of New Zealand.
- . 1997. No-take marine reserve networks support fisheries. *Conservation Biology* 17 (6): 1769-1784.
- Barlow, J. 2003. Cetacean abundance in Hawaiian waters during summer/fall of 2002. Report to: NMFS Southwest Fisheries Science Center.
- . 2006. Cetacean abundance in Hawaiian Waters estimated from a Summer/Fall survey in 2002. *Marine Mammal Science* 22: 446-464.
- Barszczus, H.G. and J.M Liotard. 1985. Contribution to the petrography and geochemistry of Raivavae Island, French Polynesia (South Central Pacific Ocean). *Comptes rendus de l'Académie des sciences. Série 2, Mécanique, Physique, Chimie, Sciences de l'univers, Sciences de la Terre* 301(20): 1409-1412.
- Beaglehole, J.C., ed. 1967. *The Journals of Captain Cook on His Voyages of Discovery, The Voyage of the Resolution and Discovery 1776-1780*. Cambridge: Cambridge University Press.
- Beckwith, M., ed. & trans., 1951. *The Kumulipo: A Hawaiian Creation Chant*. Honolulu: University of Hawai'i Press.
- Beckwith, M. 1970. *Hawaiian Mythology*. Honolulu: University of Hawaii Press.
- Bennett, I. 1971. *The Great Barrier Reef*. Sydney: Lansdowne Press.
- Benoit-Bird, K.J., W.W.L. Au, R.E. Brainard, and M.O. Lammers. 2002. Diel horizontal migration of the Hawaiian mesopelagic boundary community observed acoustically. *Marine Ecology Progress Series* 217: 1-14.
- Berkley, S.A., M.A. Hixon, R.J. Larson and M.S. Love. 2004. Fisheries sustainability

- via protection of age structure and spatial distribution of fish populations. American Fisheries Society. *Fisheries Magazine*, August. Available: [www.fisheries.org](http://www.fisheries.org)
- Best, E. 1976. *Maori Religion and Mythology*. Wellington, N.Z.: Government Press.
- Beyer, W.N., E.E. Connor and S. Gerould. 1994. Estimates of soil ingestion by wildlife. *Journal of Wildlife Management* 58(2): 375-382.
- Bishop Museum. 1986. *Memoirs of the Bernice Pauahi Bishop Museum of Polynesian Ethnology and Natural History: Vol. IV, Part I*. Millwood, N.Y: Kraus Reprint.
- BirdLife International. 1998. *Endemic Bird Areas of the World*. Cambridge: BirdLife International.
- Blackburn, T.M., P. Cassey, R.P. Duncan, K.L. Evans and K.J. Gaston. 2004. Avian extinction and mammalian introductions on oceanic islands. *Science* 305: 1955-1958.
- Boehlert, G. 1993. Fisheries and marine resources of Hawaii and the U.S.-associated Pacific Islands: an introduction. *Marine Fisheries Review* 55: 3-7.
- Boland, R.C. and M. Donohue. 2003. Marine debris accumulation in the nearshore marine habitat of the endangered Hawaiian Monk Seal, *Monachus schauinslandi* 1999-2001. *Marine Pollution Bulletin* 46(11): 1385-1394.
- Bolton, M., R. Medeiros, B. Hothersall and A. Campos. 2004. The use of artificial breeding chambers as a conservation measure for cavity-nesting procellariiform seabirds: a case study of the Madeiran storm petrel (*Oceanodroma castro*). *Biological Conservation* 116: 73-80.
- Botsford, L., G. DiNardo, M. Fogarty, D. Goodman and J. Hampton. 2002. Workshop proceedings on the development of spatially structured population models for Northwestern Hawaiian Islands lobster resources. Southwest Fisheries Science Center, Administrative Report, H-02-01.
- Bowen, B.W., A.B. Meylan, J.P. Ross, C.J. Limpus, G.H. Balazs and J.C. Avise. 1992. Global population structure and natural history of the Green Turtle (*Chelonia mydas*) in terms of matriarchal phylogeny. *Evolution* 46: 865-881.
- Briggs, John. 1976. Oceanic Island, endemism and marine paleotemperatures. In: *Natural History of the Hawaiian Islands: Selected Readings*. Kay, Allison ed. pp 506-516. Honolulu, HI: University of Hawai'i Press.
- Brodziak, J. 2007. An investigation of alternative production models to assess the Hawaiian bottomfish complex. NOAA Fisheries Pacific Islands Fisheries Science Center. Administrative Report H-07-01.
- Browman, H.L. and K.I. Stergiou. 2004. Politics and socio-economics of ecosystem-based management of marine resources: Introduction. *Marine Ecology Progress Series* 300: 241-296.
- Bruegmann, M.M. 1995. Report on a botanical survey of Midway Atoll, April 1-7, 1995. United States Fish and Wildlife Service, U.S. Department of the Interior, Honolulu.
- Bryan E.H. Jr. 1953. Check List of Atolls. *Atoll Research Bulletin* 19: 1-38.
- . 1978. *The Northwestern Hawaiian Islands: An Annotated Bibliography*. Honolulu, HI: United States Fish and Wildlife Service. Courtesy of Bishop Museum Archives, PSIC 1, Box 20.
- Campbell, K., ed. 1997. *The Kumulipo: An Hawaiian creation myth*. Honolulu, HI: Pueo Press.
- Campbell, S., M. David, L.A. Woodward and Q.X. Li. 2004. Persistence of carbofuran in marine sand and water. *Chemosphere* 54: 1155-1161.
- Carpenter, E.J. and K.L. Smith, Jr. 1972. Plastics on the Sargasso Sea surface. *Science* 175 (4027): 1240-1241.



- Carpenter, E.J., S.J. Anderson, G.R. Harvey, H.P. Miklas and B.B. Peck. 1972. Polystyrene spherules in coastal waters. *Science* 178: 749-750.
- Casserley, Tane Renata. 1998. *A maritime history of the Northwestern Hawaiian Islands from Laysan to Kure*. Graduate Maritime Archaeology and History Certificate Program. Honolulu, HI: University of Hawai'i.
- Center for Biodiversity Conservation. 2004. *Sustaining Seascapes: the science and policy of marine resource management. Symposium glossary* [online]. New York: American Museum of Natural History.
- Chavaillon, C. and R. Olivier. 2007. *Le patrimoine archéologique de l'île de Hiva Oa (archipel des Marquises)*. Dossier d'Archéologie Polynésienne 5, Papeete.
- Cherry, J.F. 1985. Islands out of the stream: Isolation and interaction in early East Mediterranean insular prehistory. In: *Prehistoric production and exchange: The Aegean and eastern Mediterranean*. Knapp, A. B. and T. Stech, eds. Vol. 25, pp. 12-29. Los Angeles: Monograph UCLA Institute of Archaeology.
- Chevalier, J.P. 1973. Coral reefs of New Caledonia. In: *Biology and geology of coral reefs*, Vol. 1, Geol. 1. O.A. Jones and R. Endean, eds, pp. 143-166. New York: Academic Press.
- Cho, D. 2004. Derelict fishing gear and related marine debris: An educational outreach seminar among APEC partners. Paper read at APEC Marine Debris Seminar, 13-16 January 2004, Honolulu.
- Christensen, N.L., A.M. Bartuska, J.H. Brown, S. Carpenter, C. D'Antonio, R. Francis, J.F. Franklin, J.A. MacMahon, R.F. Noss, D.J. Parsons, C.H. Peterson, M.G. Turner and R.G. Woodmansee. 1996. The report of the Ecological Society of America committee on the scientific basis for ecosystem management. *Ecological Applications* 6 (3): 665-691.
- Christie, P., B. McCay, M. Miller, C. Lowe, A. White, R. Stoffle, D. Fluharty, L. McManus, R.R. Chuenpagdee, C. Pomeroy, D. Suman, B. Blount, D. Huppert, R. Eisma, E. Oracion, K. Lowry and R. Pollnac. 2003. Toward developing a complete understanding: A social science research agenda for marine protected areas. *Fisheries* 28 (12): 22-26.
- Citta, J., M.H. Reynolds and N.E. Seavy. 2006. Seabird monitoring assessment for Hawaii and the Pacific Islands. USGS Pacific Island Ecosystems Research Center. Unpubl. Rept. to U.S. Fish and Wildlife Service, Migratory Birds and Habitat Programs, Portland, Oregon.
- Clague, D.A. 1996. The growth and subsidence of the Hawaiian-Emperor volcanic chain. In: *The origin and evolution of Pacific Island biotas, New Guinea to Eastern Polynesia: patterns and processes*. Keast, A., S.E. Miller eds, pp. 35-50. Amsterdam: SPB Academic Publishing.
- Clapp, R.B. 1972. The natural history of Gardner Pinnacles, Northwestern Hawaiian Islands. *Atoll Research Bulletin* 163: 1-25.
- Clapp, R.B. and C.A. Ely. 1973. The natural history of Laysan Island, Northwestern Hawaiian Islands. *Atoll Research Bulletin* 171: 64-86.
- Clapp, R.B. and W.O. Wirtz II. 1975. The natural history of Lisianski Island, Northwestern Hawaiian Islands. *Atoll Research Bulletin* 186: 1-196.
- Clapp, R.B. and E. Kridler. 1977. The natural history of Necker Island Northwestern Hawaiian Islands. *Atoll Research Bulletin* 206: 25-31.
- Clapp, R.B., E. Kridler and R.R. Fleet. 1977. The natural history of Nihoa Island Northwestern Hawaiian Islands. *Atoll Research Bulletin* 207: 26-38.
- Clapp, R.B., M.D.F. Udvardy and A.K. Kepler. 1996. An annotated bibliography of Laysan Island, Northwestern Hawaiian Islands. *Atoll Research Bulletin* 434.

- Clapp, R. B. No Date. *Discovery of Lisianski Island*. Honolulu, HI: Manuscript courtesy of Bishop Museum Archives, PSIC 1, Box 19.
- Clarke, R.P., S.S. Yoshimoto and S.G. Pooley. 1992. A bioeconomic analysis of the Northwestern Hawaiian Islands lobster fishery. *Marine Resource Economics* 7: 225-240.
- Cleghorn, P. 1984. Project 328 *Necker and Nihoa Archaeology*. Anthropology Records, Group 6, Box 108, Project Notes 328-329. Honolulu, HI: Bishop Museum Archives.
- . 1987. *Prehistoric Cultural Resources and Management Plan for Nihoa and Necker Islands, Hawai'i*. Prepared for the United States Fish and Wildlife Service, Honolulu, Hawai'i by Applied Research Group, Department of Anthropology Manuscript #110587 (Project 328). Honolulu, HI: Bernice Pauahi Bishop Museum.
- . 1988. The settlement and abandonment of two Hawaiian outposts: Nihoa and Necker. In: *Bishop Museum Occasional Papers* 28:35-49. Honolulu: Bishop Museum Press.
- Clouard V. and A. Bonneville. 2005. Ages of seamounts, islands and plateaus on the Pacific plate. Special Papers – special paper 388. In: *Plates, Plumes and Paradigms*. pp 71-90.
- Cohen, S. 1985. *Wings to the Orient*. Missoula, Montana: Pictorial Histories Publishing Company.
- Colley, Ben. *Midway*. MS DOC 29. Honolulu: Bishop Museum Library and Archives.
- Coloma-Agaran, G. 2003. First quarterly report for nuisance seaweed control, Kihei, Maui, Hawai'i. Report submitted to EPA.
- Conant, S., M.S. Collins and C.J. Ralph. 1981. Effects of observers using different methods on the total population estimates of two resident island birds. *Studies in Avian Biology* 6: 377-381.
- . 1985. Recent observations on the plants of Nihoa Island, Northwestern Hawaiian Islands. *Pacific Science* 39: 135-149.
- Creighton, J.L. 1981. *The Public Involvement Manual*. Cambridge, Massachusetts: Abt Books.
- Cressman, R.J., S. Ewing, B. Tillman, M. Horan, C. Reynolds and S. Cohen. 1990. "A Glorious Page in Our History" *The Battle of Midway 4-6 June 1942*. Missoula, Montana: Pictorial Histories Publishing Company.
- Cury, P.M. 2004. Tuning the ecoscope for the ecosystem approach to fisheries. *Marine Ecological Progress Series* 274: 277-275.
- Dalrymple, G.B., E.A. Silver and E. Jackson. 1974. NASA. *Ames Res. Center Guidebook to the Hawaiian Planetology Conference*: 23-36.
- Darwin, C. 1859. *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life*. London: John Murray.
- Dameron, O.J., M. Parke, M.A. Albins and R. Brainard. 2007. Marine debris accumulation in the Northwestern Hawaiian Islands. *Marine Pollution Bulletin* 54(4): 423-433.
- David, M., S. Campbell, L.A. Woodward and Q.X. Li. 2001. Characterization of a carbofuran-contaminated site in the Hawaiian Islands National Wildlife Refuge. Johnston, J.J. ed. *Pesticides and Wildlife: ACS Symposium Series* 771: 22-37.
- Dean, M., ed. 1992. *Archaeology Underwater: the NAS Guide to Principles and Practice*. London: Nautical Archaeology Society.
- DeFelice, R.C., S.L. Coles, D. Muir and L.G. Eldredge. 1998. Investigation of the marine communities of Midway Harbor and adjacent lagoon, Midway Atoll, Northwestern Hawaiian Islands. Hawai'i Biological Survey Contribution No. 1998-014. Honolulu: Bishop Museum.



- DeFelice, R.C., D. Minton and L.S. Godwin. 2002. Records of shallow-water marine invertebrates from French Frigate Shoals, Northwestern Hawaiian Islands, with a note on non-indigenous species. Report to the U.S. Fish and Wildlife Service. Technical Report No. 23. Contribution No. 2002-01 to the Hawai'i Biological Survey. Honolulu: Bishop Museum.
- De Leo, G.A. and S. Levin. 1997. The multifaceted aspects of ecosystem integrity. *Conservation Ecology* 1(1): 3.
- Delgado, J.P. 1985. Nominating historic vessels and shipwrecks to the National Register of Historic Places. *National Register Bulletin* 20. National Park Service, U.S. Department of the Interior.
- DeMartini, E.E., G.T. DiNardo and H.A. Williams. 2003. Temporal changes in population density, fecundity and egg size of the Hawaiian spiny lobster, *Panulirus marginatus*, at Necker Bank, Northwestern Hawaiian Islands. *Fisheries Bulletin* 101:22-31.
- DeMartini, E.E. and A.M. Friedlander. 2004. Spatial patterns of endemism in shallow reef fish populations of the Northwestern Hawaiian Islands. *Marine Ecology Progress Series* 271:281-296.
- . 2006. Predation, endemism, and related processes structuring shallow-water reef fish assemblages of the NWHI. *Atoll Research Bulletin* 543: 237-256.
- Department of Hawaiian and Pacific Studies, Bishop Museum. 2002. Evidence for Native Hawaiian knowledge of the Northwest Hawaiian Islands prior to western contact. Report to the Office of Hawaiian Affairs.
- Department of the Interior. 1997. Department of the Interior Manual Chapter 411, Chapters 1 through 3; and Reclamation Policy and Directives & Standards for Cultural Resources Management and Museum Property Management. 411 DM and 36 CFR Part 800; 43 CFR Part 7.
- . 2008. U.S. World Heritage Tentative List 2008. URL [www.doi.com](http://www.doi.com)
- Department of the Interior Secretary's Order 3217. 13 September 2000. Designation of the Battle of Midway National Memorial.
- Devaney, Dennis. M. and Lucius Eldredge, eds. 1977. *Reef and Shore Fauna of Hawai'i*. Honolulu, HI: Bishop Museum Press.
- DLNR (Department of Lands and Natural Resources, State of Hawai'i). 2003a. The State of Hawai'i Aquatic Invasive Species Management Plan. Honolulu: Division of Aquatic Resources.
- . 2003b. Wao Akua: Sacred Source of Life. Honolulu: State of Hawai'i, Department of Land and Natural Resources, Division of Forestry and Wildlife.
- . 10 August 2007. Hawai'i Administrative Rules Chapter 13-76. Non-Indigenous Aquatic Species. Division of Aquatic Resources.
- Diamond, A.W. 1978. Feeding strategies and population size in tropical seabirds. *American Naturalist* 112: 215-223.
- Diamond, J. 2005. *Collapse: How Societies Choose to Fail or Succeed*. New York: Viking.
- DiNardo, G.T. and R. Marshall. 2001. Status of lobster stocks in the Northwestern Hawaiian Islands, 1998-2000. Southwest Fisheries Science Center. Administrative Report H-01-04.
- Di Piazza, A. and Pearthree, E. 2001a. Voyaging and basalt exchange in the Phoenix and Line archipelagos: The viewpoint from three mystery islands. *Archaeology in Oceania* 36: 146-152.
- Di Piazza, A. and Pearthree, E. 2001b. An island for gardens, an island for birds and voyaging: A settlement pattern for Kiritimati and Tabuaeran, two "mystery islands" in the Northern Lines, Republic of Kiribati. *Journal of the Polynesian Society* 110: 149-170.

- Di Piazza, A. and Pearthree, E. 2004. *Sailing Routes of Old Polynesia*. Bishop Museum Bulletin in Anthropology II. Honolulu: Bishop Museum Press.
- Dollar, S.J. 1982. Wave stress and coral community structure in Hawai'i. *Coral Reefs* 1: 71-81.
- Dollar, S.J. and R.W. Grigg. 2004. Anthropogenic and natural stresses on selected coral reefs in Hawai'i: a multi-decade synthesis of impact and recovery. *Pacific Science* 58(2): 281-304.
- Donohue, M.J. and R.E. Brainard. 2001. A comprehensive effort to mitigate marine debris and restore coral reef habitat in the Northwestern Hawaiian Islands. Paper presented at: Oceans 2001, 5-8 November 2001, Pelagic Fisheries Session, Hilton Hawaiian Village, Honolulu, Hawai'i.
- Donohue, M.J. 2005. Eastern Pacific Ocean source of Northwestern Hawaiian Islands marine debris supported by errant fish aggregating device. *Marine Pollution Bulletin* 50: 886-888.
- Donohue, M.J. and D. Foley. 2007. Remote sensing reveals links among the endangered Hawaiian Monk Seal, marine debris and El Niño. *Marine Mammal Science* 23 (2): 468-473.
- Duda, A.M. and K. Sherman. 2002. A new imperative for improving management of large marine ecosystems. *Ocean and Coastal Management* 45: 797-833.
- Dudley, Michael Kioni. 2003. *Man, Gods and Nature*. Honolulu, HI: Nā Kāne O Ka Malo Press.
- Duncan R.A., M.T. McCulloch, H.G. Barscus and D.R. Nelson. 1986. Plume versus lithospheric sources for melts at Ua Pou, Marquesas Islands. *Nature* 322: 534-538.
- Dupuy C. H.G. Barszczus, J.M. Liotard and J. Dostal. 1988. Trace element evidence for the origin of ocean island basalts: an example from the Austral Islands (French Polynesia). *Contributions to Mineralogy and Petrology* 98(3): 293-302.
- Dupuy C. H.G. Barszczus, J. Dostal, P. Vidal and J.M. Liotard. 1989. Subducted and recycled lithosphere as the mantle source of ocean island basalts from southern Polynesia, central Pacific. *Chemical Geology* 77: 1-18.
- Dye, Tom. 1989. Tales of two cultures: Traditional historical and archaeological interpretations of Hawaiian prehistory. *Bishop Museum Occasional Papers Volume 29*: 3-22.
- Eagles, P.F.J., S.F. McCool and C.D. Haynes. 2002. *Sustainable Tourism in Protected Areas: Guidelines for Planning and Management*. Gland, Switzerland and Cambridge, UK: IUCN.
- Ehler, R. 2004. Socio-economic assessment of commercial bottomfishing in the Northwestern Hawaiian Islands (Draft). National Marine Sanctuary Program, NOAA-NOS. Silver Spring, MD.
- Eldredge, L.G. 2002. Literature review and cultural, geological, and biological history for the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve. Contribution to the Hawaii Biological Survey No. 2002-026. Honolulu: Bishop Museum.
- . 2005. Assessment of the potential threat to the introduction of marine non-indigenous species in the Northwestern Hawaiian Islands. Final report prepared for Environmental Defense. Contribution No. 2005-001 to the Hawaii Biological Survey. Honolulu: Bishop Museum.
- Eldredge, L. and J. Carlton .2002. Hawaiian marine bioinvasions: A preliminary assessment. *Pacific Science* 56(2): 211-212.
- Ely, C.A. and R.B. Clapp. 1973. The natural history of Laysan Island, Northwestern Hawaiian Islands. *Atoll Research Bulletin* 171: 1-361.



- Emerson, N.B. 2005. *Pele and Hiiaka A Myth from Hawaii*. Hilo: Edith Kanaka'ole Foundation.
- Emory, K. 1928. The archaeology of Nihoa and Necker Islands. *Bishop Museum Bulletin* 53. Honolulu: Bishop Museum Press.
- . 1970. A Re-examination of East Polynesian Marae: Many Marae later. In: *Studies in Oceanic Culture History, Vol. I. Pacific Anthropological Records 11*. R.C. Green and M. Kelly, eds. Honolulu, HI: Dept. Anthropology, Bishop Museum.
- Endangered Species Act of 1973, as amended, 16 U.S.C. § 1531 *et seq.*
- Engilis Jr., A. and M. Naughton. 2004. U. S. Pacific Islands Regional Shorebird Conservation Plan. U. S. Shorebird Conservation Plan. U. S. Dept. of Interior. Portland, OR.
- Entsch, B., R.G. Sim and B. G. Hatcher. 1983. Indication from photosynthetic components that iron is a limiting nutrient in primary producers on coral reefs. *Marine Biology* 73(1): 17-30.
- Evenhuis, N.L. and L.G. Eldredge, eds. 2004. *Natural History of Nihoa and Necker Islands*. Honolulu: Bishop Museum Press.
- Executive Order 1019—Hawaiian Islands Reservation, February 3, 1909.
- Executive Order 13022—Administration of the Midway Islands, October 31, 1996 (61 FR 56875).
- Executive Order 13089—Coral Reef Protection, June 11, 1998 (63 FR 32701).
- Executive Order 13112—Invasive Species, February 3, 1999 (64 FR 6183).
- Executive Order 13158—Marine Protected Areas, May 26, 2000 (65 FR 34909).
- Executive Orders 13178 and 13196—Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, December 4, 2000 (65 FR 76903) and January 18, 2001 (66 FR 7395).
- Executive Order 13287—Preserve America, March 3, 2003 (68 FR 10635).
- Feare, C.J. 1976. The breeding of the Sooty Tern *Sterna fuscata* in the Seychelles and the effects of experimental removal of its eggs. *Journal of Zoology, London* 179: 317–360.
- Fefer, S.I., C.S. Harrison, M.B. Naughton and R.J. Shallenberger. 1984. Synopsis of results of recent seabird research conducted in the Northwestern Hawaiian Islands. In: *Resource investigations in the Northwestern Hawaiian Islands*. R.W. Grigg and K.Y. Tanoue, eds., pp 9-76. University of Hawaii Sea Grant College Program, UNIH-SEAGRANT-MR-84-01. Honolulu, Hawaii.
- Fine, M. and D. Tchernov. 2007. Scleractinian coral species survive and recover from decalcification. *Science* 315: 1811.
- Finkelstein, M.E., K.A. Grasman, D.A. Croll, B.R. Tershy, B.S. Keitt, W.M. Jarman and D.R. Smith. 2007. Contaminant-associated alteration of immune function in Black-footed Albatross (*Phoebastria nigripes*), a North Pacific predator. *Environmental Toxicology and Chemistry* 26:1896-1903.
- Firing, J. and R.E. Brainard. 2006. Ten years of shipboard ADCP measurements along the Northwestern Hawaiian Islands. *Atoll Research Bulletin* 543:347-364.
- Fish and Wildlife Improvement Act. 1978. 16 U.S.C. § 742l.
- Flint, E. 1991. Time and energy limits to the foraging radius of Sooty Terns *Sterna fuscata*. *Ibis* 133: 43-46.
- Flint, E. and C. Rehkemper. 2002. Control and eradication of the introduced grass, *Cenchrus echinatus*, at Laysan Island, central Pacific Ocean. In: *Turning the Tide: The Eradication of Invasive Species* pp. 110-115. Auckland, New Zealand, IUCN SSC Invasive Species

- Specialist Group. Gland, Switzerland and Cambridge, UK: IUCN.
- Floros, C.D., M.J. Samways and B. Armstrong. 2004. Taxonomic patterns of bleaching within a South African coral assemblage. *Biodiversity and Conservation* 13: 1175-1194.
- Fornander, Abraham. 1918. *The Fornander Collection of Hawaiian Antiquities and Folk-Lore: The Hawaiian Account of the Formation of Their Islands and Origin of Their Race with the Traditions of Their Migrations*. Honolulu, HI: Bishop Museum Press.
- Fowler, C.W. and L. Hobbs. 2002. Limits to natural variation: Implications for systematic management. *Animal Biodiversity and Conservation* 25: 7-45.
- Fowler, H.W. and S.C. Ball. 1925. Fishes of Hawai'i, Johnston Island, and Wake Island. (Tanager Expedition Publ. 2). *Bulletin B.P. Bishop Museum* 26: 1-31.
- Franklin, E.C. 2008. An assessment of vessel traffic patterns in the Northwestern Hawaiian Islands between 1994 and 2004. *Marine Pollution Bulletin* 56: 136-162.
- Frid, C.L.J., S. Hansson, S.A. Ragnarsson, A. Rijnsdorp and S.A. Steingrimsson. 1999. Changing levels of predation on benthos as a result of exploitation of fish populations. *Ambio* 28 (7):578-582.
- Friedlander, A. and E. DeMartini. 2002. Contrast in density, size, and biomass of reef fishes between the Northwestern and the main Hawaiian Islands: the effects of fishing down apex predators. *Marine Ecological Progress Series* 230: 253-264.
- Friedlander, A., J. Sladek Nowlis, J. Sanchez, R. Appeldoorn, P. Usselio, C. McCormick, S. Benharano and A. Mitchell-Chui. 2003. Designing effective marine protected areas in Seaflower Biosphere Reserve, Colombia, based on biological and sociological information. *Conservation Biology* 6: 1769-1784.
- Friedlander, A., G. Aeby, R. Brainard, A. Clark, E. DeMartini, S. Godwin, J. Kenyon, R. Kosaki, J. Maragos and P. Vroom. 2005. The State of Coral Reef Ecosystems of the Northwestern Hawaiian Islands. In: *The State of Coral Reef Ecosystems of the United States and Pacific Freely Associated States*. J. Waddell, ed., pp. 270-311. NOAA Technical Memorandum NOS NCCOS 11. NOAA/NCCOS Center for Coastal Monitoring and Assessment's Biogeography Team. Silver Spring, MD.
- Fry, D.M., S.I. Fefer and L. Sileo. 1987. Ingestion of plastic debris by Laysan albatrosses and Wedge-tailed shearwaters in the Hawaiian Islands. *Marine Pollution Bulletin* 18: 339-343.
- Galver, L. 2000. The molecular ecology of spinner dolphins, *Stenella longirostris*: genetic diversity and population structure. PhD diss., University of California, San Diego.
- Garrigue C. and R. T. Tsuda. 1988. Catalog of marine benthic algae from New Caledonia. *Micronesica* 21 (1-2): 53-70.
- Geitz, M. 2004. Cruise tourism on Slavbard. Norway: WWF International Arctic Programme.
- Giambelluca, T.W. and T.A. Schroeder. 1998. Climate. In: *Atlas of Hawaii*. Juvik, J. and S. Juvik, eds. Honolulu: University of Hawai'i Press.
- Gibbs, Jim. 1977. *Shipwrecks in Paradise*. Seattle, WA: Superior Publishing Company.
- Gilmartin, W., S. Canja, C. Vanderlip and J. Mangel. 1990. Managing human activity aids recovery of endangered Hawaiian Monk Seals at Midway Islands. Abstract in: *Society for Marine Mammalogy Proceedings of the 13th Biennial Conference on the Biology of Marine Mammals*. pp. 67.
- Gittings, S., M. Tartt, C. Alexander and R. Kosaki. 2004. Information needs for conservation science and management of the Northwestern Hawaiian Islands.



- National Marine Sanctuary Program, NOAA. Silver Spring, MD. 66 pp.
- Giongo, F., J. Bosco-Nizeye and G.N. Wallace. 1994. A Study of visitor management in the world's national parks and protected areas. Paper prepared for Colorado State University, The Ecotourism Society and the World Conservation Monitoring Centre.
- Gladwin, T. 1970. *East is a Big Bird: Navigation and Logic on Puluwat Atoll*. Harvard University Press. 260 pp.
- Godwin, L.S. 2000. NWHI derelict fishing net removal project: Survey of marine organisms associated with net debris. Report submitted to: NOAA Fisheries, Coral Reef Ecosystem Investigation.
- . 2002. Preliminary report on non-coral marine invertebrates: NOAA Fisheries.
- Godwin, S. 2005. Preliminary species inventory for marine invertebrates associated with the coral reef communities of the Northwestern Hawaiian Islands. Report submitted to the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve. Honolulu, HI.
- Godwin, S., K.S. Rodgers and P.L. Jokiel. 2006. Reducing potential impacts of invasive marine species in the Northwestern Hawaiian Islands. A report for research conducted under DOI, NOAA, National Ocean Service. MOA 2005-008/6882 Amendment No. 001, Research in Support of the NWHI Coral Reef Ecosystem Reserve, HIMB, SOEST, University of Hawai'i at Mānoa, Honolulu.
- Gon, S. 2003. Application of traditional ecological knowledge and practices of indigenous Hawaiians to the revegetation of Kaho'olawe. *Ethnobotany Research and Applications* 1:5-20.
- Grandcourt, E.M. 2003. The effect of intensive line fishing on the virgin biomass of a tropical deepwater snapper, the crimson jobfish (*Pristipomoides filamentosus*). *Fisheries Bulletin* 101:305-311.
- Graves, M.C. and M. Sweeney. 1993. Ritual behavior and ceremonial structures in eastern Polynesia: changing perspectives. In: *The Evolution and Organisation of Prehistoric Society in Polynesia*. Graves, M.W. and R.C. Green, eds. pp. 106-124. Auckland: New Zealand Archaeological Association.
- Graves, M., and K. Kikiloi. In prep. Preliminary reconnaissance report for the archaeological sites of Nihoa Islands, February 2006. Prepared for the U.S. Fish and Wildlife Service.
- Green, R.G. 1986. Some basic components of the Ancestral Polynesian settlement system: building blocks for more complex societies. In: *Island Societies: Archaeological Approaches to Evolution and Transformation*. pp. 50-54. Cambridge: Cambridge University Press.
- Green, R.G. 1993. Community-level organization, power and elites in Polynesian settlement pattern studies. In: *The Evolution and Organisation of Prehistoric Society in Polynesia*. Graves, M.W. and R.C. Green, eds. pp. 9-12. Auckland: New Zealand Archaeological Association.
- Green, R.C. 1996. Settlement patterns and complex society in the Windward Society Islands. In: *Mémoire de Pierre, Mémoire d'Homme: Tradition et Archéologie en Océanie, Hommage a Jose Garanger*. Julien, M., M. Orliac and C. Orliac, eds. pp. 207-227. Paris: Collection "Homme et Société 23", Publications de la Sorbonne.
- Grigg, R.W. 1981. *Acropora* in Hawaii. Part II. Zoogeography. *Pacific Science* 35: 15-25.
- . 1982. Darwin Point, a threshold for atoll formation. *Coral Reefs* 1: 29-34.
- . 1997. Paleoceanography of coral reefs in the Hawaiian-Emperor Chain – Revisited. *Proceedings of the 8th International Coral Reef Symposium* 1: 117-122.
- . 2006. The history of marine research in the Northwestern Hawaiian Islands:

- lessons learned from the past and hopes for the future. *Atoll Research Bulletin* 543: 13-22.
- Grigg, R.W. and R. Pfund, eds. 1980. *Proceedings of the Symposium on the Status of Resource Investigations in the Northwestern Hawaiian Islands*. Sea Grant Miscellaneous Report UNIH-SEAGRANT-MR-80-04. University of Hawai'i Sea Grant College Program. Honolulu.
- Grigg, R.W. and K.Y. Tanoue, eds. 1984. *Proceedings of the Second Symposium on Resource Investigations in the Northwestern Hawaiian Islands*. Sea Grant Miscellaneous Report UNIH-SEAGRANT-MR-84-01. University of Hawai'i Sea Grant College Program. Honolulu.
- Guillou H., R.C. Maury, S.Blais, J. Cotton, C. Legendre, G. Guille and M. Caroff. 2005. Age progression along the Society hotspot chain (French Polynesia) based on new unspiked K-Ar ages. *Bulletin de la Societe Geologique de France* 176(2) 135-150.
- Handy, C.E.S., E.G. Handy and M.K. Pukui. 1972. Native planters in Old Hawai'i: Their life, lore, and environment. *Bishop Museum Bulletin* 233. Honolulu: Bishop Museum Press.
- Harbottel-Boyd, J. 1886. Report to the Minister of Interior relative to the Annexation of the above or Mokupāpapa to the Hawaiian Islands. Interior Dept. of Land, Sept. 1886, Box 87. Honolulu: Hawai'i State Archives.
- Harrison, D. and A. Craig, 1993: Ocean model studies of upper-ocean variability at 0°, 160°W during the 1982–1983 ENSO: Local and remotely forced response. *Journal of Physical Oceanography* 23: 425–451.
- Harrison, C.S., T.S. Hida and M.P. Seki. 1983. Hawaiian seabird feeding ecology. *Wildlife Monographs* 85:1-71.
- Harvell, C., K. Kim, J. Burkholder, R. Colwell, P. Epstein, D. Grimes, E. Hofmann, E. Lipp, A. Osterhaus, R. Over-Street, J. Porter, G. Smith and G. Vasta. 1999. Emerging marine diseases\_Climat links and anthropogenic factors. *Science* 285: 1505-1510.
- Hau'ofa, Epeli. 1994. *Our Sea of Islands*. The Contemporary Pacific.
- Hawaii Administrative Rules. 2007. Title 13, Department of Land and Natural Resources. Subtitle 4.IV, Fisheries Resource Management. Chapter 76.2, Ballast Water Management.
- Hawaii Admissions Act. 8 March 1959. Pub. L. 86-3, 73 Stat. 4 § 2.
- Hawai'i Biodiversity and Mapping Program. 2007. Program database. Honolulu.
- Hawaii Ceded Lands Act, 1900. Pub. L. 103-150.
- Hawai'i Endangered Species. Hawaii Revised Statutes, Chapters 183D and 195D, State of Hawai'i.
- Hawai'i Environmental Impact Statements. Hawaii Revised Statutes. Chapter 343, State of Hawai'i.
- Hawai'i Fishing Adventures and Charters (HFAC). 2004. Hawai'i Fishing Adventures and Charters. Available from the Internet. URL: <http://www.sportfishhawaii.com/midwayreports.htm>.
- Hawaii Organic Act of 30 April 1900, c339, 31 Stat.141 § 2.
- Hawai'i State Constitution, Article XI, §§ 1,2,6,9; and Article XII § 7.
- Helber Hastert & Fee 1995. *Cultural Resources Management Plan for Midway Islands*. Submitted to the Department of the Navy, Pacific Division, Naval Facilities Engineering Command, Pearl Harbor, Hawai'i.
- Henderson, J.R. 1984a. Encounters of Hawaiian Monk Seals with fishing gear at Lisianski Island, 1982. *Marine Fisheries Review* 46(3):59-61.



- . 1984b. A Review of Hawaiian Monk Seal entanglements in marine debris. In: *Proceedings of the Workshop of the Fate and Impact of Marine Debris*, 26-29 November 1984. Shomura, R. S. and H. O. Yoshida, eds., pp. 326-335. NOAA-TM-NMFS-SWFSC-54.
- . 1990. Recent entanglements of Hawaiian Monk Seals in marine debris. In: *Proceedings of the Second International Conference on Marine Debris, 2-7 April, 1989*. Shomura, R. S. and M. L. Godfrey, eds., pp. 540-553. NOAA-TM-NMFS-SWFSC-154.
- . 2001. A pre- and post- MARPOL Annex V summary of Hawaiian Monk Seal entanglements and marine debris accumulation in the Northwestern Hawaiian Islands, 1982-1998. *Marine Pollution Bulletin* 42 (7): 584-589.
- Henry, Teuira. 1928. Ancient Tahiti. *Bernice P. Bishop Museum Bulletin* 48: 336-340.
- Hepburn Board Report. Jan 3, 1939. House Doc No. 65, 76th Congress, 1st Session, Report on the Need of additional Naval bases to defend the coast of the United States, Its Territories and Possessions.
- Herbst, L.H. 1995. Green turtle fibropapillomatosis: Challenges to assessing the role of environmental cofactors. *Environmental Health Perspectives* 103 (Supp.4): 27-30.
- Hilborn, R. 2004. Ecosystem-based fisheries management: the carrot or the stick? *Marine Ecological Progress Series* 274: 275-278.
- Hillary, A., M. Kokkonen and L. Max, eds. 2003. *Proceedings of the World Heritage Marine Biodiversity Workshop*. Paris: UNESCO World Heritage Center. 92 pp.
- Hoeke, R., R. Brainard, R. Moffitt and M. Merrifield. 2006. The role of oceanographic conditions and reef morphology in the 2002 coral bleaching event in the Northwestern Hawaiian Islands. *Atoll Research Bulletin* 543: 489-503.
- Hoegh-Guldberg, O. 2005. Low coral cover in a high-CO2 world. *Journal of Geophysical Research* 110: C09S06, doi:10.1029/2004JC002528.
- Holling, C. S. 1996. Surprise for science, resilience for ecosystems, and incentives for people. *Ecological Applications* 6(3): 733-735.
- Hope, B., S. Scantolini, E. Titus and J. Cotter. 1997. Distribution patterns of polychlorinated biphenyl congeners in water, sediment and biota from Midway Atoll (North Pacific Ocean). *Marine Pollution Bulletin* 34(7): 548-563.
- Howe, K.R. 2007. *Vaka Moana, Voyages of the ancestors: The discovery and settlement of the Pacific*. Honolulu: University of Hawaii Press.
- Hoyt, E. 2005. *Marine Protected Areas for Whales, Dolphins and Porpoises*. London and Springfield, VA: Earthscan. 516 pp.
- Hubbell, T. 1976. The Biology of Islands. In: *Natural History of the Hawaiian Islands: Selected Readings*. Allison Kay, ed., pp 385-395. Honolulu, HI: University of Hawai'i Press.
- Hughes T.P., D.R. Bellwood, C. Folke, R.S. Steneck and J. Wilson. 2005. New paradigms for supporting the resilience of marine ecosystems. *Trends in Ecology and Evolution* 20(7):380-386.
- Hui, C.A. and W.N. Beyer. 1998. Sediment ingestion of two sympatric shorebird species. *Science of the Total Environment* 224 (1998): 227-233.
- Hunt, T.L. 1992. *Prehistoric subsistence and Paleo-environmental change on the island of Nihoa. Research proposal for the Hawaiian Islands National Wildlife Refuge, Northwestern Hawaiian Islands*. Honolulu, HI: United States Fish and Wildlife Service.
- Ilett, A., R. Aiello, M. Power, C. Recchia and L. Saunders. 2000. The Great Barrier Reef World Heritage Area - Ecotourism in the world's largest marine protected area. In:

- Best Practice Ecotourism in Queensland*. Charters, T. and K. Law, eds., pp. 65-80. Brisbane, Queensland.
- Ingraham, W.J. Jr. and C.C. Ebbesmeyer. 2001. Surface current concentration of floating marine debris in the North Pacific Ocean: 12-year OSCURS model experiments. In: *Proceedings of the International Conference on Derelict Fishing Gear and the Ocean Environment, 2001*. Honolulu: Hawaiian Islands Humpback Whale National Marine Sanctuary publication.
- International Maritime Organization (IMO). 1997. *Guidelines for the control and management of ships' ballast water to minimize the transfer of harmful aquatic organisms and pathogens*. London: International Maritime Organization. 16 pp.
- . 2001. International Convention on the Control of Harmful Anti-fouling Systems on Ships (AFS): Adopted 5 October 2001. [www.imo.org/Conventions](http://www.imo.org/Conventions).
- IPPC (Intergovernmental Panel on Climate Change). 2007. Climate Change 2007: The Physical Science Basis. In: *Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Solomon, S, D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.). Cambridge University Press, Cambridge, United Kingdom and New York, NY. 996 pp.
- Irwin, G.J. 1992. *The Prehistoric Exploration and Colonisation of the Pacific*. United Kingdom: Cambridge University Press.
- . 1998. The colonization of the Pacific Plate: Chronological, navigational and social issues. *Journal of the Polynesian Society* 107:111-143.
- Itano, D.G. and K.N. Holland. 2000. Movement and vulnerability of bigeye (*Thunnus obesus*) and yellowfin tuna (*Thunnus albacares*) in relation to FADs and natural aggregation points. *Aquatic Living Resources* 13: 213\_223.
- Itano, D.G. 2001. The Reproductive biology of yellowfin tuna (*Thunnus albacares*) in Hawaiian waters and the Western Tropical Pacific Ocean: Project summary. SOEST Publication 00-01, JIMAR Contribution 00-328. Honolulu: University of Hawai'i. 69 pp.
- Jaques, D.L. and C. Strong. 2002. Disturbance of brown pelicans at communal roosts in Southern and Central California. Prepared for the American Trader Trustee Council, California Department of Fish and Game, U.S. Fish and Wildlife Service and National Oceanic and Atmospheric Administration.
- Jennings, S., S.S. Marshall and N.V.C. Polunin. 1996. Seychelles' marine protected areas: comparative structure and status of reef fish communities. *Biological Conservation* 75: 201-209.
- Jennings, S. and N.V.C. Polunin. 1997. Impacts of predator depletion by fishing on the biomass and diversity of non-target reef fish communities. *Coral Reefs* 16: 71-82.
- Johannes, R.E. 1981. *Words of the Lagoon: Fishing and marine lore in the Palau District of Micronesia*. Berkeley: University of California Press.
- Johns, G.M., V.R. Leeworthy, F.W. Bell and M.A. Bonn. 2001. Socioeconomic study of reefs in southeast Florida: Hazen & Sawyer Environmental Engineers and Scientists in association with Florida State University and the National Oceanic and Atmospheric Administration.
- Johnson, Kevin. 2002. *Geochemical compositions of volcanic rocks and rock artifacts from Nihoa and Necker Islands, Northwestern Hawaiian Islands*. Honolulu, HI: Bishop Museum, Unpublished Manuscript.
- Johnson, K.T.M. 2004. Geology. In: *Natural History of Nihoa and Necker Islands*. Evenhuis, N.L and L.G. Eldredge, eds. Honolulu, Hawai'i: Bishop Museum Press.
- Johnson, Rubellite Kawena. 1981. *Kumulipo: Hawaiian Hymn of Creation*, Vol. 1. Honolulu, HI: Topgallant Publishing Co.



- Johnston, D.W., M. E. Chapla, L.E. Williams and D.K. Mattila. 2007. Identification of humpback whale *Megaptera novaeangliae* wintering habitat in the Northwestern Hawaiian Islands using spatial habitat modeling. *Endangered Species Research* 3: 249–257.
- Juvie, Sonia. P. and James O. Juvie. 1998. *Atlas of Hawai'i*, 3rd Edition. Honolulu, HI: University of Hawai'i Press.
- Kaho'olawe Island Reserve Commission (KIRK). 2004. Kaho'olawe Island Reserve Commission Strategic Plan 2004-2008, May.
- Kaly, U.L. and G.P. Jones. 1994. Test of the effect of disturbance on ciguatera in Tuvalu. *Memoirs of the Queensland Museum Brisbane* 34: 523-532.
- Kamakau, S. 1976. Na Hana o ka Po'e Kahiko [The works of the people of old]. *Bernice P. Bishop Museum Special Publication* 61. Honolulu: Bishop Museum Press.
- Kame'eleihiwa, Lilikalā. 1992. *Native land and foreign desires: Pehea lā E pono ai?* Honolulu: Bishop Museum Press.
- Kame'eleihiwa, Lilikalā. 2007. Traditional knowledge of indigenous peoples in Hawai'i, and in Hawai'i-Nui-Akea. *HWST 270 Reader Hawaiian Mythology* Spring 2008: 86-94.
- Kanahele, Pualani Kanaka'ole. 1997. Forward. In: *The Kumulipo: An Hawaiian creation myth*. Kimo Campbell, ed. Honolulu: Pueo Press.
- Karczmarski, L., B. W\_rsig, G. Gailey, K.W. Larson and C. Vanderlip. 2005. Spinner dolphins in a remote Hawaiian atoll: social grouping and population structure. *Behavioral Ecology* 16(4): 675-685.
- Karr, J.R. and D.R. Dudley. 1981. Ecological perspective on water quality goals. *Journal of Environmental Management* 5:55-68.
- Kaunamano. 1862. Ka Mo'olelo no Aukelenuiaiku. Hōkū o ka Pakipika, 6 Nov.-18 Dec.
- Kawamoto, K. and S. Pooley. 2000. *Annual Report of the 1999 Western Pacific Lobster Fishery*, Preliminary Draft. Southwest Fisheries Science Center, Honolulu Laboratory, NMFS, NOAA.
- Kay, E. A. 1979. Hawaiian Marine Shells. *Reef and Shore Fauna of Hawaii*, Section 4: Mollusca. Bernice P. Bishop Museum Special Publication 64 (4): i–xviii + 1–653.
- Kay, J.J. 1991. A non-equilibrium thermodynamic framework for discussing ecosystem integrity. *Journal of Environmental Management* 15 (4): 483-495.
- Keenan, E.E., R.E. Brainard and L.V. Basch. 2006. Historical and present status of the pearl oyster, *Pinctada margaritifera*, at Pearl and Hermes Atoll, Northwestern Hawaiian Islands. *Atoll Research Bulletin* 543:333-344.
- Kelley, C., R. Moffitt and J.R. Smith. 2006. Mega- to macro-scale classification and description of bottomfish essential fish habitat on four banks in the Northwestern Hawaiian Islands. *Atoll Research Bulletin* 543:319-332.
- Kelley, C. and W. Ikehara. 2006. The impacts of bottom fishing on Raita and West St. Rogatien Banks in the Northwestern Hawaiian Islands. *Atoll Research Bulletin* 543: 305-318.
- Kelly, M. 1989. Dynamics of production intensification in pre-contact Hawai'i. In: *What's New? A closer look at process of innovation*. London.
- Kenyon, J.C. and R.E. Brainard. 2006. Second recorded episode of mass coral bleaching in the Northwestern Hawaiian Islands. *Atoll Research Bulletin* 543: 505-523.
- Kenyon, J.C., R.E. Brainard, G.S. Aeby, J.D. Chojnacki, M.J. Dunlap and C.B. Wilkinson. In press. Mass coral bleaching on high latitude reefs in the Hawaiian Archipelago. In: *Proceedings of the 10th International Coral Reef Symposium*, Okinawa.

- Kenyon, K.W. 1972. Man versus the monk seal. *Journal of Mammalogy* 58: 97-98.
- Kerkvliet, J. and C. Nowell. 2000. Tools for recreation management in parks: the case of the Greater Yellowstone's blue-ribbon fishery. *Ecological Economics* 34 (1): 89-100.
- Kikiloi, K. 2003. A new synthesis in oceanic domestication: the symbiotic development of loko i'a aquaculture in pre-contact Oceania. In: *SPC Traditional Resource Management and Knowledge Information Bulletin* 15. Noumea: South Pacific Commission.
- Kikiloi, Kekuewa and Michael Graves. 2005. *Reconnecting with Ancestral Islands: The Application of New Methods in Understanding the Timing and Settlement of Nihoa, a Remote Island in the Northwestern Region of Hawai'i*. Proposal for Archaeological Research. Honolulu, HI: University of Hawai'i.
- . 2005. *Preliminary Reconnaissance Report for the Archaeological Sites on Nihoa Island, Hawai'i*. Prepared for United States Fish and Wildlife Service. Honolulu, HI: University of Hawai'i.
- Kikuchi, W. 1976. Ancient Hawaiian Fishponds. *Science* (193): 295-299.
- King, W. B. 1970. The trade wind zone oceanography pilot study. Part VII: observations of seabirds March 1964 to June 1965. *U.S. Fish and Wildlife Service Spec. Sci. Rep. - Fish*. 586. 136p.
- Kingdom of Hawaii. 1857. Resolution 1. Reaffirmation of Laysan and Lisianski Islands. Privy Council Minute Books, Series 421, vol. 10. Hawai'i State Archives. Honolulu.
- Kirch, P. and W. D. Sharp. 2005a. Coral dating of the imposition of ritual control hierarchy in precontact Hawai'i. *Science* 307 (5706): 102-104.
- . 2005b. *Materials and methods*. American Association for the Advancement of Science. Accessed On: March 2007. [www.sciencemag.org/cgi/content/full/307/5706/102/DC1](http://www.sciencemag.org/cgi/content/full/307/5706/102/DC1)
- Kirch, P.V. 1984. *The evolution of Polynesian Chiefdoms*. Cambridge: Cambridge University Press.
- . 1988. Polynesia mystery islands. *Archaeology* 41(3): 26.
- . 2004a. Temple sites in Kahikinui, Maui, Hawaiian Islands: Their orientations decoded. *Antiquity* 78: 102–114.
- . 2004b. Solstice observation in Mangareva, French Polynesia: New perspectives from archaeology. *Archaeoastronomy* 18: 1–19.
- Kirch, P.V. and R.G. Green. 1987. History, phylogeny and evolution in Polynesia. *Current Anthropology* 28:431-443, 452-456.
- . 2001. *Hawaiki, Ancestral Polynesia*. Cambridge: Cambridge University Press.
- Kirch, P.V. and J.G. Kahn. 2007. Advances in Polynesian Prehistory: A review and assessment of the past decade (1993-2004). Springer Science and Business Media LLC.
- Kuffner, I.B. and V. Paul. 2001. Effects of nitrate, phosphate and iron on the growth of macroalgae and benthic cyanobacteria from Cocos lagoon, Guam. *Marine Ecology Progress Series* 222:63-72.
- Kure Atoll, part of the State Seabird Sanctuary. Hawaii Revised Statutes Chapter 125, State of Hawai'i.
- Kushlan, J.A., M.J. Steinkamp, K.C. Parsons, J. Capp, M. Acosta Cruz, M. Coulter, I. Davidson, L. Dickson, N. Edelson, R. Elliot, R.M. Erwin, S. Hatch, S. Kress, R. Milko, S. Miller, K. Mills, R. Paul, R. Phillips, J.E. Saliva, B. Sydeman, J. Trapp, J. Wheeler and K. Wohl. 2002. *Waterbird Conservation for the Americas: The North American Waterbird Conservation Plan, Version 1*. Washington, D.C. 78 pp.
- Laboute, P. and B. Richer de Forges. 2004. In: *Lagons et récifs de Nouvelle-Calédonie*. Catherine Ledru, ed. Nouméa. 520 pp.



- Lacey Act of 1900, as amended. 18 U.S.C. 42, 16 U.S.C. 3371.
- Ladd, Harry, S. Joshua, I. Tracey, Jr. and M. Grant Gross. 1976. Drilling on Midway Atoll, Hawai'i. In: *Natural History of the Hawaiian Islands: Selected Readings*. Allison Kay, ed., pp 27-38. Honolulu, HI: University of Hawai'i Press.
- Lammers, M.O., R.E. Brainard and W.W.L. Lau. 2006. Diel trends in the mesopelagic biomass community of the Northwestern Hawaiian Islands observed acoustically. *Atoll Research Bulletin* 543: 391-408.
- Lehane, L. and R.J. Lewis. 2000. Ciguatera: recent advances but the risk remains. *International Journal of Food Microbiology* 61(2-3): 91-125.
- Levington, J.S. 1995. *Marine biology. Function, biodiversity, ecology*. New York: Oxford University Press.
- Lewis, David. 1979. *We the Navigators the Ancient Art of Landfinding in the Pacific*. Honolulu, HI: University of Hawai'i Press.
- Liholiho, A. 16 March 1856. Reaffirmation of Nihoa Island. Circular of the Kingdom of Hawai'i.
- Liller, W. 2000. Necker Island, Hawai'i: Astronomical implications of an island located on the Tropic of Cancer. *Rapa Nui Journal* 14 (4).
- Limburg, K.E., S.A. Levin and C.C. Harwell. 1986. Ecology and estuarine impact assessment: lesson learned from the Hudson River (USA) and other estuarine experiences. *Journal of Environmental Management* 22: 255-280.
- Liotard, J.M. and H.G. Barszczus. 1989. Génèse des foidites phonolitiques de Tubuai (archipel des Australes, océan Pacifique Sud): intervention d'un magma d'affinité carbonatitique. *Comptes rendus de l'Académie des sciences. Série 2, Mécanique, Physique, Chimie, Sciences de l'univers, Sciences de la Terre* 308(14) 1261-1266.
- Longhurst, A.R. and D. Pauly. 1987. *Ecology of Tropical Oceans*. San Diego: Academic Press, Inc.
- Lonsdale P. 1988. Structural pattern of the Galapagos microplate and evolution of the Galapagos triple junctions. *Journal of Geophysical Research* 93(B11): 13551-13574.
- Lotze, H.K. 2004. Repetitive history of resource depletion and mismanagement: the need for a shift in perspective. *Marine Ecological Progress Series* 274: 282-285.
- Lowe, C.G., B.M. Wetherbee and C.G. Meyer . 2006. Using acoustic telemetry monitoring techniques to quantify movement patterns and site fidelity of sharks and giant trevally around French Frigate Shoals and Midway Atoll. *Atoll Research Bulletin* 543: 281-304.
- Ludwig, J.P., C.L. Summer, H.J. Auman, V. Gauger, D. Bromley, J.P. Giesy, R. Rolland and T. Colborn. 1997. The roles of organochlorine contaminants and fisheries bycatch in recent population changes of Black-footed and Laysan Albatrosses in the North Pacific Ocean. In: *Albatross Biology and Conservation*. Robinson, G. and R. Gales, eds. Chipping Norton: Surrey Beatty & Sons.
- Lydgate, J.M. 1914. The vanishing Kuleana. In: *Hawaiian Almanac and Annual for 1915*. Thrum, T.G., ed. pp. 103-109. Honolulu: Thos G. Thrum.
- Mac, M.J., A. Opler, C.E.P. Haecker and P.D. Doran 1998. Status and Trends of the Nation's Biological Resources. Volume 2. U.S. Department of Interior, pp 437-964. Reston, VA: U.S. Geological Survey.
- Macintyre, I.G., ed. 2006. Northwestern Hawaiian Islands Third Scientific Symposium. November 2-4, 2004. Atoll Research Bulletin 543. <http://www.botany.hawaii.edu/faculty/duffy/arb/543/lrg.jpg>
- Mackenzie, M.K. and B. Kaiama. 2003. Native Hawaiian claims to the Lands and Natural Resources of the Northwestern Hawaiian Islands. Report to Office of Hawaiian Affairs. Honolulu.

- Magnuson-Stevens Fishery Conservation and Management Act, 1976, as amended. Pub. L. 94-265. 16 U.S.C. § 1801 *et seq.*
- Malo, D. 1951. Hawaiian Antiquities: Mo'olelo Hawai'i, translated by N. B. Emerson 1898. *Bernice Pauahi Bishop Museum Publication 2*. 2nd ed. Honolulu: Bishop Museum Press.
- Maly, K. 2003. Ka Hana Lawai'a a me na ko'a o na kai 'ewalu: A history of fishing practices and marine fisheries of the Hawaiian Islands. Kumu Pono Associates LLC. Prepared for The Nature Conservancy. Honolulu.
- Manning, R.E. and S.R. Lawson. 2002. Carrying capacity as "informed judgement": The values of science and the science values. *Environmental Management* 30 (2): 157-168.
- Mantua, N.J., S.R. Hare, Y. Zhang, J.M. Wallace and R.C. Francis. 1997. A Pacific interdecadal climate oscillation with impacts on salmon production. *Bulletin of the American Meteorological Society* 78: 1069-1079.
- Manu, M. 1899. He moolelo kaaoo Hawaii no ke kaaoo nui weliweli mawaena o Pele-Keahialoa me Waka-Keakaikawai. He mau kupua wahine kaaeeaa. *Ka Loea Kālai'āina*, May 13-December 30.
- Maragos, J.E. and P.L. Jokiel. 1986. Reef corals of Johnston Atoll: One of the world's most isolated reefs. *Coral Reefs* 4:141-150.
- Maragos, J.E. 1995. Revised checklist of extant shallow-water corals from Hawaii (Cnidaria: Anthozoa: Scleractinia). *Bishop Museum Occasional Papers* 42: 54-55.
- Maragos J.E., M.P. Crosby and J.W. McManus. 1996. Coral reefs and biodiversity: a critical and threatened relationship. *Oceanography* 9(1): 83-99.
- Maragos, J.E. and P.F. Holthus. 1999. A status report on the coral reefs of the insular tropical Pacific. In: *Marine and Coastal Biodiversity in the Tropical Island Pacific Region, Vol. 2, Population, Development, and Conservation Priorities*. L.G. Eldredge, J.E. Maragos, P.F. Holthus and H.F. Takeuchi, eds., pp 47-118. Program on Environment, East-West Center, and Pacific Science Association c/o Bishop Museum, Honolulu.
- Maragos, J.E. and D. Gulko, eds. 2002. Coral Reef Ecosystems of the Northwestern Hawaiian Islands: Interim Results Emphasizing the 2000 Surveys. Report to the U.S. Fish and Wildlife Service and the State of Hawaii Department of Land and Natural Resources. Honolulu.
- Maragos, J.E., D. Potts, G. Aeby, D. Gulko, J. Kenyon, D. Siciliano and D. VanRavenswaay. 2004. 2000-2002 rapid ecological assessment of corals on the shallow reefs of the Northwestern Hawaiian Islands. Part 1: Species and distribution. *Pacific Science* 58(2): 211-230.
- Maragos, J., J. Miller, J. Gove, E. DeMartini, A.M. Friedlander, S. Godwin, C. Musburger, M. Timmers, R. Tsuda, P. Vroom, E. Flint, E. Lundblad, J. Weiss, P. Avotte, E. Sala, S. Sandin, S. McTee, T. Wass, D. Siciliano, R. Brainard, D. Obura, S. Ferguson and B. Mundy. 2008. U.S. coral reefs in the Line and Phoenix Islands, Central Pacific Ocean: History, Geology, Oceanography and Biology. In: *Coral Reefs of the USA*. Riegl, B. and R.E. Dodge, eds. pp 595-641. Springer-Verlag.
- Marine Mammal Commission. 2005. *Annual Report to Congress 2004*. Bethesda, MD.
- Marion, J. L. and C.S. Rogers. 1994. The applicability of terrestrial visitor impact management strategies to the protection of coral reefs. *Ocean Coastal Management* 22: 153-163.
- MARPOL (Marine Pollution Convention), 1973/78
- Maté, J.L. 2003. Corals and coral reefs of the Pacific coast of Panama. In: *Latin American Coral Reefs*. J. Cortés, ed., pp. 387-417. Amsterdam, the Netherlands: Elsevier Science B.V.



- Matsumura, S. and K. Nasu. 1997. Distribution of floating debris in the North Pacific Ocean: sighting surveys 1986–1991. In: *Marine Debris: Sources, Impacts and Solutions*. J. Coe and D. Rogers, Eds., pp. 15. New York: Springer-Verlag.
- Maury R.C., M.el Azzouzi, J.M. Liotard, G. Guille, H.G. Barszczus, C. Chauvel, C. Diraison, C. Dupuy, P. Vidal and R. Brousse. 1994. Geology and petrology of Tubuai (Austral Islands, French Polynesia). *Comptes rendus de l'Académie des sciences. Série 2. Sciences de la terre et des planètes* 318(10) 1341-1347.
- McArdle, D. 1997. *California Marine Protected Areas*. California Sea Grant College System. La Jolla, CA.
- McCoy, M.D. 2008. Life outside the temple: Reconstructing traditional Hawaiian ritual and religion through new studies in ritualized practice. In: *Religion, Archaeology, and the Material World*. L. Fogelin, ed. pp. 261-278. Carbondale: Southern Illinois Carbondale, Center for Archaeological Investigations.
- McDermid, K. and I.A. Abbott. 2006. Deepwater marine plants from the Northwestern Hawaiian Islands: New perspectives on biogeography. *Atoll Research Bulletin* 543:525-532.
- McLeod, K.L., J. Lubchenco, S.R. Palumbi and A.A. Rosenberg. 2005. Scientific Consensus Statement on Marine Ecosystem-Based Management. Signed by 219 academic scientists and policy experts with relevant expertise and published by the Communication Partnership for Science and the Sea. Available online: <http://compassonline.org/?q=EBM>
- Menard, H.M. and Edwin L. Hamilton. 1976. Paleogeography of the Tropical Pacific. In: *Natural History of the Hawaiian Islands: Selected Readings*. Allison Kay, ed., pp 5-26. Honolulu, HI: University of Hawai'i Press.
- Meyer C.G., Y.P. Papastamatiou and K.N. Holland. 2007a. Seasonal, diel and tidal movements of green jobfish (*Aprion virescens*, *Lutjanidae*) at remote Hawaiian atolls: Implications for marine protected area design. *Marine Biology* 151: 2133-2143.
- . 2007b. Seasonal and diel movements of giant trevally (*Caranx ignobilis*) at remote Hawaiian atolls: implications for the design of marine protected areas. *Marine Ecology Progress Series* 333: 13-25.
- Miao, X.S., C. Swenson, K. Yanagihara and Q.X. Li. 2000a. Polychlorinated biphenyls and metals in marine species from French Frigate Shoals, North Pacific Ocean. *Archives of Environmental Contamination and Toxicology* 38: 464-471.
- Miao, X. S., C. Swenson, L.A. Woodward and Q.X. Li. 2000b. Distribution of polychlorinated biphenyls in marine species from French Frigate Shoals, North Pacific Ocean. *Science of the Total Environment* 257 (2000): 17-28.
- Miao, X.S., L.A. Woodward, C. Swenson and Q.X. Li. 2001. Comparative concentrations of metals in marine species from French Frigate Shoals, North Pacific Ocean. *Marine Pollution Bulletin* 42 (11): 1049-1054.
- Michener, W.K., E.R. Blood, K.L. Bildstein, M.M. Brinson and L.R. Gardner. 1997. Climate change, hurricanes and tropical storms and rising sea level in coastal wetlands. *Ecological Applications* 7: 770-801.
- Midway Atoll National Wildlife Refuge. 1996. Executive Order No. 13022. October 31 (61 FR 56875).
- Miller, J., B. Applegate, J. R. Smith and S. Vogt. 2004. *Bathymetric Atlas of the Northwestern Hawaiian Islands*. Draft version. Honolulu, HI: NOAA, Pacific Islands Fisheries Science Center, Coral Reef Ecosystem Division.
- Miller, J.E., S. Vogt, R. Hoeke, S. Ferguson, B. Applegate, J.R. Smith and M. Parke. 2006. Bathymetric atlas and website for the northwestern Hawaiian Islands. *Atoll Research Bulletin* 543: 409-422.

- Moffitt, R.B., J. Johnson and G. DiNardo. 2006. Spatiotemporal analysis of lobster trap catches: impacts of trap fishing on community structure. *Atoll Research Bulletin* 543: 217-236.
- Mooney, H.A. and E.E. Cleland. 2001. The evolutionary impact of invasive species. *Proceedings of the National Academy of Sciences* 98 (10): 5446–5451.
- Morgan W.J. 1971. Convection plumes in the lower mantle. *Nature* 230: 42-43.
- . 1972. Deep mantle convection plumes and plate motions. *AAPG Bulletin* 56(2): 203-213.
- Morin, M., S. Conant and P. Conant. 1997. Laysan and Nihoa Millerbird (*Acrocephalus familiaris*). In: *The Birds of North America* 302. A. Poole and F. Gill, eds. Philadelphia, PA: The Academy of Natural Sciences and the American Ornithologists' Union.
- Morin, M. and S. Conant. 1998. Laysan Island Ecosystem Restoration Plan (draft). Honolulu: University of Hawaii at Manoa, Dept. of Zoology. 111pp.
- . 2007. Summary of Scoping, Evaluation, and Recommendations for Northwestern Hawaiian Islands Passerines' Translocation Sites. Honolulu, Hawaii: Report to U.S. Fish and Wildlife Service. 129 pp.
- Morishige, C., M.J. Donohue, E. Flint, C. Swenson and C. Woolaway. 2007. Factors affecting marine debris deposition at French Frigate Shoals, Northwestern Hawaiian Islands, 1990–2006. *Marine Pollution Bulletin* 54: 1162-1169.
- Morison, S.E. 1950. History of United States Naval Operations in World War II. v4. Coral Sea, Midway, and Submarine Actions, May 1942-August 1942, University of Illinois Press.
- Moulton, D. W. and A. P. Marshall. 1996. Laysan duck. In: *The Birds of North America: Life Histories for the 21st Century* 242. pp 1-20.
- Mullon, C., P. Curry and L. Shannon. 2004. Viability model of trophic interactions in marine ecosystems. *Natural Resource Modeling* 17: 27-58.
- Myers, R.A. and B. Worm. 2003. Rapid worldwide depletion of predatory fish communities. *Nature* 423:280-283.
- NAS Barbers Point. 1962. U.S. Naval Air Station, Barbers Point: Base Guide.
- National Environmental Policy Act. 1969, as amended. Pub. L. 91-190, 42 U.S.C. 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, 40 CFR Parts 1500-1508.
- National Geographic. 1999. *National Geographic Atlas of the World 7th Edition*. Washington D.C.: National Geographic. 280 pp.
- National Historic Preservation Act. 1966. 16 U.S.C. 470.
- National Invasive Species Act of 1996. Public Law 104-332.
- NMFS (National Marine Fisheries Service). 2002. Endangered Species Act Section 7 consultation on the Fishery Management Plan for the bottomfish and seamount groundfish fisheries in the Western Pacific Region. Silver Spring, MD.
- . 2003. Stock Assessment Report, Hawaiian Monk Seal (*Monachus schauinslandi*). URL: [www.nmfs.noaa.gov/pr/PR2/Stock\\_Assessment\\_Program/individual\\_sars.html](http://www.nmfs.noaa.gov/pr/PR2/Stock_Assessment_Program/individual_sars.html)
- . 2004a. Stock Assessment Report: Hawaiian Monk Seal (*Monachus schauinslandi*). URL: [www.nmfs.noaa.gov/pr/PR2/Stock\\_Assessment\\_Program/individual\\_sars.html](http://www.nmfs.noaa.gov/pr/PR2/Stock_Assessment_Program/individual_sars.html)
- . 2004b. Assessment of the 2004 marine debris field season: Multi-agency marine debris program synopsis. Presented by NOAA Fisheries Coral Reef Ecosystem Division, Marine Debris Program, Honolulu Laboratory.



- NOAA. 2003. Atlas of the shallow-water benthic habitats of the NWHI (Draft). National Ocean Service. Silver Spring, MD. 160 pp.
- . 2004. Proposed Northwestern Hawaiian Islands National Marine Sanctuary: Advice and recommendations on development of draft fishing regulations under National Marine Sanctuaries Act Section 304(a)(5). Honolulu, HI and Silver Spring, MD.
- . 2005a. *Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve Final Reserve Operations Plan*. Honolulu, HI and Silver Spring, MD.
- . 2005b. *Our National Marine Sanctuaries: Strategic Plan 2005-2015*. National Ocean Service. Silver Spring, MD.
- . 2006. *State of the Reserve 2000-2005*. Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve. National Marine Sanctuary Program. Honolulu, HI and Silver Spring, MD.
- NOAA (National Oceanic and Atmospheric Administration) Fisheries, 1991. Humpback Whale Recovery Plan, Silver Spring, MD.
- . 1998. Blue Whale Recovery Plan, Silver Spring, MD.
- . 2006a. Fin Whale Recovery Plan, Silver Spring, MD.
- . 2006b. Sperm Whale Recovery Plan, Silver Spring, MD.
- . 2007. Monk Seal Recovery Plan, Silver Spring, MD.
- NOAA Fisheries and FWS (U.S. Fish and Wildlife Service). 1998a. Recovery Plan for U.S. Pacific populations of the Hawksbill Turtle (*Eretmochelys imbricata*). National Marine Fisheries Service, Silver Spring, MD.
- . 1998b. Recovery Plan for the U.S. Pacific populations of the East Pacific Green Turtle (*Chelonia mydas*). National Marine Fisheries Service, Silver Spring, MD.
- . 1998c. Recovery Plan for U.S. Pacific populations of the Loggerhead Turtle (*Caretta caretta*). National Marine Fisheries Service, Silver Spring, MD.
- . 1998d. Recovery Plan for U.S. Pacific populations of the Leatherback Turtle (*Dermochelys coriacea*). National Marine Fisheries Service, Silver Spring, MD.
- . 1998e. Recovery Plan for U.S. Pacific populations of the Olive Ridley Turtle (*Lepidochelys olivacea*). National Marine Fisheries Service, Silver Spring, MD.
- . 2007. 2007 ESA Reviews for Federally Listed Sea Turtles. <http://www.fws.gov/northflorida/SeaTurtles/2007-Reviews/2007-sea-turtle-ESA-reviews.htm>
- National Oceanic and Atmospheric Administration and U.S. Fish and Wildlife Service. 19 August 2006. Northwestern Hawaiian Islands Regulations. 50 CFR Part 404. (71 FR 51134).
- National Marine Sanctuaries Amendments Act. 2000. Pub. L. 106-513 §6 (g) (2000).
- National Wildlife Refuge Improvement Act of 1997. 1997. Pub. L. 105-57, amending 16 U.S.C. 668dd-ee.
- National Wildlife Refuge System Administration Act of 1966, as amended, 16 U.S.C. §§ 668dd-ee.
- Naughton, M. and E. Flint. 2004. Populations and conservation status of seabirds nesting in the Northwestern Hawaiian Islands. Paper read at: Northwestern Hawaiian Islands Third Scientific Symposium, Honolulu.
- Navigating Change. 2006. Navigating Change Teacher's Guide. URL: [www.hawaiianatolls.org](http://www.hawaiianatolls.org).
- Newman, A.L. 1988. Mapping and monitoring vegetation change on Laysan Island. Thesis, University of Hawai'i, Department of Geography.

- Newman, M.J.H., G.A. Paredes, E. Sala and J.B.C. Jackson. 2006. Structure of Caribbean coral reef communities across a large gradient of fish biomass. *Ecology Letters* 9: 1216-1227.
- Newman, T. Stell. 1976. Man in the Prehistoric Hawaiian Ecosystem. In: *Natural History of the Hawaiian Islands: Selected Readings*. Allison Kay, ed., pp 559-607. Honolulu, HI: University of Hawai'i Press.
- Nickerson, T. circa 1828. On the loss of the ship *Two Brothers* at French Frigate Shoals 1823. Nantucket Historical Association. Manuscript Collection 106, Folder 3.5. <http://www.nha.org/library/ms/msguide.html>
- Nishida, G. 1998. Midway Terrestrial Arthropod Survey. Final Report prepared for USFWS. Honolulu: Hawaii Biological Survey, Bishop Museum.
- . 2001. NOWRAMP 2000 Terrestrial Arthropod Report. Prepared for the USFWS, Honolulu.
- . 2002. *Hawaiian Terrestrial Arthropod Checklist, 4th Edition*. Bishop Museum Technical Report 22, pp i-iv, 1-313. Honolulu: Bishop Museum Press.
- Nolan, R.S. 1981. Shark control and the Hawaiian Monk Seal. Marine Mammal Commission PB82-201808.
- Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4701).
- Noss, R. 1995. Maintaining ecological integrity in representative reserve networks. Discussion Paper. World Wildlife Fund Canada and World Wildlife United States.
- Northwestern Hawaiian Islands. Hawaii Revised Statutes, Title 12, Chapter 171.3, State of Hawai'i.
- Northwestern Hawaiian Islands, 19 August 2006. 50 CFR Part 404.
- Northwestern Hawaiian Islands State Marine Refuge 2005, Hawaii Revised Statutes Chapters 187A-6, 188, and Hawaii Administrative Rules Title 13, Chapter 60.5. State of Hawai'i.
- O'Connor, P.J. 1999. Poaceae. In: *Manual of the Flowering Plants of Hawaii*, Bishop Museum Special Publication 97. Wagner, W.L., D.R. Herbst and S.H. Sohmer, eds. pp. 1,481-1,604. Honolulu: University of Hawaii Press and Bishop Museum Press.
- Office of Hawaiian Affairs. Hawaii Revised Statutes Chapter 10-1(b), State of Hawai'i.
- . Wahi Pana Database. [www.oha.org/index](http://www.oha.org/index).
- Ogden Environmental and Energy Services Co., Inc. January 1996. Naval Air Facility (NAF) Midway Island Site Inspection (SI) Report. As cited in U.S. Navy 2001.
- . July 1997. Remedial Investigation (RI) Report for Naval Air Facility (NAF) Midway Island, Volume I: Technical Report.
- Olsen, S.B., K. Lowry and J. Tobey. 1999. *A manual for assessing progress in coastal management*. University of Rhode Island: Coastal Resources Center.
- Overpeck, J.T., B.L. Otto-Bliesner, G.H. Miller, D.R. Muhs, R.B. Alley and J.T. Kiehl. 2006. Paleoclimatic evidence for future ice-sheet instability and rapid sea-level rise. *Science* 311: 1747-1750.
- Pandolfi, J.M., J.B.C. Jackson, N. Baron, R.H. Bradbury, H.M. Guzman, T.P. Hughes, C.V. Kappel, F. Micheli, J.C. Ogden, H.P. Possingham and E. Sala. 2005. Are U.S. coral reefs on the slippery slope to slime? *Science* 307: 1725-1727.
- Paradise of the Pacific* 1936 <http://www.janeresture.com/midway/index.htm>
- Parrish, F.A. and J.J. Polovina. 1994. Habitat thresholds and bottlenecks in production of the spiny lobster (*Palinurus marginatus*) in the Northwestern Hawaiian Islands. *Bulletin of Marine Science* 53 (3): 151-163.
- Parrish, F.A., K. Abernathy, G.J. Marshall and B.M. Buhleiert. 2002. Hawaiian monk



- seals (*Monachus schauinslandi*) foraging in deep-water coral beds. *Marine Mammal Science* 18 (1): 244–258.
- Parrish, F. and K. Abernathy. 2006. Movements of monk seals relative to ecological depth zones in the lower Northwestern Hawaiian Islands. *Atoll Research Bulletin* 543: 115-130.
- Pauly, D., J. Alder, E. Bennett, V. Christensen, P. Tyedmers and R. Watson. 2003. The Future for Fisheries. *Science* 302: 5649, 1359-1361.
- Perez, M., I.B. and C. M. Vasquez. 2000. Moluscos de la Clase Gastrópoda del Parque Nacional Coibá. Escuela de Biología. Facultad de Ciencias Naturales Exactas y Tecnología. Centro Regional Universitario de Veraguas. Santiago de Veraguas, Universidad de Panamá.
- Pew Oceans Commission. 2003. *America's Living Oceans: Charting a Course for Sea Change*. A Report to the Nation: Recommendations for a New Ocean Policy.
- Podolsky, R.H. and S.W. Kress. 1989. Factors affecting colony formation in Leach's Storm-petrel to uncolonized islands in Maine. *Auk* 106:332-336.
- . 1992. Attraction of the endangered Dark-Rumped Petrel to recorded vocalizations in the Galápagos Islands. *Condor* 94: 448-453.
- Poepoe, K., P.K. Bartram and A.M. Friedlander. 2003. The use of traditional Hawaiian knowledge in the contemporary management of marine resources. In: *Putting Fishers' Knowledge to Work Conference Proceedings*. Fisheries Centre, University of British Columbia, Vancouver, 27-30 August 2001. URL: [http://www.fisheries.ubc.ca/publications/reports/report11\\_1.php](http://www.fisheries.ubc.ca/publications/reports/report11_1.php).
- Polovina, J. 1984. Model of a coral reef ecosystem: The ECOPATH model and its application to French Frigate Shoals. *Coral Reefs* 3: 1-11.
- Polovina, J.J. and G.T. Mitchum. 1992. Variability in spiny lobster *Panulirus marginatus* recruitment and sea level in the Northwestern Hawaiian Islands. *Fisheries Bulletin* 90: 483-493.
- Polovina, J.J., G.T. Mitchum, N.E. Graham, M.G. Craig, E.E. DeMartini and E.N. Flint. 1994. Physical and biological consequences of a climate event in the central North Pacific. *Fisheries Oceanography* 3: 15-21.
- Polovina, J.J., W.R. Haight, R.B. Moffitt and F.A. Parrish. 1995. The Role of benthic habitat, oceanography, and fishing on the population dynamics of the spiny lobster (*Panulirus marginatus*) in the Hawaiian Archipelago. *Crustaceana* 68 (2): 203-212.
- Polovina, J.J., D.R. Kobayashi, D.M. Parker, M.P. Seki and G.H. Balazs. 2000. Turtles on the edge: movement of loggerhead turtles (*Caretta caretta*) along oceanic fronts, spanning longline fishing grounds in the central North Pacific, 1997-1998. *Fisheries Oceanography* 9 (1):71–82.
- Polovina, J.J., E. Howell, D.R. Kobayashi and M.P. Seki. 2001. The transition zone chlorophyll front, a dynamic global feature defining migration and forage habitat for marine resources. *Progress in Oceanography* 49:469-483.
- Polovina J.J., F. Chai, E.A. Howell, D.R. Kobayashi, L. Shi and Y. Chao. 2008. Ecosystem dynamics at a productivity gradient: A study of the lower trophic dynamics around the northern atolls in the Hawaiian Archipelago. *Progress in Oceanography* 77(2-3): 217-224.
- Polynesian Voyaging Society, <http://pvs.kcc.hawaii.edu/migrationspart1.html>. December 3, 2007.
- Pomeroy, R.S., J.E. Parks and L.M. Watson. 2004. *How is your MPA doing? A Guidebook of Natural and Social Indicators for Evaluating Protected Area Management Effectiveness*. Gland, Switzerland and Cambridge, U.K: ICUN – World Conservation Union.

- Prange, G.W. 1982. *Miracle at Midway*. New York: Penguin Books.
- Pratt, H.D., P.L. Bruner and D.G. Berrett. 1987. *A Field Guide to the Birds of Hawaii and the Tropical Pacific*. Princeton, New Jersey: Princeton University Press.
- Presidential Proclamation 8031. 15 June 2006. Establishment of the Northwestern Hawaiian Islands (71 FR 36443).
- Presidential Proclamation 8112. 6 March 2007. Establishment of the Papah\_ naumoku\_kea (72 FR 10031).
- Programmatic Agreement. 1996. Programmatic agreement among the Pacific Division, Naval Facilities Engineering Command; Advisory Council on Historic Preservation; and the U.S. Fish and Wildlife Service for management of historic structures on Midway Atoll National Wildlife Refuge. Honolulu: USFWS.
- Pukui, M.K. 1983. 'Ōlelo No'eau: Hawaiian Proverbs and Poetical Sayings. *Bishop Museum Special Publication No. 71*. Honolulu: Bishop Museum Press.
- . 1997. *'Ōlelo No'eau Hawaiian Proverbs & Poetical Sayings* (Paperback). Honolulu: Bishop Museum Press.
- Pukui, M.K. and C. Handy. 1950. *The Polynesian Family System in Ka'u Hawai'i*. Wellington: Polynesian Society.
- Quackenbush, S.L., R.N. Casey, R.J. Murcek, T.A. Paul, T.M. Work, C.J. Limpus, A. Chaves, L. duToit, J. Vasconcelos, A.A. Aguirre, T.R. Spraker, J.A. Horrocks, L.A. Vermeer, G.H. Balazs and J.W. Casey. 2001. Quantitative analysis of herpesvirus sequences from normal tissue and fibropapillomas of marine turtles with real-time PCR. *Virology* 287: 105-111.
- Rainwater, I. H. 1958. Nihoa: Ancient Isle of Mystery. In: *Paradise of the Pacific*, 69 (11). pp 96-97. Honolulu, HI.
- Ralston, S., S. Cox, M. Labelle and C. Mees. 2004. Bottomfish Stock Assessment Workshop. Western Pacific Fishery Management Council, Honolulu.
- Randall, J. E., G. R. Allen and R. C. Steene. 1977. *Fishes of the Great Barrier Reef and Coral Sea*. Bathurst (Australia): Crawford House Press. 507 pp.
- Randall, J.E. 1987. Introductions of marine fishes to the Hawaiian Islands. *Bulletin of Marine Science* 41: 490-502.
- Randall, J.E., J.L. Earle, R.L. Pyle, J.D. Parrish and T. Hayes. 1993. Annotated checklist of the fishes of Midway Atoll, Northwestern Hawaiian Islands. *Pacific Science* 47: 356-400.
- Randall, John E. 2007. Reef and Shore Fishes of Hawai'i. Honolulu, HI: University of Hawai'i Press.
- Rauzon, M.J. 2001. *Isles of Refuge: Wildlife and History of the Northwestern Hawaiian Islands*. Honolulu: University of Hawai'i Press.
- Rehkemper, C. and E. Flint. 2005. Poster presentation at the Hawai'i Conservation Conference.
- Reynolds, M.H. and J.J. Citta. 2007. Postfledging survival of Laysan ducks. *Journal of Wildlife Management* 71: 383-388.
- Riley, T. J. 1982. *Report of a Reconnaissance of Archaeological Sites on Nihoa Island, Hawai'i, June 1980*. Prepared for the U. S. Fish and Wildlife Service, Honolulu, Hawai'i. Department of Anthropology Manuscript #031882 (Project 286). Honolulu, HI: Bernice Pauahi Bishop Museum.
- Roark, E.B., T.P. Guilderson, R.B. Dunbar and B.L. Ingram. 2006. Radiocarbon-based ages and growth rates of Hawaiian deep-sea corals. *Marine Ecology Progress Series* 327: 1-14.
- Rolett, B. V. (2002). Voyaging and interaction in ancient East Polynesia. *Asian Perspectives* 41: 182-194.



- Rubin, K. 2001. The Formation of the Hawaiian Islands. Accessed On: March 2007. [www.soest.hawaii.edu/GG/HCV/haw\\_formation.html](http://www.soest.hawaii.edu/GG/HCV/haw_formation.html).
- Rudd, M.A. and M.H. Tupper. 2002. The impact of the *Nassua* grouper size and abundance on scuba diver site selection and MPA economics. *Coastal Management* 30 (1): 17-23.
- Ruff, T.A. 1989. Ciguatera in the Pacific: a link with military activities. *Lancet* 28:1 (8631): 201-5.
- Seki, M. P. 2004. Transition zone. In: *North Pacific Ecosystem Status Report*. pp 201-210. British Columbia, Canada: North Pacific Marine Science Organization.
- Selkoe, K.A., B.S. Halpern and R.J. Toonen. 2008. Evaluating anthropogenic threats to the Northwestern Hawaiian Islands. *Aquatic Conservation: Marine and Freshwater Ecosystems* DOI 10.1002/aqc.961.
- Shallenberger, R.J. 1984. *Hawai'i's Birds*. Honolulu: Hawaii Audubon Society.
- . 2006. History of management in the Northwestern Hawaiian Islands. Status and conservation issues. *Atoll Research Bulletin* 543:23-32.
- Shea, E.L, G. Dolcemascolo, C.L. Anderson, A. Barnston, C.P. Guard, M.P. Hamnett, S.T. Kubota, N. Lewis, J. Loschnigg and G. Meehl. 2001. *Preparing for a Changing Climate: The potential Consequences of Climate Variability and Change*. Honolulu, Hawaii: East-West Center. 100 pp.
- Sievert, P.R. and L. Sileo. 1993. The effects of ingested plastic on growth and survival of albatross chicks. In: *The status, ecology, and conservation of marine birds of the North Pacific*. K. Vermeer, K. T. Briggs, K. H. Morgan and D. Siegal-Causey, eds., pp. 212-217. Ottawa: Canadian Wildlife Service Special Publication.
- Sileo L., P.R. Sievert and M.D. Samuel. 1990. Causes of mortality of albatross chicks at Midway Atoll. *Journal of Wildlife Diseases* 26: 329-338.
- Sissenwine, M. and S. Murawski. 2004. Moving beyond 'intelligent tinkering': advancing an ecosystem approach to fisheries. In: Perspectives on ecosystem-based approaches to the management of marine resources. *Marine Ecology Progress Series* 274: 269-303.
- Smith, A. and K.L. Jones. 2007. *Cultural Landscapes of the Pacific Islands*. Paris: ICOMOS Thematic Study.
- Smith, J.R., B. Evans, J. Miller and J. Weirich. 2003. Volcanic features in the Northwestern Hawaiian Islands revealed by SWATH mapping. *EOS Trans. AGU* 84(46), Fall Meeting Supplement, Abstract V22C-0604.
- Smith, J.R., A. Baco-Taylor, C. Kelley and E.M. Yam. 2004. Northwestern Hawaiian Island seamount surveys of deep-sea fauna in relation to geological Setting. *EOS Trans. AGU* 85(28), West Pac. Geophysical Meeting Supplement, Abstract OS12A-04.
- Smith, S.V. and R.M. Buddemeier. 1992. Global Change and coral reef ecosystems. *Annual Review of Ecology and Systematics* 23: 89-118.
- Speulda, L.A., A. Raymond and V. Parks. 1999. *Midway Atoll National Wildlife Refuge Historic Preservation Plan*. Prepared for USDI Fish and Wildlife Service, Region 1, Sherwood, Oregon.
- Spriggs, M. J. T. and A. Anderson. 1993. Late colonization of East Polynesia. In: *Antiquity*, 67. pp 200-217. Washington, D.C: Society for American Archaeology.
- Stambler, N. 1999. Coral reefs and eutrophication. *Marine Pollution* 1999: 360-361.
- Standen, R.S. 1967. An explanatory description of the sand islands of Kure, Midway, and Pearl Hermes Atolls, Hawaiian Islands. Master's Thesis, California State College at Los Angeles. 93 pp.

- Stannard, D.E. 1989. *Before the Horror: The population of Hawaii on the eve of western contact*. Honolulu: Social Science Research Institute, University of Hawai'i.
- Starr, F. and K. Martz. 1999. Botanical Survey of Midway Atoll. 1999 Update. Prepared for Midway Atoll National Wildlife Refuge, USFWS.
- Starr, F., K. Martz, and L. Loope. 2001. Botanical Inventory of Kure Atoll. Prepared for Department of Land and Natural Resources, Division of Forestry and Wildlife, Honolulu, HI.
- State of Hawai'i, U.S. Dept. of the Interior, and U.S. Dept of Commerce. 2006. Memorandum of Agreement among the State of Hawai'i Department of Land and Natural Resources, and the U.S. Department of Interior U.S. Fish and Wildlife Service, and the Department of Commerce National Oceanic and Atmospheric Administration, promoting the coordinated management of the Northwestern Hawaiian Islands. signed 8 December 2006.
- Stattersfield, A.J., M.J. Crosby, A. J. Long and D.C. Wege. 1998. *Endemic Bird Areas of the World: Priorities for Biodiversity Conservation*. Birdlife International, Birdlife Conservation Series No. 7. 860 pp.
- Stevenson, C., L.S. Katz, F. Micheli, B. Block, K.W. Heiman, C. Perle, K. Weng, R. Dunbar and J. Witting. 2006. High apex predator biomass on remote Pacific islands. *Coral Reefs* 26(1): 47-51.
- Stewart, B.S. 2004a. Foraging biogeography of Hawaiian Monk Seals in the NWHI: Relevance to considerations of marine zones for conservation and management in the NWHI Coral Reef Ecosystem. Hubbs-SeaWorld Research Institute. Technical Report 2004-354. San Diego, California.
- . 2004b. Foraging ecology of Hawaiian Monk Seals at Pearl and Hermes Reef, Northwestern Hawaiian Islands: 1997-1998. Pacific Islands Fisheries Science Center, National Marine Fisheries Service, NOAA. Honolulu.
- . 2004c. Geographic patterns of foraging dispersion of Hawaiian Monk Seals at the Northwestern Hawaiian Islands. Pacific Islands Fisheries Science Center, National Marine Fisheries Service, NOAA. Honolulu.
- Stewart, B.S. and P.K. Yochem. 2004a. Use of marine habitats by Hawaiian Monk Seals from Kure Atoll: Satellite-linked monitoring in 2001-2002. Pacific Islands Fisheries Science Center, National Marine Fisheries Service, NOAA. Honolulu.
- . 2004b. Dispersion and foraging of Hawaiian Monk Seals near Lisianski and Midway Islands: 2000-2001. Pacific Islands Fisheries Science Center, National Marine Fisheries Service, NOAA. Honolulu.
- . 2004c. Use of marine habitats by Hawaiian Monk Seals from Laysan Island: Satellite-linked monitoring in 2001-2002. Pacific Islands Fisheries Science Center, National Marine Fisheries Service, NOAA. Honolulu.
- Stimson, F. J. 1933. *Tuamotuan Religion*. Honolulu: Bishop Museum Press. Sustainable Resources Group International.
- 2004a. Fishing in the proposed Northwestern Hawaiian Islands National Marine Sanctuary. Prepared for the National Marine Sanctuary Program, National Oceanic and Atmospheric Administration. Honolulu.
- . 2004b. Results of the Fishing Discussion Group Process, Fall 2003: Fishing in the proposed Northwestern Hawaiian Islands National Marine Sanctuary. Prepared for the National Marine Sanctuary Program, National Oceanic and Atmospheric Administration. Honolulu.
- Tachera, Noelani, Tom Almnimps, Heidi Lennstrom and Guy Kaulukukui. 2002. *Evidence for Native Hawaiian Knowledge of the Northwestern Hawaiian Islands Prior to Western Contact: A Report to the Office of Hawaiian Affairs*. Honolulu, HI: Bishop Museum.



- Tava, R. and M. Keale. 1989. *Niihau: The Traditions of a Hawaiian Island*. Honolulu: Mutual Publishing.
- Terrel, Bruce. B, ed. In Press. *Fathoming the Past: Historical Context of the National Marine Sanctuaries*. Washington, D.C.: National Oceanic and Atmospheric Administration.
- Tholke, M. 2003. *Collaboration for a change: A Practitioners Guide to Environmental Nonprofit-Industry Partnerships*. Michigan Business School and School of Natural Resources and Environment: Corporate Environmental Program.
- Thrum, Thos. G, ed. 1914. *Hawaiian Almanac and Annual for 1915*. Honolulu: Thos G. Thrum.
- Tibbetts, K.A. 2006. "Teach for America" and the quality of public education in target communities. Kamehameha Schools – Research & Evaluation, 05-06:30. Honolulu.
- Time Magazine*. 1939. Wart on the Pacific. *Time Magazine*, Jan 30.
- Titcomb, M. and M.K. Pukui. 1952. Native use of fish in Hawaii. *Polynesian Society Memoir* No.29. New Plymouth, N.Z.: Avery Press, Ltd.
- Titcomb, Margaret. 1972. *Native Use of Fish in Hawai'i*. Honolulu, HI: University of Hawai'i Press.
- Titcomb, M., D.B. Fellows, M.K. Pukui and D.M. Devaney. 1978. Native use of marine invertebrates in old Hawaii. *Pacific Science* 32 (4).
- Tomich, P.Q. 1986. *Mammals in Hawai'i: A synopsis and notational bibliography*. Honolulu: Bishop Museum Press. 375 pp.
- Tripartite Agreement. 1978. Survey and assessment of the living resources of the Northwestern Hawaiian Islands. Acting Administrator, National Marine Fisheries Service; Director, U.S. Fish and Wildlife Service; Chairman, Board of Land and Natural Resources, State of Hawaii; and Member, Board of Land and Natural Resources, State of Hawaii, Approved 5/16/78, Honolulu.
- Tsuha, Kalei. 2007. Draft Report: Analysis & study of significant alignments on Kaua'i, Hā'ena Mā (Mokumanamana), Nihoa, Ka'ula, Ni'ihau & Lehua June 21-29, 2007.
- Turak, E. 2005. Reef corals of northwest Madagascar. *RAP Bulletin of Biological Assessment* 31: 26-31.
- United Nations Educational, Scientific and Cultural Organization (UNESCO). 2001. Convention on the Protection of the Underwater Cultural Heritage. [www.unesco.org/culture/laws/underwater/html\\_eng/convention.shtml](http://www.unesco.org/culture/laws/underwater/html_eng/convention.shtml) (accessed March 2007).
- UNESCO. 2005. Operational Guidelines for the Implementation of the World Heritage Convention. United Nations Educational, Scientific and Cultural Organization. Paris: World Heritage Center. URL: <http://whc.unesco.or/en/guidelines>
- USCG (U.S. Coast Guard). 1994a. Kure Atoll scrap metal dump ecological risk assessment. Final Report. Woodward-Clyde Consultants Contract No. DTCG86-93-D-633005.
- . 1994b. Kure Atoll LORAN remediation report. Enclosure (1). Research Management Consultants, Inc. for US Coast Guard Civil Engineering Unit, Honolulu, Hawaii. RMCI Project Number F170-001. RMCI, Lakewood, Colorado.
- . 2002. Remediation verification report. Remediation of contaminated soil Former USCG Loran Station, Tern Island, Hawaii. Chase Environmental Group, Inc. for US Coast Guard Civil Engineering Unit Honolulu, Contract No. DTCG86-01-C-6XA453.
- . 2003. Tern Island ecological risk assessment addendum-Bulky Dump. Technical Memorandum. CH2MHill for US Coast Guard Civil Engineering Unit Honolulu.

- U.S. Commission on Ocean Policy. 2005. *An Ocean Blueprint for the 21st Century*. Final Report, Washington D.C. 62 pp., [http://ecos.fws.gov/tess\\_public/SpeciesRecovery.do?sort=1](http://ecos.fws.gov/tess_public/SpeciesRecovery.do?sort=1)
- United States Fish and Wildlife Service. Biological Integrity, Diversity, and Environmental Health Policy. 601 FW 310.
- . Compatibility Determinations Policy. 603 FW 1 (U.S.C. 668dd-66ee and 603 FW 2).
- . in prep. Draft Pacific Islands Rat Spill Contingency Plan.
- United States Fish and Wildlife Service, National Marine Fisheries Service, Department of Land and Natural Resources. 2000. Press release. 3 October.
- United States Fish and Wildlife Service. 1984. Northwestern Hawaiian Islands Passerine Recovery Plan. Region 1, Portland, Oregon. 66pp.
- . 1998. Final Recovery Plan for Three Plant Species on Nihoa Island. Region 1, Portland, Oregon. 81 pp.
- . 1999. Recovery Plan for Multi-Island Plants. U.S. Fish and Wildlife Service, Portland, Oregon. 206 pp + appendices.
- . 2000. Draft vertebrate pest eradication and prevention plan for the Pacific Islands Ecoregion. Honolulu, HI.
- . 2002. Birds of Conservation Concern 2002. Division of Migratory Bird Management, Arlington, Virginia. 99 pp. <http://migratorybirds.fws.gov/reports/bcc2002.pdf>.
- . 2004. Draft Revised Recovery Plan for the Laysan Duck (*Anas laysanensis*). Portland, Oregon. vii + 94 pp.
- . 2005a. Regional Seabird Conservation Plan, Pacific Region. U.S. Fish and Wildlife Service, Migratory Birds and Habitat Programs, Pacific Region, Portland, Oregon.
- . 2005b. Short-tailed Albatross Draft Recovery Plan. Anchorage, AK, 62 pp., [http://ecos.fws.gov/tess\\_public/SpeciesRecovery.do?sort=1](http://ecos.fws.gov/tess_public/SpeciesRecovery.do?sort=1)
- . 2006. Continuity of Operations Plan. Honolulu, HI: Pacific Remote Islands National Wildlife Refuge Complex.
- . 2007. Tsunami Preparedness Plan. Honolulu, HI: Pacific Remote Islands National Wildlife Refuge Complex.
- U.S. Navy, Bureau of Yards and Docks. 1947. Building the Navy's Bases in World War II, 2 vols. Washington Government Printing Office.
- U.S. Navy. 1995. Technical memorandum for evaluation of remedial alternatives Naval Air Force (NAF) Midway Island. Ogden Environmental and Energy Services Co., Inc Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract No. N62742-90-D-0019 Cto. No. 0136.
- . 1996. Site Inspection (SI) Report for Naval Air Force (NAF) Midway Island. Ogden Environmental and Energy Services Co., Inc Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract No. N62742-90-D-0019 Cto No. 0136.
- . 2001. Action memorandum for time-critical removal action of abandoned tug and barge, LCM, Boiler, and PCB-contaminated marine sediment Bulky Waste Landfill, Midway Atoll. October 2001.
- Usinger, R.L. 1942. The genus *Nysius* and its allies in the Hawaiian Islands (Hemiptera, Lygaeidae, Orsillini). *Bernice P. Bishop Museum Bulletin* 173:1–167.
- Valiela, I. 1995. *Marine Ecological Processes*. New York: Springer-Verlag.
- Van Dolah, F.M. 2000. Marine algal toxins: Origins, health effects, and their increased occurrence. *Environmental Health Perspectives* 108 (Supplement 1): 133-141.
- Van Tilburg, H. 2002. Maritime cultural resources survey: Northwestern Hawaiian



Islands. Report to the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve.

———. 2003a. Kure and Midway Atoll maritime heritage survey 2003. Report to the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve.

———. 2003b. U.S. Navy shipwrecks in Hawaiian waters: an inventory of submerged Naval property. Report to Naval Historical Center (UH Grant No. UH01495).

Van Tilburg, H. and K. Gleason. In prep. Maritime heritage survey NWHI 2005. Report for the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve.

———. 2006. United States Fish and Wildlife Service Activity Report: Maritime Heritage Resources Assessment. NOAA/NOS National Marine Sanctuary Program and United States Fish and Wildlife Service SUP# 06038.

Vatter, A. 2003. Bottom longline fishing for sharks in the Northwestern Hawaiian Islands. National Marine Fisheries Service Pacific Islands Region Administrative Report ARPIR-03-01.

Vitousek, P.M. 1994. Beyond global warming: ecology and global change. *Ecology* 75: 1861-1876.

Vroom P.S., K.N. Page, K.A. Peyton and J. Kanekoa Kukea-Shultz. 2005. Spatial heterogeneity of benthic community assemblages with an emphasis on reef algae at French Frigate Shoals, Northwestern Hawaiian Islands. *Coral Reefs* 24: 574-581.

Vroom, P.S. and K.N. Page. 2006. Relative abundance of macroalgae (RAM) on Northwestern Hawaiian Island reefs. *Atoll Research Bulletin* 543: 533-548.

Waddell, J.E. and A.M. Clarke (eds). 2008. The State of Coral Reef Ecosystems of the United States and Pacific Freely Associated States: 2008. NOAA Technical

Memorandum NOS NCCOS 73. NOAA/NCCOS Center for Coastal Monitoring and Assessment's Biogeography Team. Silver Spring, MD. 569 pp.

Wagner, W.L., D. Herbst and S.H. Sohmer. 1990. *Manual of the flowering plants of Hawai'i, revised edition*. Honolulu: University of Hawai'i Press, Bishop Museum Press, Special Publication 83: 1-1853.

———. 1999. *Manual of the flowering plants of Hawai'i, revised edition*. Honolulu: University of Hawai'i Press, Bishop Museum Press, Special Publication 97: 1-1918.

Walker, Ranganui. 1990. *Ka Whawhai Tonu Matou: Struggle without end*. Auckland, N.Z.: Penguin.

Wallace, G. and S. Pierce. 1996. An Evaluation of Ecotourism in Amazonas, Brazil. *Annals of Tourism Research* 23(4).

Walters, C.J. 1986. *Adaptive Management of Renewable Resources*. New York: McGraw-Hill.

Wanless, R.M., A. Angel, R.J. Cuthbert, G.M. Hilton and P.G. Ryan. 2007. Can predation by invasive mice drive seabird extinctions? *Biology Letters* [http://issg.org/database/species/reference\\_files/musmus/Wanless\\_etal\\_2007.pdf](http://issg.org/database/species/reference_files/musmus/Wanless_etal_2007.pdf) (Published Online)

Ward Research. 2006. Tracking attitudes toward protecting the Northwestern Hawaiian Islands. Prepared for: The National Marine Sanctuary Foundation, Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve.

Weihe, P., P. Granjean, F. Debes and R. White. 1996. Health implications for Faroe Islanders of heavy metals and PCBs from pilot whales. *Science of the Total Environment* 186: 141-148.

Weisler, M.I. 1993. Long distance interaction in prehistoric Polynesia: Three case studies. PhD diss., University of California Berkeley.

- . 1994. The settlement of marginal Polynesia: New evidence from Henderson Island. *Journal of Field Archaeology* 21: 83–102.
- . 1995. Henderson Island prehistory: Colonization and extinction on a remote Polynesian island. *Biological Journal of the Linnean Society* 56: 377–404.
- . 1996. Taking the mystery out of the Polynesian ‘mystery’ islands: A case study from Mangareva and the Pitcairn group. In *Oceanic Culture History: Essays in Honour of Roger Green*, Davidson, J., G. Irwin, F. Leach, A. Pawley, and D. Brown, eds. pp. 615–29. Dunedin, N.Z.: New Zealand Journal of Archaeology Special Publication.
- . 1997. Introduction. In: *Prehistoric Long-Distance Interaction in Oceania : An Interdisciplinary Approach*, New Zealand Archaeological Association Monograph, 21. M. Weisler, ed. pp 224-237. Auckland, New Zealand: Archaeological Association.
- . 1997. Prehistoric long-distance interaction at the margins of Oceania. In: *Prehistoric Long-Distance Interaction in Oceania: An Interdisciplinary Approach*. Weisler, M. I., ed. pp. 149-172. Auckland: New Zealand Archaeological Association Monograph 21.
- . 2002. Centrality and the collapse of long-distance voyaging in East Polynesia. In: *Geochemical Evidence for Long-Distance Exchange*. Glascock, M.D., ed. pp. 257-273. London: Bergin and Garvey.
- Wells, F. E. 2005. Molluscs of northwestern Madagascar. *RAP Bulletin of Biological Assessment* 31: 32–38.
- Western Pacific Fisheries Management Council (WPFMC). 1982. Final combined Fishery Management Plan, Environmental Impact Statement, Regulatory Analysis, and Draft Regulations for the Spiny Lobster Fisheries of the Western Pacific Region, volumes I & II. Honolulu.
- . 2001. Final Fishery Management Plan for the Coral Reef Ecosystems of the Western Pacific Region, vol.1. Honolulu.
- . 2003a. Managing U.S. Fisheries of the U.S. Pacific Islands: Past, Present and Future. Honolulu.
- . 2003b. History of the Fisheries in the Northwestern Hawaiian Islands. Honolulu.
- . 2004a. Bottomfish and seamount groundfish fisheries of the Western Pacific Region. 2002 Annual Report. Honolulu.
- . 2004b. *Pelagic Fisheries of the Western Pacific Region*. 2002 Annual Report. Honolulu.
- Westervelt, W. D. (collected and translated from the Hawaiian). 1916. *Hawaiian Legends of Volcanoes*. Boston, MA: G.H. Ellis Press.
- Wiens H.J. 1962. *Atoll environment and ecology*. New Haven, CT: Yale University Press. 532 pp.
- Wilderness Act. 1964. 16 U.S.C. 1132-1136.
- Wilson, J.T. 1963. A possible origin of the Hawaiian Islands. *Canadian Journal of Physics* 41(6): 863-870.
- . 1965. A new class of faults and their bearing on continental drift. *Nature* 207: 343-347.
- Wise, J. 1924. Ka huakai i na mokupuni ma ka akau-komohana [A journey to the islands in the north-west]. *Ka Nūpepa Kū’okoa* 62 (29): July 19.
- Woodbury, D.O. 1946. *Builders for Battle. How the Pacific Naval Air Bases were Constructed*. New York: E.P. Dutton and Company. 415pp.
- Woodhead, J.D. 1992. Temporal geochemical evolution in oceanic intra-plate volcanic: a case study from the Marquesas (French Polynesia) and comparison with other hotspots. *Contributions to Mineralogy and Petrology* 111(4): 458-467.



Woodward, P.W. 1972. The natural history of Kure Atoll, Northwestern Hawaiian Islands. *Atoll Research Bulletin* 164: 1-318.

Woodward, D., J B Harley, G. Malcolm Lewis. 1998. *The History of Cartography: Cartography in the Traditional African, American, Arctic, Australian, and Pacific Societies*. Chicago: Chicago University Press.

Work, T., G. Balazs, R. Rameyer and R. Morris. 2004. Retrospective pathology survey of green turtles (*Chelonia mydas*) with fibropapillomatosis from the Hawaiian Islands, 1993-2003. *Diseases of Aquatic Organisms* 62: 163-176.

Yen, D.E. 1969. *Nihoa- 1969: A Preliminary Report*. Department of Anthropology Manuscript (Unpublished). Honolulu, HI: Bernice Pauahi Bishop Museum.

Yoklavich, A. 1993. Cultural resources overview survey at Naval Air Facility, Midway Island. Prepared by Spencer Mason Architects, Inc. Submitted to Department of the Navy, Pacific Division, Naval Facilities Engineering Command, Pearl Harbor, Hawaii.

262

Zabin, J.Z., J.T. Carlton and L.S. Godwin. 2003. First report of the Asian sea anemone *Diadumene lineata* from the Hawaiian Islands. In: *Bishop Museum Occasional Papers*. Honolulu: Bishop Museum Press.

Ziegler, A. 1990. Search for evidence of early Hawaiian presence on Lisianski Islands, NWHI, Summer 1990. A Report prepared for State of Hawaii and Office of Hawaiian Affairs.

*Na lani malama ka la'au a Kane puka e Hui'eha'e  
 Apakau ke kukuna i ka 'ili kai o na kai 'owalu  
 He ike makawalu ka'u e 'ano'i nei,*

*'O na au walu o Kanaloa Haunawela noho i ka moana nui  
 He Hui'akai ka makani o Lehua 'au i ke kai  
 Ku'ono'ono ka lua o Kahaimoana i ke kapa 'ehukai o Ka'ula  
 'O Ku i ka loulu, ulu a'e ke aloha no Nihoa moku manu  
 Manu o ku i ka 'ahui, he alaka'i na ka lahui*

*'O Hinapuko'a*

*'O Hinapahalako'a*

*'O Hina kupukupu*

*'O Hinaikamalama*

*Hua ka 'ohua, lu'u ke kohola*

*Aloha kahi limu kala, kia'i 'ia e ka 'akala noho i uka*

*Hanau ka pe'a, puka ka pe'ape'a i ke kai*

*He 'ina'i ka 'ina, 'ono i ka huna'ia i ke kai*

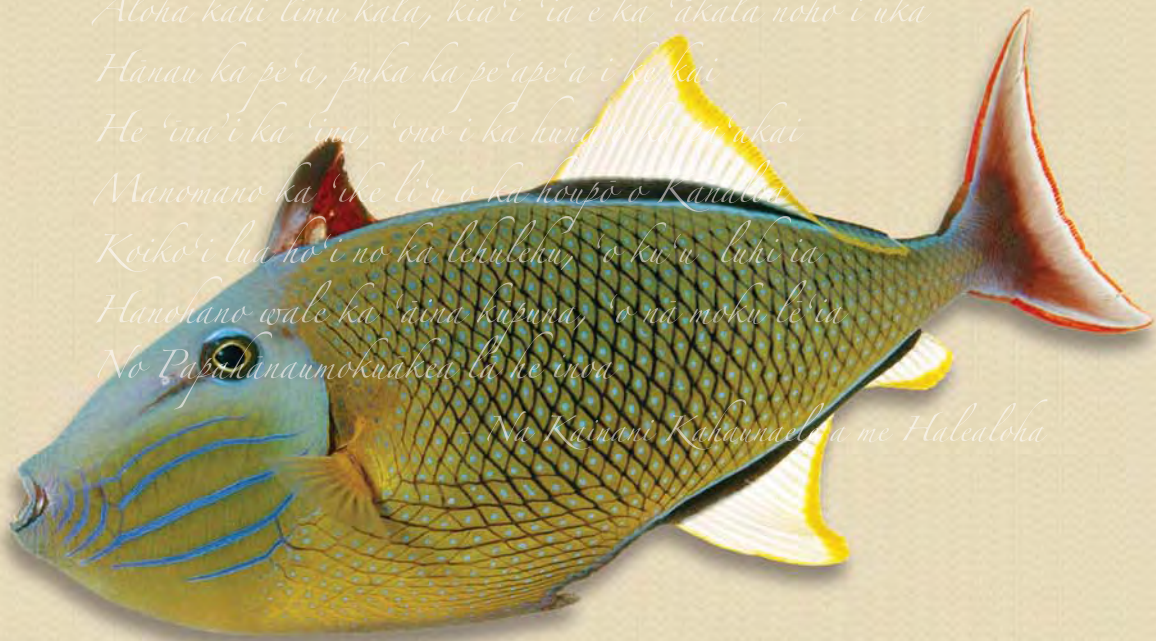
*Manomano ka ike li'u o ka houpo o Kanaloa*

*Koiko'i lua ho'i no ka lehuleku, 'o ku'u lani ia*

*Hanohano wale ka 'aina kupuna, 'o na moku le'ia*

*No Papahānaumokuākea lā he iwa*

*Na Kūiahi Kahunaelua me Halealoha*



*Contact Information of Responsible Authorities*





## 8. Contact Information of Responsible Authorities

### 8.a Preparers

#### Overall Project Coordinator

**Name:** Athline M. Clark  
**Title:** State Co-Manager, Papahānaumokuākea Marine National Monument (PMNM)  
**Address:** 6600 Kalanianaʻole Highway Suite 300 Honolulu, Hawaiʻi USA 96825  
**Telephone:** 001-808-397-2660  
 Fax: 001-808-397-2662  
 E-mail: Athline@hawaii.rr.com

#### Application Co-Leads

Wayne Haight, State Office PMNM  
 Janna Shackeroff, Ph.D., NOAA ONMS PMNM

#### Team Members

##### State of Hawaiʻi

Dan Polhemus, Ph.D., Administrator, Hawaiʻi Division of Aquatic Resources  
 Corinne Kane, Research Coordinator, State Office PMNM  
 Danielle Carter, Permits Coordinator, State Office PMNM  
 Doug Runde, Ph.D., Policy Specialist, State Office PMNM  
 Kerry Irish, former Project Co-Coordinator

##### Office Of Hawaiian Affairs

Heidi Guth, Esq., Lead Advocate – Native Rights, Office of Hawaiian Affairs  
 Sterling Wong, Policy Advocate – Native Rights, Office of Hawaiian Affairs



*Crosshatch Triggerfish or humuhumu*

(Photo: Susan Middleton & David Liittschwager)

##### NOAA Office of National Marine Sanctuaries PMNM

T. ʻAulani Wilhelm, NOAA Superintendent  
 Malia Chow, Ph.D., Special Projects Coordinator  
 Kaylene Keller, Ph.D., Data Information Coordinator  
 Ann Mooney, Research Logistics Coordinator  
 Naiʻa Watson, Constituency Advocate  
 Kelly Gleason, Ph.D., Maritime Archaeologist

##### NOAA Office of National Marine Sanctuaries, Regional Office

Hans Van Tilburg, Ph.D., Regional Maritime Archaeologist

##### NOAA Office of General Council

Ole Varmer, International Programs Office  
 Ted Beuttler, Esq, Office of National Marine Sanctuaries

##### U.S. Fish and Wildlife Service

Barbara Maxfield, Chief, External Affairs  
 Jim Maragos, Ph.D., Biologist, Refuges Program  
 Beth Flint, Ph.D., Biologist, Refuges Program  
 Anan Raymond, Ph.D., Archaeologist, Pacific Regional Office  
 John Klavitter, Biologist Midway Atoll NWR

### ***Bishop Museum***

Dr. Jennifer Kahn, Archaeologist  
and Anthropologist

### ***Kamehameha Schools***

S. Kekuewa Kikiloi, Cultural Assets Manager,  
Kamehameha Schools Land Assets Division  
and Ph.D. candidate University of Hawaii

### ***Layout, Design and Editing***

Rad Smith, Graphics Illustrator  
Garcia and Associates  
Lavonne Leong, Ph.D., Editor

### ***Acknowledgements***

In addition to the team members who  
provided written content for the application,  
we would like to thank the many reviewers  
who provided significant input, guidance, and  
review of the application. We would like to  
acknowledge their considerable expertise in  
guiding and shaping the final document.

U.S. National Park Service Office of  
International Affairs

NOAA/National Marine Fisheries Service

Anita Smith, Ph.D., Charles Latrobe  
Research Fellow, Archeology, La Trobe  
University, Australia

Todd Capson, Ph.D., Diplomacy Fellow,  
U.S. Department of State, Bureau of Oceans  
and International Environmental and  
Scientific Affairs

Bryan Harry, Retired Regional Director NPS

Gary Davis, Retired NPS Ecologist

Steve Brantley, Ph.D., U.S. Geological  
Survey, Hawaii Volcanoes Observatory

Sol Kaho'ohalahala, Native Hawaiian  
Cultural Practitioner

Lilikalā Kame'eleihiwa, Ph.D, Professor,  
University of Hawai'i, Kamakakūokalani  
Center for Hawaiian Studies, and Native  
Hawaiian Cultural Practitioner

Numerous staff from the co-trustee agencies  
for their support and review

## **8.b Official Local Institution/Agency**

Papahānaumokuākea Marine  
National Monument  
6660 Kalaniana'ole Hwy. Suite 300  
Honolulu, Hawai'i USA 96825  
001-808 397-2660

## **8.c Other Local Institutions**

Department of Land and Natural Resources  
U.S. Fish and Wildlife Service  
National Marine Fisheries Service/NOAA

## **8.d Official Web Address**

[www.Papahanaumokuakea.gov](http://www.Papahanaumokuakea.gov)

Contact name: Andy Collins

E-mail: [Andy.Collins@noaa.gov](mailto:Andy.Collins@noaa.gov)



*Stout Moray or pui*

(Photo: Susan Middleton  
& David Liittschwager)





266



*White Tern or manu o Kū*  
(Photo: Susan Middleton  
& David Liittschwager)

*Makamālama kā lā nui a Kane puka i Hā'ehā'e  
 Apakau ke kūkuna i kā 'ili kāi o nā kāi 'ewalu  
 He 'ike makawalu kā'u e 'ano'i nei,*

*'O nā au walu o Kanaloa Haunawela noho i ka moana nui  
 He Hu'akāi ka makani o Lehua 'au i ke kāi*

*Kū'ono'ono ka lua o Kūhaimoana i ke kapa 'ehukāi o Ka'ala*

*'O Kū i ka loulou, ulu a'e ke aloha no Nihoa moku manu  
 Manu o kū i ka 'āhūi, he alaka'i na ka lāhui*

*'O Hinapuko'a*

*'O Hinapūhalako'a*

*'O Hina kūpukupu*

*'O Hinaikamalama*

*Hua kā 'ōhua, lu'u ke kokolā*

*Aloha kahi limu kala, kia'i 'ia e ka 'akala noho i uka*

*Hānau ka pe'a, puka ka pe'ape'a i ke kāi*

*He 'ina'i ka 'ina, 'ono i ka huna o ka pa'akāi*

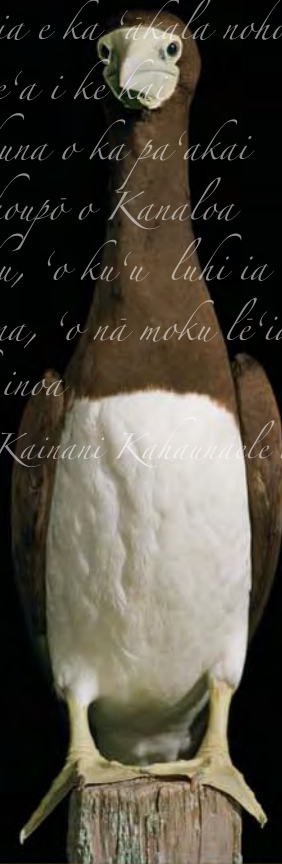
*Manomano ka 'ike lē'u o ka houpo o Kanaloa*

*Koiko'i lua ho'i no ka lehulehu, 'o kā'u lūhi ia*

*Hanohano wale ka 'āina kūpuna, 'o nā moku lē'ia*

*No Papahānaumokuākea lā he inoa*

*- Na Kainani Kūhauana le a me Halealoha*



*Signature on Behalf of the State Party*



 9. *Signature on Behalf of the State Party*

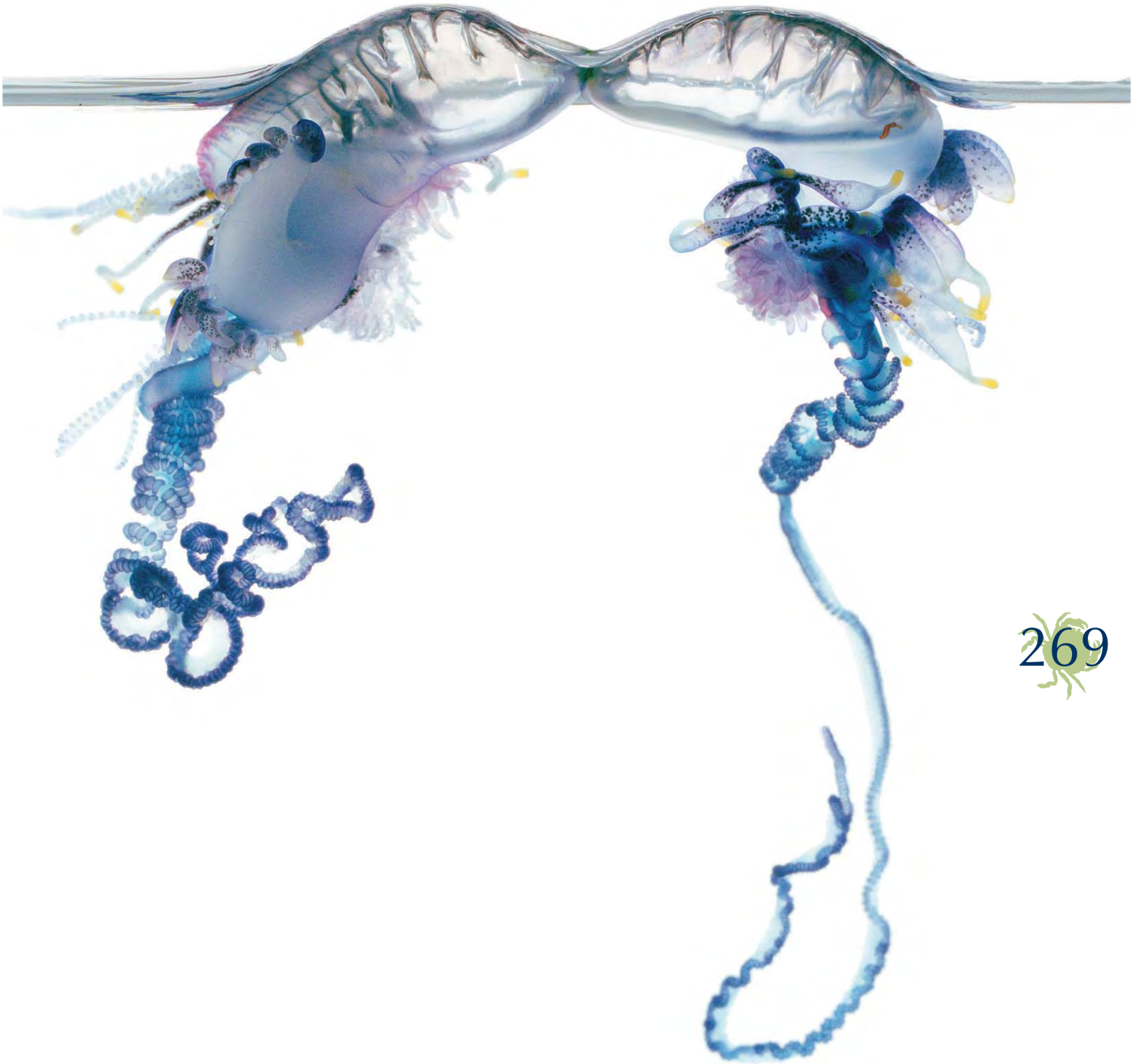
**Section 9. Signature on Behalf of the State Party**

---

**Lyle Laverty**  
**Assistant Secretary**  
**Fish and Wildlife and Parks**  
**U.S. Department of the Interior**

---

**Date**



*Portuguese Man-of-War or pa'imalua*  
(Photo: Susan Middleton & David Liittschwager)



## GLOSSARY

**Abiotic:** Pertaining to the non-living components of the environment.

**Abysal (zone):** Relating to the bottom waters of oceans, usually below 1000 m.

**Adaptive management:** The process of adjusting management actions and/or directions as new and better information emerges about the ecosystem

**Adaptive reuse:** A process that changes a disused or ineffective item into a new item that can be used for a different purpose.

**Alien species (exotic, nonnative):** With respect to a particular ecosystem, any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem.

**Anthropogenic:** Caused by humans.

**Apex predator:** A species (e.g., fish) at the top of the food chain.

**Appropriate Use (NWR):** A proposed or existing use on a refuge that meets the criteria in 603 FW 1.

**Aquaculture:** Cultivation of aquatic organisms under controlled or semi-controlled conditions.

**Archipelago:** A group or cluster of islands.

**Ballast water:** Any water and associated sediments used to manipulate the trim and stability of a vessel

**Bathymetry:** Study and mapping (benthic mapping) of seafloor elevations and the variations of water depth; the topography of the seafloor.

**Battle of Midway:** A naval battle in the Pacific Theater of World War II. It took place from June 4, 1942 to June 7, 1942, approximately one month after the Battle of the Coral Sea, about five months after the Japanese capture of Wake Island, and six

months after the Empire of Japan's attack on Pearl Harbor that had led to a formal state of war between the United States and Japan.

**Benthic habitat:** Of the seafloor, or pertaining to organisms living on or in the seafloor.

**Biodiversity:** Defined as the number of different organisms or species that inhabit a given ecosystem or the earth overall. It can also refer to the variability within species and among species living on the earth or in a particular community. Many ecologists also include the interaction of species the environment when describing biodiversity. All biodiversity has its origins in the different combinations of genetic material (DNA) and how this is expressed in different organisms.

**Biogeographical:** Of relating to or involved with biogeography, a branch of biology that deals with the geographical distribution of animals and plants.

**Biological community:** A naturally occurring assemblage of plants and animals that live in the same environment and are mutually sustaining and interdependent.

**Biological inventory or Biodiversity inventory:** Catalog of all biota in a given area. Inventories of large clades (a clade is a related group with a common ancestor) of organisms that are likely to contain many undescribed species or otherwise require major revision to complete their taxonomy.

**Biomass:** The total weight of all the living organisms, or some designated group of living organisms, in a given area.

**Bioprospecting:** Search for new chemicals compounds, genes and their products in living things that will have some value to people.

**Biota:** All the organisms, including animals, plants, fungi and microorganisms, living components of an ecosystem.

**Biotic:** Pertaining to any aspect of life, especially to characteristics of entire populations or ecosystems.

**Bishop Museum:** Founded in 1889, the Bishop Museum is the largest museum in Hawai'i and the premier natural and cultural history institution in the Pacific, recognized throughout the world for its cultural collections, research projects, consulting services and public educational programs. It also has one of the largest natural history specimen collections in the world.

**Board of Land and Natural Resources:** An appointed Board of the State of Hawai'i composed of seven members, one from each land district and two at large, and the Chairperson, the executive head of the Department. Members are nominated and, with the consent of the Senate, appointed by the Governor for a 4-year term. The BLNR convenes twice monthly to review and take action on department submittals, including Monument permits.

**Bottomfish species:** means bottomfish management unit species as defined at 50 CFR 660.12.

**Bottomfishing:** Fishing for bottomfish species using hook-and-line method of fishing where weighted and baited lines are lowered and raised with electric, hydraulic, or hand-powered reels.

**Calderas:** A crater whose diameter is many times that of the volcanic vent because of the collapse or subsidence of the central part of a volcano or because of explosions of extraordinary violence.

**Catch-per-unit-effort (CPUE):** The average number of fish caught in a discrete amount of time.

**Categorical Exclusion:** A category of actions that the agency has determined does not individually or cumulatively have a significant effect on the quality of the human environment.

**Ciguatera toxin:** Toxins produced by a marine microalgae called *Gambierdiscus toxicus*. These toxins become progressively concentrated as they move up the food chain from small fish to large fish that eat them, and reach particularly high concentrations in large predatory tropical reef fish.

**Co-Trustees:** U.S. Department of Commerce, through the National Oceanic and Atmospheric Administration, the Department of the Interior through the Fish and Wildlife Service, and the State of Hawai'i.

**Commercial Fishing:** Fishing in which the fish harvested, either in whole or in part, and are intended to enter commerce through sale, barter or trade.

**Compatible use:** A proposed or existing wildlife-dependent recreational use or any other use of a national wildlife refuge that, based on sound professional judgment, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the national wildlife refuge.

**Comprehensive Conservation Plan:** A document that describes the desired future conditions of the refuge, and provides long-range guidance and management direction for the refuge manager to accomplish the purposes of the refuge, contribute to the mission of the System, and to meet other relevant mandates.

**Coral bleaching:** When zooxanthellae, symbiotic algae that live in coral tissue, leave the coral as a result of thermal and other types of stress.

**Crustacean:** A member of the phylum Crustacea, such as a crab, shrimp, or lobster.

**Cultural literacy:** The art and understanding of the intangible meanings and emotions conveyed through a particular written cultural language.

**Cultural resources:** Any resources whether they are tangible or intangible such as stories, people, structures, or artifacts that identifies a certain native people's culture inherent in the way they live and practice their traditions.

**Cumulative effects (NEPA):** Cumulative impact of the direct and indirect effects of the proposed action and its alternatives when added to the aggregate effects of past, present, and reasonably foreseeable future actions.



**Customary rights:** Rights customarily and traditionally exercised for subsistence, cultural, and religious purposes and possessed by ahupua'a tenants who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778.

**Derelict:** Abandoned, especially by the owner or occupant; forgotten unused.

**Direct effects (NEPA):** Effects caused by the action and occurring at the same time and place.

**Distance-learning:** Education initiated on-site at a remote location offered to others often times providing two way communication through audio and/or video technology links.

**Ecological:** Of, or having to do with, the environments of living things or with the pattern of relations between living things and their environments.

**Ecological impacts:** The effect that a human-caused or natural activity has on living organisms and their environment.

**Ecological Reserve:** An area of the Monument consisting of contiguous, diverse habitats that provide natural spawning, nursery, and permanent residence areas for the replenishment and genetic protection of marine life, and also to protect and preserve natural assemblages of habitats and species within areas representing a broad diversity of resources and habitats found within the monument.

**Ecosystem:** A geographically specified system of organisms (including humans), the environment, and the processes that control its dynamics.

**Ecosystem Health:** A condition in which structure and functions allow the desired maintenance over time of biological diversity, biotic integrity, and ecological processes.

**Ecosystem Integrity:** A condition determined to be characteristic of an ecosystem that has the ability to maintain its function, structure, and abundance of natural biological communities, including rates of change in response to natural environmental variation.

**Ecosystem Services:** the natural processes by which the environment produces resources. Common examples are water, timber, and habitat for fisheries, and pollination of native and agricultural plants.

**Ecosystem-based management approach:** Management that carefully considers impacts to all species and trophic interactions, including maintenance of biological communities and the protection of natural habitats, populations and ecological processes. The approach emphasizes the inherent value of ecosystems and recognizes the importance of species interactions and conservation of habitats, and only permits resource utilization in a manner that is consistent with the Monument's primary goal of resource protection.

**Ecotourism:** Travel to natural areas to foster environmental and cultural understanding, and appreciation and conservation. The Proclamation defines Ocean-Based Ecotourism as a class of fee-for-service activities that involves visiting the Monument for study, enjoyment, or volunteer assistance for purposes of conservation and management.

**Effects (Impacts):** As defined by NEPA (direct, indirect, cumulative): Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions that may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial.

**El Niño:** A climatic phenomenon characterized by a large scale weakening of the trade winds and warming of the surface layers in the eastern and central equatorial Pacific Ocean. El Niño events occur irregularly at intervals of 2-7 years, although the average is about once every 3-4 years. and typically last 12-18 months. During El Niño, unusually high atmospheric sea level pressures develop in the western tropical Pacific and Indian Ocean regions, and unusually low sea level pressures

develop in the southeastern tropical Pacific. Southern Oscillation tendencies for unusually low pressures west of the date line and high pressures east of the date line have also been linked to periods of anomalously cold equatorial Pacific sea surface temperatures sometimes referred to as **La Niña**.

**Endangered species:** An animal or plant species in danger of extinction throughout all or a significant portion of its range.

**Endemic:** Referring to species native to and confined to a particular region, thus often having a comparatively restricted distribution.

**Environmental Assessment (EA):** A concise public document, prepared in compliance with the National Environmental Policy Act, that briefly discusses the purpose and need for an action, alternatives to such action, and provides sufficient evidence and analysis of impacts to determine whether to prepare an environmental impact statement or finding of no significant impact.

**Environmental Impact Statement (EIS):** Documentation that assesses the impacts of major Federal actions significantly affecting the quality of the human environment as required by section 102(2)(C) of NEPA.

**Exclusive Economic Zone (EEZ):** A zone contiguous to the territorial sea, including zones contiguous to the territorial sea of the United States, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands (to the extent consistent with the Covenant and the United Nations Trusteeship Agreement), and United States overseas Territories and possessions extending to a distance of 200 nautical miles from the baseline from which the breadth of the territorial sea is measured.

**Fathom:** A unit of length equal to 1.8m (6ft) used to measure water depth.

**Field camp (camp):** In this document refers to both seasonal camps that are placed on Lisianski, Pearl and Hermes, Kure, and Nihoa; and one permanent camp at Laysan Island. Seasonal camps are established for specific activities such as monk seal

research. The Laysan Island camp is staffed year-round to work on restoration of the island. Camps depend on tents, import all water, and have very limited communications and physical access.

**Field station:** In this document is used to refer to permanent infrastructures on Tern Island or Midway Atoll. These stations have buildings, water-making abilities, greater power sources, advanced communication, and regular access by boat and aircraft.

**Fishery:** The act, process, or season of taking fish or other sea products for sale or consumption.

**Friends of Midway Atoll NWR:** Association whose mission is “[t]o support the Midway Atoll National Wildlife Refuge in its efforts to preserve, protect and restore the biological diversity and historic resources of Midway Atoll, while providing opportunity for wildlife-dependent recreation, education and scientific research.”

**Geographic Information System (GIS):** A system of spatially referenced information, including computer programs that acquire, store, manipulate, analyze, and display spatial data.

**Geomorphologic:** Relating to geomorphology, a science that deals with land and submarine relief features of the earth’s surface.

**Hazardous material:** A substance or material that is capable of posing an unreasonable risk to health and safety or property when transported in commerce and has been designated as hazardous under the federal Hazardous Materials Transportation Law (49 USC 5103).

**Hazardous Waste:** The Resource Conservation and Recovery Act (RCRA) specifically defines a hazardous waste as a solid waste (or combination of wastes) that, due to its quantity, concentration, physical, chemical, or infectious characteristics, can cause or significantly contribute to an increase in mortality. RCRA further defines a hazardous waste as one that can increase serious,





irreversible, or incapacitating reversible illness or pose a hazard to human health or the environment when improperly treated, stored, disposed of, or otherwise managed.

**Hi'ialakai:** NOAA research vessel. Hi'ialakai means embracing pathways to the sea in the Hawaiian language.

**Hökūle'a:** a traditional Hawaiian double hulled voyaging canoe recreated by the Polynesian Voyaging Society in the 1970s which signified a rebirth of ancient voyaging and navigation and a new cultural renaissance period in Hawaiian history. [Hökūle'a is Hawaiian for star of gladness].

**Hypersaline:** Salinity well in excess of that of seawater; found in enclosed water bodies.

**Impacts:** See **Effects**

**Indirect effects (NEPA):** Those are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.



**In situ** [Latin]: In place

**In-reach:** Purposefully communicating to personnel working within your agency, or Co-Trustees.

**Indigenous (species):** Existing within a historical ecological range, usually within a balanced system of coevolved organisms.

**Infrastructure:** In this document refers to physical buildings and structures, roads, and utility and communications systems.

**Interagency:** Involving two or more public or government agencies.

**Introduced Species:**

1. A species (including, but not limited to, any of its biological matter capable of propagation) that is nonnative to the ecosystem(s) protected by the Monument; or

2. Any organism into which genetic matter from another species has been transferred in order that the host organism acquires the genetic traits of the transferred genes.

“Introduction” means the intentional or unintentional escape, release, dissemination, or placement of a species into an ecosystem as a result of human activity.

**Invasive species:** A nonindigenous species that may threaten the diversity or abundance of native species or the ecological stability and or uses of infested waters and the introduction of which into an ecosystem may cause harm to the economy, environment, human health, recreation, or public welfare.

**Invertebrates:** Any animal that is not a vertebrate, that is, whose nerve cord is not enclosed in a backbone of bony segments.

**Island-specific:** Pertains to a specific island of the Monument and may not be translated to other islands.

**Knowledge-base:** Information and ideas acquired through pre-existing experiences and cumulative education.

**La Niña:** see **El Niño**

**Larval:** An immature stage of any invertebrate animal that differs dramatically in appearance from the adult.

**Lead-based paint:** paint that contains high levels of lead, generally found in houses and apartments built before 1978, when the federal government banned it from housing.

**Longline Protected Species Zone:** The area in the Northwestern Hawaiian Islands where longline fishing is prohibited, described as within a 50 nm radius from the geographic centers of Nihoa Island, Mokumanamana, French Frigate Shoals, Gardner Pinnacles, Maro Reef, Laysan Island, Lisianski Island, Pearl and Hermes Atoll, Midway Atoll, and Kure Atoll.

**Management Zones:** Special Preservation Areas, Ecological Reserves, and the Midway Atoll Special Management Area (SMA) as defined in Monument regulations (50 CFR 404).

**Marine debris:** Any persistent solid material and contents that is manufactured or processed and directly or indirectly, intentionally or unintentionally, disposed of or abandoned into the marine environment.

**Maritime:** Of or relating to navigation or commerce on the sea.

**Memorandum of Agreement or Understanding (MOA/U):** A nonbinding agreement between state or federal agencies, or divisions within an agency, that delineates tasks, jurisdiction, standard operating procedures or other matters which the agencies or units are duly authorized and directed to conduct.

**Meta-population:** A subdivided population of a single species.

**Midway Atoll Special Management Area:** The area of the monument surrounding Midway Atoll out to a distance of 12 nautical miles, established for the enhanced management, protection, and preservation of Monument wildlife and historical resources.

**Migratory bird:** Birds that are listed in Title 50 of the Code of Federal Regulations, Section 10.13.

**Mitigate (mitigation):** To make less severe. An action or series of actions that offset the environmental impact, or reduce the severity or consequences. Usually done by sequestering or reducing contact thereby reducing risk or by compensating, enhancing, or restoring areas adversely affected.

**Mobile transceiver unit:** A vessel monitoring system or VMS device installed on board a vessel that is used for vessel monitoring and transmitting the vessel's position as required by Presidential Proclamation 8031.

**Monument Management Board (MMB):** The MOA established a locally based Monument Management Board (MMB) to guide field level coordination. The seven-member MMB includes representation of the Co-Trustee agencies and the Office of Hawaiian Affairs.

**Monument Regulations:** Initial regulations prescribed by the Presidential Proclamation 8031 completed jointly by the FWS and NOAA on August 29, 2006 (71 FR 51134). Monument regulations, codified under 50 CFR Part 404, establish the scope and purpose, boundary, definitions, prohibitions, marine zones, and regulated activities for managing the Monument.

**National Historic Landmark:** Nationally significant historic places designated by the Secretary of the Interior possessing exceptional value or quality in illustrating or interpreting the heritage of the United States.

**National Historic Properties:** Properties listed in, or eligible for listing in the National Register of Historic Places (National Historic Preservation Act of 1966, as amended; implementing regulation for evaluation and determination of eligibility are in 36 CFR 60). "National Register of Historic Places."

**National Marine Sanctuary Foundation:** A private, nonprofit, 501(c)(3) tax-exempt organization created to assist the federally managed National Marine Sanctuary Program with education and outreach programs designed to preserve, protect, and promote meaningful opportunities for public interaction with the nation's marine sanctuaries.

**National Monument:** An area on lands owned or controlled by the Government of the United States designated by the President of the United States under the Antiquities Act of 1906, to recognize historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest.

**National Register of Historic Places:** The Nation's official list of cultural resources worthy of preservation. Authorized under the National Historic Preservation Act of 1966, the National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect our historic and archeological resources.

**National Wildlife Refuge System:** All lands, waters, and interests therein administered by the U.S. Fish and Wildlife Service as wildlife



refuges, wildlife ranges, wildlife management areas, waterfowl production areas, and other areas for the protection and conservation of fish, wildlife, and plant resources.

**Native Hawaiian:** Any individual who is a descendent of the aboriginal people who, prior to 1778, occupied and exercised sovereignty in the area that now constitutes the State of Hawai'i.

**Native Hawaiian practices:** Cultural activities conducted for the purposes of perpetuating traditional knowledge, caring for and protecting the environment, and strengthening cultural and spiritual connections to the Northwestern Hawaiian Islands that have demonstrable benefits to the Native Hawaiian community. This may include, but is not limited to, the noncommercial use of monument resources for direct personal consumption while in the Monument.

**Native species:** A species (plant or animal) within its natural range or natural zone of dispersal without human aid.

**Natural variability:** Uncertainties that stem from inherent or assumed randomness and unpredictability in the natural world.



**Northwestern Hawaiian Islands (NWHI):** Beginning 155 miles (249.4 kilometers) from the main Hawaiian Island of Kaua'i, the 10 islands and atolls of this chain that extend for 1,200 miles (1,931 kilometers) to Kure Atoll. In past decades, also known as the Leeward or Kūpuna Islands, and now as Papahānaumokuākea.

**NOWRAMP or NWHIRAMP:** The Northwestern Hawaiian Islands Coral Reef Assessment and Monitoring Program, which began in 2000, to rapidly evaluate and map the shallow water reef habitats in the NWHI.

**Oceania:** Collective name for the islands scattered throughout most of the Pacific Ocean.

**Oceanographic:** Of or relating to oceanography, a science that deals with the ocean and its phenomena.

**Outreach:** The act of communicating activities and conceptual ideas to public audiences outside the administering agency/agencies and actively involving them in Monument activities.

**Pacific Rim:** includes the countries that lie along the Pacific Ocean, plus the island countries of the Pacific.

**Passage without interruption:** A vessel passing through waters within the Monument boundary without stopping anywhere within the boundary of the Monument.

**Pelagic:** Referring to the open ocean.

**Pelagic species:** From the Proclamation: Pelagic Species means Pacific Pelagic Management Unit Species as defined at 50 CFR 660.12.

**Permit:** As used in the Monument Management Plan, authorization by the Co-Trustees to conduct an activity within the Monument that: (i) is research designed to further understanding of monument resources and qualities; (ii) will further the educational value of the monument; (iii) will assist in the conservation and management of the monument; (iv) will allow Native Hawaiian practices; (v) will allow a special ocean use; or (vi) will allow recreational activities.

**Petrels:** Any of numerous seabirds constituting the families Procellariidae and Hydrobatidae.

**Polynesian Voyaging Society (PVS):** A society founded in 1973 to research how Polynesian seafarers discovered and settled on the islands in the Pacific Ocean before European explorers arrived in the 16th century.

**Pono:** [Hawaiian] Appropriate, correct, and deemed necessary by traditional standards in the Hawaiian culture.

**Precautionary approach:** In the decision-making process, if there is a reasonable suspicion of harm, this approach urges a full evaluation of available alternatives for the purpose of preventing or minimizing harm. When consequences are uncertain, managers

err on the side of caution thereby giving the benefit of the doubt to nature, public health, and community well-being.

**Predator-dominated marine ecosystem:** Reef ecosystems that have relatively greater abundance of large fish, such as sharks and jacks and fewer smaller fish that graze on the coral and algae.

**Presidential Proclamation 8031:** Establishment of the Northwestern Hawaiian Islands Marine National Monument, A Proclamation by the President of the United States of America, June 15, 2006. (also **Proclamation, Presidential Proclamation and Proclamation 8031**)

**Productivity:** Rate of energy fixation or storage per unit time; not to be confused with production.

**Prohibitions:** Actions prohibited by authority of law.

**Recreational Activity:** For the purposes of the Monument, an activity conducted for personal enjoyment that does not result in the extraction of Monument resources and that does not involve a fee-for-service transaction. This includes, but is not limited to, wildlife viewing, SCUBA diving, snorkeling, and boating.

**Remediation:** Rehabilitation of a section of the environment that has been polluted or degraded from a sustainable (self-repairing) state.

**Repatriation:** The transfer of legal interest in and physical custody of Native American cultural items to lineal descendants, culturally affiliated Indian tribes, and Native Hawaiian organizations.

**Resiliency:** The ability of an ecosystem to recover from, or adjust to, stress or change.

**SCUBA:** A self-contained underwater breathing apparatus and includes, but is not limited to, open circuit and rebreather technology.

**Seamount:** Submerged volcanic mountain rising above the deep-seafloor.

**Secretaries:** For the Monument, collectively refers to the Secretary of Commerce and the Secretary of the Interior

**Sessile invertebrates:** Organism being attached to a substrate.

**Shoal:** Elevation of the sea bottom comprising any material except rock or coral (in which case it is a reef) and which may endanger surface navigation.

**Socioeconomic:** Relating to or involving a combination of social and economic factors.

**Spawning:** The direct release of sex cells into the water for reproduction.

**Special Ocean Use:** An activity or use of the Monument that is engaged in to generate revenue or profits for one or more of the persons associated with the activity or use, and does not destroy, cause the loss of, or injure monument resources. This includes ocean-based ecotourism and other activities such as educational and research activities that are engaged in to generate revenue, but does not include commercial fishing for bottomfish or pelagic species conducted pursuant to a valid permit issued by NOAA.

**Special Preservation Area (SPA):** Discrete, biologically important areas of the Monument within which uses are subject to conditions, restrictions, and prohibitions, including but not limited to access restrictions. SPAs are used to avoid concentrations of uses that could result in declines in species populations or habitat, to reduce conflicts between uses, to protect areas that are critical for sustaining important marine species or habitats, or to provide opportunities for scientific research.

**Stakeholder:** Any and all interested parties; an organization, governmental entity, or individual that has a stake in, or may be impacted by, a given approach to environmental regulation or other agency action.

**Submersible:** A research submarine, designed for manned or remote operation at great depths.





**Substrate:** The material making up the base on which an organism lives or to which it is attached.

**Substratum:** The bottom of the bay, the soils of the bay bottom. May also refer to any surface that allows for the colonization of marine life.

**Sustenance Fishing:** For the Monument, sustenance fishing means fishing for bottomfish or pelagic species in which all catch is consumed within the Monument, and that is incidental to an activity permitted.

**Symbiotic:** Situation in which two dissimilar organisms live together in close association.

**Temporary Structure (Non Permanent):** A structure with no permanent foundation that is easy to assemble, dismantle, and transport and is removed from a site between periods of actual use except as specifically permitted otherwise.

**Terrestrial species:** Plants and animals living on land.

**Threatened species:** Any species that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

**Topographic:** General elevation pattern of the land surface or the ocean bottom.

**Traditional knowledge:** A way of knowing and learning that is acquired through expressions of dance or other forms of art, orally, or thru actual hands-on experiences passed down from generation to generation.

**Trolling:** Fishing using one or more lines with hooks or lures attached and drawn through the water behind a moving vessel.

**Trophic:** Relating to nutrition; the position of an organism in a food chain or food pyramid.

**Unexploded Ordnance (UXO):** Munitions that contain explosive components. In the Monument, refers to lost or abandoned military items.

**Unified Ocean Governance:** An integrated ecosystem-based management approach using an overall governance framework of shared principles and authority, clear communications and protocols.

**Unusual Mortality Events:** Criteria used to determine if mortalities seen in the Hawaiian Monk Seal are significantly abnormal to indicate an underlying vector. Criteria include: a marked increase in the magnitude of strandings is occurring when compared with prior records; animals are stranding at a time of the year when strandings are unusual; an increase in strandings is occurring in a very localized area; the species, age, or sex composition of the stranded animals is different; stranded animals exhibit similar or unusual pathologic findings, or the general physical condition; mortality is accompanied by unusual behavior patterns; and critically endangered species are stranding.

**Vessel Monitoring System (VMS):** Means a vessel monitoring system or mobile transceiver unit approved by the NOAA Office for Law Enforcement for use on vessels permitted to access the Monument in accordance with the Proclamation and 50 CFR 404. The hardware and software used by vessels to track and transmit their positions to a receiver in a remote location.

**Wayfinding:** Noninstrument navigation. Wayfinding involves navigating on the open ocean without sextant, compass, clock, radio reports, or satellites reports. The wayfinder depends on observations of the stars, the sun, the ocean swells, and other signs of nature for clues to direction and location of a vessel at sea.

**Zooxanthellae:** A group of dinoflagellates living symbiotically in association with one of a variety of invertebrate groups and found in corals and other marine organisms.

## LINE ART GLOSSARY



**Hawaiian Green Turtle (*Chelonia mydas*), or honu.** The islands and atolls of Papahānaumokuākea encompass over 90% of the total nesting area for the Hawaiian population of the Green Turtle.



**Makau, or the Hawaiian fishhook,** has been used by expert Hawaiian fishers since ancient times. A wide range of fishing activities occurred in the Hawaiian Islands in antiquity, as evidenced by the presence of one-, two-, and multiple piece fishhooks.



**Ulua, or the Giant Trevally (*Caranx ignobilis*),** represents one of the abundant and wide-ranging apex predators of Papahānaumokuākea's coral reef ecosystems. These predator-dominated systems are characteristic of reefs prior to human exploitation, a concept embodied in the Hawaiian term *'āina momona* (place of abundance).



**Galapagos sharks (*Carcharhinus galapagenesis*),** are significant both ecologically and culturally. Sharks, *manō*, are the most common *'aumakua* (family guardian spirits) of fishing families, and represent the physical form of such highly revered gods as Kamohoali'i, who guided his sister Pele through Papahānaumokuākea (Beckwith 1970).



Representation of Papahānaumokuākea's several species of **terns** Papahānaumokuākea protects colonies of global significance for 14 million seabirds, representing 21 species. It is the largest tropical seabird rookery in the world.



Representation of the **traditional Hawaiian voyaging canoe, Hōkūle'a.** As in generations past, the contemporary apprentice wayfinder's first open-ocean training ground takes them into Papahānaumokuākea.

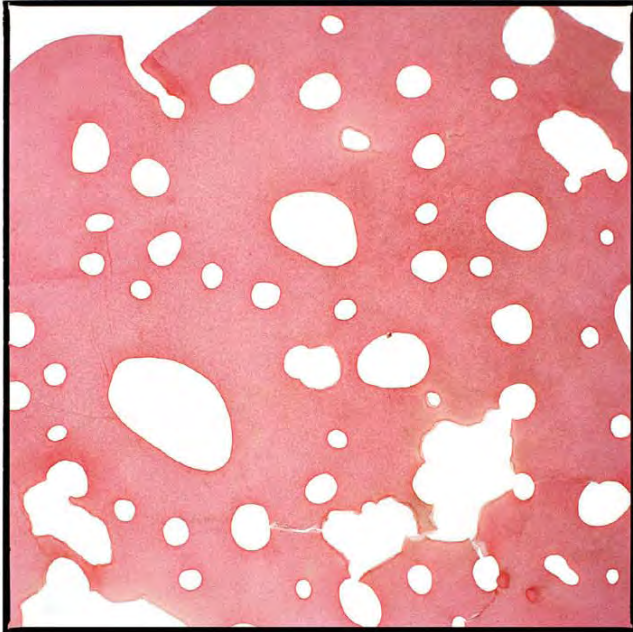


Native Hawaiian practitioners utilize **conch shells** in cultural protocol. For instance, by blowing a conch shell and chanting, Native Hawaiian practitioners greet their ancestors (*kūpuna*), give thanks, and ask their permission to land on Nihoa and Mokumanamana.



**Crab, or pāpa'i,** represent the benthic shallow-water invertebrates of Papahānaumokuākea, many of which are just being identified and dozens are species new to science. Many invertebrates, such as *pāpa'i*, are important for subsistence and cultural activities, and today, in bridging traditional and Western practices in the management of Papahānaumokuākea.

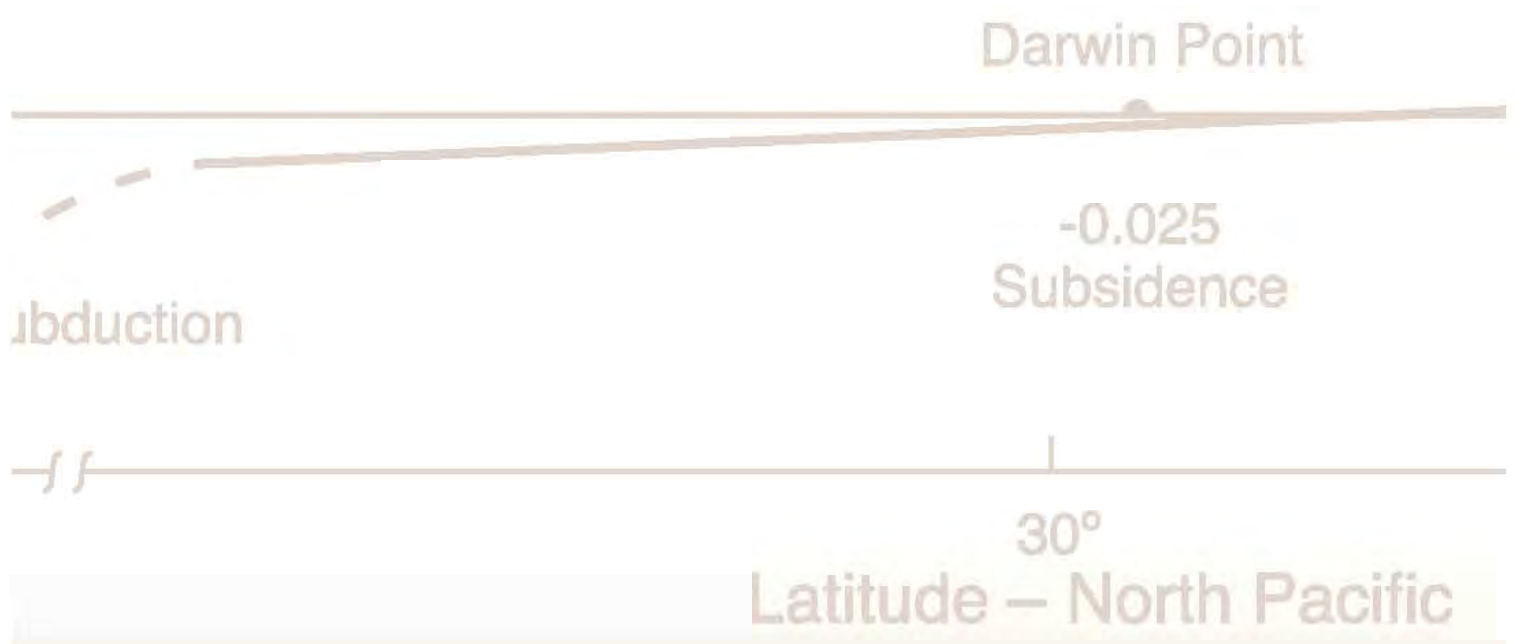
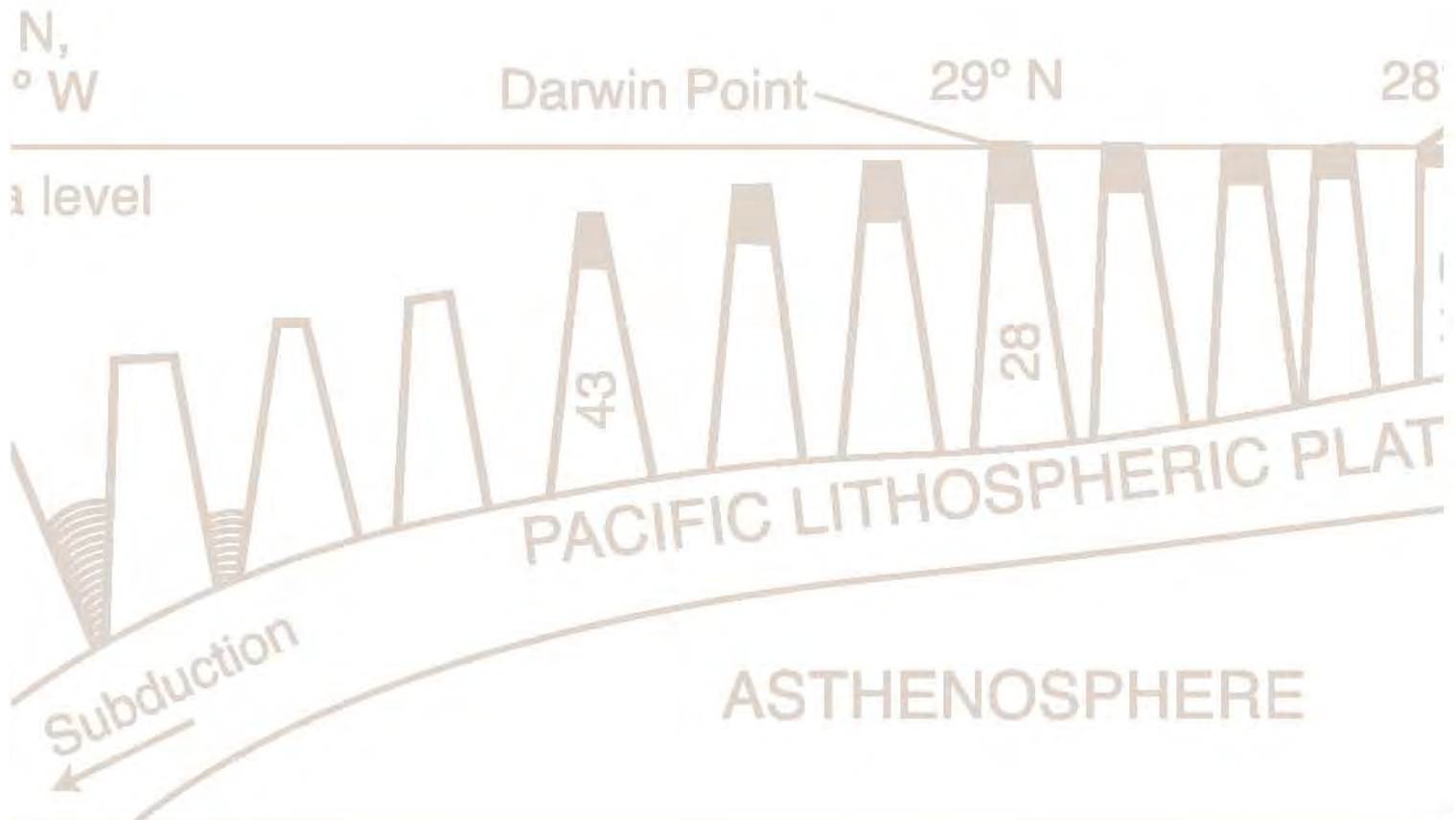




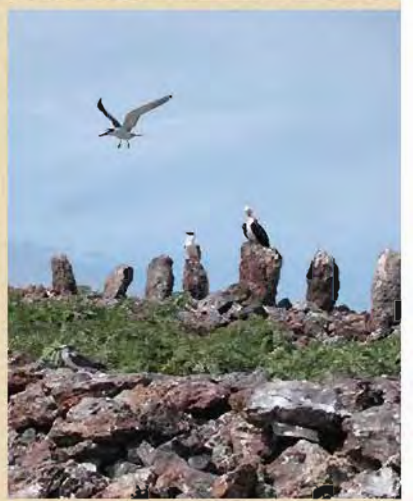
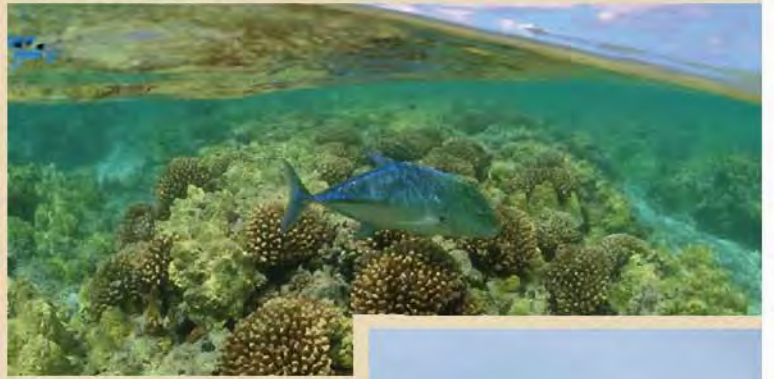
*Red Algae*

*(Photo: Susan Middleton & David Liittschwager)*

Zone 4	Zone 3	Zone 2
Reef coral growth ceases, continued subsidence, atolls drown to form guyots	Reef coral growth ceases, continued subsidence, atolls drown to form guyots	Barrier reefs become atolls, continued subsidence









# Papahānaumokuākea

MARINE NATIONAL MONUMENT



## Management Plan

U.S. FISH AND WILDLIFE SERVICE • NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION • STATE OF HAWAII



VOL. I



# Papahānaumokuākea Marine National Monument

## Management Plan

December 2008

Prepared by:

Papahānaumokuākea Marine National Monument

United States Fish and  
Wildlife Service  
300 Ala Moana Blvd., Room 5-231  
Honolulu, Hawai'i 96850



National Oceanic and Atmospheric  
Administration  
6600 Kalanianaʻole Highway, Suite 300  
Honolulu, Hawai'i 96825



Hawai'i Department of Land and  
Natural Resources  
1151 Punchbowl Street, Room 130  
Honolulu, Hawai'i 96813



## **Note to Reviewers:**

The December 2006 Memorandum of Agreement for Promoting Coordinated Management of the Northwestern Hawaiian Islands Marine National Monument identified the Secretaries of Commerce and the Interior, and Governor of Hawai‘i as Co-Trustees for the Papahānaumokuākea Marine National Monument. The agreement provided for the inclusion of the Office of Hawaiian Affairs into the Monument management process to assure the perpetuation of Hawaiian cultural resources in the Monument, including the customary and traditional rights and practices of Native Hawaiians exercised for subsistence, cultural, and religious purposes under the Constitution of the State of Hawai‘i, Article XII, Section 7.

The Co-Trustees will work together in a coordinated fashion to cooperatively manage areas where joint or adjacent jurisdiction exists, while continuing to honor the policies and statutory mandates of the various management agencies. Therefore, it is important to remember as you read this document that there are both coordinated agency activities and specific Co-Trustee responsibilities. Of course even where one agency has primary responsibility, input from another Co-Trustee can often be helpful, and this continuing coordination is presumed throughout the Monument Management Plan.

The authors of the Monument Management Plan identified these important pieces of information as you read this document:

### 1) Cooperative and Individual Co-Trustee Responsibilities

Prior to its designation, several Federal conservation areas existed within the Monument, namely the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, managed by the National Oceanic and Atmospheric Administration (NOAA) within the U.S. Department of Commerce, and the Hawaiian Islands and Midway Atoll National Wildlife Refuges, managed by the U.S. Fish and Wildlife Service (FWS) within the U.S. Department of the Interior. Nothing in the Monument Management Plan will diminish the responsibilities and requirements by the Federal agencies to continue to manage these areas.

Furthermore, the Proclamation issued by President Bush on June 15, 2006, establishing the Monument expressly stated it did not diminish or enlarge the jurisdiction of the State of Hawai‘i. In 2005 the State designated all of its waters in the NWHI as a Marine Refuge, and it has jurisdiction over the State Seabird Sanctuary at Kure Atoll, the northwesternmost emergent feature in the NWHI. To provide for the most effective conservation and management of the natural, cultural, and historic resources of the NWHI, Governor Lingle on December 8, 2006, entered into the agreement with the two Secretaries to have State lands and waters in the NWHI managed as part of the Monument, with the three parties serving as Co-Trustees.

### 2) Specific Agency Requirements



FWS is required to develop Comprehensive Conservation Plans (CCPs) for all National Wildlife Refuges by October 2012 (National Wildlife Refuge System Improvement Act of 1997). So that there would be a single management plan for the Monument, FWS moved its planning effort forward to have this Monument Management Plan also serve as, and meet the requirements of, the CCPs for the two refuges within the Monument.

Because this Monument Management Plan is a mixture of the existing Reserve Operations Plan, the subsequent draft national marine sanctuary management plan, the refuge CCPs, and State plans, as fully described in Section 2.2 of the plan, it does not resemble typical sanctuary management plans, typical refuge CCPs, or typical State of Hawai'i management plans. However, this plan and the accompanying environmental analysis meet all applicable Federal and State requirements.

### 3) Funding Estimates

This Monument Management Plan provides long-term guidance for management decisions over a 15-year horizon and sets forth desired outcomes, with strategies and activities to reach those outcomes, including the agencies' best estimate of future needs. These are sometimes substantially above current budget allocations and are included primarily for agency strategic planning and program prioritization purposes. This management plan does not constitute a commitment of funds, or a commitment to request funds, by Federal or State agencies. All funding for current and possible future Monument activities is subject to the budgeting and appropriations processes of the Federal and State governments.

## **EXECUTIVE SUMMARY**

Papahānaumokuākea Marine National Monument (Monument) in the Northwestern Hawaiian Islands comprises one of the largest protected areas in the world. The Monument, a vast, remote, and largely uninhabited marine region, encompasses an area of approximately 139,793 square miles (362,061 square kilometers) of Pacific Ocean in the northwestern extent of the Hawaiian Archipelago. Covering a distance of 1,200 miles, the 100-mile wide Monument is dotted with small islands, islets, and atolls and a complex array of marine and terrestrial ecosystems. This region and its natural and historic resources hold great cultural and religious significance to Native Hawaiians. It is also home to a variety of post-Western-contact historic resources, such as those associated with the Battle of Midway. As such, the Monument has been identified as a national priority for permanent protection as a Monument for its unique and significant confluence of conservation, ecological, historical, scientific, educational, and Native Hawaiian cultural qualities.

On June 15, 2006, President George W. Bush issued Presidential Proclamation 8031 establishing the Northwestern Hawaiian Islands Marine National Monument under the authority of the Antiquities Act of 1906 (16 U.S.C. 431). The Monument includes a number of existing federal conservation areas: the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, managed by the U.S. Department of Commerce through the National Oceanographic and Atmospheric Administration (NOAA); and Midway Atoll National Wildlife Refuge, Hawaiian Islands National Wildlife Refuge, and Battle of Midway National Memorial, managed by the U.S. Department of the Interior through the U.S. Fish and Wildlife Service (FWS). These areas remain in place within the Monument, subject to their applicable laws and regulations in addition to the provisions of the Proclamation.

The Northwestern Hawaiian Islands also include State of Hawai‘i lands and waters, managed by the State through the Department of Land and Natural Resources as the Northwestern Hawaiian Islands Marine Refuge and the State Seabird Sanctuary at Kure Atoll. These areas also remain in place and are subject to their applicable laws and regulations.

The President accordingly assigned management responsibilities to the Secretaries of Commerce and the Interior, acting through NOAA and FWS. The President also directed the Secretary of Commerce, in consultation with the Secretary of the Interior and the State of Hawaii, to modify, as appropriate, the plan developed by NOAA through the public national marine sanctuary designation process and for the two federal agencies to promulgate additional regulations.

The joint implementing regulations for the Monument were promulgated on August 29, 2006 (71 FR 51134, 50 CFR Part 404). These regulations codify the scope and purpose, boundary, definitions, prohibitions, and regulated activities for managing the Monument. Proclamation 8031 was later amended on March 6, 2007, to establish the Native Hawaiian name of the Monument, Papahānaumokuākea Marine National Monument, and clarify some definitions.

To provide the most effective management of the area, Governor Linda Lingle, Secretary of Commerce Carlos M. Gutierrez, and Secretary of the Interior Dirk Kempthorne signed a Memorandum of Agreement (MOA) on December 8, 2006, which provided for coordinated



administration of all the federal and state lands and waters within the boundaries of the Monument. The MOA provided that management of the Monument is the responsibility of the three parties acting as Co-Trustees: the State of Hawai‘i, Department of Land and Natural Resources; the U.S. Department of the Interior, FWS; and the U.S. Department of Commerce, NOAA. It also established the institutional arrangements for managing the Monument, including representation of Native Hawaiian interests by the Office of Hawaiian Affairs on the Monument Management Board.

The organizational structure for the Monument consists of:

- A Senior Executive Board composed of a designated senior policy official for each party that is directly responsible for carrying out the agreement and for providing policy direction for the Monument;
- A Monument Management Board (that reports to the Senior Executive Board) composed of representatives from the federal and state agency offices that carry out the day-to-day management and coordination of Monument activities; and
- An Interagency Coordinating Committee representing other state and federal agencies as appropriate to assist in the implementation of Monument management activities.

This Monument Management Plan (Plan) describes a comprehensive and coordinated management regime to achieve the vision, mission, and guiding principles of the Monument and to address priority management needs over the next 15 years. The Plan is organized into three main sections; introduction, management framework, and action plans that address specific issues related to priority management needs.

The introduction provides the vision and mission of the Monument. It also provides the background, setting, environmental and anthropologic stressors, as well as the status and condition of natural, cultural, and historic resources of the Monument.

The management framework for the Monument includes key elements to move toward an ecosystem approach to management. An ecosystem approach to management requires the implementation and coordination of multiple steps in a comprehensive and coordinated way. These key management framework elements include:

- The legal and policy basis for establishment of the Monument;
- The vision, mission, and guiding principles that provide the overarching policy direction for the Monument;
- Institutional arrangements between Co-Trustees and other stakeholders;
- Regulations and zoning to manage human activities and threats;
- Goals to guide the implementation of action plans and priority management needs; and
- Concepts and direction for moving toward a coordinated ecosystem approach to management.

The third section of the plan consists of 22 action plans that address six priority management needs and provide an organizational structure for implementing management strategies. These priority management needs are to understand and interpret Monument resources, conserve wildlife and their habitats, reduce threats to Monument resources, manage human activities, facilitate coordination, and achieve effective operations. Together, the priority management

needs, action plans, and strategies are aimed at achieving long-term ecosystem protection for the Monument.

The action plans contain strategies and activities that are aimed at achieving a desired outcome. Each action plan describes the issue or management need, the context and history of the action plan's particular issue or management need, and the strategies and activities planned for the Monument over the next 15 years. Ongoing evaluation and monitoring of these management actions will be conducted to provide informed decision-making and to provide feedback to management on the success of meeting the stated desired outcomes of each action plan.

The six priority management needs, action plans, and corresponding desired outcomes are as follows:

### **Understanding and Interpreting the Northwestern Hawaiian Islands**

- Marine Conservation Science Action Plan
  - ❖ Protect the ecological integrity of natural resources by increasing the understanding of the distributions, abundances, and functional linkages of marine organisms and their habitats in space and time to improve ecosystem-based management decisions in the Papahānaumokuākea Marine National Monument.
- Native Hawaiian Culture and History Action Plan
  - ❖ Increase understanding and appreciation of Native Hawaiian histories and cultural practices related to Papahānaumokuākea Marine National Monument and effectively manage cultural resources for their cultural, educational, and scientific values.
- Historic Resources Action Plan
  - ❖ Identify, document, preserve, protect, stabilize, and where appropriate, reuse, recover, and interpret historic resources associated with Midway Atoll and other historic resources within the Monument.
- Maritime Heritage Action Plan
  - ❖ Identify, interpret, and protect maritime heritage resources in Papahānaumokuākea Marine National Monument.

### **Conserving Wildlife and Habitats**

- Threatened and Endangered Species Action Plan
  - ❖ Safeguard and recover threatened and endangered plants and animals and other protected species within Papahānaumokuākea Marine National Monument.
- Migratory Birds Action Plan
  - ❖ Conserve migratory bird populations and habitats within Papahānaumokuākea Marine National Monument.
- Habitat Management and Conservation Action Plan
  - ❖ Protect, maintain, and where appropriate, restore the native ecosystems and biological diversity of Papahānaumokuākea Marine National Monument.



### **Reducing Threats to Monument Resources**

- Marine Debris Action Plan
  - ❖ Reduce the adverse effects of marine debris to Papahānaumokuākea Marine National Monument resources and reduce the amount of debris entering the North Pacific Ocean.
- Alien Species Action Plan
  - ❖ Detect, control, eradicate where possible, and prevent the introduction of alien species into Papahānaumokuākea Marine National Monument.
- Maritime Transportation and Aviation Action Plan
  - ❖ Investigate, identify, and reduce potential threats to Papahānaumokuākea Marine National Monument from maritime and aviation traffic.
- Emergency Response and Natural Resource Damage Assessment Action Plan
  - ❖ Minimize damage to Papahānaumokuākea Marine National Monument resources through coordinated emergency response and assessment.

### **Managing Human Uses**

- Permitting Action Plan
  - ❖ Implement an effective and integrated permit program for Papahānaumokuākea Marine National Monument that manages, minimizes, and prevents negative human impacts by limiting access only for those activities consistent with Presidential Proclamation 8031 and other applicable laws, regulations and executive orders.
- Enforcement Action Plan
  - ❖ Achieve compliance with all regulations within Papahānaumokuākea Marine National Monument.
- Midway Atoll Visitor Services Action Plan
  - ❖ Offer visitors opportunities to discover, enjoy, appreciate, protect, and honor the unique natural, cultural, and historic resources of Papahānaumokuākea Marine National Monument.

### **Coordinating Conservation and Management Activities**

- Agency Coordination Action Plan
  - ❖ Successfully collaborate with government partners to achieve publicly supported, coordinated management in Papahānaumokuākea Marine National Monument.
- Constituency Building and Outreach Action Plan
  - ❖ Cultivate an informed, involved constituency that supports and enhances conservation of the natural, cultural, and historic resources of Papahānaumokuākea Marine National Monument.
- Native Hawaiian Community Involvement Action Plan
  - ❖ Engage the Native Hawaiian community in active and meaningful involvement in Papahānaumokuākea Marine National Monument management.
- Ocean Ecosystems Literacy Action Plan
  - ❖ Cultivate an ocean ecosystems stewardship ethic, contribute to the nation's science and cultural literacy, and create a new generation of conservation leaders through formal environmental education.

### **Achieving Effective Monument Operations**

- Central Operations Action Plan
  - ❖ Conduct effective and well-planned operations with appropriate human resources and adequate physical infrastructure in the main Hawaiian Islands to support management of Papahānaumokuākea Marine National Monument.
- Information Management Action Plan
  - ❖ Consolidate and make accessible relevant information to meet educational, management, and research needs for Papahānaumokuākea Marine National Monument.
- Coordinated Field Operations Action Plan
  - ❖ Coordinate field activities and provide adequate infrastructure to ensure safe and efficient operations while avoiding impacts to the ecosystems in Papahānaumokuākea Marine National Monument.
- Evaluation Action Plan
  - ❖ Determine the degree to which management actions are achieving the vision, mission, and goals of Papahānaumokuākea Marine National Monument.

Finally, the appendices (Volume III) include supporting documents such as the unified permit policy, application, and instructions; Midway Atoll Visitor Services Plan; Presidential Proclamations 8031 and 8112; Monument regulations (50 CFR Part 404); the Memorandum of Agreement for Promoting Coordinated Management of the Northwestern Hawaiian Islands Marine National Monument; operational protocols and best management practices; and the International Maritime Organization Particularly Sensitive Sea Area Designation and Associated Protective Measures. Volume IV contains the Midway Atoll Conceptual Site Plan. Volume V is the Response to Comments, including comments on all components of the management plan, including the environmental assessment, and Cultural Impact Assessment.



**TABLE OF CONTENTS****i**

Executive Summary	ES-1
Acronyms	v

**1.0 INTRODUCTION 1**

<b>1.1 Monument Setting</b>	<b>5</b>
<b>1.2 Status and Condition of Natural Resources</b>	<b>27</b>
<b>1.3 Status and Condition of Cultural and Historic Resources</b>	<b>45</b>
<b>1.4 Environmental and Anthropogenic Stressors</b>	<b>57</b>
<b>1.5 Global Significance</b>	<b>81</b>

**2.0 MANAGEMENT FRAMEWORK 85**

<b>2.1 Legal Framework for the Monument</b>	<b>87</b>
<b>2.2 Policy Framework</b>	<b>89</b>
<b>2.3 Initial Management</b>	<b>97</b>
<b>2.4 Monument Management: The Vision, Mission, Guiding Principles, and Goals</b>	<b>105</b>
<b>2.5 Management Action Plans</b>	<b>107</b>

**3.0 ACTION PLANS TO ADDRESS PRIORITY MANAGEMENT NEEDS 111**

<b>3.1 Understanding and Interpreting the NWHI</b>	<b>117</b>
3.1.1 Marine Conservation Science Action Plan	119
3.1.2 Native Hawaiian Culture and History Action Plan	131
3.1.3 Historic Resources Action Plan	143
3.1.4 Maritime Heritage Action Plan	151
<b>3.2 Conserving Wildlife and Habitats</b>	<b>157</b>
3.2.1 Threatened and Endangered Species Action Plan	159
3.2.2 Migratory Birds Action Plan	173
3.2.3 Habitat Management and Conservation Action Plan	179
<b>3.3 Reducing Threats to Monument Resources</b>	<b>191</b>
3.3.1 Marine Debris Action Plan	193
3.3.2 Alien Species Action Plan	201
3.3.3 Maritime Transportation and Aviation Action Plan	217
3.3.4 Emergency Response and Natural Resource Damage Assessment Action Plan	223
<b>3.4 Managing Human Uses</b>	<b>231</b>
3.4.1 Permitting Action Plan	233
3.4.2 Enforcement Action Plan	247
3.4.3 Midway Atoll Visitor Services Action Plan	253

<b>3.5</b>	<b>Coordinating Conservation and Management Activities</b>	<b>259</b>
3.5.1	Agency Coordination Action Plan	261
3.5.2	Constituency Building and Outreach Action Plan	267
3.5.3	Native Hawaiian Community Involvement Action Plan	279
3.5.4	Ocean Ecosystems Literacy Action Plan	285
<b>3.6</b>	<b>Achieving Effective Monument Operations</b>	<b>293</b>
3.6.1	Central Operations Action Plan	295
3.6.2	Information Management Action Plan	301
3.6.3	Coordinated Field Operations Action Plan	307
3.6.4	Evaluation Action Plan	325

<b>GLOSSARY</b>	<b>331</b>
-----------------	------------

<b>REFERENCES</b>	<b>341</b>
-------------------	------------

<b>APPENDICES (See Volume III)</b>
------------------------------------

**Volume II:** Environmental Assessment

**Volume III:** Appendices and Supporting Documents

- Appendix A Permitting Process
- Appendix B Midway Atoll Visitor Services Plan
- Appendix C Presidential Proclamations 8031 and 8112
- Appendix D Monument Regulations
- Appendix E Monument Memorandum of Agreement
- Appendix F Operational Protocols and Best Management Practices
- Appendix G IMO Particularly Sensitive Sea Area Designation and Associated Protective Measures

**Volume IV:** Midway Atoll Conceptual Site Plan

**Volume V:** Response to Comments

<b>LIST OF FIGURES</b>
------------------------

- 1.1 Hawaiian Archipelago Including the Northwestern Hawaiian Islands
- 1.2 Papahānaumokuākea Marine National Monument Overlaid on Eastern North America
- 1.3 Atoll Formation
- 1.4 Diagram of Central Pacific Gyre
- 1.5 Annual Rainfall (inches) Tern Island, French Frigate Shoals
- 1.6 Nihoa
- 1.7 Mokumanamana (Necker Island)
- 1.8 French Frigate Shoals



- 1.9 Gardner Pinnacles
- 1.10 Maro Reef
- 1.11 Laysan Island
- 1.12 Lisianski Island and Neva Shoal
- 1.13 Pearl and Hermes Atoll
- 1.14 Midway Atoll
- 1.15 Kure Atoll
- 1.16 Banks and Shoals near French Frigate Shoals
- 1.17 Differences in Coral Cover among Regions within the NWHI
- 1.18 Size Frequency Distribution of Pearl Oyster Population at Pearl and Hermes Atoll in 1930 and 2003
- 1.19 Comparison of Biomass in Major Trophic Guilds between the Northwestern Hawaiian Islands and the Main Hawaiian Islands
- 1.20 Geographic Pattern of Apex Predator Biomass Density (t/ha) at the 10 Emergent Northwestern Hawaiian Islands Reefs
- 1.21 Percent Endemism (Based on Numerical Densities) at Each of 10 Emergent NWHI Reefs
- 1.22 Long-Term Trend in the Abundance of Nesting Hawaiian Green Sea Turtles
- 1.23 Map from NOAA Showing Hawaiian Monk Seal Breeding Sites and Subpopulation Sizes and Foraging Area
- 1.24 Quantity of Marine Debris Removal in the Northwestern Hawaiian Islands
- 1.25 Overall Prevalence of Disease in the Four Major Coral Genera in the NWHI
- 1.26 Spread of Bluestripe Snapper throughout the Hawaiian Archipelago after Introduction to O‘ahu in 1958
  
- 2.1 Map of the Papahānaumokuākea Marine National Monument and Zones
- 2.2 Adaptive Management Cycle to Inform Management and Decisionmaking
- 2.3 Monument Management Policy Framework
- 2.4 Organization of Action Plan by Priority Management Need
  
- 3.1 Perceived Number of Hawaiian Islands

## LIST OF TABLES

- 1.1 Seabird Species Known to Breed in Papahānaumokuākea Marine National Monument
- 1.2 Number of Terrestrial Arthropod Species in the NWHI Summarized by Order and Island
- 1.3 Biogeographic Description of Land Plants of Papahānaumokuākea Marine National Monument
- 1.4 Species Occurring in the NWHI Listed as Threatened or Endangered under the Endangered Species Act and by the State of Hawai‘i (HRS 195D)
- 1.5 Marine Alien Species in the Northwestern Hawaiian Islands
  
- 2.1 Monument Vision, Mission, Guiding Principles, and Goals
  
- 3.1 Total Estimated Cost to Fully Implement Actions Plan by Year

- 3.1.1 Summary of Strategies, Activities, and Agency Leads for Marine Conservation Science
- 3.1.2 Summary of Strategies, Activities, and Agency Leads for Native Hawaiian Culture and History
- 3.1.3 Summary of Strategies, Activities, and Agency Leads for Historic Resources
- 3.1.4 Summary of Strategies, Activities, and Agency Leads for Maritime Heritage
  
- 3.2.1 Summary of Strategies, Activities, and Agency Leads for Threatened and Endangered Species
- 3.2.2 Summary of Strategies, Activities, and Agency Leads for Migratory Birds
- 3.2.3 Summary of Strategies, Activities, and Agency Leads for Habitat Management and Conservation
  
- 3.3.1 Summary of Strategies, Activities, and Agency Leads for Marine Debris
- 3.3.2 Summary of Strategies, Activities, and Agency Leads for Alien Species
- 3.3.3 Summary of Strategies, Activities, and Agency Leads for Maritime Transportation and Aviation
- 3.3.4 Summary of Strategies, Activities, and Agency Leads for Emergency Response and Natural Resource Damage Assessment
  
- 3.4.1 Summary of Strategies, Activities, and Agency Leads for Permitting
- 3.4.2 Summary of Strategies, Activities, and Agency Leads for Enforcement
- 3.4.3 Summary of Strategies, Activities, and Agency Leads for Midway Atoll Visitor Services
  
- 3.5.1 Summary of Strategies, Activities, and Agency Leads for Agency Coordination
- 3.5.2 Summary of Strategies, Activities, and Agency Leads for Constituency Building and Outreach
- 3.5.3 Summary of Strategies, Activities, and Agency Leads for Native Hawaiian Community Involvement
- 3.5.4 Summary of Strategies, Activities, and Agency Leads for Ocean Ecosystems Literacy
  
- 3.6.1 Summary of Strategies, Activities, and Agency Leads for Central Operations
- 3.6.2 Summary of Strategies, Activities, and Agency Leads for Information Management
- 3.6.3 Summary of Strategies, Activities, and Agency Leads for Coordinated Field Operations
- 3.6.4 Summary of Strategies, Activities, and Agency Leads for Evaluation



## ACRONYMS AND ABBREVIATIONS

AAUS	American Academy of Underwater Sciences
AIS	Alien Invasive Species
ATBA	Areas to be Avoided
AUV	Autonomous Underwater Vehicle
BLNR	Board of Land and Natural Resources, State of Hawai‘i
BRAC	Base Realignment and Closure
CFR	Code of Federal Regulations
COPPS	Community Oriented Policing and Problem Solving
CoRIS	NOAA Coral Reef Information System
CPUE	Catch-per-unit-effort
CRED	PIFCS Coral Reef Ecosystem Division
CRER	Coral Reef Ecosystem Reserve
DLNR	State of Hawai‘i Department of Land and Natural Resources
DOC	U.S. Department of Commerce
DOD	U.S. Department of Defense
DOI	U.S. Department of the Interior
EPA	U.S. Environmental Protection Agency
ERAT	Emergency Response and Assessment Team
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FAD	Fish Aggregation Device
FP	Fibropapillomatosis
FWS	U.S. Fish and Wildlife Service
FFS	French Frigate Shoals
GIS	Geographic Information System
HAMER	Hawaiian Archipelago Marine Ecosystem Research Plan
HAR	Hawaii Administrative Rules
HAZWOPR	Hazardous Waste Operations and Emergency Response
HIMB	Hawai‘i Institute of Marine Biology
HINWR	Hawaiian Islands National Wildlife Refuge
HRS	Hawaii Revised Statutes
HURL	Hawai‘i Undersea Research Laboratory
IASMP	Integrated Alien Species Management Plan
ICC	Interagency Coordinating Committee
ICS	Incident Command System
IHO	International Hydrographic Organization
IMaST	Information Management and Spatial Technology
IMO	International Maritime Organization
IPCC	Intergovernmental Panel on Climate Change
LORAN	Long Range Aid to Navigation
MARPOL	International Convention for the Prevention of Pollution from Ships 1973
MBTA	Migratory Bird Treaty Act
MMB	Monument Management Board
MMPA	Marine Mammal Protection Act

MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NCCOS	National Center for Coastal Ocean Science
NEPA	National Environmental Policy Act 1982
NHPA	National Historic Preservation Act
NHWIRAMP	Northwestern Hawaiian Islands Reef Assessment and Monitoring Program
NMFS	National Marine Fisheries Service of the National Oceanic and Atmospheric Administration
NOAA	National Oceanic and Atmospheric Administration
NOWRAMP	Northwestern Hawaiian Islands Reef Assessment and Monitoring Program
NRC	National Research Council
NRDA	Natural Resource Damage Assessment
NRSP	Natural Resources Science Plan
NWHI	Northwestern Hawaiian Islands
NWR	National Wildlife Refuge
OHA	Office of Hawaiian Affairs
ONMS	Office of National Marine Sanctuaries
OPA	Oil Pollution Act
PCB	Polychlorinated Biphenyls
PIFSC	NMFS Pacific Islands Fisheries Science Center
PIMS	Papahānaumokuākea Information Management System
PIRO	NMFS Pacific Islands Regional Office
PISCO	Partnership for Interdisciplinary Studies of Coastal Oceans
PSSA	Particularly Sensitive Sea Area
RAC	Reserve Advisory Council
RAMP	Resource Assessment and Monitoring Program
ROP	Reserve Operations Plan
ROV	Remotely Operated Vehicle
R/V	Research Vessel
SCUBA	Self-Contained Underwater Breathing Apparatus
SEB	Senior Executive Board
SHIELDS	Sanctuaries Hazardous Incident Emergency Logistics Database System
SMA	Special Management Area
SOU	Special Ocean Use
SPA	Special Preservation Area
SST	Scientific Support Team
t/ha	tons per hectare
UNESCO	United Nations Educational, Scientific, and Cultural Organization
USDA	U.S. Department of Agriculture
UXO	Unexploded Ordnance
VMS	Vessel Monitoring System



# **Introduction**

---

- 1.1 Monument Setting**
  - 1.2 Status and Condition of Natural Resources**
  - 1.3 Status and Condition of Cultural and Historic Resources**
  - 1.4 Environmental and Anthropogenic Stressors**
  - 1.5 Global Significance**
-

## 1.0 Introduction

Presidential Proclamation 8031, issued by President George W. Bush on June 15, 2006, set aside the Northwestern Hawaiian Islands (NWHI) as the Papahānaumokuākea Marine National Monument (Monument), creating one of the world’s largest marine protected areas, managed to protect ecological integrity. This Monument designation adds to the mo‘okū‘auhau, or the genealogy, of the NWHI, as a place of deep significance to Native Hawaiians, and now, to the nation and the world.

In the Pacific, the NWHI have played a significant role in the culture and traditions of Native Hawaiians. Significant archaeological finds, as well as oral and written histories, confirm a deep relationship between the Hawaiian people and the NWHI. The region was also considered a sacred place, as evidenced by the many wahi kūpuna (ancestral sites) on the islands of Nihoa and Mokumanamana.

Monument Vision and Mission
<p><b>Vision</b></p> <p>To forever protect and perpetuate ecosystem health and diversity and Native Hawaiian cultural significance of Papahānaumokuākea.</p>
<p><b>Mission</b></p> <p>Carry out seamless integrated management to ensure ecological integrity and achieve strong, long-term protection and perpetuation of NWHI ecosystems, Native Hawaiian culture, and heritage resources for current and future generations.</p>

The NWHI have been the focus of various conservation efforts by the United States, beginning in 1903, when President Theodore Roosevelt sent in Marines to stop the slaughter of seabirds at Midway Atoll. Over the next 100 years, and through the efforts of six U.S. Presidents and one Hawai‘i Governor, the region received increasing protection, with the culmination being Proclamation 8031 that created the Monument.

Globally, the NWHI are a natural and cultural treasure of outstanding scientific, conservation, and aesthetic value. The establishment of the Monument builds on the long-standing efforts of state and federal agencies, nongovernmental organizations, stakeholders, and the public to provide for long-term protection of the marine and terrestrial ecosystems of the NWHI and the preservation of cultural and historic resources.

Management of the Monument is the responsibility of three Co-Trustees: the State of Hawai‘i, through the Department of Land and Natural Resources; the U.S. Department of the Interior (DOI), through the Fish and Wildlife Service (FWS); and the U.S. Department of Commerce (DOC), through the National Oceanic and Atmospheric Administration (NOAA). The Co-Trustees are committed to preserving the ecological integrity of the Monument and perpetuation of the NWHI ecosystems, Native Hawaiian culture, and historic resources. NOAA and FWS promulgated final regulations for the Monument under Title 50 Code of Federal Regulations (CFR) Part 404 on August 29, 2006. These regulations codify the scope and purpose, boundary, definitions, prohibitions, and regulated activities for managing the Monument. In addition, the Co-Trustees developed and signed a Memorandum of Agreement (MOA) on December 8, 2006, to establish roles and responsibilities of coordinating bodies and mechanisms for managing the Monument.



Proclamation 8031 states that the Secretary of Commerce, through NOAA, has primary responsibility regarding the management of the marine areas of the Monument, in consultation with the Secretary of the Interior. The Secretary of the Interior, through FWS, has sole responsibility for the areas of the Monument that overlay the Midway Atoll National Wildlife Refuge (NWR), the Battle of Midway National Memorial, and the Hawaiian Islands National Wildlife Refuge, in consultation with the Secretary of Commerce. Nothing in the Proclamation diminishes or enlarges the jurisdiction of the State of Hawai‘i. The State of Hawai‘i, through the Department of Land and Natural Resources, has primary responsibility for the Northwestern Hawaiian Islands Marine Refuge and State Seabird Sanctuary at Kure Atoll.

The MOA also requires the Co-Trustees to develop a Monument Management Plan for ensuring the coordinated management of coral reef ecosystems and related marine environments, terrestrial resources, and cultural and historic resources of the Monument. To develop the Monument Management Plan, the Co-Trustees began with the final “draft” of NOAA’s Office of National Marine Sanctuaries (ONMS, formerly the National Marine Sanctuary Program) proposal. This document provided a good basis and background information from which to start. Requirements for the FWS National Wildlife Refuge System Comprehensive Conservation Planning process were added. Alternative plans and management approaches were developed and reviewed in an Environmental Assessment (see Volume II, Final Environmental Assessment). Finally, through a process of review and synthesis, the final plan was developed.

The Monument is situated in the northwestern portion of the Hawaiian Archipelago, located northwest of the Island of Kaua‘i and the other main Hawaiian Islands (Figure 1.1). A vast, remote, and largely uninhabited region, the Monument encompasses an area of approximately 139,797 square miles (362,075 square kilometers) of the Pacific Ocean. Spanning a distance of approximately 1,200 miles (1,043 nautical miles/1,931 kilometers), the 115-mile-wide (100 nautical mile/185.2 kilometer) Monument is dotted with small islands, islets, reefs, shoals, submerged banks, and atolls that extend from subtropical latitudes to near the northern limit of coral reef development.

The Monument includes a complex array of terrestrial and marine ecosystems. The NWHI are intimately connected to Native Hawaiians on genealogical, cultural, and spiritual levels (Beckwith 1951; DOI 2008). The region’s natural resources, together with its rich Native Hawaiian cultural and other historic resources, give this Monument a unique stature as one of the most significant protected areas in the world.

This Monument Management Plan describes a comprehensive and coordinated management regime to achieve the vision, mission, and guiding principles of the Monument and to address priority management needs over the next 15 years. The plan is organized into three sections. This Introduction, Section 1, describes the Monument’s setting and the current status and condition of the ecosystem and cultural resources based on existing scientific and historic knowledge. It also describes known anthropogenic stressors that affect Monument resources or may do so in the future.

The management framework for the Monument is described in Section 2 and includes key elements to move toward an ecosystem approach to management. This framework comprises the following elements:

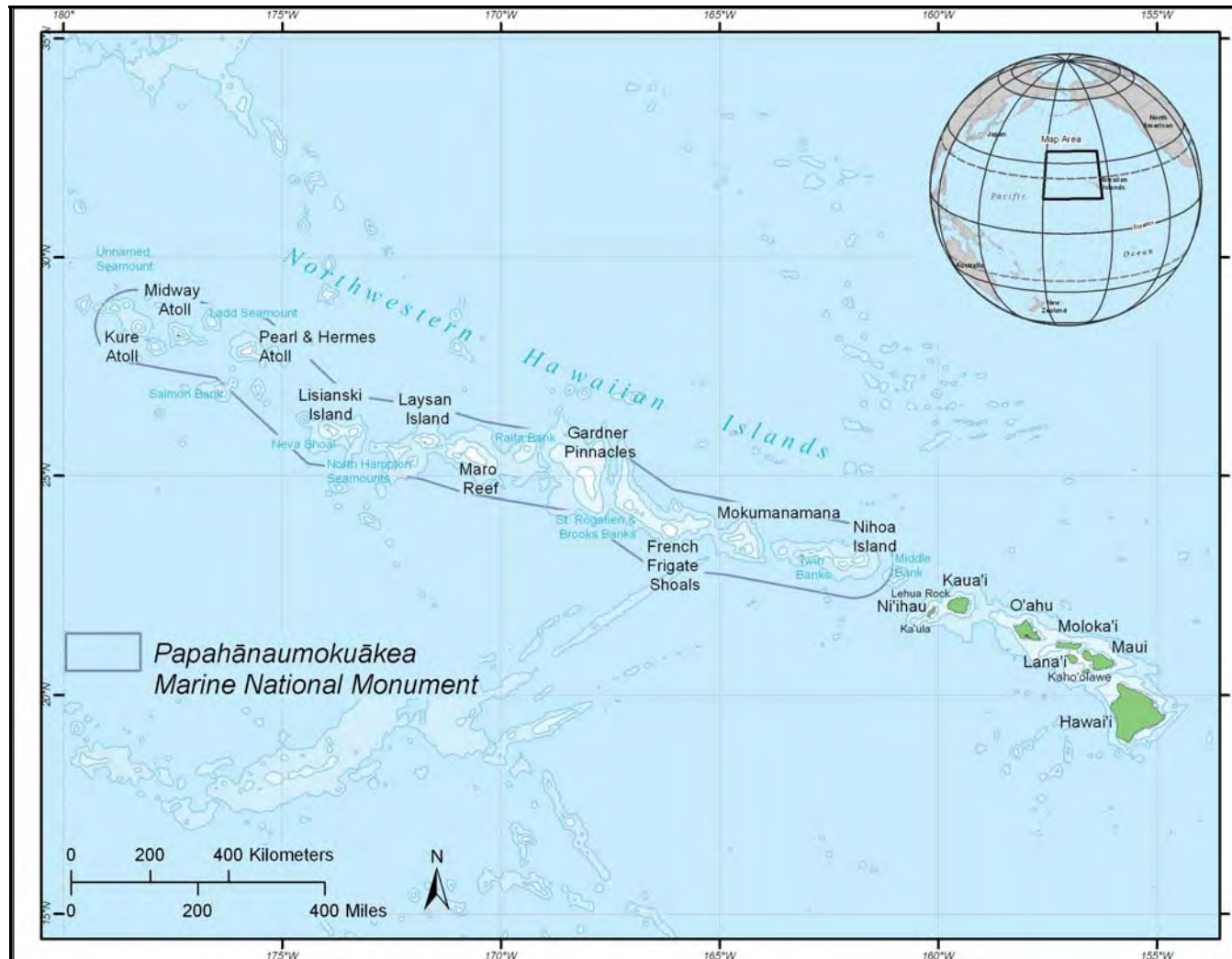
- The legal and policy basis leading to the establishment of the Monument
- Vision, mission, and guiding principles that provide an overarching policy direction for the Monument
- Goals to guide the implementation of specific action plans to address priority management needs
- Institutional arrangements for management among the Co-Trustees and other stakeholders
- Regulations and zoning to manage human activities and threats
- Concepts and direction to move toward a coordinated ecosystem approach to management

Section 3 presents action plans to address six priority management needs over a 15-year planning horizon. These priority management needs are:

- Understanding and interpreting the NWHI
- Conserving wildlife and habitats
- Reducing threats to Monument resources
- Managing human uses
- Coordinating conservation and management activities
- Achieving effective Monument operations

Each action plan consists of multiple strategies and activities to address one or more priority management needs and achieve a desired outcome. Performance measures will be developed to evaluate implementation of the Monument Management Plan. Monument regulations and other policy and operating instruments are provided in the appendices, along with references.

Figure 1.1 Hawaiian Archipelago Including the Northwestern Hawaiian Islands (Nihoa to Kure Atoll) and Main Hawaiian Islands (Hawai'i to Kaua'i). Inset shows the Hawaiian Archipelago in the Pacific Ocean.





## 1.1 Monument Setting

### Hānau Moku—The Birth of Islands

Birth is a core theme in Native Hawaiian culture. Pō, the primordial darkness from which all life springs and returns to after death (Kikiloi 2006), is seen as birthing the world and all of the Hawaiian gods. The union of her progeny, Kumulipo and Pō‘ele, births all the creatures of the world, beginning in the oceans with the coral polyp—a genealogy that starts with the simplest life form and moves to the more complex.

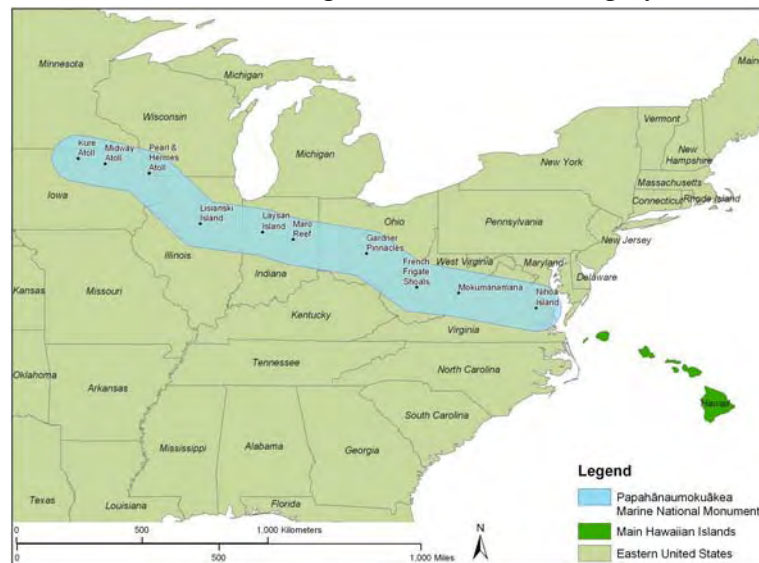
In keeping with the symbolism of birth, Native Hawaiians view the rising of magma from deep within the earth as birthing of the islands—the physical manifestation of the union between the earth mother, Papahānaumoku, and sky father, Wākea. The symbolism of this union is also the foundation for the name of the Monument: Papahānaumokuākea.

From a Native Hawaiian perspective, the NWHI are the kūpuna (elders or grandparents) of Native Hawaiians. As a kupuna, each island is our teacher; each island has its own unique message. As the younger generation, humans are tasked to mālama (care for) our kūpuna. It is our kuleana (responsibility) to take the time to listen to their wisdom.

### Overview – Geographic, Geological and Ecosystem Setting

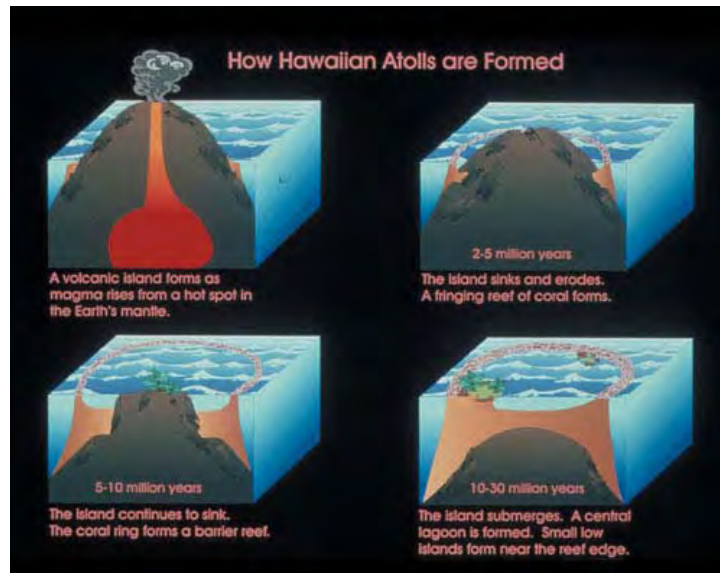
As one of the world’s largest marine protected areas, the Papahānaumokuākea Marine National Monument encompasses a vast area of the Pacific. Extending for a distance of roughly 1,200 statute miles (1,043 nautical miles, 1,931 kilometers) by 115 statute miles (100 nautical miles, 185 kilometers), the Monument covers an area of approximately 140,000 square miles (362,100 square kilometers) and includes a rich, varied, and unique natural, cultural, and historic legacy. The Monument is located approximately between latitudes 22° N. and 30° N. and longitudes 161° W. and 180° W. within the north-central Pacific Ocean.

Overlaid on a map of the continental United States, the Monument would cover a distance from the Midwest to the eastern U.S. coastline (figure 1.2).



**Figure 1.2 Papahānaumokuākea Marine National Monument Overlaid on Eastern North America.**

The islands and atolls of the Monument constitute the northwestern three-quarters of the world's longest and most remote island chain. Formed millions of years ago, the islands were created by a sequential series of underwater shield volcanoes which, in combination with the main Hawaiian Islands, form the Hawaiian Archipelago. These once lofty islands have been transported northwest, as if on a conveyor belt, by the movements of the Pacific Plate to their current locations (Dalrymple et al. 1974). Because of the pervasive and unrelenting forces of subsidence and erosion, all that remains today are small patches of ancient land, and shoals and reefs now lie where magnificent mountains once loomed. Northwest of Kaua'i and Ni'ihau, the rocky islands, atolls, and reefs become progressively older and smaller.



**Figure 1.3 Atoll Formation.**

Beginning 155 miles (249.4 kilometers) from the main Hawaiian Island of Kaua'i, the 10 islands and atolls of this chain extend for 1,200 miles (1,931 kilometers) and are referred to as the NWHI, in past decades as the Leeward or Kūpuna Islands, and now as Papahānaumokuākea. None of these islands is more than 2 square miles (5 square kilometers) in size, and all but four have an average mean height less than 32 feet (10 meters). As a group, they represent a classic geomorphological sequence, consisting of highly eroded high islands, near-atolls with volcanic pinnacles jutting from surrounding lagoons, true ring-shaped atolls with roughly circular rims and central lagoons, and secondarily raised atolls, one of which has an interior hypersaline lake. These islands are also surrounded by more than 30 submerged ancillary banks and seamounts. This geological progression along the Hawaiian Ridge continues northwestward beyond the last emergent island, Kure Atoll, as a chain of submerged platforms that makes a sudden northward bend to become the Emperor Seamounts, which extend across the entire North Pacific to the base of the Kamchatka Peninsula in Russia. This unbroken chain of progressively more senescent volcanic structures essentially tracks the movement of the Pacific tectonic plate over the past 80 million years and has provided some of the most compelling evidence that form the basis for current theories of hot-spot-mediated island formation and global plate tectonic movements.

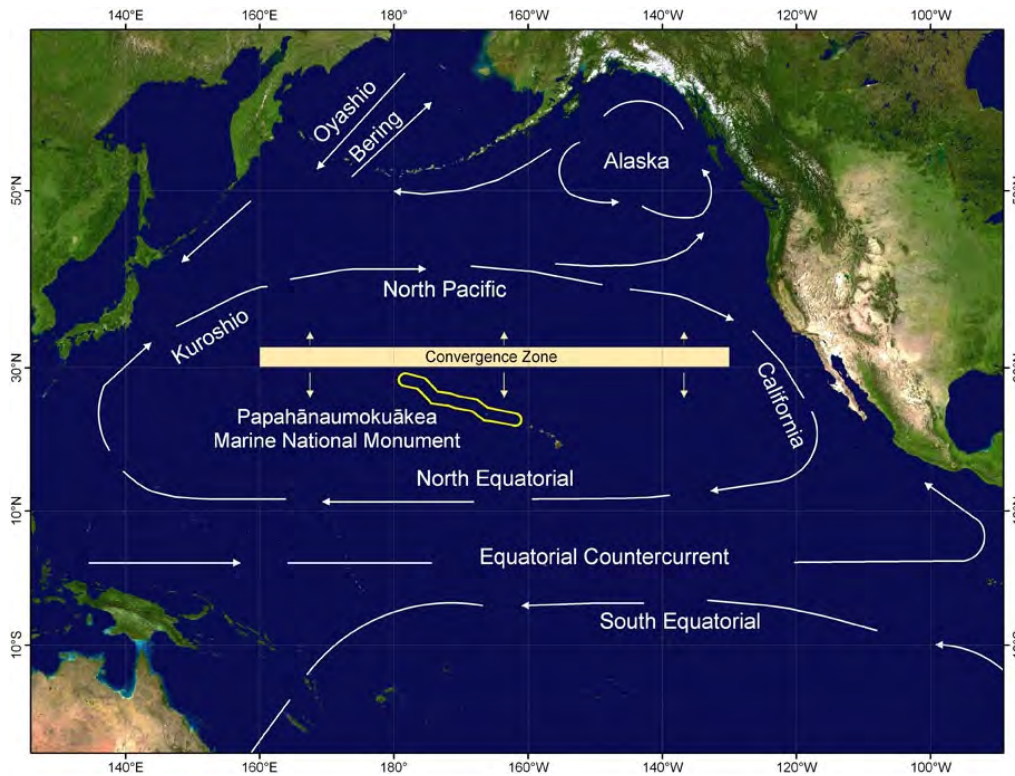
The Monument supports a diverse and unique array of both marine and terrestrial flora and fauna. With a spectrum of bathymetry and topography ranging from abyssal basins at depths greater than 15,000 feet (4,572 meters) below sea level to rugged hillslopes and cliff tops on Nihoa and Mokumanamana (Necker Island) at up to 903 feet (275.2 meters) above sea level, the Monument represents a complete cross section of a Pacific archipelagic ecosystem. Habitats contained within the Monument include deep pelagic basins, abyssal plains, submarine escarpments, deep and shallow coral reefs, shallow lagoons, littoral shores, dunes, and dry

coastal grasslands and shrublands. Relatively high percentages of most taxonomic groups in the NWHI are found nowhere else on earth.

Nutrient conditions in the NWHI may be influenced by local and regional factors. Upwelling may occur in response to localized wind and bathymetric features. The Monument is located at the northern edge of the oligotrophic tropical Pacific, in the North Pacific central gyre ecosystem (see Figure 1.4). Regional factors are largely influenced by the position of the subtropical front and associated high chlorophyll content of waters north of the front. High-chlorophyll waters intersect the northern portions of the NWHI during southward winter migrations of the subtropical front. The influx of nutrients to the NWHI from these migrations is considered a significant factor influencing different trophic levels in the NWHI (Polovina et al. 1995). It is near the 18°C sea surface isotherm, a major ecological transition zone in the northern Pacific. This boundary, also known as the “chlorophyll front,” varies in position both seasonally and annually, occasionally transgressing the Monument boundary and surrounding the northern atolls of Kure and Midway. The movement of the front influences overall ocean productivity, and resultant recruitment of certain faunal elements such as Hawaiian monk seals and Laysan and black-footed albatrosses (Polovina et al. 1994). The northernmost atolls also are occasionally affected by an episodic eastward extension of the Western Pacific warm pool, which can lead to higher summer ocean temperatures at Kure than are found in the more “tropical” waters of the main Hawaiian Islands farther south. This interplay of oceanography and climate is still incompletely understood, but is a dynamic not seen in most other tropical atoll ecosystems, and it provides a useful natural laboratory for understanding phenomena such as periodic coral bleaching and the effects of El Niño and La Niña ocean circulation patterns.

Ocean currents, waves, temperature, nutrients, and other oceanographic parameters and conditions influence ecosystem composition, structure, and function in the NWHI. The archipelago is influenced by a wide range of oceanographic conditions that vary on spatial and temporal scales. Spatial variability in oceanographic conditions ranges from a localized temperature regime that may affect a small portion of a reef to a temperature regime that influences the entire Monument. Temporal variability in ocean conditions may range from hourly and daily changes to seasonal, annual, or decadal cycles in nutrient inputs, sea level heights, current patterns, and other large-scale oceanographic processes (Polovina et al. 1994). Currents play an important role in the dispersal and recruitment of marine life in the NWHI. Surface currents in the NWHI are highly variable in both speed and direction (Firing and Brainard 2006), with long-term average surface flow being from east to west in response to the prevailing northeast trade wind conditions. The highly variable nature of the surface currents is a result in large part of eddies created by local island effects on large-scale circulation. The distribution of corals and other shallow-water organisms is also influenced by exposure to ocean waves. The size and strength of ocean wave events have annual, interannual, and decadal time scales. Annual extratropical storms (storms that originate outside of tropical latitudes) create high waves during the winter. Decadal variability in wave power is possibly related to the Pacific Decadal Oscillation events (Mantua et al. 1997). A number of extreme wave events were recorded during the periods 1985 to 1989 and 1998 to 2002, and anomalously low numbers of extreme wave events occurred during the early 1980s and from 1990 to 1996. Marine debris accumulation in shallow water areas of the NWHI is also influenced by large- and small-scale ocean circulation patterns and El Niño and La Niña events (Morishige et al. 2007).





**Figure 1.4 Diagram of Central Pacific Gyre. The North Pacific, California, North Equatorial, and Kuroshio currents along with atmospheric winds generate the North Pacific Subtropical Gyre. The Subtropical Convergence Zone, an area where marine debris is known to accumulate, shifts seasonally between 23° N and 37° N latitude.**

The physical isolation of the Hawaiian Archipelago explains the relatively low species diversity and high endemism levels of its biota (DeMartini and Friedlander 2004). The direction of flow of surface waters explains biogeographic relationships between the NWHI and other sites, such as Johnston Atoll to the south (Grigg 1981), as well as patterns of endemism, population structure, and density of reef fish within the archipelago (DeMartini and Friedlander 2006).

The shallow marine component of the Monument is nearly pristine and has been described as a “predator-dominated ecosystem,” an increasingly rare phenomenon in the world’s oceans (Friedlander and DeMartini 2002). Large, predatory fish—such as sharks, giant trevally, and Hawaiian grouper—that are rarely seen and heavily overfished in populated areas of the world are extremely abundant in the waters of the Monument. For instance, such species comprise only 3 percent of fish biomass in the heavily used main Hawaiian Islands, but by contrast represent 54 percent of fish biomass in the waters of the Monument. The NWHI are also characterized by a high degree of endemism in reef fish species, particularly at the northern end of the chain, with endemics comprising more than 50 percent of the population in terms of numerical abundance (DeMartini and Friedlander 2004).

Live coral cover is highest in the middle of the chain, with Lisianski Island and Maro Reef having 59.3 percent and 64.1 percent of their respective available substrate covered with living corals (Maragos et al. 2004). Coral species richness is also highest in the middle of the chain,

reaching a maximum of 41 reported coral species at French Frigate Shoals (Maragos et al. 2004). The coral reefs of the Monument are undisturbed by fishing or tourism, with excellent health and high species richness; preliminary faunal inventories indicate that many of their constituent species remain undocumented, and new coral species are still being discovered in this area.

The majority of the Monument consists of deep pelagic waters that surround the island platforms. At least 15 banks lie at depths between 100 and 1,300 feet (30 and 400 meters) within the Monument, providing important habitat for bottomfish and lobster species, although only a few of these banks have been studied in any detail (Kelley and Ikehara 2006). These waters represent critical deepwater foraging grounds for Hawaiian monk seals (Parrish et al. 2002) as well as a spatial refugium for pelagic fishes such as tunas and their allies.

Scientists using deep-diving submersibles have established the presence of deepwater precious coral beds at depths of 1,200 to 1,330 feet (365 to 406 meters); these include ancient gold corals whose growth rate is now estimated to be only a few centimeters every hundred years and whose ages may exceed 2,500 years (Roark et al. 2006). At depths below 1,640 feet (500 meters), a diverse community of octocorals and sponges flourish. These deepwater sessile animals prefer hard substrates devoid of sediments (Baco-Taylor et al. 2006). Even deeper yet, the abyssal depths of the Monument harbor low densities of organisms, and yet the total biomass of the abyssal community is quite large because of the large area of this habitat type within the Monument. Occupying this habitat are odd and poorly documented fishes and invertebrates, many with remarkable adaptations to this extreme environment.

The deep waters are also important insofar as they support an offshore mesopelagic boundary community (Benoit-Bird et al. 2002), a thick layer of pelagic organisms that rests in the deep ocean (1,300 to 2,300 feet, or 400 to 700 meters) during the day, then migrates up to shallower depths (from near zero to 1,300 feet or 400 meters) at night, providing a critical source of nutrition for open-ocean fishes, seabirds, and marine mammals. Overall, the fauna of the Monument's waters below standard SCUBA diving depths remains poorly surveyed and documented, representing an enormous opportunity for future scientific research in a system largely undisturbed by trawling or other forms of resource extraction.

Rates of marine endemism in the NWHI are among the highest in the world. In addition, the sheer mass of apex predators in the marine system is simply not seen in areas subject to higher levels of human impact (DeMartini and Friedlander 2004). The Monument represents one of the last remaining unspoiled protected areas on the planet, and virtually every scientific exploration to the area is a voyage of discovery. In the course of just one 3-week research cruise in the fall of 2006, conducted as part of the global Census of Marine Life project, more than 100 potentially new species were discovered at French Frigate Shoals alone.

In contrast to its marine systems, the terrestrial area of the Monument is comparatively small but supports significant endemic biodiversity. Six species of plants, including a fan palm, and four species of endemic birds, including remarkably isolated species such as the Nihoa finch, Nihoa millerbird, Laysan finch, and Laysan duck, one of the world's rarest ducks, are found only in the NWHI. Of these, the Laysan finch and Laysan duck occurred elsewhere in the archipelago in prehistory (Morin and Conant 2002). In addition, more than 14 million seabirds nest on the tiny

islets in the chain, including 99 percent of the world's Laysan albatrosses and 98 percent of the world's black-footed albatrosses. Although still poorly documented, the terrestrial invertebrate fauna also shows significant patterns of precinctive speciation, with endemic species present on Nihoa, Mokumanamana, French Frigate Shoals, Laysan, Lisianski, Pearl and Hermes, and Kure.

### **Climate**

The climate of the entire Hawaiian archipelago features mild temperatures year-round, moderate humidities, persistent northeasterly trade winds, and infrequent severe storms. Hawai'i's climate is notable for its low day-to-day and month-to-month variability (Giambelluca and Schroeder 1998). The climate is influenced by the marine tropical or marine Pacific air masses, depending on the season. During the summer, the Pacific High Pressure System becomes dominant with the ridge line extending across the Pacific north of Kure and Midway. This system places the region under the influence of easterly winds, with marine tropical and trade winds prevailing. During the winter, especially from November through January, the Aleutian Low moves southward over the North Pacific, displacing the Pacific High before it. The Kure-Midway region is then affected by either marine Pacific or marine tropical air, depending on the intensity of the Aleutian Low or the Pacific High Pressure System (Amerson et al. 1974). The surrounding ocean has a dominant effect on the weather of the entire archipelago.

Sea surface temperature is an important physical factor influencing coral reefs and other marine ecosystems. Maximum monthly climatological mean sea-surface temperature measured over the last 20 years at Kure is 80.6 °F (27 °C) in August and September (NOAA Pathfinder SST time series; Hoeke et al. 2006), with monthly minimums in February at 66.2 °F (19 °C). The large seasonal temperature fluctuations at the northern end of the archipelago result in the coldest and sometimes the warmest sea surface temperatures in the entire Hawaiian chain (Brainard et al. 2004). At the southern end of the Monument, the annual variation in sea surface temperature is much less, with French Frigate Shoals varying only between 74 and 81.5° F (23.3 and 27.5° C) throughout the year. During the period between July and September 2002, sea surface temperatures along the entire Hawaiian Archipelago were anomalously warm, resulting in widespread mass coral bleaching, particularly in the three northern atolls.

Air temperature at the northern end of the archipelago (Kure and Midway atolls) varies between 51 and 92 °F (11 and 33 °C). Air temperature measurements made at six sites on Nihoa (23° N. latitude) from March 2006 to March 2007 ranged between 61 and 94 °F (16 and 34 °C). Annual rainfall amounts at Tern Island, French Frigate Shoals are shown in Figure 1.5. Annual rainfall over the last 26 years has been 28.85 inches (73.28 centimeters) on average, ranging between 15.99 and 41.04 inches (40.61 and 104.24 centimeters) per year.



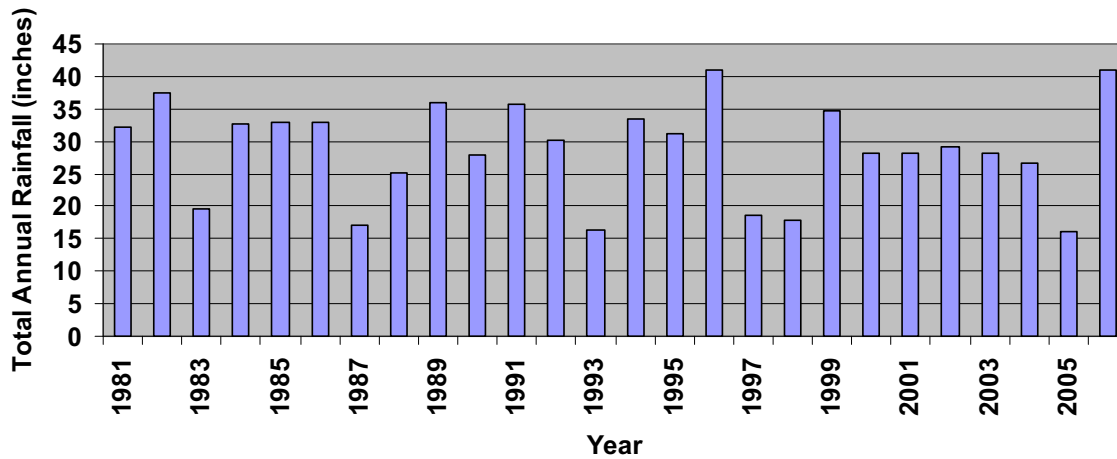


Figure 1.5 Annual Rainfall (inches) Tern Island, French Frigate Shoals.

On average, between four and five tropical typhoons or hurricanes are observed annually in the Central Pacific. Most of these storms develop in the eastern tropical Pacific, but some form in the central tropical Pacific, and occasionally typhoons approach the Monument from the Western Pacific. The strongest hurricane ever recorded in the Monument area was Patsy in 1959, which passed between Midway and Kure with wind speeds of greater than 115 mph (100 knots) (Friedlander et al. 2005). Only two hurricanes nearing the NWHI since 1979 were classified as Category 2 or weaker. No significant tropical storms have been observed in the NWHI since Hurricane Nele passed near Gardner Pinnacles in 1985.

Much more common, and perhaps more significant as a natural process affecting the geology and ecology of the Monument, are the extratropical storms and significant wave events that regularly move across the North Pacific in the boreal winter. These large wave events (larger than 33-foot or 10-meter waves) influence the growth forms and distribution of coral reef organisms (Dollar 1982; Dollar and Grigg 2004; Friedlander et al. 2005) and affect the reproductive performance of winter-breeding seabirds nesting on low islets in the Monument. Most large (16 to 33 feet+ or 5 to 10+ meters) wave events approach the NWHI from the west, northwest, north, and northeast, with the highest energy generally occurring from the northwest sector. The southern sides of most of the islands and atolls of the NWHI are exposed to fewer and weaker wave events. Annually, wave energy and wave power (energy transferred across a given area per unit time) are highest (~1.3 W/m) between November and March and lowest (~0.3 W/m) between May and September. Extreme wave events (33+ feet or 10+ meter waves) affect shallow water coral reef communities with at least an order of magnitude more energy than the typical winter waves (Friedlander et al. 2005).

## Islands and Marine Habitats of Papahānaumokuākea

The following section contains brief descriptions of the individual islands and marine habitats within the Papahānaumokuākea Marine National Monument, and their salient physical and biological characteristics. The most commonly used name for each island is given first, with alternative names, if any, provided in parentheses. It should be noted that for the islands northwest of Mokumanamana, the Hawaiian names provided are not yet in use on many modern maps. In addition, multiple Hawaiian names have been given to these islands, with the most ancient still being researched through the study of chants, stories, song, and documents written in the Hawaiian language.

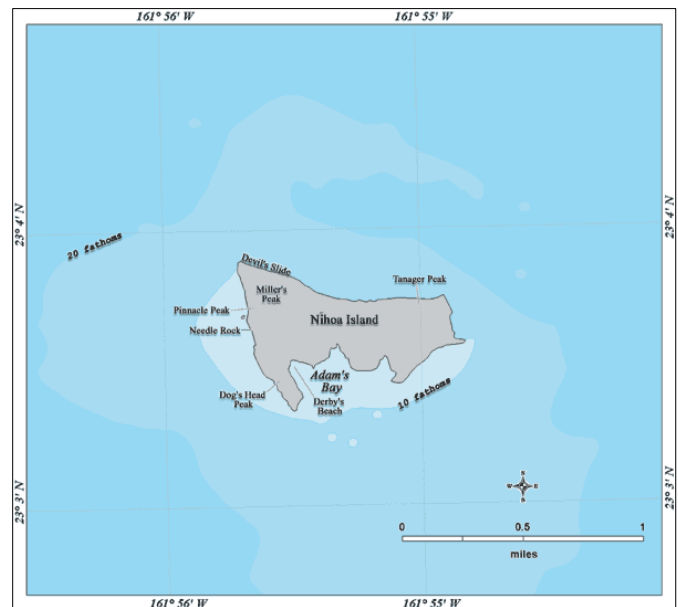
### Nihoa

**23°03' N., 161°56' W.**

“He pu‘u kolo i Nihoa.” (“Crawling up the cliffs of Nihoa.”) This traditional Hawaiian saying is a compliment to one who perseveres. (Pukui 1997). Nihoa has many craggy cliffs, and the rough surf in the winter makes landing there even more difficult than during the summer. “Nihoa” literally means “firmly set,” which could refer to the people who frequented such rugged conditions, and to the pounding that the island takes from the sea and wind. Nihoa has also been known as Moku Manu (bird island).

Nihoa is located approximately 155 miles (249.4 kilometers) northwest of Kaua‘i, the closest of the main Hawaiian Islands.

Measuring roughly 170 acres (0.68 square kilometers), this island is the largest emergent volcanic island within the Monument and the tallest, reaching an elevation of 903 feet (275.2 meters) at Miller Peak. It is also the geologically youngest island within the Monument, with an age calculated at 7.3 million years (Clague 1996). Nihoa is a deeply eroded remnant of a once-large volcano, and the large basaltic shelf of which it is a part stretches 18 miles (28.9 kilometers) in a northeast-southwest direction and averages between 112 to 217 feet (34.1 and 66.1 meters) deep (NOAA 2003b). The island’s two prominent peaks and steep sea cliffs are clearly visible from a distance, rising like a fortress above the sea. The island’s northern face is composed of a sheer cliff made up of successive layers of basaltic lava, within which numerous volcanic dikes are visible. The surface of the island slopes southward with an average slope of 23° (Johnson 2004). The island’s surrounding submerged reef habitat totals approximately 142,000 acres (574.6 square kilometers) and is a combination of uncolonized hard bottom, macroalgae, pavement with sand channels and live coral, and uncolonized volcanic rock (NOAA 2003b), supporting at least 127 species of reef fish and 17 species of corals.



**Figure 1.6 Nihoa.**

Nihoa’s seabird colony boasts one of the largest populations of Tristram’s storm-petrel, Bulwer’s petrel, and blue noddies in the Hawaiian Islands, and very possibly the world. The island is a unique example of a lowland native community, resembling those lowland communities that once occurred on the main Hawaiian Islands but are now almost completely gone (Wagner et al. 1990). The island’s vegetation can be classified as part coastal mixed community (*Sida* mixed shrub and grassland) and coastal dry shrubland dominated by ‘ilima (*Sida fallax*), ‘āweoweo (*Chenopodium oahuense*), and ‘ōhai (*Sesbania tomentosa*). The island supports 21 native plant species, including three endemics: a palm or loulu (*Pritchardia remota*), an amaranth (*Amaranthus brownii*), and an herb (*Schiedea verticillata*) (Wagner et al. 1999). The avifauna of the island includes two endemic passerine birds, the Nihoa finch (*Telespiza ultima*) and the Nihoa millerbird (*Acrocephalus familiaris kingi*), both listed as endangered under the federal Endangered Species Act (ESA) and HRS 195D. The arthropod fauna of the island includes 33 species of mites, three species of spiders, and 182 species of insects, 17 of which are endemic, including a katydid (*Banza nihoa*), a giant tree cricket (*Thaumatoeryllus conantae*), two species of endemic seed bugs (*Nysius nihoae* and *Nysius suffusus*), and an endemic trapdoor spider (*Nihoa mahina*) (Evenhuis and Eldredge 2004). Nihoa also has a rich cultural heritage, with at least 88 known wahi kupuna (ancestral sites) constructed by the precontact Hawaiians who inhabited the island for 700 years (until 1700 A.D.), and is listed on the National Register of Historic Places.

### **Mokumanamana (Necker Island)** **23°35' N., 164°42' W.**

Mokumanamana is translated as a branching or pinnacled island, which aptly describes it, but many people who have studied its many religious and cultural sites suggest that the repetition of the word “mana” (spiritual power) after the Hawaiian word for “island” probably holds even more relevance. The facts that most of the 33 shrines on the island follow the kua (spine) of the island, the solar solstice hits the upright stones at a particular angle, navigational sites have been noted here, and the Hawaiian axes of life and death cross directly over Mokumanamana all potentially explain the reasoning behind the double mana in the name, and the concept of branching.



**Figure 1.7 Mokumanamana (Necker Island)**

Mokumanamana is a dry volcanic island shaped like a fishhook and includes approximately 45 acres (0.18 square kilometers) of land. Geologists believe the island, with an estimated age of 10.6 million years, was once the size of O‘ahu in the main Hawaiian Islands, with a maximum paleo-elevation of 3,400 feet (1,036 meters) (Clague 1996), but due to centuries of erosion its



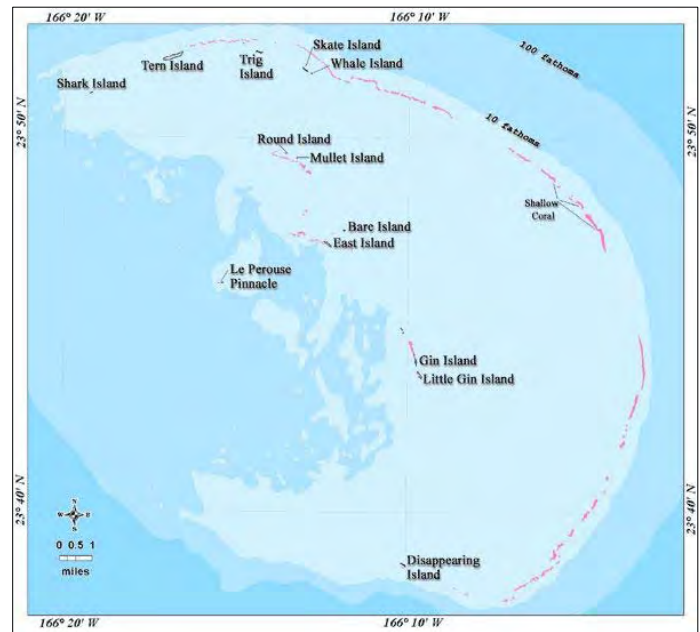
highest point, at Summit Hill, is now only 276 feet (84.1 meters) above sea level. Wave action has eroded the remainder of the original island into a submerged shelf approximately 40 miles (64 kilometers) long and 15 miles (24 kilometers) wide. Although this shelf holds more than 380,000 acres (1,538 square kilometers) of coral reef habitat supporting 125 reef fish species and 18 coral species, severe wave action and currents in the exposed areas tend to inhibit coral growth. The bank provides excellent habitat for spiny lobsters (*Panulirus marginatus*) and slipper lobsters (*Scyllarides squammosus*), especially in areas of less than 90 feet (27.4 meters) depth and high benthic relief (Parrish and Polovina 1994). Because of its limited size, Mokumanamana supports only five indigenous plant species and no land birds, but does harbor three species of mites, two species of spiders, and 70 species of insects, of which 11 are endemic, including a large weevil (*Rhycogonus biformis*), two species of seed bugs (*Nysius neckerensis* and *Nysius chenopodii*), and a trapdoor spider (*Nihoa hawaiiensis*) (Evenhuis and Eldredge 2004). Sixteen species of seabirds breed here, including the black noddy (*Anous minutus*), which historically was called the Necker Island tern.

Mokumanamana is also significant in Native Hawaiian culture. It bears 33 heiau (ceremonial sites) with standing stones that stretch the length of the island's central spine, suggesting that it was visited by Native Hawaiians for spiritual and possibly navigational purposes.

### **French Frigate Shoals (Kānemiloha'i)** **23°145' N., 66°10' W.**

The first atoll to the northwest of the main Hawaiian Islands, Kānemiloha'i (flat, sand island) is also the midpoint of the archipelago and the largest coral reef area in Hawai'i. This low, flat area is where Pele is said to have left one of her older brothers, Kānemiloha'i, as a guardian during her first journey to Hawai'i from Kahiki (Tahiti). Pele continued down the archipelago until finally settling in Kīlauea, Hawai'i Island, where she is said to reside today.

French Frigate Shoals is the largest atoll in the chain, taking the form of an 18-mile (28.9 kilometers) long crescent. It is estimated to be 12.3 million years old (Clague 1996). The shoals consist of 67 acres (0.27 square kilometers) of total emergent land surrounded by approximately 230,000 acres (931 square kilometers) of coral reef habitat, with a combination of sand, rubble, uncolonized hard bottom, and crustose coralline algae in the windward and exposed lagoon areas, and patch and linear coral reefs in more sheltered areas (NOAA 2003b). Tern Island in the atoll is the site of a FWS field station, which occupies a former U.S. Coast Guard Long-Range Aids to Navigation (LORAN) station that closed in 1979. Within the NWHI, French Frigate Shoals is the center of diversity for corals (more than 41 species, including the



**Figure 1.8 French Frigate Shoals.**

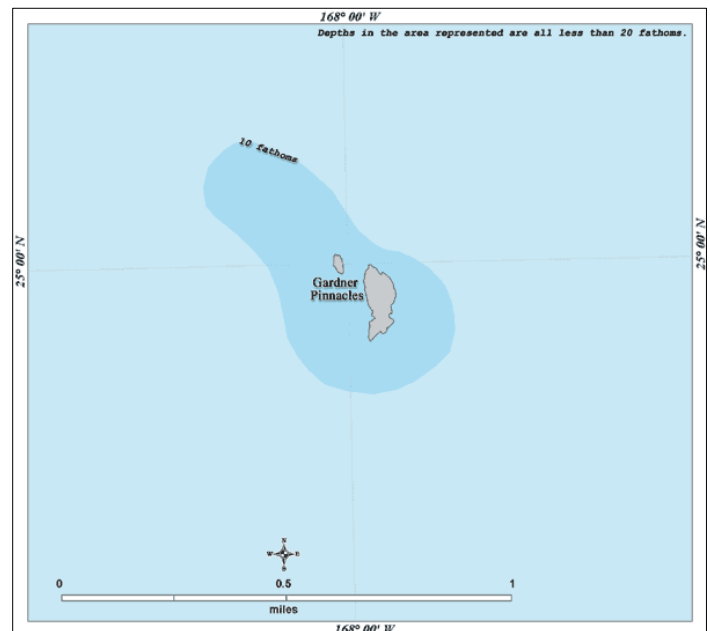
genus *Acropora*, which is all but absent elsewhere in Hawai‘i) and reef fishes (178 species). A relatively deep (82 to 98 feet or 24.9 to 29.8 meters) coral reef at this atoll has been recently discovered to function as a spawning site for the giant trevally, *Caranx ignobilis* (Meyer et al. 2007); a rare discovery of spawning sites for top predators.

The lagoon is also unusual in that it contains two exposed volcanic pinnacles representing the last vestiges of the high island from which the atoll was derived, as well as nine low, sandy islets. The sand islets are small, shift position, and disappear and reappear. In 1923, the Tanager Expedition mapped 16 islets (Amerson 1971). In 1963, Whaleskate was a 16.8-acre (0.068 square kilometers), vegetated island (Amerson 1971); by 1998, it had completely disappeared (Antonelis et al. 2006). These islets provide highly important habitat for the world’s largest breeding colony of the imperiled Hawaiian monk seal, which is listed as endangered under the ESA and HRS 195D, and is internationally recognized as critically endangered by the World Conservation Union. The atoll’s sandy islets also provide nesting sites for 90 percent of the threatened green turtle population breeding in the Hawaiian Archipelago. In addition, 19 of Hawai‘i’s 22 seabird species are found on the island, giving it the highest species richness of breeding seabirds within the Monument. The dry coastal shrublands of the larger islets within the atoll also support an endemic seed bug (*Nysius frigateensis*), moth (*Agrotis kerri*), and mite (*Phauloppia bryani*) (Usinger 1942; Nishida 2002).

### **Gardner Pinnacles (Pūhāhonu)** **25°02' N., 168°05' W.**

“He pūko‘a kū no ka moana.” (“A large rock standing in the sea.”) This traditional Hawaiian saying is used to describe someone who is stubborn, unchangeable, and very determined. This is a suitable description for Pūhāhonu (surfacing of a sea turtle for air/breath), which looks a bit like a turtle’s beak coming up for air and consists of two rocks, with the tallest of them 170 feet tall and 200 yards long.

Gardner Pinnacles consists of two emergent basaltic volcanic peaks estimated to be 15.8 million years in age (Clague 1996), which represent the oldest high islands in the Hawaiian chain. In scale, these pinnacles are small, the largest reaching only 180 feet (54.8 meters) high and having a diameter of approximately 590 feet (179.8 meters). Because of their limited size, they support only a single species of land plant (*Portulaca lutea*) and a few terrestrial arthropod species, but they are by contrast excellent habitat for seabirds (Clapp 1972). Guano from such seabirds gives the peaks a “frosted” appearance, indicating their importance as roosting and breeding sites for at least 12 subtropical species. Landings and terrestrial surveys



**Figure 1.9 Gardner Pinnacles.**

rarely take place because of the difficulty of getting ashore under all but the most calm ocean conditions.

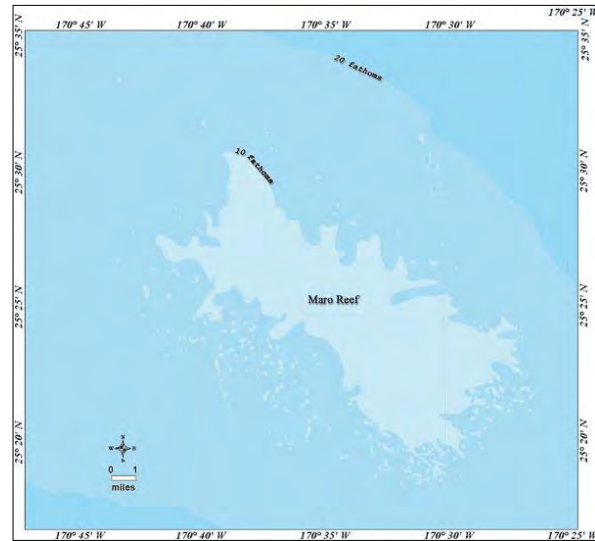
These remnant volcanic pinnacles are surrounded by approximately 600,000 acres (2,428 square kilometers) of coral reef habitat, most of which is in waters 60 feet (18.3 meters) or deeper, harboring 124 reef fish species and 27 species of corals. The intertidal bases of the pinnacles are studded with large populations of ‘opihi, endemic Hawaiian limpets that have been seriously depleted by overharvesting elsewhere in the main Hawaiian Islands.

**Maro Reef (Ko‘anako‘a, Nalukākala)  
25°22' N., 170°35' W.**

The name Ko‘anako‘a literally means the settling of coral, referring to Maro’s expansive coral reefs. Another name for Maro, Nalukākala, describes surf that arrives in combers, such as the surf that froths over shallow reefs.

Maro Reef is a largely submerged open atoll 19.7 million years old (Clague 1996), with less than one acre (4,046.8 square meters) of periodically emergent land. At very low tide, only a small coral rubble outcrop of a former island is believed to break above the surface; as a result, Maro supports no terrestrial biota.

In contrast, the shallow water reef system is extensive, covering nearly a half-million acres (2,023 square kilometers), and is the largest coral reef in the Monument. It is also one of the chain’s most ecologically rich shallow water marine ecosystems, with 64.1 percent coral cover over the entire area, among the highest percentage observed in the Monument (Maragos et al. 2004). The documented marine biota at Maro Reef includes 37 species of corals and 142 species of reef fish. Fish species endemic to the Hawaiian Archipelago make up half of all fish recorded here. Maro’s reefs are intricate and reticulated, forming a complex network of reef crests, patch reefs, and lagoons. Deepwater channels with irregular bottoms cut between these shallow reef structures, but navigation through them is difficult and hazardous. Cover types range from unconsolidated with 10 percent or less macroalgae cover to areas with greater than 10 percent coral or crustose coralline algae (NOAA 2003b). Because the outermost reefs absorb the majority of the energy from the open ocean swells, the innermost reticulated reefs and aggregated patch reefs are sheltered and have the characteristics of a true lagoon. Given the structural complexity of this platform, its shallow reefs are poorly charted and largely unexplored.



**Figure 1.10 Maro Reef.**



## Laysan Island (Kauō) 25°46' N., 171°45' W.

Kauō (egg) describes both the shape of this island and, perhaps, the abundant seabirds that nest here.

Laysan is a raised atoll, estimated to be 20.7 million years old (Clague 1996), with a maximum elevation of approximately 50 feet (15 meters) above sea level. It represents the second largest island in the Monument, with a land area of approximately 1,023 acres (4.14 square kilometers), surrounded by close to 100,000 acres (405 square kilometers) of coral reef. Most of the reef area at Laysan lies in deeper waters, with a small, shallow-water reef area in a bay off the southwest side of the island. The reef system as a whole supports 131 species of reef fishes and 27 species of corals. Laysan is home to a semi-permanent FWS field camp to support wildlife monitoring and habitat restoration.

The island's ring of sandy dunes surrounds a shallow depression of about 200 acres (0.8 square kilometers). This basin is a mix of hypersaline water and mud flats, a feature unique within the Hawaiian Archipelago and rare within the Pacific as a whole, that changes in size seasonally and annually depending on variations in rainfall. Because of its elevation of about 40 feet (12 meters), Laysan is well vegetated, supporting at least 30 species of flowering plants, including five endemic subspecies prior to human contact (Athens et al. 2007), many of which were driven to extinction by the misguided introduction of rabbits in 1902 during the guano mining era (Ely and Clapp 1973). The plant community is divided into five different associations arrayed in concentric rings around the interior hypersaline lake: (1) coastal shrubs, (2) interior bunchgrass, (3) vines, (4) interior shrubs, and (5) wetland vegetation (Newman 1988). The island also previously harbored five Hawaiian endemic land birds, of which two, the endangered Laysan finch (*Telespiza cantans*) and the endangered Laysan duck (*Anas laysanensis*), still survive (Pratt et al. 1987). In addition, approximately two million seabirds nest here, including boobies, frigatebirds, terns, shearwaters, noddies, and the world's second-largest black-footed and Laysan albatross colonies. The island also supports a relatively rich arthropod fauna, including a large endemic weevil (*Rhyncogonus bryani*), four endemic moths, an endemic wasp, and three endemic mites. A successful 12-year eradication project to remove the sandbur *Cenchrus echinatus*, a plant that had displaced native vegetation over 30 percent of the island, has been completed, and an active ecological restoration project is under way to bring back a number of other plants and animals that were lost after the introduction of rabbits (Morin and Conant 1998).

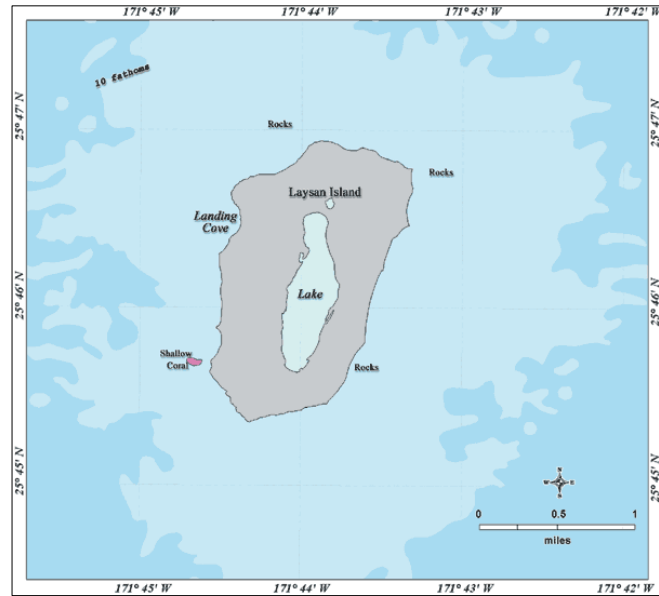


Figure 1.11 Laysan Island.

### Lisianski Island (Papa‘āpoho) and Neva Shoal 26°04' N., 173°58' W.

Papa‘āpoho describes a flat area with a depression or hollow, which is exactly how the island of Papa‘āpoho is shaped. Its highest point is a 40-foot-high sand dune, and its lowest point is a depression to the south that runs as a channel toward the ocean.

Lisianski Island is another raised atoll, rising to 40 feet (12.1 meters) above sea level, and with approximately 400 acres (1.6 square kilometers) of emergent land is the third largest island within the Monument. This 23.4-million-year-old island (Clague 1996) is over 1.2 miles (1.9 kilometers) across, consisting of an elevated rim surrounding a broad central depression, although unlike Laysan it does not enclose an interior saline lake. The coral cover on the platform around the island, called Neva Shoal, is extensive, totaling more than 290,000 acres (1,174 square kilometers) with an average of almost 60 percent cover of the substrate. There are 24 coral species at Lisianski and 124 species of reef fish. Fish species endemic to the Hawaiian Archipelago compose 58 percent of all fish recorded here.

Lisianski suffered ecological perturbations similar to those on Laysan because of the introduction of mice (Olsen and Ziegler 1996), guano mining, and the release of rabbits in 1903 (Tomich 1986). Lisianski lost a breeding population of land birds, the Laysan ducks historically known from about 150 years ago. It currently supports no endemic land plant or bird species, although it does harbor an endemic seed bug (*Nysius fullawayi flavus*) and an endemic moth (*Helicoverpa minuta*) (Usinger 1942; Nishida 2002). The island also hosts large Bonin petrel and sooty tern colonies, as well as a variety of other seabirds. Lisianski also has the only grove of *Pisonia grandis* trees in the entire Hawaiian Archipelago; this tree is dispersed by seabirds and is favored as a nesting site for many tree-nesting seabird species.



Figure 1.12 Lisianski Island and Neva Shoal.

### Pearl and Hermes Atoll (Holoikauaua) 27°50' N., 175°50' W.

The name Holoikauaua celebrates the Hawaiian monk seals that haul out and rest here. Pearl and Hermes Atoll is a large atoll with several small islets, forming 96 acres (0.38 square kilometers) of land surrounded by more than 300,000 acres (1,214 square kilometers) of coral reef habitat. The atoll has an estimated age of 26.8 million years (Clague 1996) and is 20 miles (32 kilometers) across and 12 miles (19.3 kilometers) wide, with dunes rising above sea level. Unlike Lisianski and Laysan to the southeast, Pearl and Hermes Atoll is a true atoll, fringed with shoals, permanent emergent islands, and ephemeral sandy islets.

These features provide vital dry land for monk seals, green turtles, and a multitude of seabirds, with 16 species breeding here. The islets are periodically washed over when winter storms pass through the area. The atoll boasts the highest rate of reef fish endemism in the Hawaiian Archipelago, with 62 percent of fish species recorded endemic to the Hawaiian Archipelago out of 174 species overall. Coral species richness is high as well, with 33 species present. The permanent islands with higher dunes also support an endemic subspecies of native seed bug (*Nysius fullawayi infuscatus*) (Usinger 1942). Pearl and Hermes also hosts a small population of endangered Laysan finches that were translocated here in the 1960s.

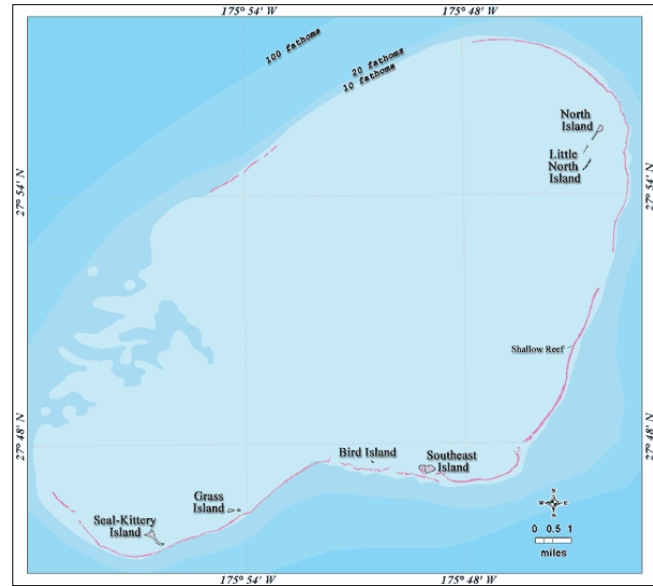


Figure 1.13 Pearl and Hermes Atoll.

### Midway Atoll (Pihemanu) 28°15' N., 177°20' W.

Pihemanu is aptly named for the loud din of birds that one hears on this atoll. Midway Atoll consists of three sandy islets (Sand [1,128 acres, 4.56 square kilometers], Eastern [337 acres, 1.36 square kilometers], and Spit [13 acres, 0.05 square kilometers]), for a total of 1,464 acres (5.9 square kilometers) in terrestrial area, lying within a large, elliptical barrier reef measuring approximately 5 miles (8 kilometers) in diameter. The atoll, which is 28.7 million years old (Clague 1996), is surrounded by more than 88,500 acres (356 square kilometers) of coral reefs. In 1965, the U.S. Geological Survey took core



Figure 1.14 Midway Atoll.

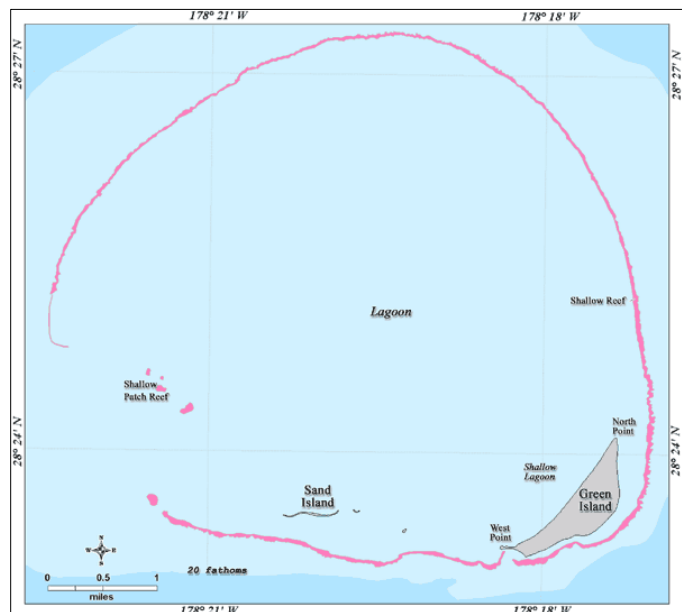


samples and hit solid basaltic rock 180 feet (54.8 meters) beneath Sand Island and 1,240 feet (377.9 meters) beneath the northern reef. Numerous patch reefs dot the sandy-bottomed lagoon. These reefs support 163 species of reef fishes and 16 species of corals.

Although Midway’s native vegetation and entomofauna have been greatly altered by more than a century of human occupation, the island boasts the largest nesting colonies of Laysan and black-footed albatrosses in the world, forming the largest colony of albatrosses in the world. The Navy, FWS, and U.S. Department of Agriculture-Wildlife Services (USDA Wildlife Services) successfully eradicated rats from Midway, a small forest of mature ironwood trees (an alien invasive species) has been removed from Eastern Island, and new ironwood seedlings from the remaining seedbank are removed as they are detected. Currently, the cover on all of the islands at Midway is approximately 30 percent paved or structures, 23 percent grass and forbs, 18 percent woodland, 7 percent sand and bare ground, 22 percent shrublands, and less than 0.23 percent wetland. Midway Atoll also supports the first successful reintroduced population of endangered Laysan ducks, translocated from Laysan Island in 2004 and 2005. Laysan ducks use both the largely introduced vegetation of Midway Atoll and the restored patches of native vegetation. This reintroduction is significant because island ducks are globally threatened taxa, and because the Laysan duck is the most endangered waterfowl in the Northern Hemisphere and the U.S. Introduced canaries breed among historic buildings that mark the beginning of cable communication across the Pacific near the beginning of the 20<sup>th</sup> century. The atoll and surrounding seas were also the site of a pivotal battle of World War II, and Midway was an active Navy installation during the Cold War.

### **Kure Atoll (Mokupāpapa)** **28°25' N., 178°20' W.**

Mokupāpapa literally means flat island, and the name was ascribed to Kure Atoll by officials of the Hawaiian Kingdom in the 19th century. Under the reign of King David Kalākaua, the Hawaiian Kingdom disbursed an official envoy to Kure Atoll to take ‘formal possession’ of the atoll. At the time, Kure was known in the kingdom as Ocean Island, but Hawaiian Kingdom officials indicated that Kure was “known to ancient Hawaiians, named by them Moku Pāpapa and recognized as part of the Hawaiian Domain.”



**Figure 1.15 Kure Atoll**

Kure Atoll is the most northwestern island in the Hawaiian chain and occupies a singular position at the “Darwin Point:” the northern extent of coral reef development, beyond which coral growth cannot keep pace with the rate of geological subsidence. Kure’s coral is still growing slightly faster than the island is subsiding. North of Kure, where growth rates are even slower, the drowned Emperor Seamounts foretell the

future of Kure and all of the Hawaiian Archipelago. As Kure Atoll continues its slow migration atop the Pacific Plate, it too will eventually slip below the surface.

This 29.8-million-year-old atoll (Clague 1996) is nearly circular, with a reef 6 miles (9.6 kilometers) in diameter enclosing a lagoon with two islets comprising over 200 acres (0.81 square kilometers) of emergent land, flanked by almost 80,000 acres (324 square kilometers) of coral reef habitat. The outer reef forms a nearly complete circular barrier around the lagoon, with the exception of passages to the southwest, and the associated marine habitats support 155 species of reef fishes. Fish species endemic to the Hawaiian Archipelago compose 56 percent of all fish recorded here. There are 27 species of coral found at the atoll. Of the two enclosed islets, the only permanent land is found on crescent-shaped Green Island, which rises to 20 feet (6.1 meters) above sea level and is located near the fringing reef in the southeastern quadrant of the lagoon. The atoll is an important breeding site for black-footed and Laysan albatrosses, Christmas shearwaters, and 14 other breeding seabirds. A resident population of spinner dolphins inhabits the lagoon during the day. There are 11 arthropods on Kure that are endemic to the Hawaiian Archipelago, one of which is a mite (*Hemicheyletia granula*) that is apparently endemic to Kure (Nishida 2001).

The U.S. Coast Guard established a LORAN station at Kure in 1960 (Woodward 1972) and occupied it until 1993. This land use had far-reaching effects on all the plants and animals at Kure Atoll, resulting in elevated invasive species problems and contaminants left behind when the base closed. As early as 1870, explorers documented the presence of Polynesian rats (*Rattus exulans*) here. These rodents influenced the species composition of the seabird community and the reproductive performance of the species that were there. In 1993, the State Department of Land and Natural Resources and USDA Wildlife Services eradicated rats from Kure Atoll.

### Banks and Seamounts

Approximately 30 submerged banks are within the Monument (Miller et al. 2004). Deepwater banks, seamounts, and the abyssal plain are among the least studied environments of the NWHI. Recent use of shipboard mapping technologies, submersibles, and remotely operated vehicles, however, has provided valuable information to characterize the physical and biological components of these ecosystems. Multibeam mapping expeditions have revealed dramatic geologic features, including knife-edge rift zones, seafloor calderas, sea-level terraces, submarine canyons, underwater landslide scars and debris fields, and previously unmapped seamounts (Smith et al. 2003; Smith et al. 2004).

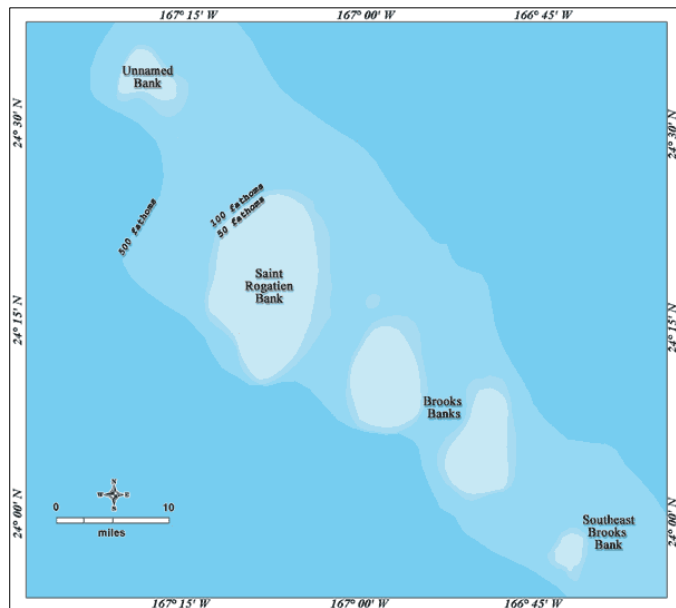


Figure 1.16 Banks and Shoals near French Frigate Shoals.

Submersible surveys on South Pioneer Ridge (Pioneer Bank) and two unnamed seamounts, one east of Laysan Island and the other east of Mokumanamana, have revealed the presence of various substrate types, deposited when these geologic features were at sea level (Smith et al. 2004). In some areas, dense communities of corals (ahermatypic) and sponges at depths approaching 1,000 fathoms (1,830 meters) obscured the underlying substratum. The deepwater marine plants of the area are a mixture of tropical species, species with cold-temperature affinities, and species with disjunctive distributions, suggesting alternative biogeographical patterns and dispersal routes from the main Hawaiian Islands (McDermid and Abbott 2006).

Mega- to macro-scale descriptions of bottomfish habitats made on Raita Bank, West St. Rogatien Bank, Brooks Bank, and Bank 66 indicate the distribution and abundance of bottomfish are patchy and appear to be associated with high relief and topographic features, including crevices and caves (Kelley et al. 2006). Nihoa sits on a broad double platform, with a large bank immediately to the west, and two smaller banks farther to the northwest. Surrounding French Frigate Shoals is a series of submerged banks, including Southeast Brooks Bank, St. Rogatien Bank, and two other smaller banks to the west, plus another unnamed bank immediately to the east. Raita Bank lies nearly equidistant between Gardner Pinnacles and Maro Reef. Laysan has a small seamount to the southeast and the large Northampton Seamounts to the southwest. In the vicinity of Lisianski, Pioneer Bank is only 22 nautical miles (25.3 miles or 40.7 kilometers) from Neva Shoals, and these features combine to form a major coral reef ecosystem with a variety of intermingled marine habitats, rich in biodiversity. Telemetry studies of Hawaiian monk seals unexpectedly have revealed that these animals spend considerable foraging time at subphotic depths on these banks, particularly in areas that have high levels of relief, such as pinnacles and walls (Parrish and Abernathy 2006).

All of these banks provide prime habitats for bottomfish-associated fish species that are important food sources for Hawaiian monk seals. Such banks also support populations of spiny and slipper lobsters, and colonies of precious gold, pink, and black corals that have been heavily disturbed in much of the remainder of the Pacific by the use of physically damaging harvest methods, such as trawling. These deep-living corals, below the depth where enough light penetrates for photosynthesis, rely on the capture of plankton from the water column with their tentacles rather than deriving energy from symbiotic dinoflagellate algae, known as zooxanthellae, that virtually all shallow-water reef-building corals harbor in their cells. Submersible surveys conducted at depths of 656 to 1,148 feet (199.9 to 349.9 meters) on Raita, West St. Rogatien, and Brooks Banks found little evidence of physical disturbances by bottomfishing from anchors and fishing gear (Kelley and Ikehara 2006).

### **Pelagic and Deep-water Habitats**

The pelagic marine ecosystem is the largest ecosystem on earth. Biological productivity in the pelagic zone is highly dynamic; for example, in the equatorial Pacific Ocean, upwelling extends westward along the equator in a cold tongue of water from the coast of South America, eventually encountering a large pool of warmer water in the western Pacific (the cold tongue-warm pool system). The eastern cold-tongue system is characterized by high levels of primary production, and the western warm pool by lower levels of primary production.



Most of the Monument's area can be considered pelagic habitat. The estimated area of all parts of the Monument with depths greater than 1,000 fathoms (6,000 feet or 1.8 kilometers) is 117,375 square miles (304,000 square kilometers), or about 84 percent of the entire Monument (Miller et al. 2006). Pelagic habitat can be separated into the following five zones relative to the amount of sunlight that penetrates through seawater: (a) epipelagic, (b) mesopelagic, (c) bathypelagic, (d) abyssopelagic, and (e) hadalpelagic. Sunlight is the principal factor of primary production (phytoplankton) in marine ecosystems, and because sunlight diminishes with ocean depth, the amount of sunlight penetrating seawater and its effect on the occurrence and distribution of marine organisms are important. The epipelagic zone extends to nearly 656 feet (200 meters) and is the near extent of visible light in the ocean. The mesopelagic zone occurs between 656 feet (200 meters) and 3,281 feet (1,000 meters) and is sometimes referred to as the "twilight zone." Although the light that penetrates to the mesopelagic zone is extremely faint, this zone is home to wide variety of marine species. The bathypelagic zone occurs from 3,281 feet (1,000 meters) to 13,123 feet (4,000 meters), and the only visible light seen is the product of marine organisms producing their own light, which is called "bioluminescence." The next zone is the abyssopelagic zone (13,123 to 19,685 feet, 4,000 to 6,000 meters), where there is extreme pressure and the water temperature is near freezing. This zone does not provide habitat for very many creatures, except small invertebrates such as squid. The last zone is the hadalpelagic (19,685 feet [6,000 meters] and below) and occurs in trenches and canyons. Surprisingly, marine life, such as tubeworms and seastars, is found in this zone, often near hydrothermal vents.

Pelagic species are closely associated with their physical and chemical environments. Suitable physical environment for these species depends on gradients in temperature, oxygen, or salinity, all of which are influenced by oceanic conditions on various scales. In the pelagic environment, physical conditions such as isotherm and isohaline boundaries often determine whether the surrounding water mass is suitable for pelagic fish, and many of the species are associated with specific isothermic regions. Additionally, fronts and eddies that become areas of congregation for different trophic levels are important habitat for foraging, migration, and reproduction for many species (Bakun 1996).

At least 15 banks lie at depths between 100 and 1,300 feet (30 and 400 meters) within the Monument, providing important habitat for bottomfish and lobster species, although only a few of these banks have been studied in any detail (Kelley and Ikehara 2006). These waters represent critical deepwater foraging grounds for Hawaiian monk seals (Parrish et al. 2002) as well as a spatial refugium for pelagic fishes such as tunas and their allies.

The deep waters are also important insofar as they support an offshore mesopelagic boundary community (Benoit-Bird et al. 2002), a thick layer of pelagic organisms that rest in the deep ocean (1,300 to 2,300 feet, or 400 to 700 meters) during the day, then migrates up to shallower depths (from near zero to 1,300 feet or 400 meters) at night, providing a critical source of nutrition for open-ocean fishes, seabirds, and marine mammals. This community of organisms that inhabit the upper layers of the mesopelagic zone has been surveyed at French Frigate Shoals, Lisianski, Pearl and Hermes, Midway, and Kure using echosounding technology (Lammers et al. 2006). Their work confirmed the presence of a community of vertical migrators, consisting of fish, squid, and shrimp. This temporal variability in the structure of the biotic community is important to understand as the spatial patterns are studied. Mesopelagic fishes, in particular, are

important prey for bigeye tuna, which tend to live at greater depths than the other tuna species. Overall, the fauna of the Monument's waters below acceptable SCUBA diving depths (100 to 130 feet or 30 to 40 meters) remains poorly surveyed and documented, representing an enormous opportunity for future scientific research in a system largely undisturbed by trawling or other forms of resource extraction.

Phytoplankton comprise more than 95 percent of primary productivity in the marine environment (Valiela 1995). These represent several different types of microscopic organisms requiring sunlight for photosynthesis living primarily in the upper 100 meters of the euphotic zone of the water column. Phytoplankton include organisms such as diatoms, dinoflagellates, coccolithophores, silicoflagellates, and cyanobacteria. Although some phytoplankton have structures (e.g., flagella) that allow them some movement, their general distribution is primarily controlled by current movements and water turbulence. Diatoms can be either single celled or can form chains with other diatoms. They are mostly found in areas with high nutrient levels, such as coastal temperate and polar regions. Diatoms are one of the major contributors to primary production in coastal waters and occur everywhere in the ocean. Dinoflagellates are unicellular (one-celled) organisms that are often observed in high abundance in subtropical and tropical regions. Coccolithophores, which are also unicellular, are mostly observed in tropical pelagic regions (Levington 1995). Cyanobacteria, or blue-green algae, are often found in warm nutrient-poor waters of tropical ocean regions.

Oceanic pelagic fish including skipjack, yellowfin tuna, and blue marlin prefer warm surface layers, where the water is well mixed by surface winds and is relatively uniform in temperature and salinity. Other pelagic species—albacore, bigeye tuna, striped marlin, and swordfish—prefer cooler, more temperate waters, often meaning higher latitudes or greater depths. In fact, the largest proportion of the tuna catch in the Pacific Ocean originates from the warm pool, even though paradoxically it is a region of low primary productivity. Tuna movement to upwelling zones at the fringe of the warm pool may be key in resolving this apparent discrepancy between algal and tuna production. Preferred water temperature often varies with the size and maturity of pelagic fish, and adults usually have a wider temperature tolerance than subadults. Thus, during spawning, adults of many pelagic species usually move to warmer waters, the preferred habitat of their larval and juvenile stages.

Large-scale oceanographic events (such as El Niño) change the characteristics of water temperature and productivity across the Pacific, and these events have a significant effect on the habitat range and movements of pelagic species. Tuna are commonly most concentrated near islands and seamounts that create divergences and convergences, which concentrate forage species, and also near upwelling zones along ocean current boundaries and along gradients in temperature, oxygen, and salinity. Swordfish and numerous other pelagic species tend to concentrate along food-rich temperature fronts between cold upwelled water and warmer oceanic water masses (NMFS 2001). These frontal zones also function as migratory pathways across the Pacific for loggerhead turtles (Polovina et al. 2000). Loggerhead turtles are opportunistic omnivores that feed on floating prey such as the pelagic cnidarian, *Vellela vellela* (“by the wind sailor”) and the pelagic gastropod *Janthina* spp., both of which are likely to be concentrated by the weak downwelling associated with frontal zones (Polovina et al. 2000).

The estimated hundreds of thousands of seabirds breeding in the Monument are primarily pelagic feeders that obtain the fish and squid they consume by associating with schools of large predatory fish such as tuna and billfish (Fefer et al. 1984; Au and Pitman 1986). These fish—yellowfin tuna (*Thunnus albacares*), skipjack tuna (*Katsuwonus pelamis*), mahimahi (*Coryphaena hippurus*), wahoo (*Acanthocybium solandri*), rainbow runner (*Elagatis bipinnulatus*), and broadbilled swordfish (*Xiphias gladius*)—are apex predators of a food web existing primarily in the epipelagic zone. Although both the predatory fish and the birds are capable of foraging throughout their pelagic ranges (which encompass the entire Monument and tropical Pacific Ocean), the birds are most successful at feeding their young when they can find schools of predatory fish within easy commuting range of the breeding colonies (Ashmole 1963, Feare 1976, Flint 1991). Recently fledged birds, inexperienced in this complex and demanding style of foraging, rely on abundant and local food resources to survive while they learn to locate and capture prey. Some evidence from tagging studies done by Itano and Holland (2000) suggests both yellowfin and bigeye tuna aggregate around island reef ledges, seamounts, and fish aggregating devices and are caught at a higher rate here than in open-water areas. Yellowfin tuna in Hawai‘i exhibit a summer island-related inshore-spawning run (Itano 2001).

Ashmole and Ashmole (1967) and Boehlert (1993) suggest that the circulation cells and wake eddies found downstream of oceanic islands may concentrate plankton and therefore enhance productivity near islands. Higher productivity, in turn, results in greater abundance of baitfish, thus allowing higher tuna populations locally. Johannes (1981) describes the daily migrations of skipjack tuna and yellowfin tuna to and from the waters near islands and banks. The presence of natural densities of these tunas within the foraging radius of seabird colonies enhances the ability of birds to provide adequate food for their offspring (Ashmole and Ashmole 1967; Au and Pitman 1986; Diamond 1978; Fefer et al. 1984). Wake eddies also concentrate the larvae of many reef fishes and other reef organisms and serve to keep them close to reefs, enhancing survivorship of larvae and recruitment of juveniles and adults back to the reefs. For at least three of the seabird species breeding in the NWHI (brown noddies, white terns, and brown boobies), large proportions (33 to 56 percent) of their diets originate from the surrounding coral reef ecosystem in other areas where their diet has been studied (Ashmole and Ashmole 1967; Harrison et al. 1983; King 1970; Diamond 1978).



## 1.2 Status and Condition of Natural Resources

The NWHI can be characterized as a large marine ecosystem exposed to a wide range of oceanographic conditions and environmental and anthropogenic stressors. Submerged geomorphologic features, including reef, slope, bank, submarine canyon, and abyssal plain habitats, support a diverse range of shallow and deepwater marine life. Small islands and islets provide critical breeding grounds and nesting sites for endangered, threatened, and rare species, which forage on land and throughout the coral reef, deepwater, and pelagic marine ecosystems encompassing the NWHI.

These natural systems hold important cultural value, as all archipelagic wildlife are regarded as ancestors to Native Hawaiians (Malo 1951). The life forms defined in this section are inhabitants of the NWHI and referred to in the Kumulipo, a genealogical oli (chant) that frames the evolution of life from the simplest of creatures to the most complex. In the Native Hawaiian worldview, the interface between natural and cultural resources is seamless.

### Algae

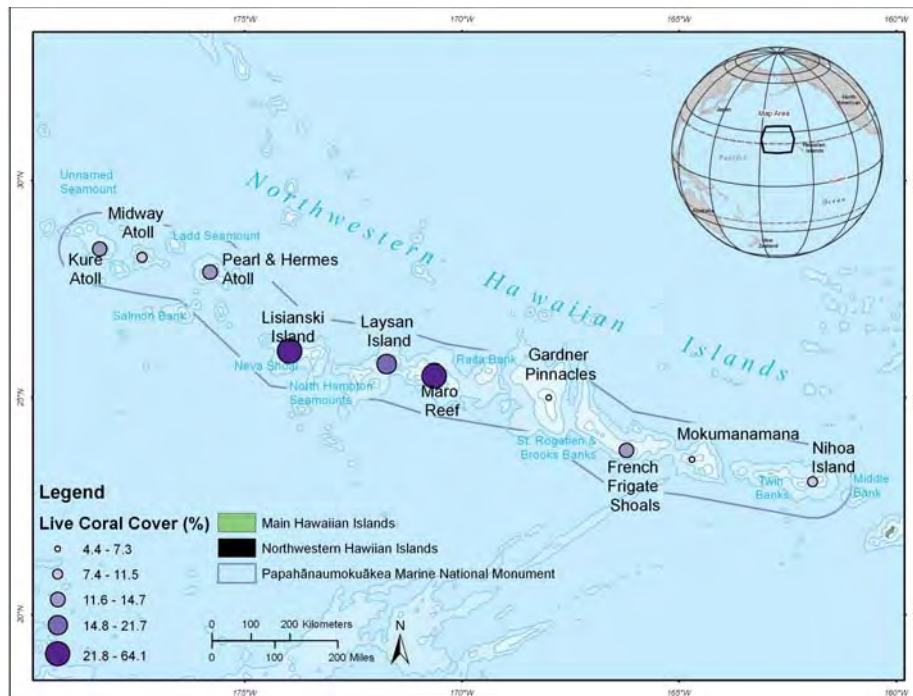
The marine algal flora in the Monument are diverse and abundant. There are 353 species of macroalgae and two seagrass species known from the NWHI (McDermid and Abbott 2006). The species composition of the macroalgae community is relatively similar throughout the NWHI. Representatives of the Chlorophyta, Rhodophyta, Phaeophyta, branched coralline, crustose coralline, Cyanophyta, and turf algae occur in varying combinations, with green algae having the largest biomass and area coverage (Vroom and Page 2006). Green algae in the genus *Halimeda* was found in more than 70 percent of all quadrats during Monumentwide surveys in 2004. This calcified algae contributes greatly to sand formation (Vroom and Page 2006). An island-specific checklist of the nonvascular plants of the NWHI can be found in Eldredge (2002). The NWHI contain a large number of Indo-Pacific algal species not found in the main Hawaiian Islands, such as the green calcareous alga (*Halimeda velasquezii*). Unlike in the main Hawaiian Islands, where alien species and invasive algae have overgrown many coral reefs, the reefs of the NWHI are largely free of alien algae, and the high natural herbivory results in a natural algal assemblage.

### Corals

Fifty-seven species of stony corals are known in the shallow subtropical waters of the NWHI (at depths of less than 100 feet [33 meters]), which cover an area of 911,077 acres (3,687 square kilometers) (Miller et al. 2004; 2006) in the Monument. Endemism of this group is high, with 17 of those species (30 percent) found only in the Hawaiian Archipelago. These endemics also account for 37 to 53 percent of visible stony corals in all shallow reef areas surveyed (Friedlander et al. 2005). Fifteen of the 17 endemic species are in the genera *Montipora*, *Porites*, or *Pocillopora*.

Deepwater corals in the Monument are even more diverse than those in shallow water. To date, 137 gorgonian octocorals and 63 species of azooxanthellate scleractinians have been documented to occur in the Monument (Parrish and Baco 2007). In November 2007, two new potential genera of deepwater bamboo corals were collected by submersible at a single site off Twin Banks (Watling, pers comm).

Live coral cover is highest in the middle of the chain, with Lisianski Island and Maro Reef having 59.3 and 64.1 percent of their respective available substrate covered with living corals (Maragos et al. 2004). Coral cover varies significantly across the NWHI from these high rates at Maro and at Lisianski to very minimal coverage at most of the other reef sites (Figure 1.17). Despite their high latitudes, a similar number of species of coral have been reported for the NWHI (57) as the main Hawaiian Islands (59) (Friedlander et al. 2005). Coral species richness is also highest in the middle of the chain, reaching a maximum of 41 reported coral species at French Frigate Shoals (Maragos et al. 2004). Stony corals are less abundant and diverse at the northern end (Kure, Midway, and Pearl and Hermes) of the archipelago and off the exposed basalt islands to the southeast (Nihoa, Mokumanamana, La Prouse, and Gardner). At these sites, soft corals such as *Simularia* and *Palythoa* are more abundant. Table coral in the genus *Acropora* is not found in the main Hawaiian Islands, but seven species are recorded for Mokumanamana, Gardner, Pearl and Hermes, Neva, French Frigate Shoals, Maro, and Laysan, with the highest number of species and colonies at French Frigate Shoals. These colonies of coral may have been established from larvae traveling in currents or eddies from Johnston Atoll, 450 miles (724.2 kilometers) to the south (Grigg 1981; Maragos and Jokiel 1986). The Monument's coral reefs are relatively undisturbed by the impacts of fishing or tourism, with excellent health and high species richness. Preliminary faunal inventories indicate that many of their constituent species remain undocumented; even new coral species are still being discovered.



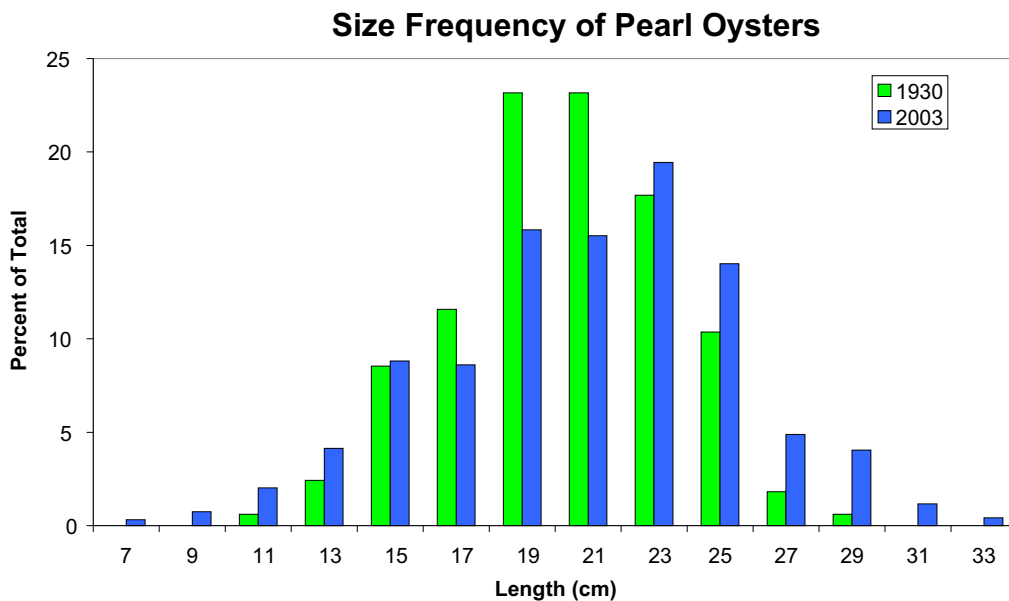
**Figure 1.17 Differences in Coral Cover Among Regions within the NWHI.**

REA surveys were conducted at 173 sites in 2002. Coral cover was calculated from size frequency data of colony counts within transects. Data are mean and standard error. Based on unpublished data from PIFSC-CRED. Map by Friedlander and Wedding of the NCCOS/CCMA/Biogeography Team.

**Benthic Shallow Water Invertebrates**

With the exception of coral and lobster species, the marine invertebrates of the NWHI are very poorly known. Only two comprehensive collections of these groups of animals were conducted prior to 2000: the 1902 Albatross Expedition, in which the collected organisms were deposited at the Smithsonian Institution, and the 1923 Tanager Expedition, in which the collection was deposited at the Bishop Museum. In 2000, the NWHI Reef Assessment and Monitoring Program was established, and it continues to the present to assess the biota of all 10 emergent reef areas and shallow waters (less than 65 feet [20 meters]) in the Monument (Friedlander et al. 2005). While this work is ongoing, a number of new species already have been recorded for Hawai‘i, and some of these species may turn out to be endemic to the NWHI (DeFelice et al. 2002). By 2005, a total of 838 species from 12 orders had been identified, and many species are being worked on by taxonomic experts around the world and have yet to be identified (Friedlander et al. 2005).

One species of marine invertebrate for which some population data are available is the black-lipped pearl oyster (*Pinctada margaritifera*). This oyster was discovered in 1927 and was heavily harvested at Pearl and Hermes Atoll until 1929, when the practice was prohibited by law. An estimated 150,000 oysters were harvested before a 1930 expedition estimated the remaining population at 100,000 oysters. More recent surveys in 1969, 1996, and 2000 found only a few oysters, indicating that the population had not recovered since the last harvest. Recent surveys conducted in 2003 at Pearl and Hermes Atoll mapped and measured more than 1,000 individuals (Keenan et al. 2004). The average size of pearl oysters in the 2003 surveys was larger than the 1930 surveys (Figure 1.18). It is unclear whether the number and size structure reflect a potential recovery of the species 70 years later or a more thorough sampling effort relative to the previous survey. However, the slow recovery of this species demonstrates the fragility of some of the Monument resources.



**Figure 1.18** Size Frequency Distribution of Pearl Oyster Population at Pearl and Hermes Atoll in 1930 and 2003. Source: Keenan et al. 2004.



## Crustaceans

The NWHI lobster trap fishery, which commenced in the mid-1970s, primarily targeted the Hawaiian spiny lobster (*Panulirus marginatus*) and slipper lobster (*Scyllarides squammosus*). Three other species, green spiny lobster (*P. penicillatus*), ridgeback slipper lobster (*S. haanii*), and sculptured slipper lobster (*Parribacus antarcticus*), were caught in low abundance (DiNardo and Marshall 2001).

Fishery statistics during the early developmental phase of the fishery (1976 to 1982) are scant. The total reported catch and landings of lobsters peaked in 1985 and generally declined from 1986 to 1995. Fishing effort peaked in 1986 and declined in 1988 before increasing in 1990. After 1990, fishing effort generally declined. The fishery initially targeted spiny lobster, but by 1985 gear modifications and improved markets led to an increase in slipper lobster landings. Catches of slipper lobster remained high from 1985 to 1987, fell into a general decline from 1988 to 1996, and increased significantly from 1997 to 1999. The fishery was closed in 2000 because of the uncertainty in the population models used to assess the stocks (DeMartini et al. 2003).

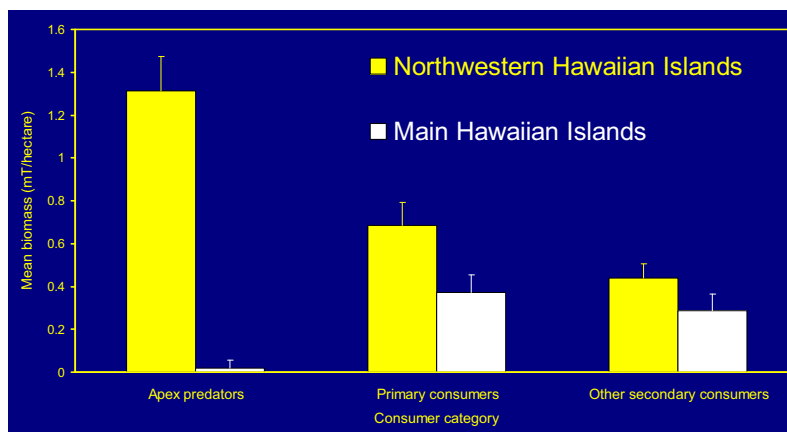
The National Marine Fisheries Service (NMFS), a line office of NOAA, has conducted annual fishery-independent trap surveys through its Pacific Islands Fisheries Science Center (PIFSC) since 1984, with the exception of 1990, to (1) evaluate the performance of commercial and research survey gear, (2) calibrate gear types, and (3) monitor the relative abundance of local populations of lobster in the NWHI. The survey has also been used as a platform for short-term experiments (e.g., studies of handling mortality) and the collection of biological and oceanographic data. Since 1990, the abundance of spiny lobsters at Mokumanamana has generally decreased. Significant drops in abundance were observed in 1992, 1994, and 1998. The abundance of slipper lobsters has remained at relatively low levels at Mokumanamana between 1988 and 2006. Spiny lobster abundance at Maro Reef declined significantly after 1988 and remained low through 1999. An increasing trend in spiny lobster abundance has been detected at Maro Reef since 2000. Slipper lobster abundance at Maro Reef has generally been increasing, with significant increases occurring after 1991. These changes suggest a switch in species dominance at Maro Reef in 1990 (spiny to slipper lobster), and the initial phases of a spiny lobster population recovery in 2000.

Numerous hypotheses have been advanced to explain population fluctuations of lobsters in the NWHI, including environmental (Polovina and Mitchum 1992), biotic (e.g., habitat and competition) (Parrish and Polovina 1994), and anthropogenic (e.g., fishing) (Polovina et al. 1995; Moffitt et al. 2006). Each hypothesis by itself offers a plausible, however simplistic, explanation of events that in fact result from several processes acting together. It is likely that population fluctuations of lobsters in the NWHI can be more accurately described by a mix of the hypotheses presented, each describing a different set of mechanisms (DiNardo and Marshall 2001).

## Reef Fish

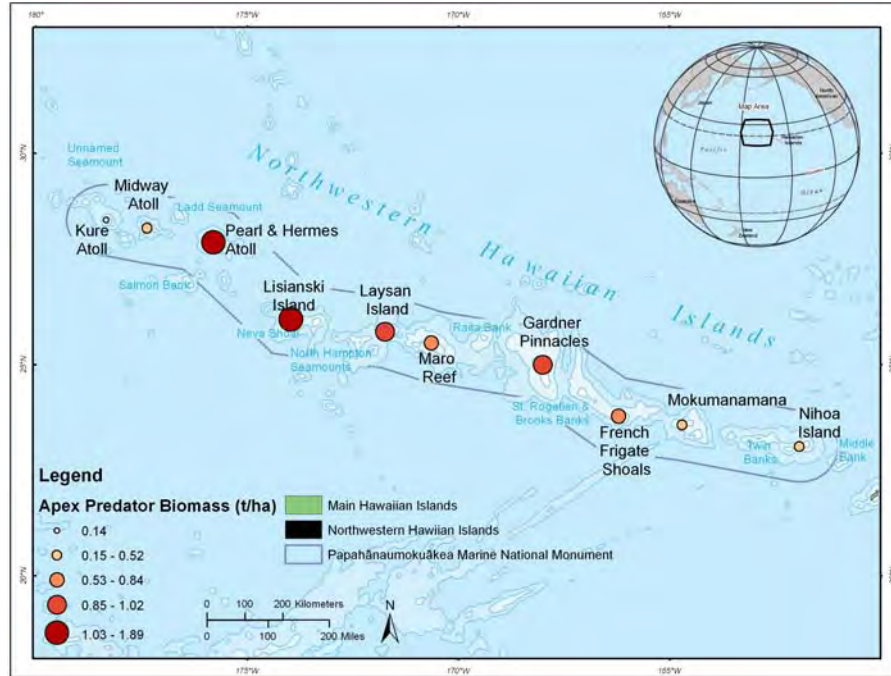
The extreme isolation of the NWHI chain and its distance from the diverse fish population centers of the Western Pacific contribute to a lower fish species diversity relative to other sites to

the west (Mac et al. 1998). The long-term protection from fishing pressure that has been afforded the NWHI has resulted in high standing stocks of fish more than 260 percent greater than the main Hawaiian Islands. The fish community of the coral reef ecosystem of the NWHI also shows a very different structure than the main Hawaiian Islands and most other places in the world. The shallow-reef fish community is remarkable in the abundance and size of fish in the highest trophic levels. In this large-scale, intact, predator-dominated system, more than 54 percent of the total fish biomass on forereef habitats in the NWHI consists of apex predators. In contrast, the total fish biomass in the main Hawaiian Islands is dominated by herbivorous fish species (55 percent), with only 3 percent composed of apex predators (Friedlander and DeMartini 2002). Apex predator biomass on forereef habitats in the NWHI is 1.3 metric tons per hectare, compared with less than 0.05 metric tons per hectare on forereef habitats in the main Hawaiian Islands (Figure 1.19).



**Figure 1.19 Comparison of Biomass in Major Trophic Guilds between the Northwestern Hawaiian Islands and the Main Hawaiian Islands. Source: Friedlander and DeMartini 2002.**

Areas with the highest apex predator biomass include Pearl and Hermes Atoll, followed by Lisianski and Laysan Islands (Figure 1.20). Large, predatory fish such as sharks, giant trevally, and Hawaiian grouper that are rarely seen and heavily overfished in populated areas of the world are extremely abundant in the waters of the Monument.



**Figure 1.20 Geographic Pattern of Apex Predator Biomass Density (t/ha) at the 10 Emergent Northwestern Hawaiian Islands (NWHI) Reefs Surveyed during September/October 2000, 2001, and 2002. Based on data from DeMartini and Friedlander 2004. Map by Friedlander and Wedding of the NCCOS/CCMA/ Biogeography Team.**

The NWHI are also characterized by a high degree of endemism in reef fish species, particularly at the northern end of the chain, with endemism rates well over 50 percent, making it one of the most unique fish faunas on earth (DeMartini and Friedlander 2004). Because of the decline in global marine biodiversity, endemic “hot spots” like Hawai‘i are important areas for global biodiversity conservation. Overall fish endemism is higher in the NWHI compared with the main Hawaiian Islands (Friedlander et al. 2005; DeMartini and Friedlander 2004). Within the NWHI, endemism increases up the chain and is highest at the three northernmost atolls and Lisianski (Figure 1.21). Another feature of the shallow-water reef fish community noticed by divers is that some species found only at much greater depths in the main Hawaiian Islands inhabit shallower water in the NWHI. This might be explained by water temperature preferences or by disturbance levels that vary between the two ends of the archipelago.



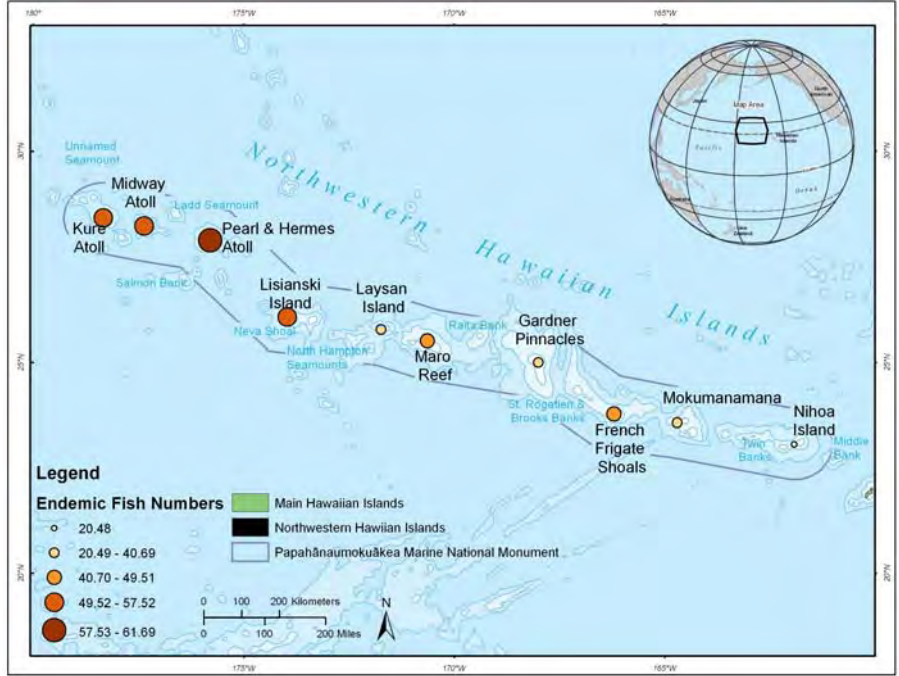


Figure 1.21 Percent Endemism (Based on Numerical Densities) at Each of 10 Emergent NWHI Reefs, Surveyed during September/October 2000, 2001, and 2002. Note patterns of endemism with latitude. Based on data from DeMartini and Friedlander 2004. Map by Friedlander and Wedding of the NCCOS/CCMA/Biogeography Team.

**Bottomfish**

The bottomfish species in the NWHI are in the taxonomic groups *Lutjanidae* (snappers), *Serranidae* (groupers), *Carangidae* (jacks), and *Lethrinidae* (emperors). The bottomfish stocks in the NWHI Mau and Ho‘omalulu zones have not been determined to be overfished, but in 1990, the stocks in the Mau Zone were considered to be near the overfishing threshold. Since then, however, bottomfish harvest rates in the Mau Zone, including the Ho‘omalulu Zone, have resulted in a bottomfish stock complex that currently is considered “healthy and lightly exploited,” particularly in comparison to the main Hawaiian Islands (Brodziak 2007).

### **Pelagic Marine Life**

The oceanic Scombroid fish (billfish, tuna, and wahoo) have zoogeographies much more like that of plankton than of benthic fish. Most are cosmopolitan and occur in all oceans within the tropical and subtropical zones but may have very specific water temperature preferences (Longhurst and Pauly 1987). The yellowfin tuna, for instance, prefers water no cooler than 18 to 21 °C, which coincides with the northern boundary of the Monument. All species undertake seasonal and age-related migrations, traveling between spawning grounds and feeding grounds appropriate for their sizes. They prey on medium-sized pelagic fish, crustaceans, and cephalopods. Tagging studies of yellowfin tuna and bigeye tuna have demonstrated that, while these species have enormous capacity to travel huge distances, they show very specific attraction to fish aggregating devices, island reef ledges, seamounts, and other elements of structure (Itano and Holland 2000). Lowe et al. (2006) similarly found that while two species of large sharks, tiger sharks (*Galeocerdo cuvier*) and Galapagos sharks (*Carcharhinus galapagensis*), are capable of long-distance travel, they showed more site fidelity than expected throughout the year, with 70 percent of tiger sharks exhibiting year-round residence at French Frigate Shoals. Some of the study subjects did make long-distance movements, with sharks marked at French Frigate Shoals showing up at Midway and on the Kona coast of the Island of Hawai‘i. The tremendous economic value of these fishes has resulted in serious declines of most populations because of industrialized fishing. Myers and Worm (2003) calculated that large predatory fish biomass today is only about ten percent of pre-industrial levels worldwide. Large predatory fish populations remain healthy and robust in the Monument (Friedlander et al. 2005).

### **Reptiles**

The five species of sea turtles that occur in the NWHI are the loggerhead (*Caretta caretta*), the green (*Chelonia mydas*), the olive ridley (*Lepidochelys olivacea*), the leatherback (*Dermochelys coriacea*), and the hawksbill (*Eretmochelys imbricata*). All of these species are protected by the ESA and by HRS 195D. Of these species, only the green turtle comes ashore to bask and breed in the NWHI. French Frigate Shoals is the site of the principal rookery for the entire Hawaiian green turtle stock, with more than 90 percent of the population nesting there (Balazs and Chaloupka 2004a). As adults, most of these turtles travel to foraging grounds in the main Hawaiian Islands or in Midway or Johnston atolls, where they graze on benthic macroalgae. They periodically swim back to the nesting grounds at French Frigate Shoals (or, in smaller numbers, to Lisianski and Pearl and Hermes Atoll) to lay eggs. Breeding adults remain extremely faithful to the colony where they were hatched for their own reproductive activities (Bowen et al. 1992). Hatchling turtles may spend several years in pelagic habitats foraging in the neritic zone before switching to a benthic algae diet as adults.

The Hawaiian population of green turtles has been monitored for more than 30 years, following the cessation of harvesting in the 1970s, and has shown a steady recovery from its depleted state (Balazs and Chaloupka 2004a, see Figure 1.22.) The transition zone chlorophyll front, located north of Monument waters most years, occasionally moves southward along with one of the species tightly associated with it, the loggerhead turtle. The North Pacific population breeds in Japan but feed on buoyant organisms concentrated at the convergent front in these high-chlorophyll waters, which support a complex food web including cephalopods, fishes, and crustaceans, also fed upon by albacore tuna (*Thunnus alalunga*) and a variety of billfish (Polovina et al. 2001).

The terrestrial herpetofauna of the NWHI is made up of introduced species of lizards, including four gecko species and two skinks, and a tiny blind snake (*Ramphotyphlops braminus*) that was imported to Midway, most likely in soil. The greatest diversity of these introduced reptiles is found at Midway and Kure atolls.

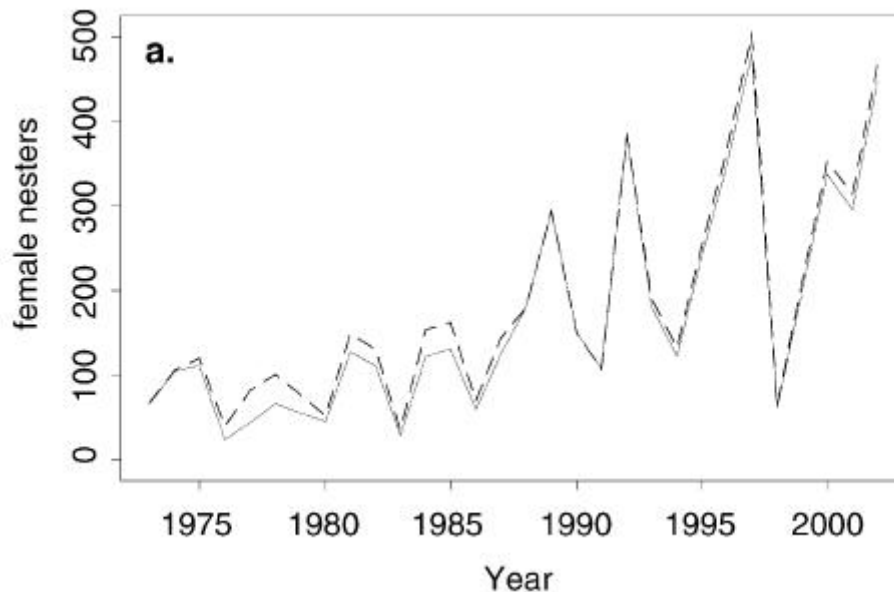


Figure 1.22 Long-Term Trend in the Abundance of Nesting Hawaiian Green Sea Turtles (dash lines represent Bayesian 95 percent credible region). Source: Balazs and Chaloupka 2004a.

### Land Birds

Four endangered land bird species in the NWHI are protected under the ESA and HRS 195D. Three species are passerines: the Laysan finch, currently found on Laysan Island and Pearl and Hermes Atoll; and the Nihoa finch and Nihoa millerbird, which are endemic to Nihoa. The fourth species is the Laysan duck, which once was found on many Hawaiian Islands but is now restricted to Laysan Island and Midway Atoll.

The Nihoa millerbird population is very small, and total population estimates fluctuate widely between years. The most recent population estimate (2007) is 814 birds (MacDonald 2008), but results have ranged between 23 and 814 birds in these sporadic and irregularly timed surveys (with broad confidence intervals), and these results are insufficient to adequately monitor trends in the population. Based on monitoring surveys, the Nihoa finch population has fluctuated widely since 1968 from a low of 5,200 individuals to a high of 20,802 (Morin and Conant 2002), but the population and its habitat are considered to be relatively stable. However, the Pearl and Hermes Atoll population is likely declining as a result of habitat alteration by the invasive alien plant *Verbesina encelioides*.

Planning is under way for habitat restoration and possible translocation of the Nihoa species to establish additional populations, but these efforts have not progressed sufficiently to affect the status of the species. An evaluation and structured ranking of potential translocation sites



yielded Laysan Island as the top choice for a first translocation of Nihoa millerbirds. Research to gather information pertinent to translocation planning is ongoing.

The total estimated Laysan duck population on Laysan Island has fluctuated from seven to more than 600 adult birds in the last century. The most recent (2005) population estimate of adult birds is 600 birds (Reynolds et al. 2006). The population at Midway was founded with a total of 42 wild birds translocated from Laysan in 2004 and 2005. Of this original total, 25 or 26 birds are believed to have bred. After successful breeding seasons in 2005 through 2007, the number of ducks at Midway had increased to nearly 200 animals (Reynolds et al. 2007). Another successful breeding season at Midway in 2008 added significantly to the population, but an outbreak of avian botulism in August 2008 caused the death of more than 130 ducks and a temporary setback to this new population.

### **Shorebirds**

Forty-seven species of shorebirds have been recorded in the Monument. Most of these are classified as infrequent visitors or vagrants, but the Monument does support regionally significant populations of four migrants: Pacific golden plovers (*Pluvialis fulva*), bristle-thighed curlews (*Numenius tahitiensis*), wandering tattlers (*Tringa incana*), and ruddy turnstones (*Arenaria interpres*). Most of these birds arrive in July and August and return to the Arctic to breed in May, but some of the younger individuals may skip breeding their first summer and remain in the Monument. While in the NWHI, these species use all the habitats available for foraging and sometimes concentrate in large numbers in the hypersaline lake at Laysan and in the artificial water catchment pond on Sand Island at Midway Atoll. The rat-free islands of the Monument provide important wintering sites for the rare bristle-thighed curlew because they are flightless during molt and require predator-free sites. This species and Pacific golden plovers are listed as species of high conservation concern in the National and Regional Shorebird Conservation Plans (Engilis and Naughton 2004) and are designated Birds of Conservation Concern by the FWS at the regional and national scale (FWS 2002).

### **Seabirds**

The importance of seabirds in the NWHI was recognized in 1909 with the establishment of the Hawaiian Islands NWR. Early protection and active management have resulted in large, diverse, and relatively intact seabird populations. Seabird colonies in the NWHI constitute one of the largest and most important assemblages of tropical seabirds in the world, with approximately 14 million birds (5.5 million breeding annually), representing 21 species (Naughton and Flint 2004) (See Table 1.1). Greater than 98 percent of the world's Laysan and black-footed albatrosses nest here. For several other species, such as Bonin petrel, Christmas shearwater, Tristram's storm-petrel, and the gray-backed tern, the Monument supports colonies of global significance. The last complete inventory of NWHI breeding populations was done between 1979 and 1984 (Fefer et al. 1984). Population trends since then have been derived from more intensive monitoring at three islands. Population trends in the NWHI are stable or increasing for most species, but there is concern for a few, especially the albatrosses.

The conservation status of seabirds in Hawai'i was assessed as part of the North American Waterbird Conservation Plan. Eleven of the 21 species were classified as highly imperiled or of high conservation concern at the broad scale of the plan (eastern north Pacific, western north

Atlantic, and Caribbean) (See Table 1.1.) At the regional scale (Pacific Islands), 6 species were included in these highest concern categories: Laysan, black-footed, and short-tailed albatrosses; Christmas shearwater; Tristram's storm-petrel; and blue noddy.

**Table 1.1 Seabird Species Known to Breed in Papahānaumokuākea Marine National Monument (FWS data)<sup>1</sup>**

Common Name	Species	Estimated Number of Breeding Birds
Black-Footed Albatross	<i>Phoebastria nigripes</i>	111,800
Laysan Albatross	<i>Phoebastria immutabilis</i>	1,234,000
Bonin Petrel	<i>Pterodroma hypoleuca</i>	630,000
Bulwer's Petrel	<i>Bulweria bulwerii</i>	180,000
Wedge-Tailed Shearwater	<i>Puffinus pacificus</i>	450,000
Christmas Shearwater	<i>Puffinus nativitatis</i>	5,400
Tristram's Storm-Petrel	<i>Oceanodroma tristrami</i>	11,000
Red-Tailed Tropicbird	<i>Phaethon rubricauda</i>	18,400
White-Tailed Tropicbird	<i>Phaethon lepturus</i>	8
Masked Bobby	<i>Sula lepturus</i>	3,400
Red-Footed Booby	<i>Sula sula</i>	15,800
Brown Booby	<i>Sula leucogaster</i>	800
Great Frigatebird	<i>Fregata minor</i>	19,800
Little Tern	<i>Sternula albifrons</i>	20
Gray-Backed Tern	<i>Onychoprion lunatus</i>	86,000
Sooty Tern	<i>Onychoprion fuscatus</i>	3,000,000
Blue Noddy	<i>Procelsterna cerulean</i>	7,000
Brown Noddy	<i>Anous stolidus</i>	150,000
Black Noddy	<i>Anous minutus</i>	26,000
White Tern	<i>Gygis alba</i>	22,000
Total		5,971,428

<sup>1</sup> - Laysan and black footed albatrosses, Christmas shearwater, Tristram's storm-petrel, and blue-gray noddy are on the Birds of Conservation Concern list for the Hawaiian Bird Conservation Region, and black-footed albatrosses are on the national list (FWS 2002).

Distribution, population status and trends, ecology, and conservation concerns for each of these species are contained in the Regional Seabird Conservation Plan, Pacific Region (FWS 2005). The greatest threats to seabirds that reside in the NWHI are both local and global. These threats include introduced mammals and other invasive species, fishery interactions, contaminants, oil pollution, marine debris, and climate change. Over the past 20 years, active management in the NWRs and State Seabird Sanctuary has included the eradication of black rats (*Rattus rattus*) at Midway Atoll and Polynesian rats (*Rattus exulans*) at Kure Atoll; eradication or control of invasive plants; cleanup of contaminants and hazards at former military sites; and coordination with NMFS and the Regional Fishery Management Councils, as well as industry and conservation organizations, to reduce fishing impacts.

### Marine Mammals

The marine and littoral ecosystems of the Monument provide essential habitat for the Hawaiian monk seal (*Monachus schauinslandi*), one of the world's most endangered marine mammals. The Hawaiian monk seal was listed as an endangered species under the ESA in 1976 (41 FR 51611) and is protected by the State under HRS 195D. About 1,200 individuals exist (Antonelis

et al. 2006; NMFS 2003; NMFS 2004a), and models predict that the population will fall below 1,000 individuals within the next five years. While 80 to 100 Hawaiian monk seals coexist with humans in the main Hawaiian Islands (D. Schofield, pers. comm.), the great majority of the population lives among the remote islands and atolls of the Monument. Their range generally consists of the islands, banks, and corridors within the Monument, although individual animals may be found beyond this extensive area on occasion, sometimes farther than 50 nautical miles (92.6 kilometers) from shore.

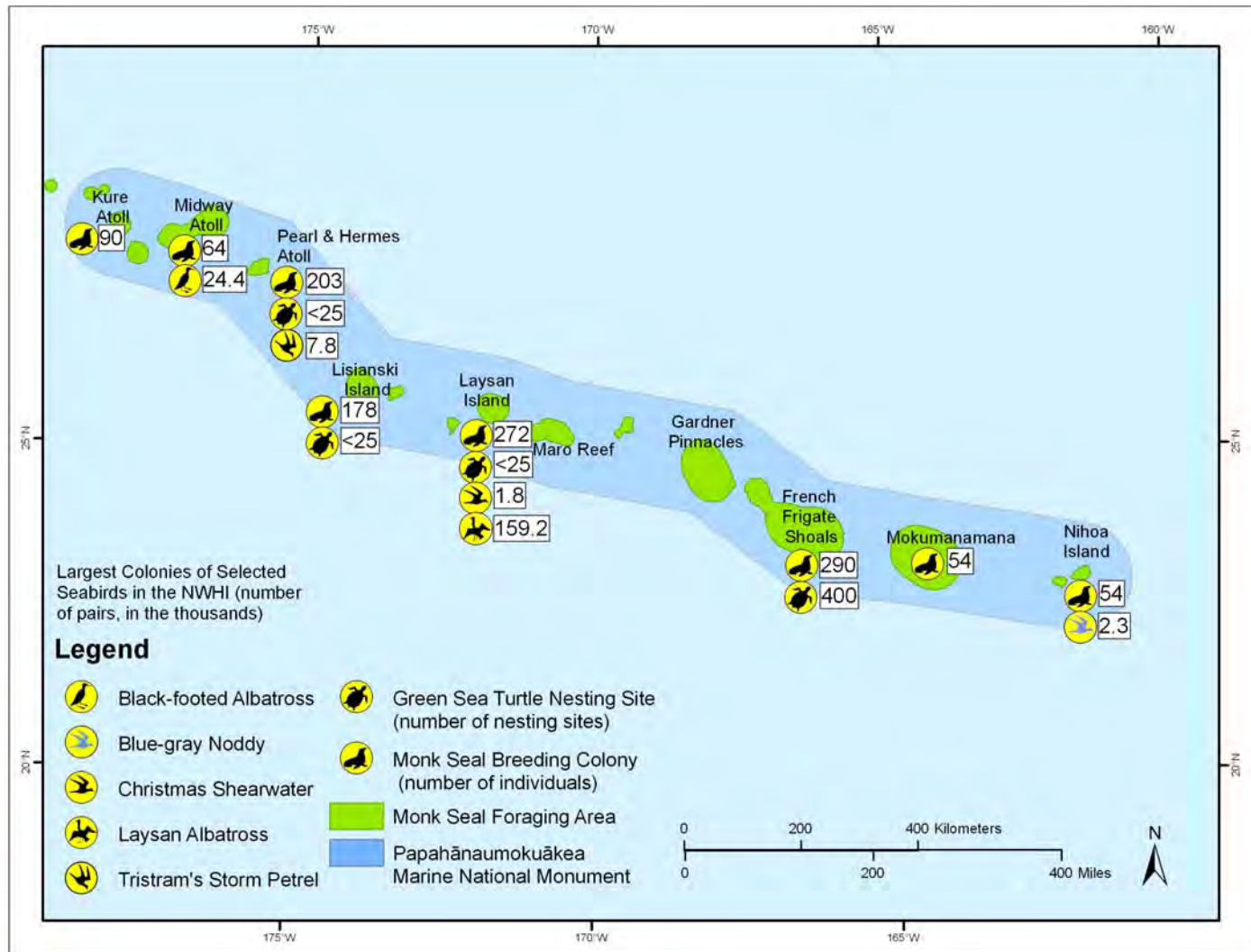
In May 1988, NMFS designated critical habitat under the ESA for the Hawaiian monk seal from shore to 20 fathoms in ten areas of the NWHI. Critical habitat for this species includes all beach areas, sand spits and islets, including all beach crest vegetation to its deepest extent inland, lagoon waters, inner reef waters, and ocean waters out to a depth of 20 fathoms around the following: Pearl and Hermes Atoll; Kure Atoll; Midway Atoll, except Sand Island and its harbor; Lisianski Island; Laysan Island; Maro Reef; Gardner Pinnacles; French Frigate Shoals; Mokumanamana; and Nihoa (50 CFR §226.201). Critical habitat was designated to enhance the protection of habitat used by monk seals for pupping and nursing, areas where pups learn to swim and forage, and major haulout areas where population growth occurs.

Reproductive success of the Hawaiian monk seal population has declined, with the total mean nonpup beach counts at the main reproductive NWHI subpopulations in 2001 being approximately 60 percent lower than in 1958 (NMFS 2003). French Frigate Shoals has the largest Hawaiian monk seal breeding site and breeding subpopulation, followed by Laysan Island, Pearl and Hermes Atoll, and Lisianski Island (Figure 1.23).

The foraging biogeography of the Hawaiian monk seal has been described in a number of recent reports (Stewart 2004a, b, and c; Stewart and Yochem 2004a, b, and c) and is illustrated in Figure 1.23. Between 1996 and 2002, the movements and diving patterns of 147 Hawaiian monk seals in the NWHI (consisting of 41 adult males, 35 adult females, 29 juvenile males, 15 juvenile females, 12 weaned male pups, and 15 weaned female pups) were monitored with satellite-linked depth recorders. Overall findings of these studies include the following:

- Monk seal foraging range covers an area of approximately 18,593 square miles (48,156 square kilometers), or almost 14 percent of the total area of the Monument.





**Figure 1.23 Hawaiian Monk Seal Breeding Sites and Subpopulation Sizes and Foraging Area (Stewart 2004a); Green Turtle Nesting Sites (Balazs and Ellis 2000); and Largest Nesting Sites for Seabird Species of Highest Concern for the Pacific Island Region in the Northwestern Hawaiian Islands (Kushlan et al. 2002; Fefer et al. 1984 for seabird colony size).**

- Seals foraged extensively at or near their breeding sites and breeding subpopulations and haulout sites (95 percent within 20 miles of these sites), except at French Frigate Shoals, where foraging distances were demonstrated to be greater.
- The highest concentration of monk seal activity in the NWHI is focused on French Frigate Shoals and surrounding banks.
- Seals moved along specific corridors to travel between breeding sites and haulout sites. These corridors were closely associated with the NWHI submarine ridge. Seals likely forage along these corridors around subsurface features like reefs, banks, and seamounts.

Several banks located northwest of Kure Atoll represent the northern extent of the monk seal foraging range (Stewart 2004a). These areas have also been identified as important precious coral habitat as a result of recent research conducted with submersibles and remotely operated vehicles by NOAA's Office of Ocean Exploration (NOAA 2003c). The main terrestrial habitat requirements include haulout areas for pupping, nursing, molting, and resting. These are primarily sandy beaches, but virtually all substrates are used at various islands. The loss of terrestrial habitat is a priority issue of concern in the NWHI, especially habitat loss caused by environmental factors such as storms and sea level rise that could further exacerbate this problem in the future. While some habitat loss (e.g., the subsidence of Whaleskate Island at French Frigate Shoals) has already been observed, sea level rise over the longer term may threaten a large portion of the resting and pupping habitat in the NWHI. Habitat loss has decreased available haulout and pupping beaches.

Past and present impacts to the monk seal population in the NWHI include hunting in the 1880s; disturbance from military uses of the area; entanglement in marine debris (Henderson 2001; 1990; 1984a; 1984b); direct fishery interaction, including recreational fishing (Kure Atoll) and commercial fishing prior to the establishment of the 50-mile Protected Species Zone around the NWHI in 1991 (NMFS 2003); predation by sharks (Nolan 1981); aggression by adult male monk seals; and reduction of habitat and prey caused by environmental change (Antonelis et al. 2006).

The waters of the Monument are also home to more than 20 cetacean species, six of them federally recognized as endangered under the ESA and HRS 195D, and "depleted" under the Marine Mammal Protection Act (see Table 1.4), but comparatively little is known about the distributions and ecologies of these whales and dolphins (Barlow 2006). Recent research by Johnston et al. (2007) reveals that the Monument also hosts many more humpback whales than originally thought. The most well-studied cetacean species in the Monument is the Hawaiian spinner dolphin (*Stenella longirostris*). This geographically isolated subgroup of the spinner dolphin is genetically distinct from those of the eastern tropical Pacific (Galver 2000). They occur off all of the main Hawaiian Islands and only four of the NWHI (Kure, Midway Atoll, Pearl and Hermes Atoll, and French Frigate Shoals) (Karczmarski et al. 2005). Andrews et al. (2006) found that the animals at the three northern sites were a genetically homogeneous population that was distinct from the group at French Frigate Shoals, which had some exchange with dolphins in the main Hawaiian Islands. Genetic isolation, together with an apparent low genetic diversity, suggests that spinner dolphins could be highly vulnerable to anthropogenic and environmental stressors (Andrews et al. 2004).

## Terrestrial Invertebrates

Native terrestrial arthropods and land snail communities of the NWHI are the least well studied of the animal groups, but perhaps the most seriously affected by human activities and introductions. In particular, the many species of ants that have accidentally reached all the islands of the archipelago except Gardner Pinnacles have had enormous effects on these native terrestrial invertebrates.

The entomofauna of the Monument includes some groups of insects that demonstrate dramatic adaptive radiations. One such group is the seedbugs, specifically the genus *Nysius*, which shows the complete range of feeding types: from host-specific plant feeders, to diverse plant hosts, to omnivorous feeding, and finally to predator/scavengers. It is a rare occurrence to find herbivory and carnivory occurring within the same genus. Nowhere else in the world is there a lineage like the Hawaiian *Nysius* in which to explore the evolution of carnivory in Heteroptera. Some of these species are single-island endemics and of particular conservation concern because of their limited ranges.

**Table 1.2 Number of Terrestrial Arthropod Species in the NWHI Summarized by Order and Island (Nishida 1998; Nishida 2001)**

Terrestrial Arthropod Species	Number of Terrestrial Arthropod Species by Island								
	Nihoa	Moku-manamana	French Frigate Shoals	Gardner Pinnacles	Laysan Island	Lisianski Island	Pearl and Hermes Atoll	Midway Atoll	Kure Atoll
<b>ARTHROPODA</b>	221	84	108	11	235	55	109	508	155
<b>Arachnida</b>	42	10	10	4	34	6	16	85	35
Acari	31	2	5	2	22	4	13	63	25
Araneae	10	8	5	2	11	2	3	22	10
Pseudoscorpionida	1				1				
<b>Insecta</b>	174	69	94	7	195	49	87	412	115
Blattodea	4	2	3		5	2	3	8	4
Coleoptera	36	11	8	1	36	3	11	78	19
Collembola	2		3		5		10	19	4
Dermaptera	4	1	3	2	4	2	4	4	2
Diptera	28	12	18	1	31	20	15	62	23
Embiidina	2	2	1		2		1	1	
Heteroptera	15	4	9		9	4	8	14	8
Homoptera	10	7	10		15	4	8	21	12
Hymenoptera	37	7	14		21	4	7	105	16
Isoptera			1		1	1		3	
Lepidoptera	23	14	16	2	32	6	15	34	13
Mantodea								1	
Neuroptera					1		1	2	2
Odonata			1					1	1
Orthoptera	5	2	4		1	1		9	3
Pthiraptera		3	1	1	24		3	42	3
Psocoptera	3		1		3	1		1	2
Siphonaptera	1				1		1		
Thysanoptera	2	3	1		4	1		6	3
Thysanura	2	1						1	
<b>Chilopoda</b>	2	2	1		1		1	1	2



Terrestrial Arthropod Species	Nihoa	Moku- mana- mana	French Frigate Shoals	Gardner Pinnacles	Laysan Island	Lisianski Island	Pearl and Hermes Atoll	Midway Atoll	Kure Atoll
Anostraca					1				
Isopoda	3	3	3		3	3	5	9	3
Amphipoda						1			

### Terrestrial Plants

The land plants of the NWHI are typically salt-tolerant and drought-resistant species of the beach strand and coastal scrub. The number of native species found at each site is positively correlated with island size but is negatively influenced by the number of alien species occurring at the site. The three sites with airstrips and a longer history of year-round human habitation have much larger populations of alien species of land plants (See Table 1.3). At least three species of NWHI endemic plants (*Achyranthes atollensis*, *Phyllostegia variabilis*, and *Pritchardia* species of Laysan) are believed to have gone extinct since European contact. Some other native species and genera have found refuge in areas of the NWHI where rats were never introduced, and now occur at much greater densities than they do in the main Hawaiian Islands (e.g., *Pritchardia remota* and *Sesbania tomentosa*, commonly known as ‘ohai).

At least six species of terrestrial plants found only in the region are listed under the ESA and HRS 195D, some so rare that because of the limited surveys on these remote islands, they may have already vanished from the planet. The World Conservation Network lists *Cenchrus agrimonioides* var. *laysanensis* as extinct, though biologists still hold hope that it may exist. *Amaranthus brownii*, endemic to Nihoa, is deemed critically endangered by the World Conservation Network, while *Pritchardia remota* is considered endangered.

**Table 1.3 Biogeographic Description of Land Plants of Papahānaumokuākea Marine National Monument (number of species that have been observed at each site in previous 20 years) (Bruegmann, M.M. 1995; Starr, F., and K. Martz 1999; Starr, F., K. Martz, and L. Loope 2001; Morin, M., and S. Conant 1998; Wagner, W.L., D.R. Herbst, and S.H. Sohmer 1999).**

Island	Emergent land area (acres)	Island endemic	Indigenous to Hawai‘i and other Pacific Islands	Alien	Total no. of Species
Nihoa	171	3	14	3	20
Mokumanamana	46	0	5	0	5
French Frigate Shoals <sup>1</sup>	67	0	10	27	37
Gardner Pinnacle	5	0	1	0	1
Laysan Island	1015	1	22	11	34
Lisianski Island	381	0	15	5	20
Pearl and Hermes Atoll	80	0	15	10	25
Midway Atoll <sup>1</sup>	1540	0	14	249	263
Kure Atoll <sup>1</sup>	212	0	12	36	49

<sup>1</sup> - Sites where an airfield and permanent human habitation has influenced immigration of novel species.

## Endangered and Threatened Species

Twenty-three species of plants and animals known to occur in the NWHI are listed under the ESA and by the State of Hawai‘i under HRS 195D (Table 1.4). Specific threats and recovery actions related to these species are discussed in section 1.4, and in individual action plans presented in Section 3.

**Table 1.4 Species Occurring in the NWHI Listed as Threatened or Endangered Under the Endangered Species Act and by the State of Hawai‘i (HRS 195D)<sup>1</sup>**

<b>Marine Mammals</b>		
Hawaiian monk seal	<i>Monachus schauinslandi</i>	E
Humpback whale	<i>Megaptera novaeangliae</i>	E
Sperm whale	<i>Physeter macrocephalus</i>	E
Blue whale	<i>Balaenoptera musculus</i>	E
Fin whale	<i>B. physalus</i>	E
Sei whale	<i>B. borealis</i>	E
North Pacific right whale	<i>Eubalaena japonica</i>	E
<b>Marine Turtles</b>		
Olive Ridley turtle	<i>Lepidochelys olivacea</i>	T/E
Leatherback turtle	<i>Dermochelys coriacea</i>	E
Loggerhead turtle	<i>Caretta caretta</i>	T
Hawksbill turtle	<i>Eretmochelys imbricata</i>	E
Green turtle	<i>Chelonia mydas</i>	T
<b>Terrestrial Birds</b>		
Laysan duck	<i>Anas laysanensis</i>	E
Laysan finch	<i>Telespyza cantans</i>	E
Nihoa millerbird	<i>Acrocephalus familiaris kingi</i>	E
Nihoa finch	<i>Telespyza ultima</i>	E
<b>Seabirds</b>		
Short-tailed albatross	<i>Phoebastria albatrus</i>	E
<b>Plants</b>		
No common name	<i>Amaranthus brownii</i>	E
Kamanomano	<i>Cenchrus agrimoniodes var laysanensis</i>	E
No common name	<i>Mariscus pennatififormis ssp bryanii</i>	E
Loulu	<i>Pritchardia remota</i>	E
No common name	<i>Schiedea verticillata</i>	E
‘Ōhai	<i>Sesbania tomentosa</i>	E

<sup>1</sup> - Under the Endangered Species Act of 1973 and the State of Hawai‘i (HRS 195D), endangered species are those in danger of extinction. Threatened species are those likely to become an endangered species within the foreseeable future. E = endangered; T = threatened.

### 1.3 Status and Condition of Cultural and Historic Resources

The Monument was established for its unique combination of natural and cultural resources, including Native Hawaiian and post-Western-contact historic resources. It is composed of terrestrial and marine areas that have special national and international significance in terms of conservation, ecology, history, science, education, culture, archaeology, and aesthetics. The establishment of the Monument also provides the framework for coordinated and comprehensive management of the area.

#### Native Hawaiian Cultural Foundation and Significance

*Kū pākū ka pali o Nihoa i ka makani*

*The cliff of Nihoa stands as resistance against the wind*

—Said of one who stands bravely in the face of misfortune (Pukui 1983: 1924)

Polynesian navigators began voyaging across the vast Pacific Ocean, unaided by Western instrumentations, about 300 B.C. or earlier (Howe 2006). Over the next 1,300 years, these skilled and visionary wayfinders would leave their mark on a more than 10-million-square-mile area of the Pacific that has become known as the Polynesian triangle, its defining points being made by settlements on Aotearoa (New Zealand) in the West, on Rapa Nui (Easter Island) in the East, and on the Hawaiian archipelago in the North (Polynesian Voyaging Society 2007). A unique spirituality binds the multitude of Polynesian societies that today inhabit the hundreds of islands contained within this region. These Polynesian societies share many of the same cosmologies, genealogies, and oral histories, the origins of which can be traced either back to the wayfinders who first ventured through the Pacific or from subsequent voyagers who traveled across this massive water continent.

Canoes filled with those who would become Native Hawaiians first arrived in the waters of the remote Hawaiian Archipelago, most likely from Hiva or the Marquesas Islands, around 1,600 years ago or earlier (PVS 2007). Upon finding abundant natural resources, they decided to remain, living in harmony with nature to survive on such a remote island chain. They developed complex resource management systems and specialized skill sets to ensure the fertile soils and rich reef environments they found could be sustained for future generations. These included agricultural terraces; extensive water paddies for their staple food, kalo (taro); and incredibly productive fishponds, many of them acres in size that sprawled over shallow coastal waters.

The ocean serves as a central source of physical and spiritual sustenance for Native Hawaiians on a daily basis. Poetically referred to as Ke kai pōpolohua mea a Kāne (the deep dark ocean of Kāne), the ocean was divided into numerous smaller divisions and categories, from the nearshore to the deeper pelagic waters (Malo 1951). Likewise, channels between islands were also given names and served as connections between islands, as well as a reminder of their larger oceanic history and identity.

Today, Native Hawaiians continue to maintain their strong cultural ties to the land and sea. This concept of interconnectedness transcends geography. Native Hawaiians understand the importance of managing the islands and waters as one, as they are inextricably connected to one



another (Beckwith 1951; Lili‘uokalani 1978). Despite the fact that the NWHI were not used and experienced on a daily basis by most Hawaiians, they have always been seen as an integral part of the Hawaiian Archipelago and have been honored as a deeply spiritual location, as evidenced by the many wahi kūpuna, or sacred sites, on Nihoa and Mokumanamana.

Much of the information about the NWHI has been passed down in oral and written histories, genealogies, songs, dance, and archaeological resources. Through these cultural resources of knowledge, Native Hawaiians have been able to recount the travels of seafaring ancestors between the NWHI and the main Hawaiian Islands. Hawaiian language archival resources have also played an important role in providing key documentation; a large body of information was published in local newspapers, some of it more than a hundred years ago (e.g., Kaunamano 1862; Manu 1899; Wise 1924).

More recent ethnological studies (Maly 2003) support the continuity of Native Hawaiian traditional practices and histories in the NWHI, and it is important to note that only a fraction of these have been recorded—many more exist in the memories and life histories of kūpuna. Nevertheless, the relationship of Native Hawaiians to the NWHI is marked by some irregularity, notably on the arrival of Europeans to the Hawaiian Archipelago in the late 18th century. At the point of contact between the West and Hawai‘i, Native Hawaiians were thriving in the islands, with a population estimated between 300,000 and one million. (For discussion on pre-contact Native Hawaiian population, see Stannard 1989.) However, foreign diseases introduced into Hawai‘i over the next century would cause the Native Hawaiian population to fall into a steep decline. Thus, the sacred path traveled to the islands northwest of Kaua‘i saw few Native Hawaiians for a period of time, and this trend lasted through the early 19th century.

A renewed interest in the NWHI grew as successive Hawaiian monarchs focused on reuniting the entire Hawaiian Archipelago by formally incorporating the NWHI into the territory of the Kingdom of Hawai‘i. Throughout the 1800s, title to the islands and waters of the region was vested in the Kingdom of Hawai‘i (Mackenzie and Kaiama 2003). This title came to pass because of the actions of Hawaiian monarchs, which included the following highlights:

- In 1822, Queen Ka‘ahumanu organized and participated in an expedition to locate and claim Nihoa under the Kamehameha Monarchy.
- Nihoa was reaffirmed as part of the existing territory of Hawai‘i in 1856 by authority of Alexander Liholiho, Kamehameha IV (March 16, 1856, Circular of the Kingdom of Hawai‘i).
- King Kamehameha IV made a round trip voyage between Honolulu and Nihoa in 1857 and instructed Captain John Paty of the *Manuokawai* to annex any lands discovered during further exploration of the region. In 1857, the islands of Laysan and Lisianski were declared new lands to be included into the domain of the Kingdom (Kingdom of Hawai‘i 1857).
- Lydia Lili‘uokalani, prior to becoming queen, visited Nihoa with a 200-person party aboard the *Iwalani*.
- King David Kalākaua annexed Kure Atoll (Ocean Island) and announced formal possession of the island in 1886, through Special Commissioner Colonel James Harbottel (Harbottel-Boyd 1886).

In 1893, Queen Lydia Lili‘uokalani was overthrown by the self-proclaimed Provisional Government of Hawai‘i, with the assistance of U.S. Minister John L. Stevens. Five years later, in 1898, the archipelago, inclusive of the NWHI, was collectively acquired by the United States through a domestic resolution, called the “New Lands Resolution.”

The ea (sovereignty and life), as well as the kuleana (responsibility), for the entire Hawaiian Archipelago continues to exist in the hearts and minds of many present-day Native Hawaiians—a perspective recognized in law by the Apology Resolution (U.S. Public Law 103-150), which is a joint resolution of Congress signed by President Clinton in 1993. The Apology Resolution states, in part, that “The Congress...apologizes to Native Hawaiians on behalf of the people of the United States for the overthrow of the Kingdom of Hawaii on January 17, 1893 with the participation of agents and citizens of the United States, and the deprivation of the rights of Native Hawaiians to self determination;...” It also recognizes that “the health and well-being of the Native Hawaiian people is intrinsically tied to their deep feelings and attachment to the land.”

The stage was set for a reawakened relationship between Native Hawaiians and the NWHI in 2000, when President Clinton signed the Executive Orders creating the NWHI Coral Reef Ecosystem Reserve. With new channels of access possible, the cultural protocol group, Nā Kupu‘eu Paemoku, traveled to Nihoa on the traditional double-hulled voyaging canoe *Hōkūle‘a* in 2003 to conduct traditional ceremonies. The following year, in 2004, *Hōkūle‘a* sailed more than 1,200 miles (1,931 kilometers) to the most distant end of the island chain, visiting Kure Atoll as part of a statewide educational initiative called “Navigating Change.” Concurrently, officials of the Polynesian Voyaging Society saw that the ancient sailing route between Kaua‘i and Nihoa was an appropriate training course for the next generation of Native Hawaiians interested in reestablishing the traditional system of wayfinding practiced by their ancestors. In 2005, Nā Kupu‘eu Paemoku again sailed to the NWHI, this time to Mokumanamana, where they conducted protocol ceremonies on the Summer Solstice—the longest day of the year, June 21. On June 21, 2007, as a follow-up to the 2005 access, the Edith Kanaka‘ole Foundation ventured to Nihoa and Mokumanamana to conduct its own cultural research initiatives and to better understand the relationship between the wahi kūpuna (ancestral places) and the northern pathway-of-the-sun.

Native Hawaiians’ longstanding and deeply spiritual relationship with the NWHI over millennia reaffirms the importance of positioning the Hawaiian culture as the lens through which the significance of the region, as well as the Hawaiian Archipelago as a whole, is viewed.

### **Native Hawaiian Cultural Resources**

Most family genealogies of Native Hawaiians begin with the Kumulipo, or creation chant (Malo 1951). The Kumulipo depicts the history of creation, beginning with the simplest of organisms and gradually reaching higher levels of complexity in the natural world, eventually completing the cycle of life with humans. As with most oral traditions, different families had variations of the creation chant, and different stories evolved as the chant moved closer to the evolution and naming of humans. It is through the perpetuation of chants like the Kumulipo—and other ancient traditions, practices, and protocols—that Native Hawaiians have passed on their spiritual

belief that the people are deeply related to the natural environment, and in fact, all of the natural resources are also cultural resources.

Physical remnants of wahi kūpuna (ancestral places), Hawaiian language archival and oral resources, and historical accounts provide evidence of the various past uses of the NWHI and the surrounding ocean by Native Hawaiians (Kaunamano 1862, in Hoku a ka Pakipika; Manu 1899, in Ka Loea Kalaiaina; Wise 1924, in Nupepa Kuokoa). Evidence indicates that the area served as a home and a place of worship for centuries. It is posited that the first Native Hawaiians to inhabit the archipelago frequented Nihoa and Mokumanamana for at least a 500- to 700-year period (Emory 1928; Cleghorn 1988; Irwin 1992). They brought many of the skills necessary to survive with them from their voyaging journeys throughout Polynesia. Over time, they developed complex resource management systems and additional specialized skill sets to survive on these remote islands with limited resources (Cleghorn 1988).

The impressions left by ancient Hawaiians can be seen through the distinctive archaeology of Nihoa and Mokumanamana. The ceremonial terraces and platform foundations with upright stones found on both Nihoa and Mokumanamana are not only amazing examples of unique traditional Hawaiian architectural forms of stone masonry work, but they also show similarities to samples from inland Tahiti (Emory 1928). The structures are some of the best preserved early temple designs in Hawai‘i and have played a critical role in understanding Hawai‘i’s strong cultural affiliation with the rest of Polynesia, and the significant role of Native Hawaiians in the migratory history and human colonization of the Pacific (Cleghorn 1988).

It is believed that Mokumanamana played a central role in Hawaiian ceremonial rites and practices a thousand years ago because it is directly in line (23° 34.5’ N latitude) with the rising and setting of the equinoctial sun along the Tropic of Cancer. In Hawaiian, this path is called “ke ala polohiwa a Kāne,” or the “way of the dark clouds of Kāne,” which has been translated to mean death or the westward pathway of the ancestral spirits. Because Mokumanamana sits on the northernmost limit of the path the sun makes throughout the year, it sits centrally on an axis between two spatial and cultural dimensions: pō (darkness, creation, and afterlife) and ao (light, existence). On the summer solstice (the longest day of the year), the sun travels slowest across the sky on this northern passage, going directly over Mokumanamana. The island has the highest concentration of ceremonial sites anywhere in the Hawaiian archipelago. All of these sites are strategically placed and act as physical reminders of the important spiritual role these sites play in Hawaiian culture. The sites and structures are channels for the creation of new life, and facilitate Native Hawaiians’ return to source after death (Liller 2000).

Nihoa and Mokumanamana are listed on the National Register of Historic Places, and there are more than 140 documented archaeological sites on these two islands. Though they are quite barren and seemingly inhospitable to humans, the number of cultural sites is testimony to the pre-Western-contact occupation and use of these islands. On Nihoa, a total of 89 archaeological sites are known, including residential features, agricultural terraces, ceremonial structures, shelters, cairns, and burials. This island also has significant soil development for agriculture along with constructed terraces, which suggest investment in agricultural food production. On Mokumanamana, a total of 52 archaeological sites have been documented, including 33



ceremonial features, which makes it the highest concentration of religious sites found anywhere in the Hawaiian archipelago.

While Nihoa and Mokumanamana are thought to have been frequented until about 700 years ago, voyages to these islands and others in Papahānaumokuākea for the gathering of turtles, fish, bird feathers, and eggs continued into the 20<sup>th</sup> century, particularly from Kaua‘i and Ni‘ihau (Tava and Keale 1989; Maly 2003). Cultural practices like these continue to remind and teach Native Hawaiians of the connections and relationships their ancestors have passed down from generation to generation.

### Maritime Heritage Resources

*“I had just put my hand upon my coat when the ship struck with a fearful crash...I sprang upon deck... to find ourselves surrounded with breakers apparently mountain high, and our ship careening over upon her broadside...”*

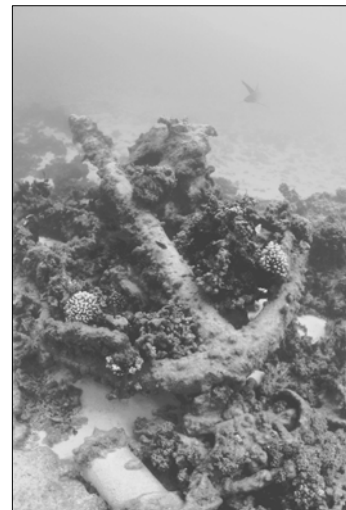
—Thomas Nickerson, on the loss of the ship *Two Brothers* at French Frigates Shoals, 1823 (Nantucket Historical Association MS 106 folder 3.5)

The Monument enjoys a rich maritime history, with ocean vessels from around the world having traveled into the NWHI—although not all that came in made it back out.

Long before Western ships sighted the NWHI, Native Hawaiians and other Polynesians journeyed in large double-hulled canoes to these resource-rich islands and atolls as they explored the vast Pacific Ocean without aid of western instrumentation. Guided by the stars, currents, and weather patterns, Native Hawaiians set the stage for the intrepid ships and crews who would enter the waters of the NWHI beginning in the early part of the 19th century. It is believed that Native Hawaiians frequently sailed along the ancient voyaging routes that connect Kaua‘i to the settlements on Nihoa and Mokumanamana.

In addition to the rich Native Hawaiian cultural setting, maritime activities following Western contact with the Hawaiian Islands have left behind the historical and archaeological traces of a unique past. Currently, more than 60 ship losses are known among the NWHI, the earliest loss dating back to 1818. These, combined with 67 known aircraft crashes, amount to more than 120 potential maritime and military heritage resources. Many of these resources reflect the distinct phases of historical activities in the remote atolls (Van Tilberg 2002).

As American and British whalers first made passage from Hawai‘i to the seas near Japan in 1820, they encountered the low and uncharted atolls of the NWHI. Some of these early voyages gave rise to the Western names of the islands and atolls as we know them today. Pearl and Hermes Atoll is named for the twin wrecks of the British whalers *Pearl* and *Hermes*, lost in 1822. Midway was originally sighted by Captain Daggett of the New Bedford whaler *Oscar* in 1839. Laysan was reportedly discovered by the



Anchor from an unidentified 19th century whaling ship at Kure Atoll. Photo courtesy of James Watt.

American whaleship *Lyra* prior to 1828. Gardner Pinnacles was named by Captain Allen on the Nantucket whaler *Maro* in 1820, the same year the ship encountered, and gave its name to, Maro Reef.

The history of American whaling is a significant part of our national maritime heritage and is a topic that encompasses historic voyages and seafaring traditions set on a global stage, as these voyages had political, economic, and cultural impacts. The United States was intimately involved in the whaling industry in important and complex ways. Ten whaling shipwrecks are known in the NWHI. Five of these have been located (the American whaler *Parker*, the British whalers *Pearl*, *Hermes*, and the *Gledstanes*, as well as an unidentified whaler at French Frigate Shoals), and their archaeological assessment is under way (Van Tilberg and Gleason, in prep). Whaling vessel wreck sites from the early 19th century are quite rare, and the study and preservation of heritage resources provide a unique glimpse into our maritime past.

Despite being slowly integrated into navigational charts, the NWHI remained an area of low and inconspicuous reefs and atolls for many years, frequented by shipwrecks and castaways. Crews were often stranded for many months while they constructed smaller vessels from salvaged timbers and set out for rescue. Some vessels were lost with all hands. Russian and French ships of discovery transited the NWHI, and sometimes found themselves upon the sharp coral reefs. Nineteenth-century Japanese junks of the Tokugawa Shogunate period, drifting away from their home islands and into the Pacific, were reportedly washed onto the sands of the atolls. Hawaiian schooners and local fishing sampans voyaged into the archipelago, many not to return. Marine salvage expeditions based out of the main Hawaiian Islands profited from the area, although existing records of their cruising activities are scarce. These types of sites have the potential to tell us about early-historic-period voyages in the Pacific and about the seafaring traditions of many cultures.

The strategic geographical location of the NWHI proved early on to be a valuable “commodity.” The opening of China and Japan to commerce in the mid-19<sup>th</sup> century and the transition to steam propulsion brought with it the need for Pacific coaling stations. In August 1869, Captain William Reynolds of the USS *Lackawanna* took formal possession of Midway Atoll for the United States. Soon after, the USS *Saginaw*, a Civil-War-era side-wheel gunboat, was assigned to support improvement efforts at Midway. However, work to open a channel into the lagoon remained incomplete, and the *Saginaw*, on a return voyage from Midway with the contracting party, wrecked on the reef at nearby Kure Atoll on October 29, 1870. The wreck site was discovered in 2003, allowing research into the early technology of the “Old Steam Navy” (Van Tilberg 2003a).

From this inauspicious beginning, the strategic location of Midway and the NWHI continued to grow in importance for commercial and military planners. The Spanish-American War in 1898 led to the American colonization of Guam and the Philippines, as well as annexation of the Hawaiian Islands. This greatly expanded American colonial presence made transpacific communication a priority. By 1903, the first transpacific cable and station were in operation, and employees of the Commercial Pacific Cable Company settled at Midway. In the 1930s, Pan American Airways’ “flying clippers” (seaplanes) were crossing the ocean, arriving at Midway from Honolulu on their 5-day transpacific passages (Cohen 1985). In 1939, the U.S. Navy

expanded its interest in Midway, and millions of dollars were awarded to the Pacific Naval Air Base Consortium. Construction of the naval air facility at Midway was begun the following year.

Naval activities increased during World War II. French Frigate Shoals was the temporary staging site for Japanese seaplanes, as well as a U.S. naval air facility at a later time. The Navy built an important submarine advance base at Midway Atoll, dredging the reef to form a channel and harbor for submarine refit and repair. The wreck of the USS *Macaw*, a Navy submarine salvage vessel lost in 1944 during the rescue of the submarine *Flier*, testifies to the dangerous nature of Pacific operations at Midway (Van Tilberg 2003a; Van Tilberg 2003b). Eastern Island at Midway possessed the main airfield in the early days of the war, while submarine and seaplane support operations were concentrated on Sand Island. Together, these areas constituted a vital center for undersea, surface fleet, and naval aviation operations. In fact, the Hawaiian Sea Frontier forces stationed patrol vessels at most of the islands and atolls. Tern Island, in French Frigate Shoals, was expanded after the Battle of Midway through dredging to create a naval air facility for staging aircraft from the main Hawaiian Islands and to provide faster resupply of Midway.

In June 1942, the Battle of Midway took place in seas north of Midway Atoll. Four Japanese aircraft carriers and one American carrier were sunk, and the Japanese military was forced to withdraw from a planned invasion. Although most of the battle took place 100 to 200 miles to the north, an intense air fight was waged directly over and around the atoll. Training exercises before and after the battle also took their toll. At least 30 naval aircraft, both American and Japanese, crashed or were ditched into the nearshore waters of Midway and Kure Atolls, many of them combat losses for both American and Japanese navies. Many of these crash sites are war graves. This battle proved to be the most decisive U.S. victory and was the turning point of World War II in the Pacific (Prange 1982).

All of these maritime activities have left a scattered material legacy around and on the islands: whaling ships, Japanese junks, Navy steamers, Hawaiian fishing sampans, Pacific colliers, salvage vessels, and Navy aircraft (Rauzon 2001). Many of these sites, as defined by state and federal preservation laws (the National Historic Preservation Act, the Archaeological Resources Protection Act, and the Abandoned Shipwreck Act), are of national and international historical significance. Programmatic mandates have been established to ensure their preservation and protection. NOAA's Maritime Heritage Program focuses on the discovery and investigation of these heritage resources for the benefit of present and future generations. These sites are the physical record of past activities in the NWHI and embody unique aspects of island and Pacific maritime history.

### **Heritage Resources of Midway Atoll**

*"They had no right to win. Yet they did, and in doing so they changed the course of a war...Even against the greatest of odds, there is something in the human spirit – a magic blend of skill, faith and valor – that can lift men from certain defeat to incredible victory."*

—Walter Lord



Designated as a National Memorial, Midway Atoll preserves the physical remains of the rich historic past in the Monument. With its defensive structures and military architecture, both residential and industrial, the atoll serves as a memorial to the pivotal Battle of Midway. While its role in that battle has earned Midway a prominent place in history, it was the atoll's strategic location that first drew the attention of the world nearly 100 years earlier. Called the "Middlebrook Islands" by Captain N.C. Brooks when he landed there in 1859 (Helber Hastert & Fee 1995; *Paradise of the Pacific* 1936), Midway's location soon proved attractive to transpacific commercial traders, triggering a century of development and manipulation of the landscape to meet the needs of commerce and the military, as well as occasional shipwreck survivors.

Physical improvements started almost immediately after the United States took possession in 1869, with a Congressional appropriation for development of the Sand Island entrance channel. Though the crew of the USS *Saginaw* worked on the channel during their 6½-month stay, the project stalled when the underlying solid limestone reef was encountered and the estimated costs to complete it proved prohibitive.

Interest in the atoll waned for a period, with its only sporadic inhabitants being the survivors of two notable shipwrecks that occurred in the late 1880s. The *General Seigel*, a schooner on a shark-hunting expedition with a crew of eight, wrecked in November 1886. Three crewmen died and one, Adolfe Jorgenson, was marooned by the remaining four members when they sailed from Midway on June 28, 1887. Seven months later, on February 3, 1888, the *Wandering Minstrel* was wrecked on the coral reef during a similar quest for sharks. The crew of 40, which included Captain F.D. Walker and his wife and sons, were surprised to find Adolfe Jorgensen still alive on Sand Island. After spending 14 months stranded on Midway, the Walker family and remaining crew were finally rescued in April 1889. Though none of the structures from this era remains, the stories of the survivors, including tales of murders, mutiny, escapes, buried treasure, and rescue, inspired Robert Louis Stevenson's novel "The Wrecker."

Interest in Midway was renewed in 1903, when the Commercial Pacific Cable Company chose Sand Island for a relay station on its route across the Pacific from San Francisco to the Far East. Armed with plans drafted by San Francisco architect Henry Meyers, Superintendent Ben W. Colley arrived in April 1903 with a staff and several carpenters to construct the station. The innovative reinforced concrete and steel buildings were plumbed and wired for electricity supplied by an acetylene generator. The graceful, two-story design offered shaded verandahs, a library, and billiard room along with kitchens and bedrooms. An ice-making plant, cold storage house, and windmills were also constructed. Superintendent Colley adapted the stark landscape to meet the needs of the cable company by importing soil from Honolulu to make a garden for growing fresh vegetables and by planting vegetation such as naupaka (*Scaevola*), grasses, ironwood trees, and coconuts to control the white sand that drifted everywhere (Colley n.d.). The first round-the-world telegram was issued by President Theodore Roosevelt on July 4, 1903. The remains of the cable station and its landscape can still be observed on the atoll.

In 1935, Pan American Airways began constructing a refueling base at Midway, which consisted of a wooden dock and a mooring barge in the lagoon where the seaplanes landed and discharged cargo and passengers (Yoklavich 1993). The facilities included a prefabricated hotel with a

solar-heated hot water system, lounge, dining room, and 40 guest rooms, as well as tennis courts, baseball fields, and even a sandy nine-hole golf course that required the use of black golf balls. None of these structures survives today, though historical photographs and film footage remain to tell the story.

Military interest in Midway accelerated as World War II started in Europe and war in the Pacific appeared inevitable. The strategic importance of an air base at Midway was considered second only to Pearl Harbor (Yoklavich 1993), and construction of the Naval Air Base was authorized in 1939. Architect Albert Kahn of Detroit, Michigan, one of the country's foremost industrial designers, prepared plans for the buildings in 1940 (Woodbury 1946:76 in Yoklavich 1993:24). Development of the military station changed the civilian character of Midway, creating a base landscape that replaced the individual units or "towns" that had defined the cable station and Pan American Airways' presence. The new base design clearly demonstrated the Navy's authority by placing the officer's housing in the center of Sand Island and developing a road system that linked the military's buildings. The architectural style of the buildings enhanced the perception of military control because of its uniform, simple, and efficient design.

On December 7, 1941, two Japanese destroyers shelled Sand Island for almost 2 hours (Hazelwood n.d., in Yoklavich 1993:26). Marine guns returned fire, but the Japanese ships caused extensive damage to several buildings, including the seaplane hangar and power plant. First Lieutenant George H. Cannon was fatally wounded in the shelling and posthumously became the first Marine to receive the Medal of Honor in World War II (Heinl 1948:13, in Yoklavich 1993:26).

The capture of Wake Island and Guam by the Japanese, along with their aggressive offensive operation in the Pacific, caused military strategists to look more closely at Midway as the key to retaining any hope of U.S. success in the Pacific Theater. If Midway fell, it would be a short hop from there to Honolulu and other West Coast cities.

The historical events of the Battle of Midway have been explored in great detail in numerous reports, books, and articles, so only a brief synopsis is included here. In spring 1942, Midway Atoll was thought to be the target of an imminent Japanese attack. To learn their plans, Fleet Admiral Chester William Nimitz sent a command over the secure cable for Midway to broadcast a false distress message. The intelligence trap proved successful when a Japanese message was decoded two days later stating that the target "AF was having trouble with its fresh water distillation system" (Cressman et al. 1990). With the Japanese target clearly identified, Admiral Nimitz focused on planning for the impending battle.

Nimitz inspected the islands on May 2, 1942, to spur every effort to fortify the island with men and equipment. Nearly every inch of Sand and Eastern islands was covered with men and equipment. While most of the new equipment was sent to the European Theater, Nimitz tried to find resources for Midway sufficient to repel a Japanese landing. Several groups of Marine and Navy air detachments as well as Navy PT (patrol torpedo) boats were sent to the atoll to support existing forces.

PBY (patrol bomber-Y) Catalina seaplanes, the famous “flying boats” of World War II, were housed in the seaplane hangar and used the seaplane ramp in Sand Island harbor to make regular patrols. On the morning of June 4, 1942, a Navy PBY pilot radioed a contact report of “the main body” at approximately 700 miles away, headed northeast (Cressman et al. 1990). Though the pilot had actually seen part of the occupation force rather than the attacking force, the report immediately put the U.S. forces on alert.

All aircraft were already prepared to launch when the radar on Sand Island began picking up the incoming enemy flight at about 0630. As 108 Japanese planes zoomed toward Midway, 25 defending U.S. Marine fighters tried valiantly to slow their progress. Eastern Island’s airfield was eerily quiet for the few minutes prior to attack, with all but a few airplanes safely launched. Meanwhile, torpedo bombers flew to attack the enemy aircraft carriers. The Japanese military strategy was simple—destroy the air base at Midway and clear the way for occupation.

The attack lasted only 17 minutes, but left the installations on both Sand and Eastern Islands in shambles. The seaplane hangar was hit and set ablaze. The fuel oil tanks 500 yards north of the seaplane hangar were also hit, sending a thick black column of smoke that could be seen for miles. The men on Midway were unable to effectively return fire on such advanced aircraft, which could drop bombs well out of reach of the anti-aircraft guns.

Meanwhile, an epic air battle was unfolding at sea. Against all odds and despite devastating losses of aircraft and pilots as well as the sinking of the USS *Yorktown*, the U.S. forces dealt a fatal blow to the Imperial Japanese Navy. Japanese naval commander Admiral Yamamoto had lost his entire fast carrier group, with its complement of some 250 planes, most of the pilots, and about 2,200 officers and men. On the morning of June 5, he gave the surprising order for a general retirement of his fleet, even though he still maintained overwhelming gunfire and torpedo superiority. In all its long history, the Japanese Navy had never known defeat (Morison 1963). This was America’s greatest victory in the Pacific Theater and changed the course of history.

Midway as a military base was closed after World War II, was reactivated during the Korean War, closed again, and was reactivated in 1953. Crucial to the new radar technology tracking system during the Cold War, Midway served as a primary base for the “Pacific Barrier” operation, providing a radar line from Midway Atoll to Adak Island, some 1,300 miles to the north (NAS Barbers Point 1962). Continuous coverage for each 14-hour run necessitated a staggered flight schedule, with the radar planes, called “Willy Victors,” leaving Midway every four hours (Sheen pers. com. 1998).

During the Vietnam War, Midway was selected as the site for the June 8, 1969, meeting of President Thieu of the Republic of Vietnam and U.S. President Richard Nixon. President Thieu, fearful of riots if he came to the United States, asked for a remote and safe location for a meeting. The base commander’s home (Building 414) at Midway was the site of this momentous meeting (Denfeld, in Yoklavich et al. 1994).

Since its designation in 2000, FWS has managed Midway Atoll as the National Memorial to the Battle of Midway, ensuring that those who fought and died in that battle will always be



remembered for their sacrifice. Among Midway's 63 existing National Register-eligible historic properties are six defensive structures related to the Battle of Midway that were listed together as a National Historic Landmark in 1986. These structures, together with the cable station buildings, the Albert Kahn-designed naval base, and war memorials, provide a tangible link to the past and the historic events that have transpired on this small speck of land in the middle of the Pacific.

## **1.4 Environmental and Anthropogenic Stressors**

Despite their remote location and largely uninhabited condition, the NWHI are subject to a wide range of environmental and anthropogenic stressors. Marine pollution, dredging, invasive species, fishing, climate change, and vessel groundings are some of the factors that have affected or may cause harm to the resources of the NWHI. An understanding of past and present stressors and potential future threats provides a backdrop for identifying priority management needs and informing an ecosystem-based management approach. In recent years, increased efforts have focused on documenting terrestrial and coral reef ecosystem health and the effects of priority environmental and anthropogenic stressors. Future research and monitoring efforts will focus on investigating the direct and indirect effects of climate change, such as increases in water temperature, acidification, productivity, sea level rise, changes in precipitation, and other factors on terrestrial and marine habitats and species. Given the Monument's status as a relatively pristine control site for the Hawaiian Archipelago and the greater Pacific, information gained here on the effects of climate change and factors contributing to ecosystem resilience will have management applicability for resource managers worldwide. This section describes the environmental and anthropogenic stressors in the NWHI.

### **Coastal Development**

A century ago, coastal development in the NWHI consisted of guano mining at Laysan Island and the establishment of the Commercial Pacific Cable Company on Midway. Then, in 1938, Congress authorized the Hepburn Board, a fact-finding group in the Navy, to make a strategic study of the need for additional U.S. naval bases. This study resulted in the construction of base facilities, airfields, and seadromes during 1939 and 1940 (Hepburn Board Report 1939, Time 1939). One of these facilities was Midway Naval Air Station. Facility construction included dredging a channel and building a seaplane basin and a turning basin. All of this work was accomplished through the dynamiting of coral heads by "skindivers" and by draglines and dredges mounted on land and barges. Approximately 3 million cubic yards (2.29 million cubic meters) of coral and material was removed. An estimated 2,800 feet (853 meters) of sheetpiling bulkhead was installed on Sand Island. Dredged material was pumped behind this bulkhead, creating new land for a seaplane parking-mat (U.S. Navy Bureau of Yards and Docks 1947).

After the Battle of Midway, the Navy recognized the need to be able to resupply Midway within hours, not the days or weeks required for ships to travel there. In less than five months, the Navy SeaBees and contractors dredged 660,000 cubic yards (504,600 cubic meters) of coral, enlarging Tern Island (at French Frigate Shoals) threefold to create a refueling stop for aircraft between O'ahu and Midway (U.S. Navy Bureau of Yards and Docks 1947).

The Navy occupied Midway, French Frigate Shoals, and Pearl and Hermes during the first half of the 20<sup>th</sup> century. The U.S. Coast Guard constructed LORAN stations after World War II at Kure and French Frigate Shoals and operated them for several decades (USCG 1994a). Several Cold War operations were conducted at French Frigate Shoals, such as the recently declassified "Corona Project," the first operational space photo reconnaissance satellite system. French Frigate Shoals served as a tracking and recovery station for this project in the early 1960s.

During the Cold War, French Frigate Shoals housed up to 300 personnel at a time in support of the various classified and unclassified missions (Bill Wood pers. com. 2001). An additional 100 people were stationed at French Frigate Shoals to monitor the aboveground nuclear testing at Johnston Atoll. The Midway Naval Air Station supported several hundred to several thousand soldiers and dependents during the pre- to post-World War II era, before the atoll was transferred to FWS in 1996. Various islands of French Frigate Shoals, Midway, Kure, and Pearl and Hermes Atolls were used in military training exercises that included the use of landing craft, helicopters, and boats.

These types of coastal development activities alter current flow, temperature regimes, and shoreline configuration, and as a result, may significantly alter coastal erosion patterns. Reef disturbances due to storm or human activities are believed to create favorable environments for the formation of ciguatera toxin in marine life (Lehane and Lewis 2000, Van Dolah 2000, Ruff 1989, Kaly and Jones 1994). Operation of housing and other facilities on some islands and the creation of dumps contribute to point and nonpoint sources of pollution to the terrestrial and marine environments.

Since the closure of Navy and Coast Guard facilities, coastal development activities have been limited to small-scale conversion of abandoned Coast Guard buildings on Tern Island at French Frigate Shoals and Green Island at Kure to biological field stations. The only recent coastal construction has been the repair of the seawall protecting Tern Island's small runway and buildings, and construction of a small boat ramp at French Frigate Shoals in 2004. This construction was needed to halt the erosion of the island and to eliminate the risk of injury and death to endangered monk seals, threatened green turtles, and migratory seabirds previously trapped in eroding seawall sheet piling that has now been removed from the island.

Current human population levels are limited to a few agency staff and volunteers at French Frigate Shoals, Laysan Island, Lisianski Island, and Pearl and Hermes and Kure atolls. In addition to a small number of agency staff and volunteers at Midway Atoll, approximately 50 contract employees operate the infrastructure required to maintain Henderson Airfield as an emergency landing site for commercial transpacific airliners.

### **Marine Pollution**

Marine pollution can be defined as the introduction by humans, whether directly or indirectly, of substances or energy to the marine environment, resulting in deleterious effects such as hazards to the health of marine life and humans, hindrance of marine activities, and impaired water quality. Marine pollution may originate from land-based or sea-based human activities in the form of point-source discharges, groundwater discharges, or nonpoint-source runoff. Studies conducted by the FWS, Coast Guard, Navy, and the University of Hawai'i have documented contamination in soil, sediment, and biota at French Frigate Shoals, Kure, and Midway. Direct impacts to black-footed albatrosses, in the form of reduced hatching success, have been linked to high organochlorine levels (Ludwig et al. 1997). Finkelstein et al. (2007) found a correlation between levels of organochlorines and elevated levels of mercury and impaired immune function in black-footed albatrosses.



Marine debris, such as derelict fishing gear and discarded plastics, is a global problem. The increase in reliance on plastic materials that float and are persistent in the environment, as well as improper disposal, has led to an abundance of these materials in our oceans. Marine debris degrades the aesthetic value of the coastal environment, creates navigational hazards, and has negative ecological impacts. There are documented cases of maritime disasters resulting in loss of human life because of vessel entanglement with marine debris (Cho 2004), and loss of marine animals through entanglement and drowning in derelict fishing gear (Henderson 1990, 2001). In addition, hazardous waste has washed ashore; for example, at Laysan Island a diverse complement of hazardous materials has been found, including compressed gas cylinders, phosphorus flakes, petroleum, and a 55-gallon drum marked “Toluene Diisocyanate.” A container of the pesticide carbofuran is suspected to have washed ashore at Laysan Island, and the area dubbed “The Dead Zone” remained a hazard on the island from 1987 until it was remediated by FWS in 2002.

Impacts of marine debris on the ecological health of the NWHI have not been fully documented due to the large size and remoteness of the region, as well as the historical and ongoing nature of the problem. It is known that fishing and cargo nets lost at sea are carried by currents to shallow water environments of the NWHI, causing physical damage to corals and creating entanglement hazards for monk seals, sea turtles, and other marine organisms. Mortality caused by entanglement in derelict fishing gear, primarily nets, has been documented for several mobile marine species in the NWHI, with impact on the Hawaiian monk seal being of greatest concern because of the endangered status of this animal (Boland and Donohue 2003). Mean annual entanglement rates for monk seals are in a range that is higher than that shown to be detrimental to other pinniped populations, and documentation of entanglements is available only for those seals that return to shore; thus, it is highly probable that the actual impact is underestimated. From 1982 and 2003, 238 Hawaiian monk seal entanglements were documented in the NWHI, of which 162 were disentangled and freed, 61 escaped or had freed themselves, 8 were found dead, and 7 met an unknown fate (Henderson 2006 pers. com.). Other threatened or endangered marine animals, such as sea turtles, have been found entangled in marine debris, and often the only evidence of their drowning is the remains of their bones or shells still caught in the debris. In 2004, the skeleton of a subadult loggerhead sea turtle and the carcass of a small whale were found in a large floating net (NMFS 2004b).

Derelict fishing gear also degrades reef health by abrading, smothering, and dislodging corals and other benthic organisms, as well as by preventing recruitment on reef surfaces (Donohue and Brainard 2001). Estimates of the overall impact of debris on shallow water habitats are difficult to quantify and are complicated by the likelihood that debris acts as a vector for alien species and introduction and spread of disease.

In the NWHI, much of the marine debris is in the form of derelict fishing nets, mostly trawl nets, from North Pacific fisheries. No trawl net fisheries are active in Hawaiian waters, but active domestic and international fisheries use this type of gear in Pacific Rim fisheries. Other types of debris include gill nets, seine nets, lobster traps, fishing floats, Fish Aggregation Devices (FADs), hazardous materials (e.g., barrels, gas cylinders), and plastics. Because much of the debris comes from international fisheries, U.S. activities aimed at prevention are complicated. Debris produced from illegal activities, such as the unauthorized deployment of FADs, unlicensed fishing

throughout the Pacific, or dumping of debris at sea, makes the problem even more complex and harder to quantify.

Since 1996, regular marine debris removal efforts have been conducted through a multi-agency effort led by NOAA, in collaboration with FWS, the State of Hawai‘i, City and County of Honolulu, Honolulu Waste Disposal, U.S. Coast Guard, U.S. Navy, University of Hawai‘i Sea Grant College Fund, Schnitzer Steel Hawai‘i Corporation (formerly Hawai‘i Metals Recycling Company), The Ocean Conservancy, and other local agencies, businesses, and nongovernmental partners. Since then, this effort has resulted in the removal of more than 563 tons (502 metric tons) of derelict fishing gear and other marine debris from the coral reef ecosystems of the NWHI (Figure 1.24). Marine debris survey and collection activities have been conducted at Kure Atoll, Midway Atoll, Pearl and Hermes Atoll, Lisianski Island, Laysan Island, and French Frigate Shoals. Removal operations have targeted areas where marine debris has accumulated over the past several decades. It is estimated that the accumulation rate is 57 tons (52 metric tons) per year. Until substantial efforts are made to significantly reduce the sources of debris and until debris can be effectively removed at sea, similar amounts are expected to continue accumulating indefinitely in the reef ecosystems of the NWHI.

Smaller types of marine debris made of plastic, such as disposable lighters, bottle caps, and other fragments, are ingested at sea by adult albatrosses, wedge-tailed shearwaters, and other seabirds when they feed at sea (Fry et al. 1987). These objects are subsequently fed to chicks in Monument colonies. It has been estimated that approximately five tons of plastic are fed to albatross chicks at Midway Atoll each year (Klavitter 2005). The foreign objects may reduce their survival by causing direct injury to the gut, accumulating and reducing the chicks’ ability to swallow full-sized meals, and placing them at greater risk of dehydration, a common cause of death in young albatrosses (Sileo et al. 1990; Sievert et al. 1993; Fry et al. 1987; Auman et al. 1997). Additionally, this debris may increase the birds’ exposure to and ingestion of organochlorine contaminants from plastic surfaces (Carpenter and Smith 1972).

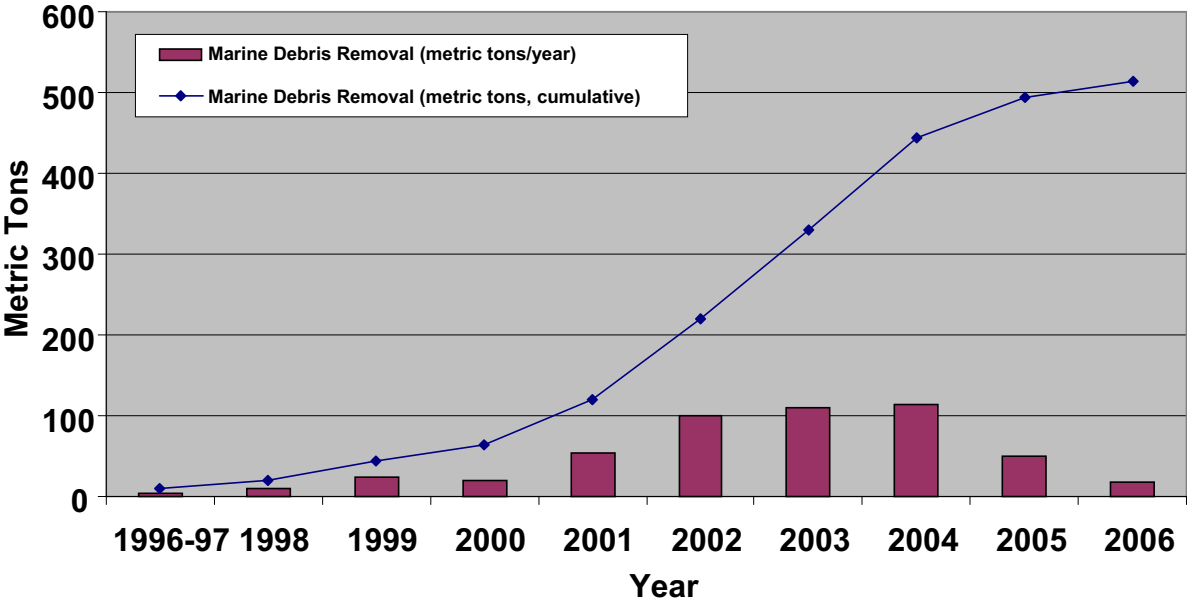


Figure 1.24 Quantity of Marine Debris Removal in the Northwestern Hawaiian Islands.  
Source: PIFSC-CRED unpublished data.



## Terrestrial Pollution

Past uses have left a legacy of modification and contamination throughout NWHI, especially at French Frigate Shoals, Midway Atoll, and Kure Atoll. The NWHI have hosted an array of polluting human activities, including guano mining, fishing camps, Coast Guard LORAN stations, U.S. Navy airfields and bases, and various military missions. Contamination at all these sites includes offshore and onshore contaminated debris such as batteries (lead and mercury), transformers with polychlorinated biphenyls (PCBs), capacitors, and barrels. Debris washing ashore is another source of contamination on the islands. Birds, such as shorebirds, may ingest soil while foraging. Studies have shown that soil can constitute up to 30 percent of the material a bird consumes (Hui and Beyer 1998, Beyer et al. 1994). If the consumed soil is contaminated, it can result in direct intake of toxic substances by foraging birds. Direct ingestion of sand contaminated by carbofuran, a pesticide that washed ashore with marine debris on Laysan Island, caused the deaths of endangered Laysan finches until the source was identified and removed by the FWS (Campbell et al. 2004; David et al. 2001).

Uncharacterized, unlined landfills remain on some of these islands. Kure Atoll and French Frigate Shoals both have point sources of PCBs from former LORAN stations. While the Coast Guard has mounted cleanup actions at both sites, elevated levels of contamination remain in island soils, nearshore sediment, and biota.

During Coast Guard residency at Tern Island (French Frigate Shoals), an area on the north side of the island across from the barracks was used as a general dump and for burning garbage and trash. Waves, rust, and erosion slowly destroyed the northern seawall, and it was breached in late 1980, exposing the dump. Further erosion revealed a great deal of scrap metal, cable, wire, batteries, and electronic equipment such as capacitors and transformers. Coast Guard investigations removed exposed debris over the course of several years. PCB concentrations in the soil ranged from nondetect (<0.033) to 2,300 milligrams/kilogram. In an agreement forged by the Coast Guard and signed by the FWS, EPA, and Coast Guard, a cleanup level for soil was set at two milligrams/kilogram. In 2001, the Coast Guard excavated the landfill (U.S. Coast Guard 2002). Despite the removal of a large amount of material, the Coast Guard left intact an area of approximately 95 by 60 feet (29 by 18.3 meters) that is a jumble of concrete blocks and metal debris from which numerous capacitors, batteries, and transformers have been removed over the years. PCB concentrations in ten soil samples collected from this debris pile ranged from 0.14 to 54 milligrams/kilogram PCBs, with results for five of the ten samples exceeding the cleanup level of two milligrams/kilogram (U.S. Coast Guard 2003). The most highly contaminated sample (54 milligrams/kilogram PCB) is considered hazardous waste. Unfortunately, this area is open to the lagoon, so it is washed by tides and storms. It is also frequented by monk seals and turtles.

During Coast Guard residency at Kure, garbage and scrap metal were disposed of and burned at a dump site located at the southwestern edge of the island. Included in the pit were hazardous materials such as batteries and PCB-containing capacitors. The Coast Guard reported PCBs in the eroding dump to range from nondetect to 393 milligrams/kilogram (U.S. Coast Guard 1994b). In 1994, the Coast Guard remediated the landfill on Kure, excavating and putting into containers soil from the landfill that exhibited a concentration equal to or greater than 25 milligrams/kilogram. A total of 36 cubic yards (27.5 cubic meters) of soil was removed from

the landfill. Scrap metal, cable, nonliquid-containing drums, and remaining soil in the landfill (metal debris and soils with PCB concentrations below 25 milligrams/kilogram) were removed from the landfill and re-interred in the “reburial pit.” The depth of the reburial pit was set 15 feet below ground surface, which was estimated to be two feet above the groundwater (U.S. Coast Guard 1994b). Confirmation sampling by the Coast Guard found concentrations of PCBs exceeding the cleanup goal and in excess of 100 milligrams/kilogram.

French Frigate Shoals and Pearl and Hermes Atoll were used for World War II seaplane refueling operations. Leaking underground fuel storage tanks at French Frigate Shoals resulted in petroleum contamination of soil.

Midway Atoll was the site of a U.S. Navy airfield. Before control of the atoll was transferred to the DOI in 1996, numerous contaminated sites throughout the atoll were identified and cleaned up under the U.S. Department of Defense’s (DOD) Base Realignment and Closure (BRAC) process. Contamination identified and remediated included petroleum in the groundwater and nearshore waters; pesticides (e.g., DDT) in the soil; PCBs in soil, groundwater, and nearshore sediments and biota; metals, such as lead and arsenic, in soil and nearshore waters; and unlined, uncharacterized landfills. While most of the known areas were remediated, several areas warrant continued monitoring for potential releases. Since the airfield’s closure, the Navy has returned on several occasions to conduct further remediation.

Midway has several landfills left behind by the Navy. Some of these landfills were created during base closure for the disposal of construction rubble and asbestos. Other landfills were created during Navy occupancy for disposal of materials associated with operations. One area that needs continued monitoring and potentially further remediation is known as the Old Bulky Waste Landfill. This site is an uncharacterized landfill that was created by the disposal of scrap metal, used equipment, and unconsolidated waste off the south shore of Sand Island to create a



Erosion of the Bulky Waste Landfill on Sand Island, Midway Atoll.

peninsula approximately 1,200 feet long by 450 feet (average) wide by nine feet high (366 meters long by 137 meters wide by 2.7 meters high)(Navy 1995). It is bordered on the three seaward sides by an approximately 10-foot-thick (3-meter-thick) band of concrete and stone rip-rap. Wastes known to have been deposited in the landfill are metals (lead, cadmium, chromium, and nickel), gasoline, battery acid, batteries, mercury, lead-based paint, solvents, waste oil, PCBs, dioxins, furans, transmission and brake fluids, vehicles, equipment, tires, and miscellaneous debris (U.S. Navy 1996). The Old Bulky Waste Landfill is subjected to groundwater infiltration from the north and seawater infiltration from the other three sides.

The Technical Memorandum for Evaluation of Remedial Alternatives (U.S. Navy 1995) stated that all remedial alternatives considered for the Old Bulky Waste Landfill would require groundwater monitoring. Alternatives considered were (1) containment, by constructing a

multilayer cap in place and providing a lateral barrier extending below the lagoon floor along the landfill periphery; (2) removal, by excavating the landfill and disposing of nonhazardous wastes farther inland; (3) covering, by constructing a multilayer cap in place; and (4) no action. Ultimately, the Old Bulky Waste Landfill was covered in approximately 2 to 2.5 feet (0.6 to 0.8 meters) of soil. Currently, the landfill is eroding, and the soil placed on top is sifting into the debris, causing large holes to open up around the edge and in the center of the landfill. Additionally, burrowing birds are bringing up buried soil and nesting below the cover. More than 500 bird burrows have been counted in the landfill.

Pollution generated by past and present human activities, from sea-based and land-based sources, continues to stress the NWHI ecosystem. Emergency response mechanisms and ongoing cleanup and restoration activities will be maintained and enhanced to address these issues. In the case of marine debris, the NWHI is the recipient, not the source, of this type of marine pollution. This provides the Monument with an important opportunity, as well as a challenge, to facilitate global and Pacific regional cooperation to help solve this problem.

### Climate Change

Recent decades have brought increased awareness of the changing global environment and the implications this change may have on ecological processes. The increase in average global temperatures, sea level rise, and change in chemical compositions of the world's oceans are typically cited as the results of global climate change. Changes in the global climate are being brought about by three factors: increasing concentrations of carbon dioxide and other gasses in the atmosphere; alterations in the biogeochemistry of the global nitrogen cycle; and ongoing land use and land cover change. Changes in land use associated with industrialization are causing atmospheric concentrations of carbon dioxide to rise and are considered to be the most important component of global change (Vitousek 1994, Kleypas *et al.* 2006). While there is some debate regarding the extent of the impact these changes will have on Earth's environment, several trends have been well documented. Areas of impact linked to global climate change that may have the greatest potential effect on the Monument are weather changes, coral bleaching, sea level rise inundating important habitat, and oceanic chemical composition change.



Central patch reef, Kure Atoll, September 2002. Bleached *Pocillopora meandrina* with initial overgrowth by turf algae. Photo: Jean Kenyon

According to the findings of the Intergovernmental Panel on Climate Change (IPCC), warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level. The international scientific consensus of the IPCC is that most of the recent warming observed has been caused by human activities and that it is "very likely" due to increased concentrations in anthropogenic greenhouse gases (IPCC 2007).



Regional predictions for the North Central Pacific Gyre area within the life of the Monument Management Plan are for surface temperature increases of 0.9 to 1.8° F (0.5 to 1.0 °C), which is a smaller increase than that predicted for the Arctic and Northern hemisphere continental areas. Projected precipitation maps indicate a decrease of 10 to 20 percent of average precipitation by 2090 in the Monument area. The past 30 years have seen increases in the frequency of higher intensity storms and it is likely that this trend will continue as sea surface temperatures continues to rise (Emanuel 2005). Extratropical storm tracks will likely move poleward and be associated with changes in wind, precipitation, and temperature patterns. Projection of the magnitude of sea level rise by 2090 from thermal expansion of water and the melting of land-based ice sheets is less certain, but the estimate ranges from 0.6 to 1.9 feet (0.18 to 0.59 meters) (IPCC 2007). A rise of that magnitude (1.6 feet or 0.48 meters) is predicted to cause the loss of 3 to 65 percent of the terrestrial habitat in the Monument (Baker et al. 2006). Evidence also suggests that the world's oceans are regionally divisible with regard to historical fluctuations in sea level. Localized variations in subsidence and emergence of the sea floor and plate-tectonics activity prevent extrapolations in sea level fluctuations and trends between different regions. Thus, it may not be possible to discuss uniform changes in sea level on a global scale, nor the magnitude of greenhouse-gas-forced changes, as these changes may vary regionally (Michener et al. 1997). As an example, tide gauge records on the Atlantic coast indicate a sea level rise of 0.06 to 0.16 inches/year (0.89 to 0.99 centimeters/year) over the past century, whereas they have indicated a 0.35 to 0.39 inches/year (0.15 to 0.4 centimeters/year) increase along the Gulf Coast of the United States (Michener et al. 1997). More recent modeling indicates that melting could occur faster than the IPCC has predicted (Overpeck et al. 2006). Increases in sea level may also affect low-lying equatorial islands and atolls. Shoreline erosion and saltwater intrusion into subsurface freshwater aquifers have been noted throughout the Pacific (Shea et al. 2001).

### ***Weather Changes***

Weather changes, such as reductions in the amount of precipitation and changes in soil moisture and temperature, will affect vegetation communities by changing species compositions, seasonalities, and biomass. These changes in turn may affect the reproductive capabilities of insects and land birds that depend on this vegetation. Increased storm frequency and intensity will have impacts on coral health by direct damage caused by breakage and smothering as sand moves around, and on terrestrial systems through overwashing of islands.

### ***Coral Bleaching***

Many corals live in symbiosis with tiny symbiotic algae that live inside their tissues and provide energy. Bleaching occurs when a coral is stressed by temperature, changes in salinity or turbidity as well as other factors. The coral may then evacuate their symbionts leaving themselves energy-depleted and more susceptible to disease and overgrowth by faster growing turf algae. Above-normal mean sea-surface temperatures have been shown to cause bleaching and mortality in corals, both in nature and in the laboratory, with bleaching generally occurring in shallower waters (Floros et al. 2004). Other variables have also been implicated in bleaching and mortality events, including extended periods of high temperatures, low wind velocity, clear skies, calm seas, low rainfall, high rainfall, salinity changes, high turbidity, or acute pollution. Smith and Buddemeier (1992) state, "Reef damage from anthropogenic environmental degradation (nutrient runoff, siltation, overexploitation) is widespread, represents a much greater threat than climate change in the near future, and can reinforce the negative effects of climate

change.” Floros et al. (2004) goes on to note, “The causes of coral bleaching are debatable, but widely thought to be the result of a variety of stresses, both natural and human-induced, that cause the degeneration and the loss of the colored zooxanthellae from the coral tissues.”

Sea surface temperature anomalies resulting from regional and global-scale climatic phenomenon are believed to cause bleaching in the NWHI. Mass coral bleaching in the NWHI occurred during late summer 2002 (Aeby et al. 2003; Kenyon and Brainard 2006), the first time it was recorded or known to exist in the NWHI. Coral bleaching occurred again at high levels in 2004, but was detected at only low rates in 2006 (Kenyon et al. 2006). Furthermore, the NWHI were believed to be less susceptible to bleaching because of their high latitude location. Bleaching was most severe, however, at the three northernmost atolls (Pearl and Hermes, Midway, and Kure), which experience both higher and lower sea water temperatures than the other reef areas of the NWHI. Bleaching occurred but was less severe at Lisianski Island and farther south in the NWHI.

### ***Oceanic Chemical Concentration Change***

Glacial and interglacial periods in the Earth’s history cycle have been associated, respectively, with low and high concentrations of carbon dioxide, as measured from deep Antarctic ice cores. However, recent increases fall outside the range of peak prehistoric carbon dioxide levels. The rate of increase is also five to ten times more rapid than any of the sustained changes in the ice-core record (Vitousek 1994). Carbon dioxide levels have increased from 280 to 355 microliters per liter ( $\mu\text{L/L}$ ) since 1800, a level of increase otherwise never reported during the past 160,000 years. Data suggest this increase is linked to fossil fuel combustion and not deforestation (Vitousek 1994). Increasing amounts of  $\text{CO}_2$  in the atmosphere have a direct effect on the amount of  $\text{CO}_2$  in the ocean. In a process commonly referred to as ‘ocean acidification,’  $\text{CO}_2$  in the atmosphere reacts with surface waters, resulting in a chain of chemical reactions that serve to increase the acidity of seawater. Anthropogenic release of  $\text{CO}_2$  to the atmosphere has already increased the acidity of the ocean since levels from the year 1750 (Royal Society 2005; IPCC 2007). Calcifying marine organisms, such as reef-building corals, plankton and calcareous algae, among others, require an oversaturation of the form of calcium carbonate called aragonite to remain in solid form. This saturation state is a function of depth and pressure, and as the oceans become more acidic, under saturation with respect to aragonite becomes a distinct threat which could facilitate the dissolution of formed reef structures as well as inhibit the growth and accretion of new structure (Vitousek 1994; Royal Society 2005; Kleypas 2006; Fine and Tchernov 2007; Hoegh-Guldberg 2007). Ocean acidification of deep ocean waters will cause metabolic disruptions for deep-living animals as well (Seibal and Walsh 2001).

The full extent as to how alterations to seawater chemistry may affect the oceans and associated ecosystems is as yet unknown. However, current research suggests that ocean acidification may drastically reduce a coral reef’s ability to overcome the balance of erosion and depositional forces leaving them and their associated ecosystems (including carbonate-based island atolls) susceptible to the additional threats of sea level rise and increased storm activity.

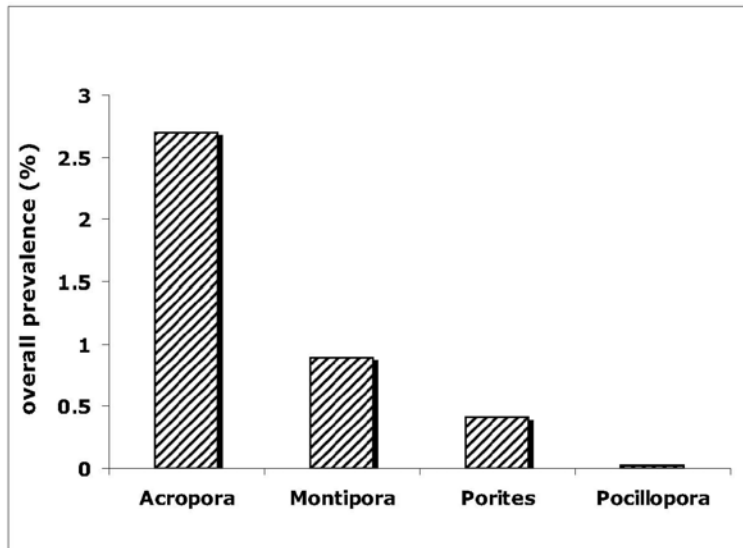
Chemical concentration changes in the atmosphere may also affect terrestrial ecosystems. For instance, the quantity of nitrogen available to organisms affects species composition and productivity. Increase in nitrogen can alter species composition by favoring those plant species

that respond to nitrogen increases (Vitousek 1994). Increased carbon dioxide can also influence photosynthetic rates in plants, change plant species composition, lower nutrient levels, and lower weight gain by herbivores.

**Diseases**

The incidence of diseases affecting marine organisms is increasing globally; however, the factors contributing to disease outbreaks are poorly known and hampered due to a lack of information on normal disease levels in the ocean (Harvell et al. 1999). The incidence of coral disease is lower in the NWHI (Aeby 2006). The NWHI provide unique opportunities to document baseline levels of disease in coral reefs in the absence of a resident human population (Aeby 2006).

Recent studies in the NWHI have begun to document baseline levels of coral disease (Work et al. 2004; Aeby 2006). Tumors, as well as lesions associated with parasites, ciliates, bacteria, and fungi, have been found on a number of coral species. The overall average prevalence of disease (number of diseased colonies/total number of colonies) was found to be very low in the NWHI, estimated at 0.5 percent (ranging from 0 to 7.1 percent) (Aeby 2006), compared with the average prevalence of disease of 0.95 percent in the main Hawaiian Islands (Friedlander et al. 2005). The prevalence of disease varies among different genera of coral (Figure 1.25), with the highest prevalence in species of the genera *Acropora* and *Montipora*. A protocol for characterizing coral disease has now been incorporated into regular coral surveys and monitoring of the NWHI.



**Figure 1.25 Overall Prevalence of Disease in the Four Major Coral Genera in the NWHI.** Seventy-three sites were surveyed in July 2003. Prevalence (all surveys combined) is calculated as the number of diseased colonies per genera/total number of colonies per genera x 100. Source: Aeby 2006.

The threatened Hawai'i population of the green turtle is affected by fibropapillomatosis (FP), a disease that causes tumors in turtles. The prevalence of FP in the Hawaiian green turtle population was estimated at 40 to 60 percent, with the majority of cases found among juvenile turtles (Balazs and Pooley 1991). The herpes virus has been suggested as the possible cause or as a cofactor of FP (Herbst 1995). The majority of recent turtle strandings are by juvenile turtles



with FP (Work et al. 2004). As a result, FP may pose a major threat to the long-term survival of the species (Quackenbush et al. 2001).

### Marine Alien Species

Marine alien species can be defined as aquatic organisms that have been intentionally or unintentionally introduced into new ecosystems, resulting in negative ecological, economic, or human health impacts. A total of 13 marine alien invertebrate, fish, and algal species have been recorded in the NWHI (Table 1.5). Alien species may be introduced unintentionally by vessels, marine debris, or aquaculture, or intentionally, as in the case of some species of groupers and snappers and algal species.

**Table 1.5 Marine Alien Species in the Northwestern Hawaiian Islands<sup>1</sup>**

Species	Taxa	Native Range	Present Status in NWHI <sup>2</sup>	Mechanism of Introduction
<i>Hypnea musciformis</i>	Algae	Unknown; Cosmopolitan	Not Established; in drift only (MAR)	Intentional introduction to Main Hawaiian Islands (documented)
<i>Diadumene lineata</i>	Anemone	Asia	Unknown; on derelict net only (PHR)	Derelict fishing net debris (documented)
<i>Pennaria disticha</i>	Hydroid	Unknown; Cosmopolitan	Established (PHR, LAY, LIS, KUR, MID)	Fouling on ship hulls (hypothesized)
<i>Balanus reticulatus</i>	Barnacle	Atlantic	Established (FFS)	Fouling on ship hulls (hypothesized)
<i>Balanus venustus</i>	Barnacle	Atlantic and Caribbean	Not Established; on vessel hull only (MID)	Fouling on ship hulls (documented)
<i>Chthamalus proteus</i>	Barnacle	Caribbean	Established (MID)	Fouling on ship hulls (hypothesized)
<i>Amathia distans</i>	Bryozoan	Unknown; Cosmopolitan	Established (MID)	Fouling on ship hulls (hypothesized)
<i>Schizoporella errata</i>	Bryozoan	Unknown; Cosmopolitan	Established (MID)	Fouling on ship hulls (hypothesized)
<i>Lutjanus kasmira</i>	Fish	Indo-Pacific	Established (NIH, MOK, FFS, MAR, LAY, and MID)	Intentional introduction to Main Hawaiian Islands (documented)
<i>Cephalopholis argus</i>	Fish	Indo-Pacific	Established (NIH, MOK, FFS)	Intentional introduction to Main Hawaiian Islands (documented)
<i>Lutjanus fulvus</i>	Fish	Indo-Pacific	Established (NIH and FFS)	Intentional introduction to Main Hawaiian Islands (documented)
<i>Cnemidocarpa irene</i>	Tunicate	Indo-Pacific	Established (FFS)	Fouling on ship hulls (hypothesized)
<i>Polycarpa aurita</i>	Tunicate	Indo-Pacific and Western Atlantic	Established (FFS)	Fouling on ship hulls (hypothesized)

Notes:

1 Godwin 2008; Zabin et al. 2003; Godwin 2002; DeFelice et al. 2002; Godwin 2000; DeFelice et al. 1998; McDermid (pers. com.)

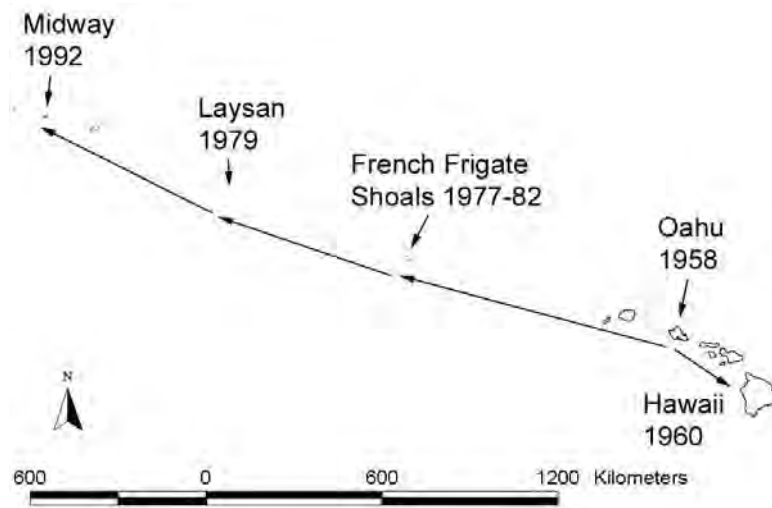
2 NIH=Nihoa, MOK=Mokumanamana, FFS=French Frigate Shoals, MAR=Maro, PHR=Pearl and Hermes, LAY=Laysan Island, LIS=Lisianski Island, MID=Midway, KUR=Kure Atoll

Recent compilations of marine alien species in Hawai‘i (Eldredge and Carlton 2002) include some 343 species: 287 invertebrates, 24 algae, 20 fish, and 12 flowering plants. Information concerning marine aquatic invasive species in the NWHI is more recent, and judgments as to whether organisms are invasive or native are based on knowledge of marine aquatic alien species that has been gained in the main Hawaiian Islands over the last decade. This is due both to the lack of taxonomic information for many invertebrate groups and the minimal historical sampling

effort in the NWHI. The status of the taxonomy of many non-coral marine invertebrate groups and algae is not fully developed for the NWHI, and comprehensive species inventories have yet to be produced, although efforts to correct this situation are presently under way (Godwin et al. 2006).

The known data concerning marine aquatic alien species in the NWHI were collected from a single focused marine invasive species survey by the Bishop Museum at Midway Atoll in 2000 and subsequent multi-agency RAMP cruises in 2002 and 2003. The results of these efforts have recorded a total of 13 aquatic invasive marine fish, invertebrate, and algae species in the NWHI. Table 1.5 shows the species, the native range of each, their present status in the NWHI, and the hypothesized or documented mechanism of introduction.

Eleven species of shallow-water snappers (*Lutjanidae*) and groupers (*Serranidae*) were purposely introduced to one or more of the main islands of the Hawaiian Archipelago in the late 1950s and early 1960s. Two snappers, the bluestripe snapper (taape, *Lutjanus kasmira*) and the blacktail snapper (*Lutjanus fulvus*), and one grouper, the peacock grouper (*Cephalopholis argus*), are well established and have histories of colonization along the island chain that are reasonably well documented (Randall 1987). Bluestripe snappers have been by far the most successful fish introduction to the Hawaiian coral reef ecosystem. Approximately 3,200 individuals were introduced on the island of O‘ahu in the 1950s. The population has expanded its range by 1,491 miles (2,400 kilometers), until it has now been reported as far north as Midway in the NWHI (Figure 1.26). These records suggest a dispersal rate of about 18-70 nautical miles (33-130 kilometers) per year. The other two species have only been recorded as far north as French Frigate Shoals and are present in much lower numbers than bluestripe snappers.



**Figure 1.26 Spread of Bluestripe Snapper throughout the Hawaiian Archipelago after Introduction to O‘ahu in 1958. Source: Friedlander et al. 2005.**

The magnitude of the problem of aquatic alien species is far greater in the main Hawaiian Islands than in the NWHI. Efforts to control the accelerated introduction of alien species in the NWHI will focus on transport mechanisms, such as marine debris, ship hulls, and discharge of bilge water from vessels originating from Hawaiian Island and other ports, to effectively reduce new

introductions. Existing Monument regulations and permitting requirements greatly reduce the chance of new introductions. Monitoring is needed as an early warning system for response actions to be effective. Natural transport mechanisms, such as larval transport in currents, also play a role in the spread of aquatic invasive species.

### Terrestrial Alien Species

Human occupation at Midway Atoll has continued uninterrupted since the Commercial Pacific Cable Company took up residence there in 1903. The cable company attempted to make the settlement as self-sufficient as possible through the cultivation of gardens and small livestock. Initial garden attempts failed because of the lack of organic soil on the islands. To remedy this lack, barge loads of soil were brought from O‘ahu and Guam, and contained not only the organic matter that made gardening possible, but also all the associated soil organisms such as ants, centipedes, and fungi. In addition to the introduction of vegetables, trees and ornamentals were also planted, such as ironwoods, eucalyptus, and acacia. So successful were these introductions that, by 1922, an estimated two-thirds of Sand Island was covered with imported vegetation. Livestock and poultry were also raised. While the black rat (*Rattus rattus*) was successfully exterminated on Midway in 1997, mice (*Mus musculus*), along with various species of ants, wasps, ticks, and mosquitoes, continue to plague wildlife and humans. Mosquitoes are of special concern as they are potential vectors for diseases such as West Nile virus, avian malaria, and avian pox.

Laysan Island was the site of another attempt at colonization. In 1890, Captains Freeth and Spencer initiated the mining of guano, resulting in the removal of thousands of tons of guano and the disturbance of hundreds of acres of habitat. The most devastating action on Laysan was the introduction of domestic rabbits, Belgium and European hares, and guinea pigs by Max Schlemmer in 1903. Schlemmer, known as the “King of Laysan,” introduced these animals partly to amuse his many children and as potential livestock for a meat-canning business. Schlemmer’s activities, which included feather exporting, were outlawed with the establishment of the Hawaiian Islands Reservation; however, by then, the rapidly reproducing rabbits had extirpated most of the vegetation on Laysan. The U.S. Bureau of Biological Survey sent an expedition on the *Thetis* in the winter of 1912 and 1913 to exterminate them but ran out of ammunition after 5,000 rabbits were killed; thus, several thousand remained, which continued to destroy the vegetation (Ely and Clapp 1973, Rauzon 2001). The rabbits were finally exterminated in 1923 by the Tanager Expedition, which was a joint expedition by the U.S. Bureau of Biological Survey, the Bishop Museum, and the U.S. Navy (Rauzon 2001). In only a few years, the rabbits destroyed almost all of the vegetation and associated insects of the island, causing the extinction of three species of birds: the Laysan honeycreeper (*Himantione sanguinea freethii*), the Laysan rail (*Porzana palmeri*), and the Laysan millerbird (*Acrocephalus familiaris familiaris*).

The number of alien land plants in the NWHI varies from only three introduced at Nihoa to 249 introduced at Midway Atoll. The level of threat from introduced plants also varies between species. For example, the invasive plant golden crownbeard (*Verbesina encelioides*) displaces almost all native vegetation in some nesting areas. This plant causes entanglement of albatross adults and chicks and increases chick mortality as a result of heat stress by reducing the birds’ ability to use convective cooling for thermoregulation. At Southeast Island, Pearl and Hermes



Atoll, *Verbesina* has displaced almost all native vegetation. When it dies back each year, the endangered Laysan finches (*Telespiza cantans*) suffer severe food and cover restrictions. This plant has quickly covered nesting habitat on Sand, Eastern, and Spit islands of Midway Atoll, Green Island of Kure Atoll, and Southeast Island of Pearl and Hermes Reef.

Sandbur (*Cenchrus echinatus*) is an aggressive invasive grass currently occurring at Kure and Midway Atolls, Pearl and Hermes Reef, Lisianski Island, and French Frigate Shoals. An intensive *Cenchrus* eradication effort at Laysan Island that took 12 years to complete has been a major contribution to the restoration of Laysan's seabird nesting habitat and has facilitated restoration of the island's native vegetation. Laysan Island has also been invaded by Indian Pluche (*Pluchea indica*), *Sporobolus pyramidatus*, and swine cress (*Coronopus didymus*). Invasive ant species have been detected at all of the islands in the Monument and pose threats to many components of the terrestrial ecosystem, most notably to native terrestrial invertebrates (e.g., the endemic Lepidopteran larvae) and native plants. They also have been observed preying on the eggs and chicks of seabirds in the Monument.

The invasive gray bird locust (*Schistocerca nitens*) was first detected at Nihoa in 1984, and by 2000 was periodically reaching large population levels that were causing damage to the native plant community, including three endemic species listed as endangered. This grasshopper species has now also spread to Mokumanamana, French Frigate Shoals, and Lisianski Island. A workshop was convened in 2005 to identify research and mitigation measures to respond to this invasive insect (Gilmartin 2005). The meeting produced a variety of recommendations that shall be incorporated into the alien species management program of the Monument.

Mandatory quarantine protocols are enforced for any visitors to the NWHI to prevent further importation of invasive organisms. At all of the islands and atolls except Midway and French Frigate Shoals, these protocols include requiring the use of brand new or island-specific gear at each site and treatments such as cleaning, using insecticide, and freezing to minimize the transport of potentially invasive species to the islands. Protocols at Midway and French Frigate Shoals are modified as necessary to accommodate the greater volumes of material coming in, but all possible procedures are still employed to minimize additional introductions at these two sites.

### **Fishing**

Fishing and other resource extractive uses have occurred in varying degrees in the NWHI. Native Hawaiians traveled to these areas as early as 500 A.D. During the western exploration period (1750 to 1920s), explorers and whalers from France, Russia, Japan, Britain, and the United States harvested Hawaiian monk seals, whales, fish, seabirds, and guano from various parts of the NWHI. In more recent history (1920s to 1970s), fishing and other resource extractive uses were punctuated by the overexploitation of the endemic black-lipped pearl oyster (1928 to 1931), the beginning of a Hawai'i-based fishing fleet (1930s to 1940s), a cessation of commercial uses during World War II, a resumption of commercial fishing (1945 to 1960) (during which Tern Island was used as a transshipment point for fresh fish flown to Honolulu), and a proliferation of foreign fishing vessels from Japan and Russia (1965 to 1977).

Commercial fishing in the NWHI has, in recent decades, been managed according to federal fishery management plans developed for fisheries for precious corals, bottomfish and seamount

groundfish, and pelagic, crustacean, and coral reef fisheries. According to the management scheme, no precious coral or coral reef species fisheries have been permitted in the NWHI. Pelagic longline fishing within 50 nautical miles (92.6 kilometers) of the NWHI has been prohibited since 1991, the year the Longline Protected Species Zone was designated to prevent interactions with endangered species (50 CFR 665.806 [2008] Subpart F). No crustacean (lobster-trap) fishery has operated in the NWHI since 1999. Between 2000 and 2005, NMFS has set an annual harvest guideline of zero lobsters for this fishery. Proclamation No. 8031 directed the Secretaries to ensure that NWHI commercial lobster fishing permits be subject to a zero annual harvest limit.

Proclamation 8031 allows commercial fishing by federally permitted bottomfish fishery participants who have valid permits until mid-2011 (71 FR 36443, June 26, 2006). This amounts to a maximum of eight permitted bottomfish vessels that fish within the Monument.

The only commercial fishery occurring in the Monument is the federal bottomfish fishery. This fishery operates according to the management regime specified in the Fishery Management Plan for Bottomfish and Seamount Groundfish Fisheries in the Western Pacific Region. In the NWHI, the bottomfish fishery is a hook-and-line fishery that targets a range of snappers, jacks, emperors, and groupers that live on the outer reef slopes, seamounts, and banks at depths of approximately 50 to 400 fathoms (91 to 731 meters). The management regime includes several precautionary measures that minimize potential effects of this fishery. For instance, the bottomfish fishery participants do not operate in the presence of the monk seals so as to avoid any direct or indirect effects of the fishery on the species (50 CFR 665.207 [2008] Subpart C). In addition, it is known that the vessels operations do not negatively impact habitat (Kelley and Ikehara 2006). Finally, the annual catch limit in the NWHI is set by regulation at 300,000 lbs. of bottomfish and 180,000 lbs. of pelagic species (50 CFR Part 404), and, to date, annual harvest has fallen below these limits.

### **Transportation Hazards and Groundings**

Hazards to shipping and other forms of maritime traffic, such as shallow submerged reefs and shoals, are inherent in the NWHI's 1,200 miles (1,931 kilometers) of islands and islets. The region is exposed to open ocean weather and sea conditions year-round, punctuated by winter severe storm and wave events. Vessel groundings and the release of fuel, cargo, and other items pose real threats to the NWHI. Likewise, aircraft landing at Midway Atoll or Tern Island pose certain risks to wildlife and other resources, including bird strikes, introduction of alien species, aircraft crashes, and fuel spills. Certain management practices, such as requiring night landings and runway sweeps during albatross season at Midway and alien species inspections, can minimize these risks.

The many types of vessels operating in and transiting through the NWHI pose different threats to the marine environment based on their size, age, draft, port of origin, frequency of visits, activities conducted, navigational protocols, and operations that could disturb or injure wildlife or coral reef ecosystems, as well as the volume, type, and location of discharges. The range of vessel types include 20- to 60-foot fishing and recreational vessels, 150- to 250-foot research vessels, 500- to 700-foot passenger cruise ships and freighters, 700- to 1,000-foot tankers, as well as Coast Guard, military, and international ships of all sizes and types.

### ***Vessel Groundings, Oil and Fuel Spills, and Loss of Cargo Overboard***

In the NWHI, a number of factors have contributed to vessel groundings and cargo loss over the years. These factors include human error, lack of appropriate navigational practices, inaccurate nautical charts, and treacherous conditions posed by the low-lying islands, atolls, and shallow pinnacles and banks. All vessels pose a risk to the environment. Periodically, accidental loss of cargo overboard causes marine debris or hazardous materials to enter sensitive shallow-water ecosystems.

Twelve of the 60 ship losses known to have occurred in the region have been located and include whaling vessels, Navy frigates, tankers, and modern fishing boats. Additionally, 67 planes are known to have been lost in the region, mainly naval aircraft (many from World War II), but only two have been located. Some of these ship and aircraft wreck sites fall into the category of war graves associated with major historic events.

Unexploded ordnance, debris, and modern shipwrecks, such as the fishing vessels *Houei Maru #5* and *Paradise Queen II* at Kure Atoll or the tanker *Mission San Miguel* lost at Maro Reef, are not protected as heritage resources and represent a more immediate concern as threats to reef ecosystems. Mechanical damage from the initial grounding, subsequent redeposition of wreck material by storm surge, fishing gear damage to reef and species, and release of fuel or hazardous substances are all issues to be considered in protecting the integrity of the environment. Dissolved iron serves as a limiting nutrient in many tropical marine areas and tends to fuel cyanobacteria (blue-green algae) growth when the iron begins to dissolve (corrode). This is especially a problem on atolls and low coral islands where basalt or volcanic rock is absent in the photic zone and natural dissolved sources of iron in seawater are even lower. Therefore, any ships left in place would be an iron source that could contribute to potential cyanobacterial blooms. It has been demonstrated that not removing non-historic steel vessels can have long-term detrimental effects that, in most cases, can be worse than any short-term damage to the environment caused by the removal action.

In 1998, the *Paradise Queen II* ran aground at Kure Atoll, spilling 11,000 gallons of diesel fuel and 500 gallons of hydraulic fluids and oil. The vessel also lost 3,000 pounds of frozen lobster tails, 4,000 pounds of bait, 11 miles of lobster pot mainline, and 1,040 lead-weighted plastic lobster traps. Traps rolling around in the surf broke coral and coralline algal structures. Two years later, researchers found broken coral and 600 lobster traps among piles of nets surrounding the decaying wheelhouse (Maragos and Gulko 2002).

When the 85-foot longliner *Swordman I*, carrying more than 6,000 gallons of diesel fuel and hydraulic oil, ran aground at Pearl and Hermes Reef in 2000, vessel monitoring system technology allowed agents to track the disaster and quickly send out equipment for a cleanup that cost upward of \$300,000, a cost that the government had to sue to recover.

By comparison, the grounded chartered marine debris cleanup vessel *Casitas* caused less environmental damage. Following the removal of 33,000 gallons of fuel and oil, the 145-foot motor vessel *Casitas* was successfully extracted from the reef at Pearl and Hermes Atoll and entombed northwest of the atoll in approximately 7,200 feet (2,195 meters) of water. However,



the crew fleeing the sinking vessel was forced to camp on a quarantine island without “clean gear.” It has yet to be determined whether any invasive species came ashore with the shipwrecked crew. The ship was conducting marine debris cleanup operations under a NOAA charter when it ran aground on July 2, 2005. Unified Command representatives from the Coast Guard, State of Hawai‘i, and Northwind Inc. (owner of the *Casitas*), in cooperation with the federal trustees FWS and NOAA, oversaw the operation to prevent further damage to the coral reef ecosystem and islands.

On June 1, 2007, a grounded vessel named *Grendel* was discovered inside Kure Atoll’s lagoon on the northeast reef. Metal debris from the vessel was found on the reef extending along a 500-foot path from the vessel northeast to the emergent reef, indicating that the vessel entered the lagoon over the northeast reef. The level of fouling on the steel hulled sloop suggested that the vessel wrecked approximately three to four months earlier, in February or March. The vessel’s sails, sheets, and lines were tangled around the mast, stays, and railings, creating a wildlife entanglement hazard. Approximately 275 pounds of entanglement hazards were removed using snorkeling gear. A battery, 300 pounds of chain, three anchors, and several broken pieces of metal were also removed from the site.

### ***Waste Discharge***

The International Convention for the Prevention of Pollution from Ships (MARPOL 1973/78) is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. It addresses potential sources of pollution, such as oil, chemicals, harmful substances in packaged form, garbage, sewage, and air pollution. (The United States is not a signatory to those parts of the Convention addressing the last two sources.) The Convention’s regulations are aimed at preventing and minimizing pollution from both accidental events and routine operations.

Vessel waste generally consists of solid waste, sewage, gray water, and bilge water. Solid waste may consist of food, cans, glass, wood, cardboard, paper, and plastic. Sewage discharge can contain bacteria or viruses or medical wastes that can cause disease in humans and wildlife or affect the ecosystem by increasing nutrient load. Gray water is wastewater from sinks, showers, laundry, and galleys. It may contain a number of pollutants such as suspended solids, ammonia, nitrogen, phosphates, heavy metals, and detergents. Bilge water can contain fuel, oil, and wastewater from engines and machinery that collects in the bottom of the ship’s hull as a result of routine operations, spills, and leaks. Discharge in the Monument is tightly regulated by the Proclamation and permit requirements. Monument staff are investigating the potential impacts of various types of discharges and will continue to update permit requirements as need to safeguard the marine resources.

### ***Ballast Water Exchange***

Ballast water discharged from ships is one of the primary pathways for the introduction and spread of aquatic nuisance species. In response to national concern regarding these species, the National Invasive Species Act of 1996 was enacted, which reauthorized and amended the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990. In addition to the Monument discharge regulations, ballast water exchange in the Monument is regulated by Coast Guard regulations establishing a national mandatory ballast water management program for all

vessels equipped with ballast water tanks that enter or operate within U.S. waters. These regulations also require vessels to maintain a ballast water management plan that is specific for that vessel and that assigns responsibility to the master or an appropriate official to understand and execute the ballast water management strategy for that vessel.

### ***Introduction of Alien Species***

Introduction of marine alien species, including pathogens, is of great concern. The prohibitions on ballast discharge in the Proclamation and the actions outlined in the Alien Species Action Plan (Section 3.3.2) aim to prevent the introduction of alien species to the marine environment. The Alien Species Action Plan addresses prevention, monitoring of alien species, and education of Monument users and the public about the need to prevent alien species introductions.

### ***Anchor Damage to Reefs***

Vessel anchoring has the potential to affect the ecosystem depending on many factors, such as the size of the ship and anchor system, weather conditions, and the location and vicinity of the anchorage relative to sensitive ecosystems, such as coral reefs. Because of the potential for impacts to the ecosystem, anchoring on or having a vessel anchored on any living or dead coral with an anchor, anchor chain, or anchor rope is prohibited. Anchoring on all other substrates is strictly regulated.

Anchors and chains can destroy coral and live rock, directly affecting fishes and benthic organisms and their habitat. To prevent this type of damage, mooring buoys are sometimes used in places where frequent or extended anchoring is necessary. Depending on site conditions and mooring type, such buoys can reduce impacts to the ecosystem. The Office of National Marine Sanctuaries has successfully used mooring buoys to mitigate ecosystem damage in high-use areas in the Florida Keys National Marine Sanctuary. Similarly, in Hawai‘i, the State Department of Land and Natural Resources minimized coral reef and benthic habitat damage at Molokini Islet’s popular anchorage with mooring buoys. Data are available to study potential mooring buoy locations using anchor logs from ships that currently operate, or have done so historically, in the Monument.

### ***Light and Sound Impacts***

Light and sound generated by people in the marine environment have been the subject of attention in recent years because of concerns that they may negatively affect a variety of species. In the NWHI, seabirds are attracted to and become disoriented by ship lights at night. With emergent land areas in the NWHI providing breeding and nesting area for millions of seabirds, ships’ nightlights attract birds, which can strike the vessel and become injured. The extent of the impact of lights on the seabirds is affected by many factors, including the amount of light, the size of the vessel, the vessel location relative to nesting areas, the season, and the type of birds in the vicinity. Shearwaters, petrels, and juvenile birds are especially vulnerable to nightlights and deck injuries. Lights from vessels can also attract green turtle hatchlings, making them more vulnerable to predators. Lights and lighted structures on land contribute to seabird mortality by causing collisions and disorientation. Light sources in the vicinity of turtle nest-sites may disorient hatching marine turtles so they travel inland and perish.

Anthropogenic sound may also affect some species in the NWHI environment. Sound is a common element of the marine and terrestrial environment, originating from a variety of natural sources such as wind, waves, earthquakes, and marine organisms. Humans introduce sound incidentally into the environment through activities such as low-flying aircraft, shipping, fishing, and other vessel use. People also introduce sound intentionally using sonar for research or military applications, seismic arrays, fish finders, and other tools that help people “see” underwater, and to better understand or exploit the marine environment. The amount and intensity of sound in the ocean are increasing as human activities expand.

Underwater sounds of both human and natural origin may affect the behavior and, in some cases, the survival and productivity of individual marine mammals. The nature and significance of effects depend on a number of factors involving the intensity, duration, and frequency of the sound, as well as particular aspects of the habitat and the animal it may affect. Of particular concern is midfrequency tactical sonar used by military vessels. This type of sonar has been implicated as the cause of several recent marine mammal stranding events (Marine Mammal Commission 2005). Deep-diving species, such as beaked whales, appear to be particularly at risk from these sound sources. Beaked whales occur throughout the Hawaiian Archipelago, including within the Monument (Barlow 2003).

Little is currently known about sound levels and sources in the Monument. Future assessment of the anthropogenic sound in the NWHI will be conducted in close coordination with the Marine Mammal Commission, NMFS, and other partners. The Marine Mammal Commission maintains a Sound Program and Advisory Committee on Acoustic Impacts on Marine Mammals to address the effects of anthropogenic sound on marine mammals.

The following information summarizes the main types of vessels operating in the Monument. All vessels carry with them some degree of risk associated with groundings, discharge, alien species introductions, and wildlife interactions and other potential threats, which are addressed in different sections throughout this plan or directly through prohibitions or permit requirements.

### ***Fishing Vessels***

Eight commercial fishing permits are eligible for use in the Monument until June 2011. The fishermen average two to ten trips per year per vessel, with duration ranging from 3 to 22 days per trip. For the most part, these vessels bottomfish around the atolls and banks at the 100-fathom depth and troll in deep water and across banks as they transit between islands. Annual catch limit is set by the Proclamation and codified by regulation (50 CFR Part 404). Crew size ranges from one to four people. The Proclamation prohibits further commercial bottomfish and associated pelagic fishing after June 15, 2011.

### ***Vessels Conducting Research and Management Activities***

Several vessels are engaged in research or management activities in the Monument. These vessels include NOAA’s *Oscar Elton Sette*, *Hi‘ialakai*, *Ka‘imimoana*, and the University of Hawai‘i’s R/V *Kilo Moana* and R/V *Kaimikai-O-Kanaloa*, as well as chartered vessels for marine debris removal and for FWS management activities. These vessels are most active in the NWHI during April through November. They average 200 feet in length; weigh 2,300 tons; and carry 50 crew, researchers, and other staff. The Coast Guard sends a buoy tender to the NWHI



once a year. This mission also serves as a law enforcement patrol. In addition, the Coast Guard may occasionally send other ships to the area as needed (Havlik 2005 pers. com.).

### ***Cruise Ships***

A small number of cruise ships visit the Midway Atoll Special Management Area each year. The *Seven Seas Voyager* visited Midway once, and the *Pacific Princess* visited twice in 2004. In 2005, 2006, and 2007, one cruise ship visited the atoll each year (Maxfield 2005 pers. com.). Because of their size and the narrow width of the entrance channel at Midway, as well as port security requirements, cruise ships offload passengers three to four miles outside the lagoon and transport them ashore in small boats.

Worldwide, cruise ships constitute a large and growing industry, and like other ships, present a potential environmental threat to the Monument. Large cruise ships can carry thousands of passengers and crew, producing hundreds of thousands of gallons of wastewater and tons of garbage each day. The cruise industry has attracted a lot of attention regarding the treatment of waste at sea, and the Monument closely monitors scientific and regulatory developments that may influence management decisions associated with these ships.

### ***Merchant Vessels***

U.S. flag and international merchant vessels, including container ships, bulk carriers, and tankers, transit the waters surrounding the NWHI regularly. Data on routes and volume of shipping traffic are in the process of being compiled. Vessel traffic passes to the north of the island chain, following great circle routes to and from ports on the west coast of North America and East Asia. Vessels also pass through the Monument. Vessels have been observed using the pass between Pearl and Hermes Atoll and Lisianski Island because it allows vessels to maintain an east-west heading while transiting through the island chain (Tosatto 2005 pers. com.). Periodically, accidental loss of cargo overboard causes marine debris or hazardous materials to enter sensitive shallow water ecosystems.

### ***Native Hawaiian Practices and Education***

Between 2003 and 2007, several trips for Native Hawaiian cultural practices, education, and documentary film and photography projects were conducted on vessels in the Monument. Vessel size varied, as did anchoring and waste discharge practices. Some of the trips, such as the *Hōkūle‘a* voyage to Kure in 2004 as part of the “Navigating Change” program, included both FWS and NOAA personnel.

### ***Armed Forces Actions within the Monument***

In addition to Midway Atoll, the U.S. military has historically utilized ranges, operating areas, and facilities that today are partially overlaid by the Monument. Beginning well before World War II training and research, development, test, and evaluation (RDT&E) have occurred in the Hawai‘i area.

Military use of the area known as the Pacific Missile Range Facility (PMRF) began in 1940 when the U.S. Army acquired a pre-existing grass airstrip. As described in both the PMRF Enhanced Capability EIS completed in 1998 and the Hawaii Range Complex (HRC) Final

EIS/Overseas EIS completed in 2008, the Department of Defense has utilized areas within the Monument for training and RDT&E.

When the President proclaimed the creation of the Monument, an exemption for military activities was included. Presidential Proclamation 8031 creating the Monument states that its prohibitions “shall not apply to activities and exercises of the Armed Forces that are consistent with applicable laws” and that “All activities and exercises of the Armed Forces shall be carried out in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on monument resources and qualities.” Proclamation 8031 also requires, “In the event of threatened or actual destruction of, loss of, or injury to a monument resource or quality resulting from an incident, including but not limited to spills and groundings, caused by a component of the Department of Defense or the USCG, the cognizant component shall promptly coordinate with the Secretaries for the purpose of taking appropriate actions to respond to and mitigate the harm and, if possible, restore or replace the monument resource or quality.”

The Final EIS/Overseas EIS for the HRC is the most comprehensive source for information on the current activities of the U.S. Navy and other military users within those portions of the Monument and HRC that overlap. In addition, the Missile Defense Agency’s Final Ground-Based Midcourse Defense Extended Test Range EIS provides information on long-range missile defense tests in the Pacific region, some of which occur above or near the Monument.

U.S. Armed Forces activities within the Monument include RDT&E actions, training events such as unit level training, anti-submarine warfare exercises and major exercises such as RIMPAC, as well as assistance to the Monument when such activities can also serve as training consistent with federal fiscal law requirements. The U.S. Navy has provided assistance within the Monument areas in the past. Examples include assistance with hand-cutting of heavy fishing nets from coral areas as training for Navy Reserve divers and assistance with removal of grounded vessels as training in harbor clearance techniques.

As described more fully in the HRC EIS/OEIS, the easternmost portion of the Monument extends into the Hawai‘i operating area (OPAREA). The Monument overlays a small portion of a long-existing military warning area known as W-188 where training occurs. W-188 extends from the Navy’s PMRF at Barking Sands, Kauai. At its closest point to Nihoa, W-188’s boundary is more than 10 miles away, but given the Monument’s extension 50 miles from each island, the Monument overlays approximately 40 miles of W-188. The overlap involves less than 2 percent of the entire Monument – approximately 4,300 square nautical miles of the Monument’s approximately 140,000 square nautical miles. Navy training activities, such as sonar use, are generally limited to the OPAREA. Armed Forces training, including live-fire training, can take place anywhere within W-188.

The Temporary Operating Area (TOA), an area of airspace north and west of Kauai within the HRC, includes the Monument within its boundaries. The TOA is an area used for RDT&E, primarily missile defense testing and evaluation, which typically occurs high in the atmosphere. The TOA is normally used less than a dozen times per year for missile testing and evaluation for short periods of time – usually a few hours. Some of the missile tests include intercepts of target

missiles above or near the Monument and result in intercept debris landing in the Monument. Most intercept scenarios are planned so that debris will land in open ocean areas, far from land. A few tests could result in small amounts of debris on land areas.

### ***U.S. Armed Forces Precautions within the Monument***

Presidential Proclamation 8031 states “all activities and exercises of the Armed Forces shall be carried out in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on monument resources and qualities.” The Armed Forces have demonstrated that they understand and respect the value and importance of the Monument. They also recognize that the primary management philosophy for the Monument is protection and preservation.

To ensure achievement of the Proclamation’s objectives, the Armed Forces must comply with an extensive list of environmental laws and Executive Orders that apply to their activities. Some of these laws require the Armed Forces to work with, seek input from, or enter into consultation with the agencies represented by the Monument’s Co-Trustees: Department of the Interior’s FWS; Department of Commerce through NOAA and NMFS; and the State of Hawai‘i, through the DLNR and its Coastal Zone Management office.

These laws include, but are not limited to:

National Environmental Policy Act, National Historic Preservation Act, Endangered Species Act, Marine Mammal Protection Act, Migratory Bird Treaty Act, National Wildlife Refuge System Administration Act, Magnuson-Stevens Fishery Conservation and Management Act, National Marine Sanctuaries Act, Coastal Zone Management Act, Rivers and Harbors Act, Clean Air Act, Federal Water Pollution Control Act, Executive Order 13089 - Coral Reef Protection, and Executive Order 13352 - Cooperative Conservation.

For activities described in the Hawaii Range Complex EIS/OEIS that could take place within the Monument, protective measures as well as mitigation measures were developed with input from the Co-Trustees’ agencies, namely NMFS and FWS, through the Section 7 process of the ESA and the authorization or permitting process of the MMPA. These measures include mandatory NMFS approved lookout training and mandatory safety and shut down zones for use of mid-frequency active sonar in the presence of marine mammals among numerous other requirements. These measures will further reduce the possibility of any adverse impacts on the Monument. The Navy has committed to conduct its activities in accordance with these measures.

For missile testing above or near the Monument, numerous measures are taken to limit possible effects from any missile debris. The probability of any debris hitting birds, seals, other wildlife, or historic and cultural resources would be extremely low. Any quantities of falling debris would also be very low and widely scattered so as not to present a toxicity issue. Any debris as it falls through the atmosphere would have cooled sufficiently so as not to present a fire hazard for vegetation and habitat within the Monument.



## 1.5 Global Significance

The Monument is important both nationally and globally, as it contains one of the world's most significant marine and terrestrial ecosystems, includes many areas of cultural significance, is managed to protect ecological integrity, and is one of the world's largest marine protected areas. It serves as an example of ongoing geological processes, biological evolution, and the effects of humans on the natural environment. These volcanic rocks, large atolls of sand and coral, and islets surrounded by reefs and waters provide unique habitats for endemic and rare species of animals and plants, with outstanding and universal value from scientific, conservation, and aesthetic perspectives. This relatively pristine region contrasts sharply with most insular and marine ecosystems, which are more severely affected by human activities and populations around the world.

More recently, the recognition of the uniqueness of the NWHI has led the State of Hawai'i, on behalf of the Co-Trustees, to work toward nomination of the Monument as a United Nations Educational, Scientific, and Cultural Organization (UNESCO) World Heritage Site for its natural and cultural values, and as part of the world heritage of mankind. The National Park Service Office of International Programs is the lead for the U.S. in coordinating nominations through the UNESCO World Heritage Centre. The U.S. submitted a new World Heritage tentative list to UNESCO's World Heritage Centre in January 2008, which included the Monument as one of the top sites for consideration. The Monument is proposed as a mixed site for both its outstanding cultural and natural values for the following reasons:

- The islands are an outstanding example representing a major stage of the earth's evolutionary history;
- The Monument's natural resources are an outstanding example representing significant ongoing geological processes, biological evolution, and man's interaction with his natural environment;
- The islands and atolls provide habitats where populations of rare and endangered species of plants and animals still survive;
- It bears a unique or at least exceptional testimony to a cultural tradition or to a civilization, which is living or which has disappeared, and;
- It is directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance.

UNESCO rules require a minimum 1-year delay between the time a Nation submits its tentative list and brings forward an application for consideration of a World Heritage Site. The U.S. submitted its new Tentative List to UNESCO on January 24, 2008. In April 2008, the National Park Service Office of International Programs announced that the Monument had been selected as one of the first two sites to be submitted for nomination by the U.S. to the UNESCO World Heritage Centre in over 15 years. Once the application is submitted, it will take a minimum of 18 months for the site to be considered by the UNESCO World Heritage Committee as a new site for inscription. Applications are submitted once each year in February.

Conserving the NWHI contributes to international community efforts aimed at conserving biodiversity and ecological integrity around the world. These efforts include work by organizations such as the World Conservation Union, the world's largest environmental

knowledge network; the Convention on Biological Diversity; the South Pacific Regional Environment Program; and UNESCO. Conservation and management of Monument resources contribute to the reduction in the current rate of loss of biological diversity at the global, national, and regional levels, for the benefit of all life on earth.

Remote, uninhabited, and relatively pristine in comparison to other marine ecosystems in the world, the Monument serves as one of the few modern sentinels for monitoring and deciphering short-term and long-term responses to local, regional, and global environmental and anthropogenic stressors. The Monument is one of the few regions on Earth where monitoring and research activities can be conducted in virtual absence of local human habitation. In comparison, most reef systems in the coastal regions of the world are adjacent to human population centers, where vessel traffic, overharvesting, sedimentation, habitat destruction, and other human actions have altered the terrestrial and adjacent marine environments. At a time when global climate change impacts, such as sea level rise and ocean acidification are emerging as significant threats to our oceans, ongoing research, monitoring, habitat restoration, and conservation management of the insular and marine ecosystems in the NWHI will continue to provide significant insights that will benefit potential management interventions not only for the NWHI, but for insular and marine ecosystems around the world.

On April 3, 2008, the International Maritime Organization (IMO) designated the Monument as a Particularly Sensitive Sea Area (PSSA). As part of the PSSA designation process, the IMO adopted U.S. proposals for associated protective measures consisting of (1) expanding and consolidating the six existing recommendatory Areas To Be Avoided (ATBA's) in the Monument into four larger areas and enlarging the class of vessels to which they apply; and (2) establishing a ship reporting system for vessels transiting the Monument, which is mandatory for ships 300 gross tons or greater that are entering or departing a U.S. port or place and recommended for other ships. The vessel reporting system requires that ships notify the U.S. shore-based authority (i.e., the U.S. Coast Guard; NOAA will be receiving all messages associated with this program on behalf of the Coast Guard) at the time they begin transiting the reporting area and again when they exit. Notification is made by e-mail through the Inmarsat-C system or other satellite communication system. It is estimated that almost all commercial vessel traffic will be able to report via Inmarsat-C. The Armed Forces are not subject to the access restrictions and reporting requirements in the Monument when they are conducting activities and exercises. Sovereign immune vessels also are not subject to the reporting requirement but all vessels are encouraged to participate.

The PSSA and associated protective measures were adopted to provide additional protection to the exceptional natural, cultural and historic resources in the Monument. Requiring vessels to notify NOAA upon entering the reporting area will help make the operators of these vessels aware that they are traveling through a fragile area with potential navigational hazards such as the extensive coral reefs found in many shallow areas of the Monument. The PSSA and associated protective measures are now in effect.

Nevertheless, the Monument is not immune from local, regional, and global-scale influences. The millions of pounds of marine debris that have accumulated in the NWHI illustrate the impact

people have on faraway, uninhabited ecosystems at an international scale. In addition, human activities taking place outside of the Monument may have devastating effects on the cultural, historic and natural resources of the Monument. Therefore, in light of the national and global significance of the unique ecosystems of the NWHI, and the fact that two of the most significant threats facing the Monument, marine debris and climate change, originate outside of the Monument, the MMB is committed to continue to work with and promote further collaborations at an international level to preserve and protect the cultural, historical and natural resources of Papāhanaumokuākea.



# **Management Framework**

---

- 2.1 Legal Framework for the Monument**
  - 2.2 Policy Framework**
  - 2.3 Initial Management**
  - 2.4 Monument Management: The Vision, Mission, Guiding Principles, and Goals**
  - 2.5 Management Action Plans**
-

## 2.0 Management Framework

Management of the Monument is carried out by the Co-Trustees in accordance with legal mandates, authorities, and policies of several federal and state agencies, and Monument-specific policies and implementing regulations. In their day-to-day management, the Co-Trustees through the Monument Management Board will ensure the coordinated planning and execution of activities so that they are consistent with the legal and policy structure of the Monument.

Management of the Monument focuses on managing activities for the benefit of the ecosystem's health. In establishing the Monument, President George W. Bush recognized the importance of an ecosystem approach to management. This approach is mindful of the interconnectedness of the Monument resources and requires a holistic approach to managing activities so as to preserve ecosystem structure, function, and key processes and recover resources where necessary.

The management framework supporting an ecosystem approach to management of the Monument includes the following key elements:

- (1) A legal and policy foundation for cooperative ecosystem-based management;
- (2) Institutional arrangements to promote and enhance collaboration with jurisdictional partner agencies and other stakeholders;
- (3) Monument regulations that incorporate multiple management tools including prohibitions, zoning, and regulated activities;
- (4) Established Monument vision, mission, guiding principles, and goals;
- (5) Operational goals;
- (6) Desired outcomes, strategies, and activities that implement the Monumentwide goals and are set forth in action plans specific to management subject areas; and
- (7) An iterative and adaptive approach.

Together, these elements provide the framework for managing the Monument ecosystem.

## 2.1 Legal Framework for the Monument

President George W. Bush issued Presidential Proclamation 8031 (Establishment of the Northwestern Hawaiian Islands Marine National Monument, June 15, 2006), which created the Monument under the authority of the Antiquities Act of 1906, as amended (16 U.S.C. 431-433). Federal partners—NOAA and FWS—promulgated joint implementing regulations on August 29, 2006 (Northwestern Hawaiian Islands Marine National Monument, 50 CFR Part 404). Specifically, these regulations codify the scope and purpose, boundary, definitions, prohibitions, and regulated activities of the Monument. Furthermore, Proclamation 8031 was amended on February 28, 2007, to declare the Native Hawaiian name for the Monument, Papahānaumokuākea, and clarify some definitions (Presidential Proclamation 8112, Establishment of the Papahānaumokuākea Marine National Monument, February 28, 2007).

The Monument includes areas and management authorities that are under the jurisdiction of one or multiple federal agencies or the State of Hawai‘i. For example, the Monument, an area of approximately 139,793 square miles (362,062 square kilometers), includes the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, managed by NOAA’s National Ocean Service (NOS) through the Office of National Marine Sanctuaries; Midway Atoll National Wildlife Refuge/Battle of Midway National Memorial, both managed by FWS; Hawaiian Islands National Wildlife Refuge, managed by FWS; Northwestern Hawaiian Islands Marine Refuge and the State Seabird Sanctuary at Kure Atoll, managed by the State of Hawai‘i, Department of Land and Natural Resources (DLNR). Additionally, NOAA’s National Marine Fisheries Service (NMFS) continues its management of fishing and specific protected species conservation programs, FWS oversees activities under its Endangered Species Act and Migratory Bird Treat Act authorities, and the State of Hawai‘i Historic Preservation Division, with the assistance of the Office of Hawaiian Affairs (OHA), ensures preservation of Native Hawaiian cultural and historic sites, while OHA also assures the perpetuation of Hawaiian cultural resources in the Monument, including the customary and traditional rights and practices of Native Hawaiians exercised for subsistence, cultural, and religious purposes under the Constitution of the State of Hawai‘i, Article XII, Section 7. The legal relationships among the three Co-Trustees and others (including the DOD) have a long history with respect to natural resource management of the NWHI, beginning in 1903 and continuing to modern-day directives that promote the comprehensive and coordinated ecosystem-based management of resources by NOAA, FWS, and the State of Hawai‘i.

Each agency, as laid out in the Proclamation establishing the Monument, retains its spheres of jurisdiction, responsibility, and expertise. They bring different knowledge and strengths to this process. They work together on many aspects of the management process, which can benefit from the synergies of cooperative action. Throughout this process however, each partner will continue carrying out its statutory responsibilities. Even where one of the MMB members has primary responsibility, input from the other board members can often be helpful and is presumed as part of the plan.



## 2.2 Policy Framework

To achieve a coordinated management scheme, the Proclamation ordered a new level of collaboration that would result in coordinated management of the entire Monument. To that end, the Co-Trustees developed and agreed to operate according to terms and institutional relationships set in a memorandum of agreement (MOA), which includes a provision for an annual MOA review by the Co-Trustees (State of Hawai‘i et al. 2006). The signatories of that MOA are the Co-Trustees, who operate with personnel devoted to the development and implementation of coordinated management. The three Co-Trustees are the State of Hawai‘i, the U.S. Department of the Interior (DOI), and the U.S. Department of Commerce (DOC). To provide context for the current management framework, this section briefly summarizes the involvement of each Co-Trustee in the pre-Monument institutional arrangement, which influences, and in some instances, carries over to the collaborative Co-Trustee management.

### *Institutional Arrangements for Management*

The MOA established the institutional arrangements for management of the Monument. The approach demands coordination by the Co-Trustees as well as collaboration with stakeholders to effectively manage under an ecosystem approach. The institutional arrangements for Monument management are described below. These consist of a Senior Executive Board (SEB) providing policy guidance, and a Monument Management Board (MMB), which consists of field staff who conduct the day-to-day management activities of the Monument.

#### *Senior Executive Board*

Pursuant to the MOA, a SEB provides policy guidance to their respective agency staff assigned to carry out Monument management activities. The SEB is comprised of a senior-level designee from the DOI, the DOC, and the State of Hawai‘i Department of Land and Natural Resources (DLNR). The SEB oversees the implementation of the following management actions by the MMB:

- Develop a management plan;
- Provide support for enforcement purposes;
- Coordinate resource and monitoring efforts;
- Develop a mechanism to access scientific and resource data;
- Provide support to identify locations of cultural and religious significance;
- Manage recreational, educational, and commercial activities;
- Identify and facilitate coordination and partnership opportunities with stakeholders;
- Facilitate opportunities to participate and collaborate on education activities;
- Develop interagency agreements, grants, and other instruments;
- Ensure appropriate monitoring of activities within the Monument; and
- Enhance coordination by jointly issuing permits.

#### *Monument Management Board*

Pursuant to the MOA, the MMB promotes coordinated management of the Monument at the field level. The MMB includes a broader range of representatives from the Co-Trustees, specifically:

- State of Hawai‘i, Department of Land and Natural Resources, Division of Aquatic Resources;

- State of Hawai‘i, Department of Land and Natural Resources, Division of Forestry and Wildlife;
- U.S. Fish and Wildlife Service, Hawaiian and Pacific Islands National Wildlife Refuge Complex;
- U.S. Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office;
- National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries;
- National Oceanic and Atmospheric Administration, National Marine Fisheries Service; and the
- Office of Hawaiian Affairs.

This group meets on a regular basis to implement the day-to-day management of the Monument. The MMB will operate under an interagency charter, providing details on its roles, responsibilities, and activities. The charter will be regularly reviewed and updated as necessary.

#### *Papahānaumokuākea Interagency Coordinating Committee*

The Co-Trustees authorized the MMB to establish the Papahānaumokuākea Interagency Coordinating Committee (ICC) to assist in implementation of Monument management activities. The ICC includes representatives from the Co-Trustees and other agencies, including, but not limited to, the U.S. Environmental Protection Agency, U.S. Coast Guard 14<sup>th</sup> District Prevention and Response, U.S. Geological Survey, and the DOD. This group is not fixed, meets periodically or as specific topics require, and federal and state agency partners may participate according to the relevancy of their activities and/or mandates related to the Monument.

#### ***The Co-Trustees***

##### *The U.S. Department of Commerce: National Oceanic and Atmospheric Administration*

Two NOAA line offices have mandates that apply to activities in the Monument –NOS and NMFS. In 2000, the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve (Reserve) was established via Executive Order 13178 (as amended by Executive Order 13196) to preserve and protect coral reef ecosystems of the NWHI. Responsibility for managing the Reserve was assigned to NOS through the National Marine Sanctuary Program (NMSP) under the authority of the National Marine Sanctuaries Act (16 U.S.C 1431 et seq.) and the National Marine Sanctuaries Amendments Act of 2000, Public Law 106-513, and other applicable statutes. Executive Order 13178 directed NOAA, in consultation with federal and state partners, to initiate a process to designate the Reserve as a national marine sanctuary pursuant to sections 303 and 304 of the National Marine Sanctuaries Act of 2000.

In January 2001, NOAA declared the Reserve an active candidate for sanctuary designation (5509 FR 66). A Reserve Advisory Council (RAC) was established to provide advice and recommendations on the designation and management of any sanctuary and to develop a Reserve Operations Plan for managing the Reserve. Throughout this process, the public and other stakeholders were engaged to seek input and gather information toward developing a unified plan for Reserve operations and the proposed sanctuary. A series of ten public scoping meetings were hosted in Hawai‘i and Washington, D C., with more than 13,000 comments received during the initial scoping period. Throughout the designation process, additional input was collected from the public, stakeholder groups, and interagency partners via science workshops (Gittings et

al. 2004), focus group discussions (SRG 2004b), and RAC and associated subcommittees meetings. In total, more than 100 meetings were held and close to 52,000 public comments were received that guided the direction and development of a draft sanctuary management plan to direct management of the anticipated sanctuary upon its designation. Simultaneously, a Reserve Operations Plan (ROP) was drafted and finalized with extensive consultation with partner agencies and the RAC (NOAA 2005a). The ROP guides the management of the Reserve and served as the primary foundation from which the draft sanctuary management plan was developed. In addition, a State of the Reserve Report was developed to provide a comprehensive summary of 5 years of Reserve operations (NOAA 2006).

The draft sanctuary management plan has several companion documents packaged into the draft designation proposal, including a draft environmental impact statement and draft implementing regulations. When the Monument was designated in 2006 by Presidential Proclamation, the processing of these documents was halted. However, the Proclamation recognized the extensive public input and the relevancy of the NMSP public processes and resulting draft sanctuary documents, and directed the Co-Trustees to modify, as appropriate, the draft sanctuary management plan in developing a plan to manage the Monument (Presidential Proclamation 8031, 36443 FR 71).

NMFS executes mandates and exercises authority under several statutes that are relevant to natural resource management in the Monument. Among others, these statutes include the Magnuson-Stevens Fishery Conservation and Management Act, the Endangered Species Act, the Marine Mammal Protection Act, the Fish and Wildlife Coordination Act, the Coral Reef Conservation Act, the Global Change Research Act, the Lacey Act Amendments, and the Fish and Wildlife Improvement Act of 1978, as well as various executive orders and proclamations. Since the 1970s, the national and regional management by NMFS (under NMFS' Southwest Region) has included management activities such as conservation, research, and emergency response, and fisheries management in the NWHI. Since its establishment in 2003, the Pacific Islands Regional Office and the Pacific Islands Fisheries Science Center have worked together to build on these programs and fulfill NMFS' functions in the Pacific Region, including the area that is within the Monument. All NMFS programs, Habitat Conservation, Sustainable Fisheries, and Protected Resources are relevant to NMFS' contribution to the Monument complement of programs.

NOAA's line offices collaborate to fulfill NOAA's Co-Trustee responsibilities under the Monument management arrangement. The Monument office of NOAA's Office of National Marine Sanctuaries (ONMS) and NMFS Pacific Islands Region, both headquartered in Honolulu, Hawai'i, represent NOAA at the field level and coordinate with the NOAA headquarters to ensure unified representation in the Co-Trustee arrangement.

*The U.S. Department of the Interior: U.S. Fish and Wildlife Service*

The U.S. Fish and Wildlife Service is a bureau of the U.S. Department of the Interior that works with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people. Two program offices of FWS, Endangered Species and the National Wildlife Refuge System, have statutory authority for Monument resources and



program representatives are members on the MMB. Both coordinate with FWS and DOI headquarters to ensure unified representation in the Co-Trustee arrangement.

The FWS Pacific Islands Fish and Wildlife Office shares the responsibility for administration of the ESA with NMFS and has conservation oversight for all terrestrial species including seabirds. This office also administers coastal conservation and conservation partnerships programs through its habitat conservation division, and provides assistance with invasive species issues and emergency response throughout the Pacific islands.

The FWS also administers the 97-million acre National Wildlife Refuge System, including 548 refuges throughout the United States and its territories. The Hawaiian Islands and Midway Atoll NWRs, located within the Monument, are managed from Honolulu through the FWS Hawaiian and Pacific Islands NWR Complex. This Complex of refuges is in turn administered through the Pacific Regional Office, Regional Refuge Chief, headquartered in Portland, Oregon.

The overarching legislation and guidance for managing the Hawaiian Islands and Midway NWRs are derived from the National Wildlife Refuge System Administration Act of 1966, as amended (16 U.S.C. 668dd-668ee); the Refuge Recreation Act of 1962 (16 U.S.C. 460k-460k-4), as amended; 50 CFR (Wildlife and Fisheries); and the Fish and Wildlife Service Manual (administrative policy). Of all the laws governing the activities on NWRs, the National Wildlife Refuge System Improvement Act (Improvement Act) (Public Law 105-57, October 9, 1997) exerts the greatest influence. The Improvement Act amended the National Wildlife Refuge System Administration Act of 1966 by including a unifying mission for all NWRs to be managed as a system, a new process for determining compatible uses on refuges, and requiring that each refuge will be managed under a Comprehensive Conservation Plan, developed in an open public process.

The Improvement Act states that the Secretary of the Interior shall provide for the conservation of fish, wildlife, and plants, and their habitats within the Refuge System as well as ensure that the biological integrity, diversity, and environmental health of the Refuge System are maintained. House Report 105-106, accompanying the Improvement Act, states, “the fundamental mission of our System is wildlife conservation: wildlife and wildlife conservation must come first.” Biological integrity, diversity, and environmental health are critical components of fish and wildlife conservation. The FWS Biological Integrity, Diversity, and Environmental Health Policy states that “the highest measure of biological integrity, diversity, and environmental health is viewed as those intact and self-sustaining habitats and wildlife populations that existed during historic conditions (601 FW 310).”

The purpose for which a refuge was established or acquired is of key importance to refuge planning. Refuge purposes and the Refuge System’s mission form the foundation for management decisions. The purposes of a refuge are specified or derived from the law, proclamation, executive order, agreement, public land order, donation document, or administrative memorandum that establishes, authorizes, or expands a refuge.

The legal authority that established the area now known as the Hawaiian Islands National Wildlife Refuge (HINWR)—Executive Order 1019, signed by President Theodore Roosevelt on

February 3, 1909—set aside the islets and reefs extending from Nihoa to Kure, excepting Midway Atoll, as the Hawaiian Islands Reservation “...for use...as a preserve and breeding ground for native birds.” President Roosevelt took this action to provide additional protections for the seabirds after reports that hundreds of thousands of Laysan albatross were being slaughtered for the millinery trade in violation of the Lacey Act of 1900. In 1940, President Franklin Roosevelt signed Presidential Proclamation 2416, renaming the area the HINWR. The authorities, mandates, and policies that govern the activities of the FWS have resulted in the conservation of island, atoll, and nearshore habitats within the HINWR.

The HINWR has been closed to the public since its establishment and will remain closed to the public under the Monument Management Plan. Access to HINWR prior to Monument establishment was regulated by FWS Refuge Special Use Permit regulations. These permits were issued only to conduct research, education, or to film documentaries to promote public understanding of refuge resources and improve refuge management. In addition, the Secretary of the Interior and the President of the United States in 1974 considered all of the refuge’s emergent lands except Tern Island to be ecologically appropriate for inclusion into the National Wilderness Preservation System, as outlined in the Wilderness Act of 1964 (16 U.S.C 1132-1136). Congress, however, has not acted to designate this area within the wilderness system.

The FWS has also been assisting the U.S. Navy with wildlife management issues for almost 50 years at Midway Atoll. A cooperative management plan developed by the Navy and FWS in the early 1980s further defined responsibilities and led to the establishment of an “overlay” NWR on Midway in 1988. On October 31, 1996, President William Clinton signed Executive Order 13022, directing the Secretary of the Interior, through FWS, to administer Midway Atoll NWR. The purposes of the refuge, as defined in the Executive Order, are to maintain natural biological diversity; conserve fish and wildlife and their habitats; fulfill international wildlife treaty obligations; provide for research, education, and compatible wildlife-dependent recreation; and recognize and maintain the atoll’s historic significance. In addition, in accordance with language in the Fiscal Year 2000 Interior Appropriations Act, Secretary of the Interior Bruce Babbitt signed Secretary’s Order 3217, designating the lands and waters of Midway Atoll NWR as the Battle of Midway National Memorial.

### *The State of Hawai‘i*

In 1893, the Kingdom of Hawai‘i, which included most of the Northwestern Hawaiian Islands, was overthrown with the involvement of certain United States officials and others. Some involved in the overthrow and others went on to create a provisional government and then the Republic of Hawai‘i, which assumed control of approximately 1.8 million acres of crown, government, and public lands of the Kingdom of Hawai‘i, including certain submerged and fast lands of the Northwestern Hawaiian Islands. Upon its annexation, the Republic ceded these lands to the United States in 1900. A majority of these lands were again ceded, this time to the State of Hawai‘i, upon statehood in 1959.

Under the terms of the statute admitting Hawai‘i as a state in 1959, the federal government granted title to Hawai‘i to most of the previously ceded lands and mandated that these ceded lands be held by Hawai‘i in public trust. In accordance with the Hawaii Organic Act of April 30, 1900, c 339, 31 Stat 141, and the Hawaii Admission Act of March 18, 1959, Pub L 86-3, 73 Stat

4, most of the islands of the Hawaiian Archipelago that were part of the Territory of Hawai‘i became part of the State of Hawai‘i as part of the public land trust. Hawai‘i’s lands continue to hold a considerable amount of legal, historical, and sentimental significance to Native Hawaiians. Pursuant to Section 5(f) of the Hawaii Admission Act, one purpose for which the ceded lands are held in trust by the State is “for the betterment of the conditions of native Hawaiians.” Proclamation 8031, designating the Monument, specifically states, “Nothing in this proclamation shall be deemed to diminish or enlarge the jurisdiction of the State of Hawai‘i.”

The State of Hawai‘i DLNR has stewardship responsibility for managing, administering, and exercising control over the public trust and submerged lands (most of which are ceded lands), ocean waters, and marine resources, around each of the Northwestern Hawaiian Islands, except at Midway Atoll, Section 171-3 Hawaii Revised Statutes. In 2005, Hawai‘i Governor Linda Lingle established the Northwestern Hawaiian Islands Marine Refuge (0 to 3 nautical miles around all emergent lands, except Midway Atoll) under Sections 187A-5 and 188-53(a), Hawaii Revised Statutes (established as ch. 60.5, Hawaii Administrative Rules). Unless otherwise authorized by law, it is unlawful for any person to enter the refuge without a permit except for freedom of navigation, innocent passage, interstate commerce, and activities related to national defense or enforcement, foreign affairs, and in response to emergencies.

The State of Hawai‘i, DLNR’s Division of Forestry and Wildlife manages the emergent lands of the State Seabird Sanctuary at Kure Atoll. The State Historic Preservation Division and the State Historic Preservation Officer oversee cultural and historic resources statewide. DLNR’s Division of Conservation and Resource Enforcement maintains full police powers, including the power of arrest, within all lands and waters within the State’s jurisdiction. The State is represented on the MMB by DLNR’s Division of Aquatic Resources and Division of Forestry and Wildlife.

#### *Office of Hawaiian Affairs*

Established by a 1978 amendment to the Constitution of the State of Hawai‘i, Office of Hawaiian Affairs (OHA) serves as the principal agency working for Native Hawaiians. OHA was created for various purposes including bettering the conditions of Native Hawaiians. OHA manages a property and monetary trust, creating its fiduciary duty to Native Hawaiians. The OHA trust is funded in part by a pro rata share of income derived from the ceded lands portion of the public land trust.

Under the direction of nine publicly elected trustees, OHA fulfills its constitutional and statutory mandates. Section 10-1(a), Hawaii Revised Statutes, states: “The people of the State of Hawaii and the United States of America as set forth and approved in the Admission Act, established a public trust which includes among other responsibilities, betterment for conditions of Native Hawaiians. The people of the State of Hawaii reaffirmed their solemn trust obligation and responsibility declared in the state constitution that there be an office of Hawaiian affairs to address the needs of the aboriginal class of people of Hawaii.” OHA serves as a member of the MMB and, along with the Native Hawaiian Cultural Working Group, represents a voice of the Native Hawaiian community on Monument matters (see Native Hawaiian Community Involvement Action Plan, Section 3.5.3).



***Public Involvement***

Stakeholder and community involvement is an integral component to achieving the goals of the Monument. Engaging an informed constituency will further the successful protection of the ecosystems of the NWHI. Monument staff currently conduct diverse constituency building and outreach activities related to the Monument. Staff will continue to cultivate an informed, involved constituency that supports and enhances conservation of the natural, cultural, and historic resources of the Monument. Strategies and activities to further public involvement in Monument management activities are found throughout the Monument Management Plan.

## 2.3 Initial Management

### *Regulations Implementing the Proclamation*

The initial Monument regulations were issued to implement the provisions in Presidential Proclamation 8031, and rulemaking was completed jointly by the FWS and NOAA on August 29, 2006 (71 FR 51134). Monument regulations, codified under 50 CFR Part 404, establish the scope and purpose, boundary, definitions, prohibitions, marine zones, and regulated activities for managing the Monument. These regulations can be evaluated and updated as necessary.

Monument regulations: (For a full text, see Appendix D.)

- Prohibit unauthorized access to the Monument;
- Provide for carefully regulated educational and scientific activities;
- Preserve access for Native Hawaiian cultural activities;
- Establish marine zones to manage human activities;
- Provide for visitation in a special area around Midway Atoll;
- Phase out commercial fishing over a 5-year period;
- Ban exploring for, developing, or producing oil, gas, or minerals and using or attempting to use poisons, electrical charges, or explosives in the collection or harvest of Monument resources;
- Prohibit introducing alien species from within or into the Monument; and
- Prohibit anchoring on corals.

The prohibitions required by the Proclamation do not apply to the activities and exercises of the Armed Forces (including those carried out by the Coast Guard) that are consistent with applicable laws. However, it requires them to conduct activities and exercises in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on Monument resources and qualities. Proclamation 8031 also requires that “in the event of threatened or actual destruction of, loss of, or injury to a monument resource or quality resulting from an incident, including but not limited to spills and groundings, caused by a component of the Department of Defense or the USCG, the cognizant component shall promptly coordinate with the Secretaries for the purpose of taking appropriate actions to respond to and mitigate the harm and, if possible, restore or replace the monument resource or quality.”

As the prohibitions of the Proclamation were effective upon issuance, there was a pressing need to resolve the permitting scheme as directed by the Proclamation. Thus, the Co-Trustees have collaborated to develop a joint permit system, essentially streamlining all discrete permitting processes into one Monument permit according to the six permit categories iterated in the Proclamation:

1. Research
2. Education
3. Conservation and management
4. Native Hawaiian practices
5. Special ocean use
6. Recreational activities within Midway Atoll

### ***Management Zones***

Monument regulations define three types of marine zones to manage activities. The zones are: Special Preservation Areas, Ecological Reserves, and the Midway Atoll Special Management Area (SMA) (Figure 2.1). Each zone addresses protection of habitat and foraging areas of threatened and endangered species; inclusion of a representative range of the diverse array of marine habitats, including shallow coral reef environments, as well as deepwater slopes, banks, and seamounts; and minimization of risks associated with specific activities such as fishing and recreational activities. Zones also protect the ecological linkages between habitats. The location and description of activities prohibited and allowed in each zone are defined in the Monument regulations (see Appendix D).



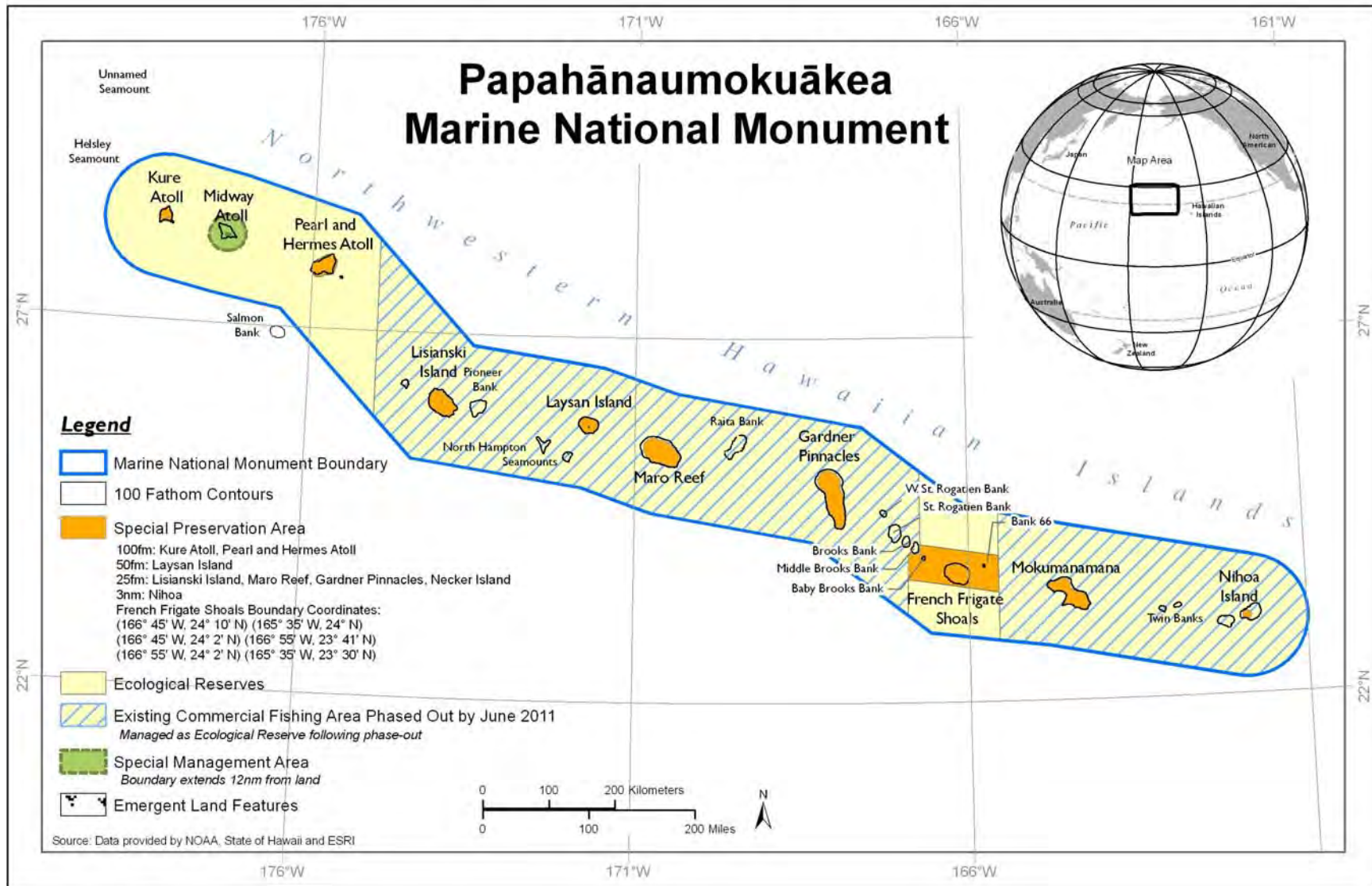


Figure 2.1 Map of the Papahānaumokuākea Marine National Monument and Zones.

Zoning provides protection to highly sensitive habitats, particularly shallow coral reefs. Discrete, biologically important areas of the Monument are designated as Special Preservation Areas, and resource harvest and almost all forms of discharge are prohibited. Other areas designated as Ecological Reserves consist of contiguous, diverse habitats that provide natural spawning, nursery, and permanent residence areas. Resource extraction is highly restricted within the Ecological Reserves. In the Midway Atoll SMA and other NWR areas, proposed activities are subject to findings of appropriateness (603 FW 1) and compatibility determinations (16 U.S.C. 668dd-668ee and 603 FW 2) by the FWS to ensure the activities meet the purposes for establishing the Hawaiian Islands and Midway Atoll NWRs and the mission of the National Wildlife Refuge System. Recreational activities in the Monument are restricted to the Midway Atoll SMA. Due to the vast size of the Monument, the existing zones extend over large areas and include a variety of habitat types and an extensive diversity of species. As new information becomes available, additional zones may be created to further the protection and conservation of the natural and cultural resources of the NWHI.

#### *Toward Ecosystem-Based Management*

An ecosystem approach to management for the NWHI requires that multiple steps be implemented in a comprehensive and coordinated way. The Monument approach is unique in that it includes:

- Ecosystem level planning
- Cross-jurisdictional management goals
- Co-management
- Adaptive management
- Marine zoning
- Habitat restoration
- Long-term ocean and coastal observing, monitoring, and research.

#### *Ecosystems, Ecosystem-Based Management, and Ecological Integrity*

Over the last decade, considerable scientific discussion and debate have been devoted to developing an understanding of concepts and terms used to describe an ecosystem, ecosystem-based management, and ecological integrity. For the purposes of this plan, an ecosystem is defined as a dynamic and interrelating complex of plant and animal communities and their associated nonliving environment with humans as an integral part of the system. Ecosystems are organized structurally into populations, species, and communities of organisms that interact with each other and with abiotic features of the environment and, functionally, into production and consumption components that process energy and materials (Limburg et al. 1986). Ecosystems vary in size, often with smaller systems embedded within larger ones. Ecosystems have been described as moving targets, with multiple potential futures that are uncertain and unpredictable (Walters 1986). The scale of ecosystems depends on the spatial extent of the system dynamics that are to be studied and influenced by management (Sissenwine and Murawski 2004).

Ecosystem-based management is an approach that recognizes the relationships and interconnectedness among living and nonliving ecosystem components that are affected by a number of natural and anthropogenic factors that vary over space and time. The goal of ecosystem-based management is to maintain ecosystems in a healthy, productive, and resilient

condition for their intrinsic value as well as to provide for needed ecosystem services.

Ecosystem-based management:

- Provides protection of marine and terrestrial ecosystem structure and function
- Is place-based, focusing on a specific ecosystem and the range of activities affecting it
- Explicitly accounts for the interconnectedness within systems, recognizing the importance of interactions between key species or services
- Integrates ecological, social, economic, and institutional perspectives, recognizing their strong interdependencies.

This approach requires managers to have access to extensive information and data including baseline conditions, the interactions among the components of the ecosystem, and the consequences of natural influences and individual and cumulative human activities. Ecosystem-based management also recognizes that humans are inseparable from and co-evolved with ecosystems. Surrounding any ecosystem are a multiplicity of perspectives and knowledge systems. Attention to the human dimensions assumes that humans affect, and are affected by, the oceans in both positive and negative ways and that these complex relationships between people and the ocean are dynamic, diverse and may differ among the various perspectives. The availability of scientific information, together with Native Hawaiian traditional knowledge, is essential for ecosystem-based management of the Monument.

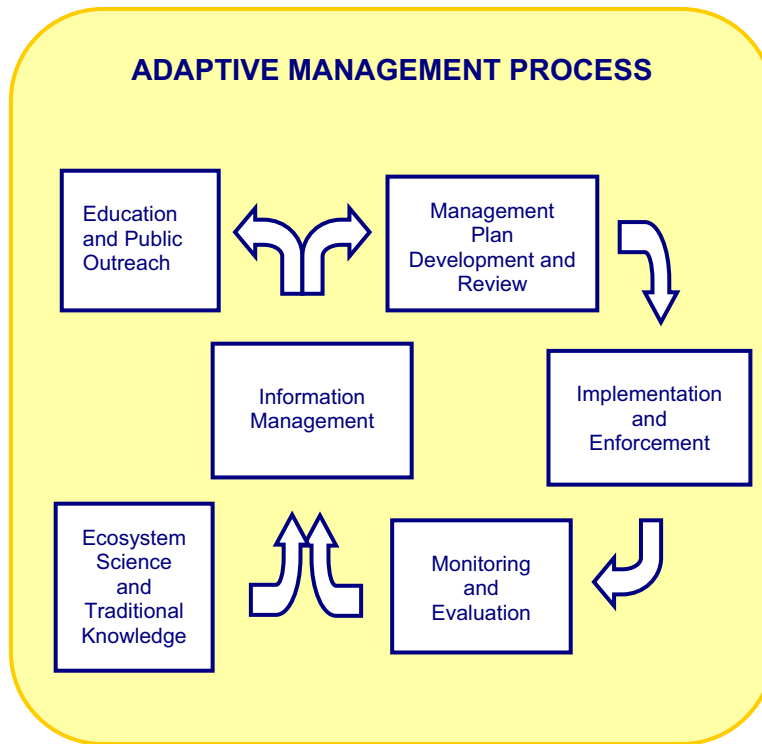
Maintaining ecological integrity is often cited as the primary goal of ecosystem-based management. Ecological integrity is the capability to support and maintain a balanced, integrated, adaptive community of organisms having species composition, diversity, and functional organization comparable to that of natural habitats of the region (Karr and Dudley 1981). A system will retain its integrity if it preserves all its components, as well as the functional relationships among those components (De Leo and Levin 1997). Kay (1991) described ecological integrity as the ability to maintain ecosystem function and structure in the face of changing environmental conditions, where “environment” refers to the biotic and external abiotic components that affect it, including humans. Considering the dynamic nature of ecosystems, the goal of ecosystem-based management should not be to eliminate all forms of disturbance, but rather to maintain processes within limits or ranges of variation that may be considered natural, historical, or acceptable (Noss 1995). Such an approach must be flexible, adaptive, and experimental at scales compatible with the scales of critical ecosystem functions (Walters 1986).

Ecological integrity is defined for the Monument as “a condition determined to be characteristic of an ecosystem that has the ability to maintain the function, structure, and abundance of natural biological communities, including rates of change in response to natural environmental variation” (50 CFR 404.3). This definition builds on this extensive body of research on ecosystem form and function and the Co-Trustee agencies’ experience and mandates.

### *Adaptive Management*

The Monument offers an unprecedented opportunity to take incremental and informed steps toward ecosystem-based management at a large scale. To progress consistently toward an ecosystem approach to management, new information and data will be used to inform and refine management strategies and activities, consistent with Monument goals and desired outcomes.





**Figure 2.2 Adaptive Management Cycle to Inform Management and Decisionmaking.**

Adaptive management is a continuous learning cycle designed to inform management actions and decisionmaking based on implementation of management strategies and actions, conducting monitoring and evaluation, and providing feedback to management on the success of meeting the desired outcomes and strategies (Figure 2.2). The Monument’s adaptive management process includes the following elements: management plan development and review, implementation and enforcement, monitoring and evaluation, integration of ecosystem science and traditional knowledge, scientific research, information management, and education and public outreach. Ecosystem science and traditional knowledge are inputs to the learning process, together with the results of monitoring and evaluation. A comprehensive information management system facilitates the compilation of information and data from research, monitoring, plan review, education, and public outreach and also helps to inform research and management priorities. An effective adaptive management process provides managers with timely feedback and information. If the desired outcomes and goals are achieved, then this approach confirms the management strategies and activities are on the right course. If the results are not achieved, then feedback into the management framework can help identify whether it is a specific action or group of strategies or activities that may need to change. Periodic updates of the Monument Management Plan will incorporate feedback from our adaptive management process and result in refined and sometimes new management strategies and activities to meet our overall Monument goals and desired outcomes.

### *Human dimensions*

Humans are integral to ecosystems, and the human dimensions of ecosystems are an integral focus of the science needed to achieve ecosystem-based management. Understanding the impact of humans on the ocean, the impact of the ocean on humans, and the human aspects of ocean governance provides the scientific basis for ensuring ocean health and quality of life for this and future generations (Joint Subcommittee on Ocean Science and Technology, 2007). The relationships between humans and ocean ecosystems are complex, dynamic, and coupled, and recognizing the importance of human-ocean relationships in the management of the NWHI assumes that human “impacts” on oceans are not necessarily negative, but also may restore and foster human and ocean well-being. In the planning, management, and evaluation of the Monument, human dimensions are critical for long-term success.

Marine science and policy institutions in the United States and worldwide recognize that a deeper understanding of the human dimensions of ecosystems—human causes, consequences, and responses to ecosystem stress—is needed to foster improved support for coastal and ocean decisionmaking. Examples include statements by the Joint Subcommittee on Ocean Science and Technology (2007), United States Commission on Ocean Policy (2004), Pew Oceans Commission (2003), International Human Dimensions Programme on Global Environmental Change, and NOAA’s External Ecosystem Task Team (2006).

The resilience of ecosystems is integrally connected to that of human systems. According to resilience thinking, a multiplicity of perspectives surrounds a given ecosystem. In the highly diverse Hawaiian archipelago, the idea of a “multiplicity of perspectives” captures the notion that within the community are a variety of perspectives and values about the oceans that vary depending upon people’s historical, cultural, social, political, economic, spiritual, or other contexts. These and other human dimensions insights are important considerations in providing a more integrative ecosystem understanding, promoting ecosystem resilience, and ensuring a holistic ecosystem-based management approach.

### *Incorporation of Traditional Knowledge*

*Ua lehulehu a manomano ka ‘ikena a ka Hawai‘i.  
Great and numerous is the knowledge of the Hawaiians.  
—Pukui (1983)*

There are many similarities between an ecosystem-based management approach for the NWHI and the traditional knowledge and practices implemented by Native Hawaiians to manage their natural resources. Both approaches share the view of nature as a holistic and dynamic system of interrelated parts and emphasize the need for long-term sustainability and health of our natural resources.

The Native Hawaiian traditional knowledge and worldview is valued for its rich base of empirical knowledge and practical methods of resource management, developed over hundreds of years of living and interacting with the lands and ocean waters of Hawai‘i (Titcomb and Pukui 1952; Kikuchi 1976; Titcomb et. al. 1978; Poepoe et. al 2003; Kikiloï 2003). Traditional management practices take advantage of understanding seasonal patterns in weather, patterns of biological species, and the designation of ecological zones (Handy et al. 1972; Kelly 1989; Gon 2003; Department of Land and Natural Resources 2003b).

Through detailed observations of the oceanic environment, its interrelation to the terrestrial environment, seasonal and lunar patterns, and species life cycles, species of the ocean and land realms were taxonomically partnered, and systems for resource management developed (Kamakau 1976; Malo 1951; Beckwith 1951). Kapu, or restrictions, on resource extraction were implemented based on these ecological understandings (Pukui and Handy 1950; Handy et al. 1972). Other traditional strategies were set up to naturally enhance marine resources through increased protection, growth, and reproduction (Kikiloi 2003). Understanding the Native Hawaiian worldview of ecosystems and relationships, along with traditional approaches to resource management, aids in moving toward an ecosystem-based management approach for the NWHI. These core principles include viewing ecosystems holistically, recognizing variations in space and time, and continuously building a knowledge base to inform management and successfully care for the environment. The perspective that Native Hawaiian traditional knowledge and resource management approaches bring to the Monument can provide insight into ecosystems and relationships.



## 2.4 Monument Management Policy Framework: The Vision, Mission, Guiding Principles, and Goals for Managing Papahānaumokuākea Marine National Monument

The Monument vision, mission, and guiding principles establish the overarching policy direction and guidance for Monument management (Figure 2.3 and Table 2.1). The vision describes the long-term management desire of the Monument to maintain the health and diversity of the NWHI ecosystem in perpetuity. The mission establishes the need for integrated management in order to achieve the long-term protection of NWHI ecosystems and the perpetuation of Native Hawaiian practices and heritage resources. The guiding principles provide direction for making informed decisions about human activities consistent with the vision and mission for the Monument. The Monument goals are the unifying elements of successful monument management. They identify and focus management priorities, resolve issues, and link to the public interest in preserving and caring for the historic and scientific objects within the Monument.



**Figure 2.3 Monument Management Policy Framework.**

**Table 2.1 Monument Vision, Mission, Guiding Principles, and Goals**

<b>Vision</b>
To forever protect and perpetuate ecosystem health and diversity and Native Hawaiian cultural significance of Papahānaumokuākea.
<b>Mission</b>
Carry out seamless integrated management to ensure ecological integrity and achieve strong, long-term protection and perpetuation of NWHI ecosystems, Native Hawaiian culture, and heritage resources for current and future generations.
<b>Guiding Principles</b>
<p>The Monument shall be managed in a manner that—</p> <ul style="list-style-type: none"> <li>• Is consistent with the Vision and Mission;</li> <li>• Recognizes that the resources of the NWHI are administered by the Co-Trustees for the benefit of present and future generations;</li> <li>• Affirms that the NWHI and its wildlife are important, unique, and irreplaceable;</li> <li>• Honors the significance of the region for Native Hawaiians;</li> <li>• Honors the historic importance of the region;</li> <li>• Incorporates best practices, scientific principles, traditional knowledge, and an adaptive management approach;</li> <li>• Errs on the side of resource protection when there is uncertainty in available information on the impacts of an activity;</li> <li>• Enhances public appreciation of the unique character and environment of the NWHI;</li> <li>• Authorizes only uses consistent with Presidential Proclamation 8031 and applicable laws;</li> <li>• Coordinates with federal, state, and local governments, Native Hawaiians, relevant organizations, and the public; and</li> <li>• Carries out effective outreach, monitoring, and enforcement to promote compliance.</li> </ul>
<b>Monument Goals</b>
<b>Goal 1:</b> Protect, preserve, maintain, and where appropriate restore the physical environment and the natural biological communities and their associated biodiversity, habitats, populations, native species, and ecological integrity.
<b>Goal 2:</b> Support, promote, and coordinate research, ecosystem characterization, and monitoring that increases understanding of the NWHI, improves management decisionmaking, and is consistent with conservation and protection.
<b>Goal 3:</b> Manage and only allow human activities consistent with Proclamation 8031 to maintain ecological integrity and prevent or minimize negative impacts for long-term protection.
<b>Goal 4:</b> Provide for cooperative conservation including community involvement that achieves effective Monument operations and ecosystem-based management.
<b>Goal 5:</b> Enhance public understanding, appreciation, and support for protection of the natural, cultural, and historic resources.
<b>Goal 6:</b> Support Native Hawaiian practices consistent with long-term conservation and protection.
<b>Goal 7:</b> Identify, interpret, and protect Monument historic and cultural resources.
<b>Goal 8:</b> Offer visitor opportunities at Midway Atoll to discover and appreciate the wildlife and beauty of the NWHI, enhance conservation, and honor its unique human history.

## 2.5 Management Action Plans

Action plans are composed of specific strategies to address six priority management needs. Each action plan is guided by a desired outcome, a specific need for action, and strategies and associated activities designed to achieve that need. Strategies and activities implement Monument regulations, research and educational partnerships, habitat management and restoration conservation targets, threatened and endangered species recovery, historic preservation, Native Hawaiian cultural practices, and appropriate public uses programmed over a 15-year period, with 5-year reviews.

### ***Monument Management Plan Development and Review***

The management plan will be reviewed every five years. The review represents an essential element of the adaptive management process and includes public involvement, characterization of issues, and review and evaluation of action plans.

This Monument Management Plan was developed based on the current state of knowledge on the most appropriate management measures. These management measures consist of regulations and action plans to govern the first five years of Monument management and project activities over a 15-year timeframe, where appropriate. Action plans will be implemented, and where regulations apply, enforced, through interagency collaborative mechanisms based on the jurisdiction of each government agency. After five years, the Monument Management Plan will be reviewed, incorporating lessons learned and new data and information from monitoring, ecosystem science, and traditional knowledge, and a comprehensive evaluation to develop or refine management strategies and actions.

### ***Six Priority Action Plan Groupings***

The core of the Monument Management Plan is contained in 22 action plans, organized under six priority management needs. Priority management needs were identified considering legal mandates and inputs from numerous public scoping meetings and workshops, as well as the status of Monument resources based on the multiple temporal and spatial scales of management issues, and meetings conducted with managers, scientists, and other stakeholders. Priority management needs address multiple Monument goals by defining specific areas for focused action, including improving our understanding of the NWHI, conserving wildlife and habitats, reducing threats to the ecosystem, managing human uses, facilitating collaboration and partnerships, and achieving effective Monument operations.

Action plans describe specific strategies to address the six priority management needs for the Monument. Each action plan is guided by a desired outcome and provides the context and history of the particular issue or management activity. Action plans also highlight a specific need for action

#### **Note to Readers Regarding Terminology and FWS Refuge Comprehensive Conservation Program Requirements**

The Proclamation stated that, "to manage the Monument, the Secretary of Commerce, in consultation with the Secretary of the Interior and the State of Hawaii, shall modify, as appropriate, the plan developed by NOAA's National Marine Sanctuary Program through the public sanctuary designation process, and will provide for public review of that plan." Sanctuary management plans are structured differently than NWR management plans. As a result, this plan includes desired outcome statements, strategies, and activities as a part of the action plans that direct Monument management actions. For those familiar with refuge management plans, these statements, strategies, and activities are equivalent to goals, objectives, and strategies respectively.



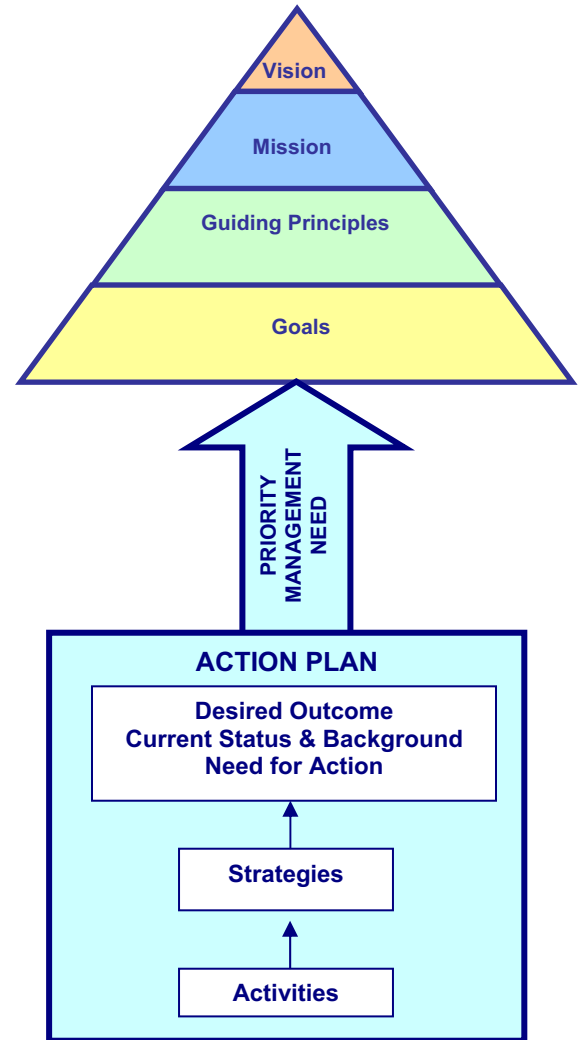
and identify strategies and associated activities designed to address that need. Ultimately, all strategies and activities are designed to help achieve the desired outcome of the action plan (Figure 2.4).

#### *Understanding and Interpreting the NWHI*

The NWHI represent a unique opportunity to advance our understanding of ecosystem science through research, monitoring, and the incorporation of traditional knowledge. In turn, coordinated research and long-term monitoring is needed to deepen our understanding of the composition, structure, and function of NWHI ecosystems and to provide the predictive tools to make informed management decisions consistent with the conservation and protection of the region. The continued development of a long-term monitoring program is needed to provide vital data and information necessary to monitor changes in ecosystem status over time and to evaluate the effectiveness of management measures in protecting and restoring ecological integrity. The integration of human dimensions with ecological ones in both research and management will further ecosystem-based management of the Monument. Additionally, the incorporation of indigenous knowledge into management practices will enrich and inform the MMB's approach to long-term planning. The further characterization of Native Hawaiian cultural relationships to the NWHI through the study of oral histories, place names, and practices associated with the region will enhance the physical record of activities in the NWHI. The unique aspects of island and Pacific maritime history, as well as historical and archaeological resources, collectively can provide a basis for developing effective management of resources.

#### *Conserving Wildlife and Habitats*

The Presidential Proclamation establishing the Monument highlights that it is in the public interest to preserve marine and terrestrial areas in the NWHI through active conservation and management of wildlife and their habitats. “This diverse ecosystem is home to many species of coral, fish, birds, marine mammals, and other flora and fauna including the endangered Hawaiian monk seal, the threatened green sea turtle, and the endangered leatherback and hawksbill sea turtles” (Presidential Proclamation 8031, 2006). Action plans to address this priority management need contain strategies to maintain the biological integrity, diversity, and environmental health of the Monument and identify activities to assist in the recovery of threatened and endangered species; manage migratory bird populations; and conserve, manage, and, where appropriate, restore the habitats of the Monument's native flora and fauna.



**Figure 2.4 Organization of Action Plan by Priority Management Need.**

### *Reducing Threats to the Ecosystem*

Despite their remote location, marine and terrestrial ecosystems of the NWHI are at risk from a range of threats from human activities within and outside the Monument. Natural and anthropogenic threats to the Monument include habitat alteration or damage from marine debris, the changing climate including increased storm intensity and frequency, rising sea level and ocean temperature, introduction of alien species, potential vessel and aircraft impacts, release of hazardous materials from landfills, vessel grounding, and past human impacts. Development and implementation of threat reduction protocols and monitoring are needed to protect, preserve, maintain and, where appropriate, restore natural communities, including habitats, populations, native species, and ecological processes, and function as a public trust for current and future generations. In addition to threat reduction, emergency response in the Monument will be coordinated under a series of plans and systems.

### *Managing Human Activities*

The NWHI has experienced a long history of human use, with periods of overexploitation, that have contributed to the current endangered status of some species, including land birds, several plants, sea turtles, and the Hawaiian monk seal. Although the extent of resource exploitation has been limited in recent years, human activities and the use of Monument resources will be carefully managed considering historical uses and new threats. Action plans for managing human activities address the need for permitting, enforcement, and managing specific human uses, including Native Hawaiian cultural practices and visitors at Midway Atoll.

### *Coordinating Conservation and Management Efforts*

Comprehensive and coordinated conservation and management of the Monument can be achieved only through effective interagency coordination and partnerships with a broad range of stakeholders. Coordination between the MMB members and other stakeholders is needed to maintain existing resource protection measures, increase the efficiency and effectiveness of management and enforcement, and reduce conflicts and duplication of Monument management activities. Education and outreach efforts will require coordination among government agencies, nongovernmental organizations, and other stakeholder groups. Coordination with stakeholders and the public will provide a forum for advice and input on Monument management and improve awareness and understanding of the ecological, Native Hawaiian cultural significance, and historic significance of the NWHI. Coordination with international initiatives is needed to address Pacific regional and global management issues affecting the Monument.

### *Achieving Effective Monument Operations*

Monument operations include central and field operations, information management, and overall program evaluation. Central and field operations are essential to support action plans to address all other priority management needs. Central operations are located in the main Hawaiian Islands and include support offices, interpretive facilities, and information management facilities. Field operations include shipboard and research diving operations, as well as land-based operations in the NWHI. Monument staff and facilities provide essential operational capacity for effective collaboration between the MMB and other stakeholders. Operational effectiveness will be evaluated and improved through an adaptive management process that captures lessons learned and transforms them into action.

## **Action Plans to Address Priority Management Needs**

---

- 3.1 Understanding and Interpreting the NWHI**
  - 3.2 Conserving Wildlife and Habitats**
  - 3.3 Reducing Threats to Monument Resources**
  - 3.4 Managing Human Uses**
  - 3.5 Coordinating Conservation and Management Activities**
  - 3.6 Achieving Effective Monument Operations**
-



### 3.0 Action Plans to Address Priority Management Needs

The Monument Management Plan contains 22 action plans organized under six priority management needs. Each action plan is guided by a desired outcome, a specific need for action, and strategies and associated activities designed to achieve that need over a 15-year period with 5-year reviews. A projected timeline for completion is provided with most strategies in the action plans. These projected timelines begin once the Management Plan becomes final.

The strategies and activities described in each action plan were developed based on the current state of knowledge on the most appropriate management measures. Estimated costs to implement the Monument Management Plan are provided in Table 3.1 by action plan. The cost of administration and planning, field, and infrastructure development activities was estimated and combined for all agencies responsible for management of the Monument.

At the end of each Action Plan, a summary table lists which MMB agency has the lead for coordinating each activity. Lead agency designation does not necessarily relate to actual statutory, jurisdictional, or regulatory authority. However, lead agency does mean that agency will take the lead in providing much of the staff and other resources (such as, funding, volunteers, infrastructure, vessels, aircraft, etc.) to implement the activity and is responsible for coordinating with other agencies to monitor and report the progress of the project(s). It should be emphasized that other MMB agencies are encouraged to participate in shared decision-making and implementation of the activity.

The total estimated cost to implement the Monument Management Plan over the next 15 years is \$358,573,974. Roughly one-quarter of this amount are costs identified in Section 3.6.3, Coordinated Field Operations. Most of the coordinated field operations costs would be allocated to one-time infrastructure development activities designed to replace or enhance supporting infrastructure at existing field stations, rehabilitation of historic buildings at Midway, and increase transportation and enforcement assets Monument-wide.

This Monument Management Plan provides long-term guidance for management decisions over a 15-year horizon and sets forth desired outcomes, with strategies and activities to reach those outcomes, including the agencies' best estimate of future needs. These estimates are sometimes substantially above current budget allocations and are included primarily for agency strategic planning and program prioritization purposes. Neither this draft nor the subsequent final plan constitutes a commitment of funds, or a commitment to request funds, by federal or state agencies. All funding for current and possible future Monument activities is subject to the budgeting and appropriations processes of the federal and state governments.

Prioritization of activities in the management plan is not a linear process nor necessarily measured by the amount of funds allocated. Several factors apply when setting the implementation schedule and allocating funds; these include, but are not limited to, natural, cultural, and historic resource needs; funding; agency capacity; completion of necessary planning and environmental review; and community input and support. Each MMB and partner ICC agency develops annual budget projections and priorities and allocates funds based on its own

programmatic, legal and policy requirements. The cycle and timelines for funding and planning vary.

After five years, the Monument Management Plan will be reviewed, incorporating lessons learned and new data and information from monitoring, ecosystem science, and traditional knowledge, and a comprehensive evaluation to develop or refine management strategies and actions.

**Table 3.1 Total Estimated Cost to Fully Implement Actions Plan by Year**

Priority Management Need	Action Plan	Estimated Annual Cost							PMN Total	% of Total
		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yrs 6-10	Yr 11-15		
<b>Understanding and Interpreting the NWHI</b>	3.1.1 - Marine Conservation Science	\$12,212,725	\$7,176,000	\$7,571,102	\$7,715,012	\$8,037,820	\$9,085,989	\$10,221,737	\$79,954,250	22%
	3.1.2 - Native Hawaiian Culture and History	\$698,714	\$943,562	\$906,970	\$959,103	\$968,227	\$1,132,697	\$1,323,155		
	3.1.3 - Historic Resources	\$692,285	\$736,296	\$787,952	\$827,326	\$867,493	\$2,106,913	\$1,556,014		
	3.1.4 - Maritime Heritage	\$364,011	\$383,035	\$412,626	\$430,122	\$480,403	\$583,894	\$773,067		
<b>Conserving Wildlife and Habitats</b>	3.2.1 - Threatened and Endangered Species	\$5,907,989	\$5,662,799	\$5,793,855	\$6,176,022	\$6,564,815	\$7,690,332	\$8,651,624	\$75,890,917	21%
	3.2.2 - Migratory Bird	\$1,876,886	\$1,943,362	\$2,012,385	\$2,211,292	\$2,381,961	\$2,960,635	\$3,246,340		
	3.2.3 - Habitat Management and Conservation	\$1,309,598	\$1,359,670	\$1,407,011	\$1,650,612	\$2,037,429	\$2,374,730	\$2,671,571		

This Monument Management Plan provides long-term guidance for management decisions over a 15-year horizon and sets forth desired outcomes, with strategies and activities to reach those outcomes, including the agencies' best estimate of future needs. These estimates are sometimes substantially above current budget allocations and are included primarily for agency strategic planning and program prioritization purposes. Neither this draft nor the subsequent final plan constitutes a commitment of funds, or a commitment to request funds, by federal or state agencies. All funding for current and possible future Monument activities is subject to the budgeting and appropriations processes of the federal and state governments.



**Table 3.1 Total Estimated Cost to Fully Implement Actions Plan by Year**

Priority Management Need	Action Plan	Estimated Annual Cost							PMN Total	% of Total
		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yrs 6-10	Yr 11-15		
<b>Reducing Threats to Monument Resources</b>	3.3.1 - Marine Debris	\$1,606,097	\$1,480,770	\$1,862,218	\$1,808,975	\$2,158,530	\$2,471,537	\$2,780,229	\$41,237,446	12%
	3.3.2 - Alien Species	\$1,637,103	\$1,538,700	\$1,754,562	\$2,191,818	\$2,296,067	\$8,193,403	\$3,067,336		
	3.3.3 - Maritime Transportation and Aviation	\$297,324	\$296,285	\$265,592	\$290,264	\$281,121	\$316,261	\$355,794		
	3.3.4 - Emergency Response and Natural Resource Damage Assessment	\$532,898	\$531,087	\$561,755	\$582,483	\$606,759	\$692,931	\$779,547		
<b>Managing Human Uses</b>	3.4.1 - Permitting	\$843,611	\$788,642	\$750,839	\$766,012	\$815,317	\$917,232	\$1,031,886	\$26,593,569	7%
	3.4.2 - Enforcement	\$1,230,450	\$1,223,874	\$1,658,350	\$1,681,637	\$1,715,887	\$1,930,373	\$2,171,670		
	3.4.3 - Midway Atoll Visitor Services	\$868,395	\$1,090,763	\$1,140,574	\$1,291,051	\$1,305,934	\$1,586,386	\$1,784,684		
<b>Coordinating Conservation and</b>	3.5.1 - Agency Coordination	\$578,029	\$608,845	\$669,756	\$597,727	\$600,966	\$676,086	\$760,597	\$27,482,073	8%

This Monument Management Plan provides long-term guidance for management decisions over a 15-year horizon and sets forth desired outcomes, with strategies and activities to reach those outcomes, including the agencies' best estimate of future needs. These estimates are sometimes substantially above current budget allocations and are included primarily for agency strategic planning and program prioritization purposes. Neither this draft nor the subsequent final plan constitutes a commitment of funds, or a commitment to request funds, by federal or state agencies. All funding for current and possible future Monument activities is subject to the budgeting and appropriations processes of the federal and state governments.

**Table 3.1 Total Estimated Cost to Fully Implement Actions Plan by Year**

Priority Management Need	Action Plan	Estimated Annual Cost							PMN Total	% of Total
		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yrs 6-10	Yr 11-15		
Management Activities	3.5.2 - Constituency Building and Outreach	\$1,163,068	\$1,527,334	\$1,448,710	\$1,359,120	\$1,431,473	\$1,658,847	\$1,865,578		
	3.5.3 - Native Hawaiian Community Involvement	\$369,330	\$381,977	\$433,122	\$427,368	\$461,456	\$540,859	\$632,901		
	3.5.4 - Ocean Ecosystems Literacy	\$1,037,593	\$1,045,054	\$1,241,202	\$1,278,892	\$1,271,596	\$1,560,868	\$1,853,719		
Achieving Effective Monument Operations	3.6.1 - Central Operations	\$933,000	\$976,260	\$1,365,116	\$1,211,354	\$1,374,602	\$1,611,589	\$1,886,344	\$107,415,720	30%
	3.6.2 - Information Management	\$843,350	\$985,745	\$1,089,193	\$1,106,350	\$1,153,712	\$1,297,926	\$1,460,167		
	3.6.3 - Coordinated Field Operations	\$2,746,185	\$6,876,156	\$15,832,853	\$5,734,067	\$10,850,138	\$28,038,706	\$16,454,795		
	3.6.4 - Evaluation	\$259,800	\$319,016	\$328,586	\$347,396	\$760,700	\$740,053	\$832,559		
<b>Total Annual Cost</b>		<b>\$38,008,441</b>	<b>\$37,875,231</b>	<b>\$49,294,331</b>	<b>\$40,644,002</b>	<b>\$48,422,407</b>	<b>\$78,168,247</b>	<b>\$66,161,315</b>		
<b>Total 15-Year Estimated Cost</b>								<b>\$358,573,974</b>		

This Monument Management Plan provides long-term guidance for management decisions over a 15-year horizon and sets forth desired outcomes, with strategies and activities to reach those outcomes, including the agencies' best estimate of future needs. These estimates are sometimes substantially above current budget allocations and are included primarily for agency strategic planning and program prioritization purposes. Neither this draft nor the subsequent final plan constitutes a commitment of funds, or a commitment to request funds, by federal or state agencies. All funding for current and possible future Monument activities is subject to the budgeting and appropriations processes of the federal and state governments.

## **3.1 Understanding and Interpreting the NWHI**

---

### **3.1.1 Marine Conservation Science Action Plan**

### **3.1.2 Native Hawaiian Culture and History Action Plan**

### **3.1.3 Historic Resources Action Plan**

### **3.1.4 Maritime Heritage Action Plan**

---



### 3.1 Understanding and Interpreting the NWHI

Protecting the health and integrity of the resources in the Monument is a key priority for resource managers. “Ecological Integrity” is defined by Monument regulations as a “condition determined to be characteristic of an ecosystem that has the ability to maintain the function, structure, and abundance of natural biological communities, including rates of change in response to natural environmental variation.” Protecting the integrity of cultural and historic resources is also a critical component of management. Management actions and decisions need to be informed by a solid understanding of Monument resources. Monitoring, research, and restoration are integral components that provide the data and analysis needed to take the appropriate management actions.

Resource managers and policymakers need comprehensive information about the ocean, and islands and atolls, and their natural and social environments to make wise decisions. The U.S. Commission on Ocean Policy (2005) and the President’s Ocean Action Plan have identified a number of areas of scientific inquiry fundamental to management. These topics include coral reefs, marine biodiversity, regional ecosystem dynamics, climate change, and social and economic research. Many of these apply directly to the NWHI. Baseline monitoring data and characterization are essential to identify natural and human-induced temporal changes and provide the basis for evaluating whether management activities are effective or need to be modified based on changing conditions. The Monument Management Plan reflects these nationally recognized natural and social science needs for ecosystem-based management.

The NWHI consist of a complex assemblage of ecological, cultural, and historic resources in relatively undisturbed condition compared with the main Hawaiian Islands and many other marine-based ecosystems in the world (Freidlander et al. 2005). The Monument represents a unique opportunity to improve management decision making, to advance management-driven ecosystem science through research on ecosystem components and processes, and to develop models and other tools to predict ecosystem responses to natural and anthropogenic perturbations, such as climate variability and change. In addition to the Native Hawaiian cultural significance of the region, submerged maritime heritage resources, such as shipwrecks and sunken aircraft, and other historic and archaeological sites provide insight into the NWHI’s rich past.

Agencies responsible for caring for this extraordinary place include the State of Hawai‘i, FWS, and NOAA. Establishment of the Monument provides a management framework that encourages, facilitates, and directs coordinated management, preservation, research, education, and planning with other partners. Universities and other research organizations are also integral to building knowledge about the NWHI. As our understanding of the NWHI’s ecological, cultural, and historic resources improves, so will our capacity to achieve effective and long-term protection of this special place. A more complete understanding of the NWHI will provide insights for improved management throughout the Hawaiian Archipelago.

Action plans to understand and interpret the NWHI focus on characterizing and monitoring the region from multiple perspectives. They also emphasize sharing information with partners and the public in relevant ways.

Each action plan consists of a set of strategies to address a desired outcome. Over the next 15 years, these desired outcomes are:

- **Marine Conservation Science:** Protect the ecological integrity of natural resources by increasing the understanding of the distributions, abundances, and functional linkages of marine organisms and their habitats in space and time to improve ecosystem-based management decisions in the Papahānaumokuākea Marine National Monument.
- **Native Hawaiian Culture and History:** Increase understanding and appreciation of Native Hawaiian histories and cultural practices related to Papahānaumokuākea Marine National Monument and effectively manage cultural resources for their cultural, educational, and scientific values.
- **Historic Resources:** Identify, document, preserve, protect, stabilize, and, where appropriate, reuse, recover, and interpret historic resources associated with Midway Atoll and other historic resources within Papahānaumokuākea Marine National Monument.
- **Maritime Heritage:** Identify, interpret, and protect maritime heritage resources in Papahānaumokuākea Marine National Monument.

Action plans described in this section will be implemented in close coordination with other partners and in conjunction with other priority management needs.

### 3.1.1 Marine Conservation Science Action Plan

#### Desired Outcome

Protect the ecological integrity of natural resources by increasing the understanding of the distributions, abundances and functional linkages of marine organisms and their habitats in space and time to improve ecosystem-based management decisions in the Papahānaumokuākea Marine National Monument.

Links to other Action Plans	
3.2.1	Threatened and Endangered Species
3.2.2	Migratory Birds
3.2.3	Habitat Management and Conservation
3.3.1	Marine Debris
3.3.2	Alien Species
3.5.1	Agency Coordination
3.6.2	Information Management
3.6.3	Coordinated Field Operations

#### Current Status and Background

Scientific endeavors in the NWHI were motivated in part by conservation goals as early as 1920, when the Tanager Expedition included people engaged in not only collection of specimens but eradication of invasive species and restoration of habitats damaged by introduced herbivores at Laysan Island. The Pacific Ocean Biological Survey Program carried out by the Smithsonian Institution, while not explicitly designed for conservation purposes, laid the foundation of our knowledge of seabird populations and movements at sea. The Tripartite agreement among the State of Hawai‘i, FWS, and NOAA Fisheries provided a framework for extensive ecological research in the NWHI beginning in 1976. Interwoven with these large institutional efforts are numerous independent research projects that continue to contribute to the body of knowledge available for science-based resource conservation.

Links to goals
Goal 2
Goal 4
Goal 6
Goal 7

Multiagency efforts continued when the Northwestern Hawaiian Islands Reef Assessment and Monitoring Program (NWHIRAMP, historically known as NOWRAMP), was initiated in 2000 to characterize and monitor the coral reefs of the NWHI using a consistent set of sampling protocols. The Reef Assessment and Monitoring Program establishes a baseline for future data gathering and monitoring change over time. NWHIRAMP is a collaborative partnership of agencies and institutions consisting of quantitative diver surveys of fish, coral, algae, and invertebrate communities, supplemented by towed diver surveys of large fish and substrate type, oceanographic data collection, and sediment contaminant studies (Maragos and Gulko 2002).

Other annual multi-agency efforts are supported by a variety of agencies and institutions, including the University of Hawai‘i’s Hawai‘i Institute of Marine Biology (HIMB). This research partnership focuses on conservation science and has produced many key findings that have management implications, not just within the Hawaiian archipelago, but also for the maintenance of healthy coral reef ecosystems around the world. HIMB’s ongoing research on genetic connectivity, tagging studies, disease outbreaks, coral health, threat assessments, and climate change will be used to inform managers’ understanding of the NWHI and help to create a holistic view of ecological structure and function to ensure the best protection of the Monument’s valuable resources. The Monument acts as an ideal site to understand ecosystem function and responses to natural and anthropogenic events in a site largely free from direct human impacts. This provides a unique opportunity to understand how healthy ecosystems



respond to change and compare these natural responses with other sites with greater human impact. This understanding will be important for evaluating the effects and ecological implications of climate change in the Monument, as compared with other sites particularly around the Pacific.

In another multi-agency project, NOAA led a significant mapping effort using satellite imagery, multi-beam sonar, and other remote sensing methods to provide detailed maps of the shallow-water seabed features of the Northwestern Hawaiian Islands, including the *Draft Atlas of the Shallow-Water Benthic Habitats of the NWHI* (NOAA 2003b) and the *Bathymetric Atlas of the NWHI* (Miller et al. 2004). These documents begin to describe the marine habitats and bathymetry of the NWHI and establish important baseline information for resource managers. Efforts are under way to expand the coverage of the bathymetry data, interpret the multi-beam backscatter imagery, develop a ground-truthing database, and verify remotely sensed information to further refine and complete these characterizations. The expanded habitat mapping efforts will provide managers with a greater understanding of the available resources as well as provide fundamental data for a variety of modeling efforts such as modeling the effects of climate change.

In May 2003, NOAA, through a multiagency partnership, convened a workshop with NWHI resource managers and researchers from the scientific community to identify information and science needs and resources for effective conservation and management of the NWHI. The results from this workshop were analyzed and summarized in a report titled *Information Needs for Conservation Science and Management of the Northwestern Hawaiian Islands* (Gittings et al. 2004). Workshop results are incorporated into planning and coordination efforts of science and management activities in the NWHI, and research gaps identified by the workshop informed the drafting of the archipelago wide, multiagency Hawaiian Archipelago Marine Ecosystem Research Plan (HAMER). In November 2004, the NWHI Third Scientific Symposium was held in Honolulu, Hawai‘i, and provided further syntheses of the current state of knowledge and management of the NWHI (Macintyre 2006).

Building on these earlier planning efforts, and in light of the complexity and depth of conservation science needs in the Monument, the MMB expanded the development of a stand-alone Natural Resources Science Plan to further identify management priorities, assess and identify standard protocols, formalize collaborative monitoring, and increase effectiveness of protection and management efforts. A scoping meeting for the draft Natural Resources Science Plan was held in November 2007 to solicit input on five broad thematic research categories. The five thematic areas adapted from the HAMER Plan and identified in the draft Natural Resources Science Plan are:

- Research on ecological processes and connectivity
- Research on biodiversity and habitats
- Research on human impacts
- Research on ecosystem change, indicators, and monitoring
- Modeling and forecasting ecosystem change



Biologists survey algae and coral species throughout the NWHI to monitor ecosystem health. Photo: Jean Kenyon

### **Need for Action**

Effective stewardship of the Monument should be based on reliable information on the biological characteristics of the organisms, their ecological relationships, an understanding of the natural temporal variations, and anthropogenic impacts that affect their ecosystems.

It is important to continue and further enhance monitoring efforts to protect and conserve the Monument's flora and fauna. Conducting annual monitoring will provide for an assessment of the continued health of the NWHI. Akin to monitoring vital signs such as heartbeat and blood pressure in humans, monitoring the abundance and diversity of marine organisms allows managers to track health and establish baselines and the range of natural variability throughout the year and between years. These baselines help to identify change over time and can be used in many ways; from assessing the status of groups of organisms, to assessing the effects of management and restoration efforts, to studying the impact of larger-scale phenomena, such as climate change on ecosystems. Monitoring can also be used as a broad-scale warning system, to assess changes, or to identify when management actions need to be modified based on changing conditions. Changing resource conditions may also prompt managers to request more specific research and seek actionable results to best protect and preserve the Monument.

Although monitoring and research are deemed an integral part of the Monument Management Plan, great care will be taken to ensure that the research conducted in the Monument is necessary for the continuation and enhancement of resource protection. The permitting process and future Natural Resource Science Plan (NRSP) will continue to specify that the benefits of data acquisition will outweigh the impacts of conducting these activities.

Recognizing the value of and need for greater understanding of marine habitats, continued characterization and monitoring of marine habitats and species are described within this Action Plan. Because of the connection between marine and terrestrial species, communities and ecosystems, additional management-related surveys, research, and monitoring priorities that span marine and terrestrial habitats are also found in separate action plans within this Monument Management Plan, in particular Threatened and Endangered Species, Migratory Bird, Habitat Management and Conservation, Marine Debris, and Alien Species Action Plans. With coral reefs, seabird colonies, and tropical ecosystems in decline in general around the world, the NWHI present a unique opportunity to characterize an intact ecosystem and begin to understand the degree of natural variability in an ecosystem relatively free of local anthropogenic influences. Studying these remote areas may also make an important contribution toward understanding the impacts of global climate change on coral reef ecosystems. The NWHI are still relatively unexplored, and fundamental information on the species, habitats, and their status is needed to best protect these resources in perpetuity. Functional relationships among the species, habitats, ecosystems, and oceanographic and other physical processes of the NWHI marine environments are also not well understood. Evaluation tools, such as models, are needed to describe complex ecosystem functions and provide resource managers with the capability to assess both the benefits and risks of management decisions.

### **Strategies to Achieve the Desired Outcome**

There are three strategies designed to achieve the desired outcome of protecting ecological integrity by increasing the understanding of the distributions, abundances, and functional linkages of marine organisms and their habitats in space and time to improve ecosystem-based management decisions in the Monument. Systematic characterization, monitoring, and research are means to acquire this information. Strategy MCS-1 and its associated activities are specific to the marine environment, while strategies MCS-2 and MCS-3 apply to all research and monitoring activities in the Monument. The strategies and activities are coded by the acronym for the action plan title, Marine Conservation Science (MCS). A summary of strategies and activities is provided in Table 3.1.1 at the end of this action plan.

- MCS-1: Continue and enhance research, characterization, and monitoring of marine ecosystems for the life of the plan, as appropriate.
- MCS-2: Assess and prioritize research and monitoring activities over the life of the plan.
- MCS-3: Communicate results of research and monitoring over the life of the plan.

#### **Strategy MCS-1: Continue and enhance research, characterization and monitoring of marine ecosystems for the life of the plan, as appropriate.**

This strategy is focused on continuing marine research, characterization, and monitoring designed to support an ecosystem-based approach to protection and management. These activities are implemented through a variety of partnerships and collaborations, including those with the University of Hawai‘i’s HIMB, Hawai‘i Undersea Research Lab (HURL), School of Ocean and Earth Science Technology, and others. Findings will be synthesized and made available for managers to inform decision making, as well as to the general public. Additional marine research and monitoring activities are found in the Threatened and Endangered Species, Migratory Bird, Habitat Management and Conservation, Marine Debris, and Alien Species Action Plans.

As ecosystem characterization assessments are moving ahead, analysis of data from regular monitoring surveys can be used to evaluate change over time in a given ecosystem. Monitoring data can help scientists understand the causes of change and be used to build ecosystem models. Producing high-level ecosystem functional models can be achieved only through broad-based collaborations among agencies and institutions with varying capacities. It is critical that monitoring protocols be established in collaboration with partner agencies so that they may yield reliable, useful information over time. To the extent possible, relevant datasets will be integrated with the national Integrated Ocean Observing System efforts.

#### ***Activity MCS-1.1: Continue to characterize types and spatial distributions of shallow-water marine habitats to inform protection and management efforts.***

The MMB will continue working with partners to conduct field work to validate and update existing habitat maps and bathymetry. This work will build on remote sensing data originally collected in the development of the *Draft Atlas of the Shallow-Water Benthic Habitats of the NWHI* and the *Bathymetric Atlas of the NWHI*, Draft. The updated dataset, maps, and images will provide a framework for the biogeographic assessment in Activity MCS-2.3, described below. The results of these activities will better define resource baselines to inform protection



and management efforts. Shallow-water habitats are defined as those less than 16 fathoms (30 meters).

***Activity MCS-1.2: Continue monitoring of shallow-water coral reef ecosystems to protect ecological integrity.***

Monitor shallow water habitats using sampling protocols developed through interagency collaborative efforts. Sites selected should be representative of broad habitat types. Quantitative surveys of coral, algae, fish, and invertebrates will be conducted annually using methods comparable to or intercalibrated with those of existing historical data sets. This monitoring will be conducted in collaboration with partners. The suitability of these methods, data sets, and analyses to meet management needs will be periodically assessed with partners as described in Activity MCS-2.2, and are subject to change based on the outcomes of that activity. The results of these activities will better define resource baselines for comparisons in protection and management efforts.

***Activity MCS-1.3: Map and characterize deep-water habitat.***

As resources in this habitat are virtually unknown in the NWHI, it is imperative to understand the dynamics of deep-water habitat to protect and manage them in the future. Working with partners, the MMB will use data collected with the multibeam sonar systems to acquire both bathymetric and backscatter data and produce deep-water benthic habitat maps. Habitat maps will be ground-truthed using remote cameras, submersibles, and other technology, as appropriate. This work will continue to develop baseline inventory of the biological resources and biodiversity of deep reefs, seamounts, banks, and abyssal plains using all available technologies, including submersibles, remotely operated vehicles (ROV), autonomous underwater vehicles (AUV), and technical diving. Deep-water habitats are defined as those greater than 16 fathoms (30 meters). Research investigations will be continued on the deep coral reef, deep slope, seamount, pelagic, and abyssal ecosystems of the NWHI.

***Activity MCS-1.4: Establish and implement monitoring program for deep-water ecosystems, as appropriate.***

Using the shallow-water ecosystem monitoring protocols as a model, protocols will also be developed for deep-water ecosystems. In collaboration with research partners, the Monument will determine management information needs and establish data collection protocols, statistical sampling design, and site selection criteria for monitoring of deep-water ecosystems, as well as implement monitoring of deep-water reefs, banks, and associated communities to meet these management information needs. All appropriate technologies and methods will be utilized, including submersibles, ROVs, AUVs, bait station drop cameras, and technical diving. Monitoring of key indicator species will be implemented if determined to be a key monitoring tool.

***Activity MCS-1.5: Measure connectivity and genetic diversity of key species to enhance management decisions.***

Genetic studies can provide data to compare the similarity or differences of populations at different locations across the NWHI. Understanding the genetic diversity of species, and the ways in which an area's populations change, helps managers forecast, prepare for, and mediate potential threats to populations. Identifying the genetic makeup of populations can help

managers understand more about the effective size of a population, its history of immigration from other populations, and the level of genetic diversity inherent in the population. This information is helpful in understanding the various fish stocks, as well as whether the NWHI serve as a source for recruits to the MHI. Comparisons of the population genetics at different sites in the Monument may indicate whether those populations are distinct and must be managed separately or whether the population in question can be considered as the same throughout the archipelago. Population connectivity can be assessed using genetic assays across a broad range of coral reef invertebrates and fishes with widely varying life history characteristics. Understanding the genetic diversity of species provides important information into how anthropogenic influences, such as debris accumulation, pollution, and climate change, can be evaluated Monument-wide. Population connectivity can be assessed using genetic assays across a broad range of coral reef invertebrates and fishes with widely varying life history characteristics.

***Activity MCS-1.6: Collect, analyze, and input research, monitoring, and bathymetric data into appropriate databases to inform management decisions.***

Information management is critical for organizing and storing large numbers of published and unpublished manuscripts and research findings, as well as for analyzing and summarizing large amounts of data and other research products. Because of the complexity of information management from multiple sources, it is imperative that such an endeavor be conducted in close collaboration with interagency and research partners (see Section 3.6.2 Information Management Action Plan, Activity IM-1.2). Such collaborations necessitate the flow of information to and from other established agency databases, such as NOAA's Coral Reef Watch Program, NOAA's Coral Reef Information System (CoRIS), DLNR's seabird and dolphin database, and the multiagency online Oceanographic Atlas of the Pacific. The Monument Information Management System, as well as other databases, will be updated on a regular basis to manage, analyze, summarize, and interpret research data collected from the NWHI to best protect Monument resources. Products, such as maps and reports on the status and trends of important resources in the NWHI, will be generated from these databases for researchers and managers.

**Strategy MCS-2: Assess and prioritize research and monitoring activities over the life of the plan.**

A management-driven Natural Resources Science Plan will be developed and assessed on a regular basis to ensure that marine and terrestrial research and monitoring conducted in the NWHI are appropriate, relevant, and necessary to ensure ecological integrity is maintained, enhance effective management, improve management decision making, advance ecosystem science, include traditional knowledge, and begin to understand the impacts of climate change. The plan will build on existing regional science and research planning efforts. Consistency with HAMER and links to similar research in the main Hawaiian Islands will be maintained so that science conducted in this portion of the archipelago can be used across the archipelago. An interdisciplinary range of investigations designed to protect resources and inform management actions will be included in the plan.

***Activity MCS-2.1: Develop a prioritized Natural Resources Science Plan to support protection and management activities within 1 year.***

Working collaboratively, the MMB will develop a prioritized, interdisciplinary NWHI Monument NRSP. The NRSP will serve as a more detailed implementation plan that supports protection, management and research strategies contained within this action plan, as well as specific management-related surveys, research, and monitoring priorities found in other Action Plans, in particular the Threatened and Endangered Species, Migratory Bird, Habitat Management and Conservation, Marine Debris, Alien Species, and Native Hawaiian Culture and History Action Plans. It will align management priorities among agencies to facilitate resource and information sharing and will address both baseline information needs and management-driven needs, with the ultimate goal of ensuring that the health and ecological integrity of the Monuments resources are protected. The NRSP will be a stand-alone document separate from that of the Monument Management Plan, with its own federal and state environmental review. Each agency or research partner will use the plan as a guide for conducting and authorizing research activities. Information needs and gaps will be reevaluated on a regular basis with input from the MMB, ICC, technical groups, research partners, Native Hawaiians, and the public. The NRSP will also address monitoring requirements to understand the direct and indirect impacts of climate change on species, populations and ecosystems.

Examples of activities to be included in the NRSP under the five thematic areas are:

*Research on ecological processes and connectivity*

Understanding the mechanisms that link NWHI populations (and where applicable to the main Hawaiian Islands) at various scales, such as oceanographic processes, recruitment variability, larval and adult behavior, bird migratory and foraging patterns and drivers, the effect of isolation on the genetic structure of terrestrial flora and fauna, and other life history characteristics, will reveal the connectivity and interrelationships of the ecosystems within the NWHI.

*Research on biodiversity and habitats*

Documenting, maintaining, and restoring diversity includes the discovery and description of new species, identifying the spatial distributions of habitats critical for the survival of native species, determining habitat changes important for the survival of native species, and maintaining diversity by affecting the recovery of protected species. This activity may include the study of methods for the restoration of native habitats, plants, and animals; research on terrestrial arthropods and avian components of the biological community; research on circulation patterns, residence times of water, wave climatology, and other physical drivers that structure habitats and result in biological zonation of the marine and terrestrial environments.

*Research on human impacts*

Understanding the impacts of human activities on the ecosystems of the NWHI may include research on the cumulative impacts of both local (e.g., research, other permitted activities) and distant (marine debris, fishing, climate change) activities, as well as the impact of invasive species on the marine and terrestrial biodiversity of the NWHI. Comparative studies between the main Hawaiian Islands and NWHI provide a unique opportunity to examine the effects of anthropogenic activities on coral reef ecosystems.



*Research on ecosystem change, indicators, and monitoring*

Establishing baselines on the abundance and health of Monument biota is the first step toward understanding the range of natural variability that characterizes these ecosystems. Research will address marine and terrestrial biodiversity and communities. Coral bleaching follow-up surveys and assessments will be continued with regional research partners to assess the impacts of major bleaching events in 2002 and 2004. Research to define and understand factors contributing to resilience and recovery from these perturbations will assist managers in responding to future bleaching events. The use of indicator species as a monitoring tool will be evaluated.

*Modeling and forecasting ecosystem change*

Developing functional ecosystem models that reflect the complexity and dynamic nature of the ecosystems of the NWHI is a long-term goal of the Monument's research program. A related goal is to design models that reflect ecological connectivity of the NWHI to the main Hawaiian Islands and other regions of the Pacific. Descriptive and predictive models will be used by managers to better understand ecosystem function, and to evaluate the impacts of proposed activities.

***Activity MCS-2.2: Assess monitoring program protocols.***

Consistency in data collection protocols over time is of primary importance in any monitoring program in order to enable statistically valid comparisons between time periods. As management needs evolve and our understanding of ecosystem variability improves, monitoring protocols, sampling design, and sampling intervals will be evaluated for their effectiveness in meeting management needs and accurately reflecting change in the environment. An overall goal of these periodic assessments will be to ensure that the sampling and site selection protocols adequately represent the range of habitats in the NWHI, and that the methods provide adequate statistical power to detect differences between sites or changes between time periods and that the data are useful to and informs management decisionmaking. These evaluations will be conducted on a cycle consistent with 5-year management plan reviews with the interagency technical group on research.

***Activity MCS-2.3: Formalize collaborative regional monitoring programs for the NWHI.***

Several independent monitoring initiatives are being conducted in the NWHI and new initiatives are planned, such as monitoring for invasive species, seabird colonies, the effectiveness of Monument management zones, water chemistry, and water quality. Monitoring programs will need to include data on the organisms in the NWHI in a wide range of habitats as well as oceanographic and climatological parameters. Monument zones, which are spread across a broad distance and include a range of habitats, will require the design of an efficient yet effective monitoring program to maximize protection and management efforts. The Monument will facilitate the development of formal monitoring programs that are closely linked to the needs of NWHI resource managers. Partnerships with collaborating agencies and organizations will be established in which responsibilities, obligations, deliverables, and timelines for a regional monitoring program are clearly articulated.

***Activity MCS-2.4: Implement management-driven research priorities identified in the Monument Natural Resources Science Plan.***

Once the Monument Natural Resources Science Plan is finalized, priorities identified in the plan will guide research and monitoring activities for both marine and terrestrial environments that will in turn provide the necessary information for effective management actions. These priorities will be reassessed on a regular basis based on the outcome of research and monitoring activities, outcome of evaluation assessments, the 5-year reviews of the Monument Management Plan and regular reviews of the Science Plan. Research and monitoring priorities will be implemented through a variety of partnerships and collaborations.

***Activity MCS-2.5: Coordinate research update meetings.***

Regular meetings among managers, staff, and researchers will be conducted to facilitate the exchange of information and ensure the management-driven Monument research objectives identified in the NRSP are being met.

**Strategy MCS-3: Communicate results of research and monitoring over the life of the plan.**

Research is an exciting way to promote ecosystem literacy and caring for the NWHI. Ecosystem research-related education and outreach present an ideal opportunity to “bring the place to the people and not the people to the place.” This strategy serves a dual purpose of presenting the science to a general audience and promoting the research necessary to manage the Monument. In addition, research and modeling discoveries can be shared with the public and incorporated into classroom curricula. Activities contained within this strategy apply to terrestrial and marine research and monitoring activities in the Monument.

***Activity MCS-3.1: Coordinate an annual meeting to present current research in the NWHI.***

Annual meetings provide an important forum for the NWHI multidisciplinary research community, managers, and interested public to keep abreast of current research initiatives and recent findings. This meeting will seek to incorporate recent findings from research, including but not limited to, ecosystem, Native Hawaiian, maritime heritage, and socioeconomic studies.

***Activity MCS-3.2: Identify and prioritize research, monitoring, and modeling projects for education and outreach.***

Translating NWHI research findings to the public and incorporating it into classroom curricula is a high priority for the Monument. Working with partner agencies, research, monitoring, and modeling projects will be identified and prioritized for dissemination.

***Activity MCS-3.3: Include an educational component in marine research expeditions.***

Past NOWRAMP/NWHIRAMP expeditions have included educational components that have been highly successful for education and outreach. Components included live web sites with updates from the research vessel, imagery, and video. Using this model and other innovative ideas, marine research and monitoring expeditions aboard NOAA research vessels will include educational and outreach components.

***Activity MCS-3.4: Use materials gathered and created through research to develop or enhance education and outreach products.***

Many of the materials developed during previous marine research expeditions have been incorporated into other outreach products, specifically displays at the Mokuāpāpapa Discovery

Center, slideshows, and educational curricula. Similarly, educational materials have been associated with satellite tracking of albatross and migration of golden plovers. Education and outreach products will continue to be developed based on research conducted in the Monument. (See Section 3.5.4, Ocean Ecosystems Literacy Action Plan).



**Table 3.1.1 Summary of Strategies, Activities, and Agency Leads for Marine Conservation Science**

Strategies and Activities	Agency Lead
<b>Strategy MCS-1: Continue and enhance research, characterization and monitoring of marine ecosystems for the life of the plan, as appropriate.</b>	
Activity MCS-1.1: Continue to characterize types and spatial distributions of shallow-water marine habitats to inform protection and management efforts.	NOAA
Activity MCS-1.2: Continue monitoring of shallow-water coral reef ecosystems to protect ecological integrity.	NOAA
Activity MCS-1.3: Map and characterize deep-water habitat.	NOAA
Activity MCS-1.4: Establish and implement monitoring program for deep-water ecosystems, as appropriate.	NOAA
Activity MCS-1.5: Measure connectivity and genetic diversity of key species to enhance management decisions.	NOAA
Activity MCS-1.6: Collect, analyze, and input research, monitoring, and bathymetric data into appropriate databases to inform management decisions.	NOAA
<b>Strategy MCS-2: Assess and prioritize research and monitoring activities over the life of the plan.</b>	
Activity MCS-2.1: Develop a prioritized Natural Resources Science Plan to support protection and management within 1 year.	NOAA
Activity MCS-2.2: Assess monitoring program protocols.	NOAA
Activity MCS-2.3: Formalize collaborative regional monitoring programs for the NWHI.	NOAA
Activity MCS-2.4: Implement management-driven research priorities identified in the Monument Natural Resources Science Plan.	NOAA FWS
Activity MCS-2.5: Coordinate research update meetings.	NOAA
<b>Strategy MCS-3: Communicate results of research and monitoring over the life of the plan.</b>	
Activity MCS-3.1: Coordinate an annual meeting to present current research in the NWHI.	NOAA
Activity MCS-3.2: Identify and prioritize research, monitoring, and modeling projects for education and outreach.	NOAA
Activity MCS-3.3: Include an educational component in marine research expeditions.	NOAA
Activity MCS-3.4: Use materials gathered and created through research to develop or enhance education and outreach products.	NOAA

### 3.1.2 Native Hawaiian Culture and History Action Plan

#### Desired Outcome

Increase understanding and appreciation of Native Hawaiian histories and cultural practices related to Papahānaumokuākea Marine National Monument and effectively manage cultural resources for their cultural, educational, and scientific values.

Links to other Action Plans	
3.1.1	Marine Conservation Science
3.1.3	Historic Resources
3.5.2	Constituency Building and Outreach
3.1.4	Maritime Heritage
3.5.3	Native Hawaiian Community Involvement
3.5.4	Ocean Ecosystems Literacy
3.6.2	Information Management

#### Current Status and Background

Since the early visioning process in 2000 on how best to protect the NWHI, the need to understand and document the cultural significance of the Monument and its integral relationship with the rest of the archipelago has been growing, leading to an increased effort to research and compile known cultural information about this important region. This research effort has produced a substantial amount of cultural information and theories pertaining to the traditions and practices of Native Hawaiians in the NWHI (Kikiloi in prep.). This work includes archival research (Tava and Keale 1989; Mackenzie and Kaiama 2003), ethnographic studies (Maly 2003), and archaeological research (Emory 1928; Cleghorn 1988; Liller 2000; Graves and Kikiloi in prep).

Links to goals
Goal 4
Goal 5
Goal 6
Goal 7

While more cultural research needs to be conducted, several steps have been taken toward integrating this cultural information into educational and outreach efforts. One of these efforts is “Navigating Change,” an education and outreach partnership created in 2001 among NOAA, FWS, the State of Hawai‘i, the Polynesian Voyaging Society, Bishop Museum, and many other groups. This initiative, which includes classroom curricula and multimedia materials, utilizes Native Hawaiian voyaging traditions and cultural values to engage students and the public in learning about and caring for the NWHI as well as the main Hawaiian Islands. Together, the Polynesian Voyaging Society, FWS, NOAA, and the State coordinated voyages by *Hōkūle‘a*, a traditional Hawaiian double-hulled voyaging canoe, to and through the NWHI, as well as the associated educational outreach efforts for the voyages.



Cultural sites at Mokumanamana indicate the use of the NWHI and surrounding oceans by Native Hawaiians in precontact Hawai‘i. Photo: Andy Collins

To effectively engage both English and ‘ōlelo Hawai‘i (Hawaiian language) speakers, and to explicitly recognize the Native Hawaiian history and continued relationship with Papahānaumokuākea, all interpretive signs at Mokupāpapa Discovery Center in Hilo and similar education centers are in both English and ‘ōlelo Hawai‘i. Native Hawaiian values and histories are integrated into the displays, and Hawaiian-speaking volunteers have been recruited to act as docents at Mokupāpapa.

The Reserve, in collaboration with the Kamakakūokalani Center for Hawaiian Studies at the University of Hawai‘i, conducted cultural research on the NWHI. This research and synthesis have yielded a university-level course on the NWHI and an informational video that portrays the NWHI from an indigenous perspective. In August 2004, the Kamakakūokalani Center held a 2-day workshop to discuss Native Hawaiian issues and concerns about the NWHI (see also Section 3.5.3, the Native Hawaiian Community Involvement Action Plan).

Also under contract with the Reserve, the Bernice Pauahi Bishop Museum developed an online “Annotated Bibliography of Cultural Resources for the Northwestern Hawaiian Islands.” The database contents primarily include holdings available in the Bishop Museum’s Library and Archives, the libraries at the University of Hawai‘i at Mānoa, and the State of Hawai‘i Archives that may be valuable to researchers and others learning about the NWHI. The database is accessible to the public on the Internet ([www2.bishopmuseum.org/noaanwhi/index.asp](http://www2.bishopmuseum.org/noaanwhi/index.asp)).

To strengthen the agencies’ cultural resource management capability, internal capacity and a liaison program will be developed. Under such a program, liaisons with the Hawaiian community would conduct projects and initiatives to support cultural education, research, and access. The liaisons would work with the Native Hawaiian community, plan and organize cultural working group meetings, and coordinate cultural research and outreach for the Monument (see also Section 3.4.3, the Native Hawaiian Community Involvement Action Plan). Through a Native Hawaiian cultural perspective, we can learn more about the NWHI’s ecosystems and histories and develop better ways of managing the area.

### **Need for Action**

Both the executive order that established the Reserve and Proclamation 8031, which established the Monument, recognize and address the significance of the NWHI to Native Hawaiians. Understanding the NWHI from a Native Hawaiian perspective benefits the Monument in many ways. Native Hawaiians’ resource management practices were and are mainly guided by their traditional beliefs and familial connections to their natural environment and the imperative to manage the islands and oceans as inextricably linked. As a result, Native Hawaiian research contributes to an ecosystem-based approach to management and complements other types of research. Education of and by, and outreach to, the Native Hawaiian community can elicit greater involvement by Native Hawaiians in Monument management. Utilizing cultural information in education and outreach will engage the broader public in learning about and caring for the Monument and Native Hawaiian culture. This action plan presents strategies and activities for research, education, and outreach aimed at accomplishing that desired outcome.

More research and documentation about Native Hawaiian traditions, practices, and histories of the NWHI need to be done, particularly before the histories held only in the oral tradition are lost with the kūpuna who hold that knowledge. Some of this work can be accomplished through literature searches and other historical, Hawaiian language, and archival research. Other information will require access to the NWHI to conduct new cultural research by both academics and practitioners. As information is gathered and compiled information regarding the location, character, or ownership of certain cultural resources may be withheld from public disclosure, consistent with applicable law such as the National Historic Preservation Act.



The Monument offers a vast, sacred, and protected classroom, which cannot be recreated or modeled anywhere else, for Native Hawaiians or the rest of the world. For example, the experiential learning of traditional wayfinding and cultural protocols by crewmembers of the *Hōkūle‘a* and other Polynesian voyaging wa‘a (canoes) cannot be learned in a museum or from books. Equally, the historic sites of Nihoa and Mokumanamana represent the most pristine and extensive collection of cultural sites within the Hawaiian archipelago and are being used as a training ground for cultural practitioners who wish to continue to practice such cultural protocols as can only be rediscovered in Papahānaumokuākea. Native Hawaiian cultural tradition is primarily transmitted orally, and current educational studies have shown that Native Hawaiian learning continues to be most productive when done experientially (Tibbetts 2006).

As a result, and as allowed by applicable laws, cultural accesses to promote and expand traditional knowledge may include a component that allows for observational learning and experiences, which help translate in part to building relationships with both the place and the people of the place. These interpersonal relationships with fellow researchers may be as important as ancestral connections that are also related to Papahānaumokuākea. Experiences gained in Papahānaumokuākea are absorbed over time, with information and knowledge earned that potentially may be understood or implemented after the actual experience. Only if relationships with the place, spirits, and people of the place are maintained can the experiential knowledge be appropriately shared and used at the right time. Western scientific terms such as “baseline” and “assessment” are not necessarily used the same way in Hawaiian traditional knowledge, and as such cultural research should not be limited in scope or manner by any such terminology.

### **Strategies to Achieve the Desired Outcome**

Five strategies have been identified to increase understanding and documentation of Native Hawaiian culture and history related to the Monument. The strategies and activities are coded by the acronym for the action plan title, “Native Hawaiian Culture and History” (NHCH). A summary of strategies and activities is provided in Table 3.1.2 at the end of this action plan.

- NHCH-1: Identify and prioritize scientific and Native Hawaiian cultural research needs within 18 months.
- NHCH-2: Conduct, support, and facilitate Native Hawaiian cultural access and research of the NWHI over the life of the plan.
- NHCH-3: Increase cultural resource management capacity across MMB agencies over the life of the plan.
- NHCH-4: Plan, develop, and implement a Monument Cultural Resources Program over the life of the plan.
- NHCH-5: Provide cultural outreach and educational opportunities to serve the Native Hawaiian community and the general public over the life of the plan.

### **Strategy NHCH-1: Identify and prioritize scientific and Native Hawaiian cultural research needs within 18 months.**

Identification and prioritization of research needs will be achieved through consultation with the Native Hawaiian Cultural Working Group and other Native Hawaiian institutions and organizations, and by assessing and identifying gaps in the information assembled in the past in consultation with what was then the Reserve Advisory Council's Native Hawaiian Cultural Working Group and other cultural experts. Potential research topics include (1) understanding the historical relationship Native Hawaiians have had with the NWHI; (2) understanding cultural practices of this region, such as navigation and voyaging, traditional religious worship, place names and geography, mele (song) and hula (dance), mo'olelo (legendary histories, mythologies, and stories), and fishing techniques; (3) determining culturally and ecologically appropriate methods of following the Hawaiian protocol of giving ho'okupu (offerings); (4) acquiring and implementing traditional Hawaiian knowledge; (5) increasing research to support and identify sites for protective status; and (6) clarifying how Hawaiian concepts of restoration and preservation of natural and cultural resources fit into current regulatory constraints. Research on these topics will give insight into the appropriateness of certain activities and practices that occur in the area.

***Activity NHCH-1.1: Identify research needs that can be accomplished through anthropological, archaeological, historical, and Hawaiian cultural methods.***

Such research could be conducted through ethnographic interviews, researching oral traditions and archival historical information written in the English and Hawaiian languages, archaeological survey and analyses, and cultural field experience. Potential topics include further study into the history of Nihoa and Mokumanamana's previous inhabitants, the human-made structures on those islands, and cultural links throughout the archipelago—especially for residents of Ni'ihau and Kaua'i with the NWHI. Research needs will be developed within 18 months and consistently updated via such venues as the annual cultural resources research conference (see Section 3.4.3, the Native Hawaiian Community Involvement Action Plan).

***Activity NHCH-1.2: Develop cultural research priorities alongside associated management challenges and opportunities.***

Once research needs have been identified, priorities will be established by the MMB in consultation with the Native Hawaiian Cultural Working Group that are directly linked to key management challenges and available opportunities to conduct such research. These needs and priorities will be assembled in a report that will be completed within 18 months.

**Strategy NHCH-2: Conduct, support, and facilitate Native Hawaiian cultural access and research of the NWHI over the life of the plan.**

Ongoing research and documentation about Native Hawaiian traditions, practices, and histories of Papahānaumokuākea are as important as ongoing scientific research in helping us ensure successful management of the Monument. Thus, working closely with partners, we will continue to conduct and support cultural and historical research and seek ways to facilitate access to the NWHI for such purposes. The MMB will also work to support complementary Western science and traditional knowledge investigations, management, and outreach strategies. This work will be done in cooperation with partners, both organizations and individual researchers. Additionally, research findings may help clarify appropriate cultural activities for an area and aid in gaining appropriate additional protections for cultural resources.

Cultural accesses will incorporate opportunities for the perpetuation and expansion of traditional knowledge, including natural resources conservation and management. Such accesses may emphasize the interconnectivity of the entire Hawaiian archipelago and assist Native Hawaiian practitioners in reconnecting to the natural resources knowledge and experience of their ancestors, which will further assist them in teaching and practicing traditional resource management in the main Hawaiian Islands as well as assist managers of Papahānaumokuākea. Native Hawaiian mele (songs), oli (chants) and mo‘olelo (stories) that refer both to the NWHI and to natural resource abundance are best understood when observed and experienced first-hand. The NWHI provide a unique opportunity to continually experience and view a sizeable portion of the Hawaiian archipelago much as Native Hawaiian ancestors once did. As Native Hawaiian practitioners connect with and experience the natural and cultural resources through the eyes of their ancestors, they also become aware of an inherent kuleana (responsibility and privilege) to foster the possibility of ‘ōuli (ancestral signs or omens expressed through nature) and biophysical and spiritual understandings of the environment.

All of these types of cultural research findings would be integrated and presented as part of an annual meeting to present current research being conducted in the NWHI (see Section 3.1.1, the Marine Conservation Science Action Plan). This annual meeting provides an important forum for the NWHI multidisciplinary research community, managers, and interested public to keep abreast of current research initiatives and recent findings.

***Activity NHCH-2.1: Continue to compile information and conduct new cultural and historical research about the NWHI.***

Limited cultural and historical research about the NWHI has already been directly conducted by NOAA and FWS in conjunction with partner organizations such as OHA and the Bishop Museum. Monument staff will continue to compile existing information about the region and initiate new research based on the priorities developed under strategy NHCH-1.

***Activity NHCH-2.2: Support Native Hawaiian cultural research needs.***

Once priorities have been developed, access needs to meet these priority requirements will be considered and established as opportunities arise to create additional partnership contracts, grants, or formal agreements with Native Hawaiian organizations and individuals. Research on the issues identified through the process described in strategy NHCH-1 may also be supported by the MMB through grants, logistical support, berthing space aboard research vessels (see Section 3.6.3, the Coordinated Field Operations Action Plan), and other in-kind resources. Such support has already begun prior to Monument establishment and will be continued.

***Activity NHCH-2.3: Facilitate cultural field research and cultural education opportunities annually.***

Consistent with activities that have already begun in the Monument, the MMB will continue to facilitate research and education opportunities in the field for students, teachers, and cultural specialists during every field season. Such support includes providing berthing space aboard research vessels, logistical support, and putting researchers and educators in touch with others doing similar work.



***Activity NHCH-2.4: Convene a Native Hawaiian nomenclature working group.***

Within a year, the Monument will convene a variety of experts, including the Native Hawaiian Cultural Working Group, on the history and meaning of Hawaiian names for known and yet-to-be-discovered regions, islands, geographical and oceanic features, sites, and plant and animal species. These names and their histories and meanings will be included and updated regularly in the forthcoming Monument Information Management System (see below) to ensure that such names continue to reflect Hawaiian knowledge and experience, and processes will be established to ensure that the Native Hawaiian names are imbued with appropriate cultural authority and officially recognized in government records.

***Activity NHCH-2.5: Incorporate cultural resources information into the Monument Information Management System.***

As cultural information is compiled and generated, in collaboration and cooperation with Native Hawaiian organizations and institutions that are also creating databases of such information (such as OHA's *Wahi Pana* Database), it will be incorporated into the Monument Information Management System (see Section 3.6.2, the Information Management Action Plan). This system will incorporate a security layer for the protection of proprietary cultural information.

***Activity NHCH-2.6: Continue to facilitate Native Hawaiian cultural access.***

Such access needs may include, but not be limited to (1) access to the NWHI by cultural practitioners for Hawaiian religious practices and ceremonial purposes; (2) regular access for Polynesian voyaging canoes for wayfinding, navigational, and cultural protocol training; (3) gathering specific types of plants, shells, and feathers for cultural implements and ceremonies; (4) repatriating iwi kūpuna (ancestral bones) and monitoring burial sites; (5) honoring ancestral homelands and their associated deities; (6) restoring native species; and (7) observing and reconnecting with natural and spiritual resources. These types of access allow for lessons to be learned at specific sites for specific purposes and to determine significant astronomical relationships, and provide for voyaging training in a voyaging route of Native Hawaiians' kūpuna. Voyaging training provides for traditional navigational apprenticeship in an ancient art, which Hawaiians conceive as learning to pull an island out of the sea from beyond the horizon using only observation and knowledge of the natural environment.

***Activity NHCH-2.7: Establish agreements with local universities and museums to address possible curation, research, use, return, and repatriation of collections.***

To provide proper stewardship of cultural resources and artifacts, necessary agreements will be established in concert with the Cultural Resources Program Plan (see strategy NHCH-4). Other agreements will be developed as the need arises, including, but not limited to, negotiation for agreements to be initiated within 18 months with the Bishop Museum and University of Hawai'i about inventories, curation, and access of existing cultural resources currently in their control.

**Strategy NHCH 3: Increase cultural resource management capacity across MMB agencies over the life of the plan.**

To effectively carry out the strategies and activities outlined within this action plan, the MMB agencies will increase their collective capacity to effectively understand, manage, and protect the

Native Hawaiian cultural resources of the Monument and fulfill federal and state mandates and requirements.

***Activity NHCH-3.1: Assess Monument cultural resource capacity.***

Limited staff capacity currently exists among the Monument management agencies in the area of cultural resource management. Agencies will identify staff needs and work toward building staff capacity to carry out the strategies and activities contained within this plan. Staffing needs will be identified and included in the development of the Monument Cultural Resources Program Plan (see Activity NHCH-4.1).

***Activity NHCH-3.2: Engage Native Hawaiian practitioners and cultural experts and the Native Hawaiian Cultural Working Group in the development and implementation of the Monument's management activities.***

The Native Hawaiian Cultural Working Group and other Native Hawaiian cultural practitioners and experts will be consistently consulted and integrated into the creation and implementation of programs (see Section 3.5.3, the Native Hawaiian Community Involvement Action Plan). Examples of their participation may include the following: (1) providing cultural briefings to every person preparing to enter the Monument, as a condition of being permitted access; (2) when feasible, accompanying permittees accessing the Monument to experience, practice, and learn from the Monument resources while educating others; and (3) including Native Hawaiians, particularly the younger generations, as part of cultural and scientific research teams when feasible.

***Activity NHCH-3.3: Increase knowledge base of Native Hawaiian values and cultural information through "in-reach" programs for resource managers.***

Efforts will be made to increase the knowledge base of Native Hawaiian cultural significance by Monument resource managers. This knowledge base will be increased by having Monument resource managers and staff and MMB members, as appropriate, participate in informal and formal briefings, cultural workshops, and cultural exchanges in cooperation with other marine protected area sites that integrate traditional knowledge into their management.

***Activity NHCH-3.4: Identify and integrate Native Hawaiian traditional knowledge and management concepts into Monument management.***

In the past, traditional resource management involved recognizing local variations, observing patterns, periodically applying kapu (restrictions on resource extraction and other activities) by konohiki (local managers), and maintaining a deep respect for, and intimate knowledge of, the environment. The MMB will work with the Native Hawaiian community and other cultural experts to identify how traditional knowledge and associated practices may be integrated into Monument management and research activities. A report on traditional knowledge and management practices, including recommendations for integrating these perspectives into management of the NWHI, will be developed to guide implementation.

**Strategy NHCH-4: Plan, develop, and implement a Monument Cultural Resources Program over the life of the plan.**

All cultural resources in the NWHI are under the jurisdiction of the Monument, and therefore the MMB will support efforts to protect these important elements, including archaeological sites and the sacred resources of the NWHI, according to the parameters and conditions included within Sections 106 and 110 of the National Historic Preservation Act. This strategy may include documenting and evaluating the NWHI as a Traditional Cultural Property and development of a Cultural Resources Program to fully integrate cultural resource protection into Monument management (see Activity HR-3.2 in Section 3.1.3, Historic Resources Action Plan).

***Activity NHCH-4.1: Prepare a Cultural Resources Program Plan.***

Within 18 months, the MMB will initiate the development of a Cultural Resources Program Plan, in partnership with the Native Hawaiian Cultural Working Group, cultural practitioners and experts, and others. As part of the plan development, the program partners will identify cultural resources, sites, and other locations within the Monument that are appropriate for use in contemporary Native Hawaiian protocols. In addition, the plan will include policies and procedures on the collection, curation, and disposition of archaeological materials, other artifacts, and human remains. The MMB and partners will complete the plan within two years of initiation.

***Activity NHCH-4.2: Develop and implement specific preservation and access plans, as appropriate, to protect cultural sites at Nihoa and Mokumanamana.***

Both Nihoa and Mokumanamana are recognized as culturally significant, are listed on the National Register of Historic Places, and are protected by the FWS in accordance with the National Wildlife Refuge System Administration Act of 1966, as amended, and the National Historic Preservation Act of 1966. To further protect these sites, preservation plans for both islands will be developed and implemented, as will access plans for other cultural elements and yet-to-be discovered sites within the Monument. These preservation plans will address the monitoring and stabilization of cultural sites and return/repatriation agreements with museums and institutions that house the artifact collections. These preservation plans will be initiated within 18 months.

***Activity NHCH-4.3: Initiate implementation of the Monument Cultural Resources Program.***

Within six months of completion of the Cultural Resources Program Plan, the MMB will initiate the strategies and activities contained within the plan.

**Strategy NHCH-5: Provide cultural outreach and educational opportunities to serve the Native Hawaiian community and the general public over the life of the plan.**

Native Hawaiian values and cultural information will be used to guide outreach and education programs to serve both Native Hawaiians and the general public. Native Hawaiian values and resource management practices can be relevant to multiple audiences and help to provide a more complete understanding of the NWHI and the need to protect its ecosystems and other cultural resources. Permittee education and outreach programs will target Monument users.

As requested by the Native Hawaiian Cultural Working Group, staff will strive to provide more outreach to the Native Hawaiian community so that the cultural information compiled and incorporated into Monument materials reaches Native Hawaiians, many of whom otherwise may



not have access to such information. Developing culturally relevant materials can also make information more accessible and engaging to Native Hawaiians. For example, making Hawaiian language tours available at Mokupāpapa Discovery Center would increase the center's value and accessibility to Hawaiian language immersion school groups as a culturally relevant learning tool. The Native Hawaiian Cultural Working Group, Native Hawaiian community leaders, cultural experts, and others will be consulted for cultural accuracy and appropriateness and for input on how information is used and shared.

***Activity NHCH-5.1: Integrate Native Hawaiian values and cultural information into general outreach and education programs.***

Cultural information and traditional Native Hawaiian values will be infused into education and outreach materials aimed at the general public. The “Navigating Change” program, school curricula, promotion of Hawaiian place names in Monument materials, videos, articles, and the lecture series at Mokupāpapa are some of the ways the MMB will accomplish this activity (see Sections 3.5.2 and 3.5.4, Constituency Building and Outreach and Ocean Ecosystems Literacy Action Plans).

***Activity NHCH-5.2: Develop a culturally based strategy for education and outreach within the Native Hawaiian community.***

This strategy, to be developed within three years, includes making information relevant, attractive, and accessible to Native Hawaiians. Outreach and education designed with and for Native Hawaiians will be accomplished through special events, cultural groups, schools (K-12), and colleges. Products that may be developed include videos and public television programs, publications, and school curricula. Traditional products will be encouraged, such as hula, mele, and oli. The MMB will continue to utilize ‘Ōlelo Hawai‘i in outreach and education materials and programs as appropriate (see Sections 3.5.2 and 3.5.4, Constituency Building and Outreach and Ocean Ecosystems Literacy Action Plans).

***Activity NHCH-5.3: Integrate Native Hawaiian values and cultural information into the Monument permittee education and outreach program.***

Within two years, the MMB will provide appropriate cultural information and guidelines to all Monument users and will help in fostering a deeper respect for the NWHI through better understanding of, and respect for, Hawaiian values and the cultural significance of the place (see Section 3.4.1, Permitting Action Plan). This activity includes, but is not limited to, the cultural briefing required prior to any permitted access to the Monument; the creation of a course for permit applicants that would engage in experiential approaches to maximize learning through various modalities; the development of a cultural observer program; and the creation of comprehensive research sources, such as willing cultural experts, libraries, and electronic databases of cultural and historical information with security layers for confidential information, which will assist applicants in appropriately completing permit applications.

**Table 3.1.2 Summary of Strategies, Activities, and Agency Leads for Native Hawaiian Culture and History**

<b>Strategies and Activities</b>	<b>Agency Lead</b>
<b>Strategy NHCH-1: Identify and prioritize scientific and Native Hawaiian cultural research needs within 18 months.</b>	
Activity NHCH-1.1: Identify research needs that can be accomplished through anthropological, archaeological, historical, and Hawaiian cultural methods.	OHA
Activity NHCH-1.2: Develop cultural research priorities alongside associated management challenges and opportunities.	OHA
<b>Strategy NHCH-2: Conduct, support, and facilitate Native Hawaiian cultural access and research of the NWHI over the life of the plan.</b>	
Activity NHCH-2.1: Continue to compile information and conduct new cultural and historical research about the NWHI.	OHA
Activity NHCH-2.2: Support Native Hawaiian cultural research needs.	NOAA OHA State of Hawai‘i FWS
Activity NHCH-2.3: Facilitate cultural field research and cultural education opportunities annually.	NOAA OHA
Activity NHCH-2.4: Convene a Native Hawaiian nomenclature working group.	OHA
Activity NHCH-2.5: Incorporate cultural resources information into the Monument Information Management System.	NOAA
Activity NHCH-2.6: Continue to facilitate Native Hawaiian cultural access.	OHA
Activity NHCH-2.7: Establish agreements with local universities and museums to address possible curation, research, use, return, and repatriation of collections.	FWS
<b>Strategy NHCH-3: Increase cultural resource management capacity across MMB agencies over the life of the plan.</b>	
Activity NHCH-3.1: Assess Monument cultural resource capacity.	OHA
Activity NHCH-3.2: Engage Native Hawaiian practitioners and cultural experts and the Native Hawaiian Cultural Working Group in the development and implementation of the Monument’s management activities.	OHA
Activity NHCH-3.3: Increase knowledge base of Native Hawaiian values and cultural information through “in-reach” programs for resource managers.	OHA NOAA
Activity NHCH-3.4: Identify and integrate Native Hawaiian traditional knowledge and management concepts into Monument management.	OHA
<b>Strategy NHCH-4: Plan, develop, and implement a Monument Cultural Resources Program over the life of the plan.</b>	
Activity NHCH-4.1: Prepare a Cultural Resources Program Plan.	FWS
Activity NHCH-4.2: Develop and implement specific preservation and access plans, as appropriate, to protect cultural sites at Nihoa and Mokumanamana.	FWS
Activity NHCH-4.3: Initiate implementation of the Monument Cultural Resources Program.	FWS

Strategies and Activities	Agency Lead
<b>Strategy NHCH-5: Provide cultural outreach and educational opportunities to serve the Native Hawaiian community and the general public over the life of the plan.</b>	
Activity NHCH-5.1: Integrate Native Hawaiian values and cultural information into general outreach and education programs.	NOAA
Activity NHCH-5.2: Develop a culturally based strategy for education and outreach within the Native Hawaiian community.	NOAA
Activity NHCH-5.3: Integrate Native Hawaiian values and cultural information into the Monument permittee education and outreach program.	OHA



### 3.1.3 Historic Resources Action Plan

#### Desired Outcome

Identify, document, preserve, protect, stabilize, and where appropriate, reuse, recover, and interpret historic resources associated with Midway Atoll and other historic resources within Papahānaumokuākea Marine National Monument.

Links to other Action Plans	
3.1.2	Native Hawaiian Culture and History
3.1.4	Maritime Heritage
3.6.3	Coordinated Field Operations

#### Current Status and Background

NOAA and FWS comply with the Federal Archaeological Program, a collection of laws and regulations that pertain to the protection of historical and archaeological properties on federal and federally managed lands. The National Historic Preservation Act directs all federal agencies to develop programs to protect historical and archaeological resources. Section 106 requires agencies to consider the potential impacts of their actions. Section 110 requires agencies to actively search for archaeological resources and to assess them for their significance and eligibility for inclusion in the National Register of Historic Places. The locations of cultural and historic resources are considered sensitive data and are not openly released even through the Freedom of Information Act. State agencies comply with similar state laws for protection of historic and cultural resources.

Links to goals
Goal 5
Goal 7
Goal 8

For the purposes of the Monument Management Plan, historic resources are the non-marine sites, structures, artifacts, in the Monument associated with the historic period (after first Western contact with Native Hawaiians in 1778). Historic resources in the Monument fall into two broad categories: Midway Atoll historic period resources, and those elsewhere in the Monument.

At Midway Atoll, historic period cultural resources include 63 structures and buildings eligible for inclusion in the National Register of Historic Places. These historic properties are mostly associated with World War II, the Battle of Midway National Historic Landmark and Memorial, and the early 20<sup>th</sup>-century Commercial Pacific Cable Company. Section 1.3 describes the history and context of the historic properties that remain on Midway Atoll. FWS currently manages the historic properties at Midway Atoll according to a Programmatic Agreement (Programmatic Agreement 1996) and Historic Preservation Plan (Speulda et al. 1999).

Jurisdiction and control of Midway Atoll were transferred from the Navy to the FWS in 1996 by Executive Order 13022. In preparation for the transfer, the Navy identified, evaluated, and mitigated effects on the 63 historic properties. The Navy conducted this effort in consultation with the Pacific Division of the Naval Facilities Engineering Command, FWS, Advisory Council on Historic Preservation, National Park Service, State Historic Preservation Officer of the State of Hawai‘i, Sixth Defense Battalion of the U.S. Marine Corps, Defenders of Midway Islands Reunion Association, and International Midway Memorial Foundation. The consultation resulted in a Programmatic Agreement for the treatment of the 63 historic properties (Programmatic Agreement 1996). One of the stipulations in the Programmatic Agreement directed the FWS to prepare a Historic Preservation Plan for long-term management of the 63 historic properties. FWS completed the plan in 1999 (Speulda et al. 1999).

The Midway Atoll Historic Preservation Plan focuses on long-term management and treatment for each of the 63 historic properties. It also identifies procedures for treating new discoveries and caring for museum collections, and includes recommendations for interpretation, education, and public outreach.

The Programmatic Agreement and Historic Preservation Plan prescribe one of six different treatment categories to each of the 63 historic properties. The treatment categories are (1) reuse, (2) secure, (3) leave as-is, (4) fill in, (5) demolish, or (6) relocate. Many factors were used to assign the treatment category for a historic property, including historic importance, interpretive value, overall setting, association with key historic themes, and structural integrity. The determinations were made in consideration of recommendations from interest groups, specialists, and the Advisory Council on Historic Preservation.

In the treatment category assignments, 23 buildings and structures were identified for reuse, including the Officers' housing; carpentry, machine, and transportation shop buildings; the refrigeration plant; the recreation facility; the seaplane hangar and ramp; and water reservoirs. Thirteen buildings were slated for securing and stabilization in place, including the command post, radar buildings, power plant, and the cable station buildings. Twenty structures were placed in the "leave as-is" category and will deteriorate in place under natural environmental conditions. These properties include the Eastern Island gun, runways, and revetments, and the Sand Island cemetery, Japanese gravestones, two 5-inch guns, and gun batteries. Four properties were filled with sand, including a pillbox and an underground bunker. Fifteen properties were slated for demolition, including the N.O.B. armory, the submarine base buildings, the general storehouse and air terminal building, two barracks, and the blackout hangar and associated shops. Three objects were identified for removal to a secure location, including a torpedo, a pillbox turret, and submarine netting.

Beyond the abundant, significant, and dramatic historic resources at Midway Atoll, few other significant historic resources within the Monument are presently known. As outlined in Section 1.3, the post-contact history of the Monument archipelago beyond Midway is rich and varied. However, the present record of tangible non-marine sites that relate to this history is small. This is because historians and archaeologists simply have not spent much time researching locations on the islands and atolls of the Monument for evidence of post-contact historical events such as shipwreck survivor camps, bird and other resource extraction camps, or World War II facilities.

### **Need for Action**

Although the Midway Atoll Programmatic Agreement and Historic Preservation Plan are still in force, they need to be updated. Since the time the plan was written, in 1999, a visitor services plan has been adopted, lead-based paint abatement has become an important priority, and the Monument has been created. Furthermore, the Sixth Defense Battalion of the U.S. Marine Corps and Defenders of Midway Islands Reunion Association and the International Midway Memorial Foundation continue to maintain strong interest in the preservation and interpretation of historic resources at Midway Atoll. The historic properties require continual repair and maintenance according to the terms of the Historic Preservation Plan and the Secretary of the Interior's Standards for the Treatment of Historic Properties. The effects of weathering and erosion by salt water, salt spray, salty soils, precipitation, plant growth, solar radiation, and wind continue to threaten the integrity of the historic properties at Midway Atoll.

Among the islands that compose the Monument beyond Midway Atoll, surveys are needed to identify and evaluate historic resources that relate to shipwreck survivor camps, bird and other resource extraction camps, and World War II facilities. Beyond the historic resources of Midway Atoll, the other atolls and islands of the Monument have histories and associated historic resources that relate to the post-contact history of exploration, commerce, war, and conservation of the Monument.

### **Strategies to Achieve the Desired Outcome**

The strategies and associated activities in this action plan constitute a historic resource program of identification, documentation, protection, preservation, reuse, and interpretation of the varied historic resources in the Monument. The Monument Management Plan calls for the implementation of a range of activities that preserve, stabilize, reuse, rehabilitate, and interpret the historic structures and the stories and artifacts associated with them.

Seven strategies have been developed for achieving the desired outcome of identifying, interpreting, and protecting historic resources in the NWHI. The strategies and activities are coded by the acronym for the action plan title, “Historic Resources” (HR). A summary of strategies and activities is provided in Table 3.1.3 at the end of this action plan.

- HR-1: Update the Midway Atoll Historic Preservation Plan to meet the present needs of the Refuge and Monument within one year.
- HR-2: Implement, supervise, and monitor the historic preservation treatments identified in the Midway Atoll Historic Preservation Plan at two historic properties each year.
- HR-3: Prepare an updated Battle of Midway National Historic Landmark nomination within four years.
- HR-4: Improve the function and capacity of the Midway museum within eight years.
- HR-5: Document and inventory historic resources beyond Midway Atoll NWR within 15 years.
- HR-6: Conduct archaeological and historical research on the historical events and structures at Midway Atoll NWR within 15 years.

### **Strategy HR-1: Update the Midway Atoll Historic Preservation Plan to meet the present needs of the Refuge and Monument within one year.**

The Midway Historic Preservation Plan was written in 1999. Since then, a visitor services plan has been adopted, lead-based paint abatement has become an important priority, and the Monument has been designated. The historic properties require continuous repair and maintenance according to the terms of the Historic Preservation Plan and the Secretary of the Interior’s Standards for the Treatment of Historic Properties. The effects of weathering and erosion by salt water, salt spray, salty soils, precipitation, plant growth, solar radiation, and wind continue to threaten the integrity of the historic properties at Midway Atoll NWR. Within one year of Monument Management Plan approval, the Monument partners will update the Historic Preservation Plan and reconcile it with the existing Midway Visitor Services Plan and the lead-based paint removal plan.



***Activity HR-1.1: Reconcile the Historic Preservation Plan with the Midway Visitor Service Plan, lead-based paint abatement plan, and other facilities maintenance and use plans.***

This activity will require consultation and coordination among refuge program specialists and the MMB to align priorities and needs among these plans. The needs of the Historic Preservation Plan will be balanced with the priorities of lead-based paint removal, visitor services, habitat management, and management infrastructure.

***Activity HR-1.2: Submit the updated Historic Preservation Plan for approval to the Advisory Council on Historic Preservation and Monument partners.***

The updated Historic Preservation Plan may lead to the preparation of additional documents to support its implementation.

**Strategy HR-2: Implement, supervise, and monitor the historic preservation treatments identified in the Midway Atoll Historic Preservation Plan at two historic properties each year.**

The Midway Atoll Historic Preservation Plan (Speulda et al. 1999) and its enabling authorities (National Historic Preservation Act of 1966 and the Programmatic Agreement for Treatment of Historic Properties at Midway) have prescribed specific historic preservation treatments for the 63 historic properties at Midway Atoll NWR. Implementing this prescription requires a program that identifies needs and procedures and supervises the conduct of preservation treatments at the properties. This strategy will be coordinated with the facilities operation plan and the lead-based paint abatement priorities. An important activity in this strategy is to adaptively reuse historic buildings and structures at Midway Atoll NWR. Many of Midway's historic properties can serve the need for administrative and public space as Monument activities grow.

***Activity HR-2.1: Within three years, create dedicated capacity to implement the updated Historic Preservation Plan.***

Limited staff and funds currently exist at the Midway Atoll NWR or among the Monument management agencies for historic preservation and cultural and historic resources management. Agencies will identify staff needs and work toward building staff capacity to carry out the strategies and activities contained within this and related action plans. Staffing needs will be identified and included in the development of the Monument Cultural Resources Program plan (see Section 3.1.2, the Native Hawaiian Culture and History Action Plan).

***Activity HR-2.2: Annually train Monument staff and the Midway contractors on the content of the Historic Preservation Plan and implementation of appropriate treatments.***

All Midway personnel who are involved in maintaining Midway Atoll infrastructure need to be aware of the historic preservation responsibilities and procedures on the atoll. This will ensure that the use and maintenance of the historic properties occurs according to the treatment identified in the Historic Preservation Plan. Training media will be produced so that all new and visiting personnel and all regular permanent personnel stay current on historic preservation priorities on an annual basis.

***Activity HR-2.3: Incorporate into the Midway Atoll visitor services program semiannual opportunities and events for visitors or volunteers to implement historic preservation treatments.***

This activity will resurrect and refine the previous refuge program to recruit volunteers to help maintain historic properties, including painting, window restoration, and landscape maintenance.

**Strategy HR-3: HR-3: Prepare an updated Battle of Midway National Historic Landmark nomination within four years.**

The American victory at the Battle of Midway changed the course of World War II in the Pacific. The Battle of Midway National Historic Landmark was created in 1986 to honor this great achievement and the sacrifices of those involved. The National Historic Landmark focuses on the remains of nine defensive positions on Midway's Sand Island that are directly associated with this historic battle. These include six magazines, a pillbox, a 3-inch gun emplacement at Battery D, and 5-inch gun emplacements at Battery C. We now have a better understanding of historic features at Midway that played an important role in the battle. As a result, it is appropriate to update this important ensemble of National Historic Landmark features. Additional structures to consider for inclusion in the National Historic Landmark include Battery A, which had not been located when the National Historic Landmark was drafted; the underground bunker on south beach; and the south beach pillbox (S-6). The Eastern Island runways will also be considered for inclusion in the National Historic Landmark.

***Activity HR-3.1: Identify, collect, and review publications, data sets, and documents on the National Historic Landmark within two years of Monument Management Plan adoption.***

Archival research is the first step to identify resources that may be appropriate to include in the National Historic Landmark.

***Activity HR-3.2: Plan and conduct a field survey and documentation of selected National Historic Landmark sites and features within two years.***

Standard historical archaeological practice will be exercised in this activity.

***Activity HR-3.3: Consult with interested parties and update the National Historic Landmark nomination within four years.***

This activity includes evaluation of the findings, preparation of a report, an updated National Historic Landmark nomination, and consultation with the Advisory Council on Historic Preservation, the National Park Service National Historic Landmark staff, the Hawai'i State Historic Preservation Office, and interested and knowledgeable parties such as the Sixth Defense Battalion of the U.S. Marine Corps and Defenders of Midway Islands Reunion Association, and the International Midway Memorial Foundation.

***Activity HR-3.4: Implement repair and maintenance treatments at National Historic Landmark features within six years.***

The National Historic Landmark features require periodic repair and maintenance. Depending on the treatment, some of the repair and maintenance can be accomplished by volunteers or other unskilled labor, while other repair work will require the involvement of specially trained historic preservation architects and engineers.

**Strategy HR-4: Improve the function and capacity of the Midway museum within eight years.**

The Midway museum should be a general repository containing written material, photographs, artifacts, oral histories, and personal memorabilia relating to Midway's history. The museum should include a climate-controlled storage area, as well as research desks and tape recording and listening booths. The Midway museum should be a unique repository for records and materials useful for interpreting the history and natural history of Midway Atoll.

***Activity HR-4.1: Prepare a Scope of Collections Statement within five years.***

The Scope of Collections Statement document will help define the scope and types of documents, artifacts, and other historic materials that may be donated, or otherwise acquired by Monument staff for proper museum curation.

***Activity HR-4.2: Remodel the Midway museum space within seven years.***

This activity will remodel the Midway museum space to meet the needs of the Scope of Collections Statement and the visiting public and to preserve the artifacts and historical materials according to the museum curation standards set forth by the U.S. Department of the Interior Manual 411 DM (U.S. Department of the Interior 1997).

***Activity HR-4.3: Organize and curate collections within eight years.***

Organize and curate Midway Museum collections according to the museum curation standards set forth by the DOI (411 DM).

**Strategy HR-5: Document and inventory historic resources beyond Midway Atoll NWR within 15 years.**

Studying and protecting historic resources beyond Midway Atoll begins with basic documentary research and field site surveys. These activities are similar to those involved with ecosystem research. Both involve consolidation of past research and archival data and field inventory of non-marine areas within the Monument. Historic resource surveys are compatible with planned multitasking missions, interagency cooperation, and operational efficiency.

***Activity HR-5.1: Identify, collect, and review publications, data sets, and documents within 12 years.***

Archival research is the first step to identify historic resources that may occur on other islands and atolls in the archipelago beyond Midway.

***Activity HR-5.2: Plan, conduct, and report on field surveys and documentation of selected sites within 15 years.***

Standard historical archaeological practice will be exercised in this activity.

**Strategy HR-6: Conduct archaeological and historical research on the historical events and structures at Midway Atoll NWR within 15 years.**

Much has been written and documented about the history and historic properties at Midway Atoll, particularly with respect to its role in World War II. However, Midway's history is rich and varied. Many nontraditional perspectives and sources of information have yet to be investigated. A healthy and responsible historic preservation program at Midway will conduct new research.



***Activity HR-6.1: Begin a long-term annual program to compile, collect, curate, and publish oral histories of life on Midway Atoll within 3 years.***

From the Commercial Pacific Cable Station era to World War II and through the Cold War, many people have lived on or visited Midway Atoll. Their stories provide a perspective on Midway, commerce, and war that is rarely captured in standard histories and official documents. Some of these personal oral histories have been recorded; many others need to be collected. This activity will ensure that alternative perspectives on the unique history of Midway Atoll will not be lost to the passing of the ages.

***Activity HR-6.2: Conduct archaeological investigation of the Commercial Pacific Cable Station site within ten years.***

The Commercial Pacific Cable Station era was a unique chapter in the history of Midway Atoll. Archaeological and historical research, including excavation, will shed light on the lifestyle and struggles of Midway's earliest permanent residents.

**Table 3.1.3 Summary of Strategies, Activities, and Agency Leads for Historic Resources**

<b>Strategies and Activities</b>	<b>Agency Lead</b>
<b>Strategy HR-1: Update the Midway Atoll Historic Preservation Plan to meet the present needs of the Refuge and Monument within one year.</b>	
Activity HR-1.1: Reconcile the Historic Preservation Plan with the Midway Visitor Service Plan, lead-based paint abatement plan, and other facilities maintenance and use plans.	FWS
Activity HR-1.2: Submit the updated Historic Preservation Plan for approval to the Advisory Council on Historic Preservation and Monument partners.	FWS
<b>Strategy HR-2: Implement, supervise, and monitor the historic preservation treatments identified in the Midway Atoll Historic Preservation Plan at two historic properties each year.</b>	
Activity HR-2.1: Within three years, create dedicated capacity to implement the updated Historic Preservation Plan.	FWS
Activity HR-2.2: Annually train Monument staff and the Midway contractors on the content of the Historic Preservation Plan and implementation of appropriate treatments.	FWS
Activity HR-2.3: Incorporate into the Midway Atoll visitor services program semiannual opportunities and events for visitors or volunteers to implement historic preservation treatments.	FWS
<b>Strategy HR-3: HR-3: Prepare an updated Battle of Midway National Historic Landmark nomination within four years.</b>	
Activity HR-3.1: Identify, collect, and review publications, data sets, and documents on the National Historic Landmark within two years of Monument Management Plan adoption.	FWS
Activity HR-3.2: Plan and conduct a field survey and documentation of selected National Historic Landmark sites and features within two years.	FWS
Activity HR-3.3: Consult with interested parties and update the National Historic Landmark nomination within four years	FWS
Activity HR-3.4: Implement repair and maintenance treatments at National Historic Landmark features within six years.	FWS
<b>Strategy HR-4: Improve the function and capacity of the Midway museum within eight years.</b>	
Activity HR-4.1: Prepare a Scope of Collections Statement within five years.	FWS
Activity HR-4.2: Remodel the Midway museum space within seven years.	FWS
Activity HR-4.3: Organize and curate collections within eight years.	FWS
<b>Strategy HR-5: Document and inventory historic resources beyond Midway Atoll NWR within 15 years.</b>	
Activity HR-5.1: Identify, collect, and review publications, data sets, and documents within 12 years.	FWS
Activity HR-5.2: Plan, conduct, and report on field surveys and documentation of selected sites within 15 years.	FWS
<b>Strategy HR-6: Conduct archaeological and historical research on the historical events and structures at Midway Atoll NWR within 15 years.</b>	
Activity HR-6.1: Begin a long-term annual program to compile, collect, curate, and publish oral histories of life on Midway Atoll within three years.	FWS
Activity HR-6.2: Conduct archaeological investigation of the Commercial Pacific Cable Station site within ten years.	FWS

### 3.1.4 Maritime Heritage Action Plan

**Desired Outcome**

Identify, interpret, and protect maritime heritage resources in Papahānaumokuākea Marine National Monument.

**Current Status and Background**

The maritime heritage of the NWHI began hundreds, if not thousands, of years ago with Polynesian and Native Hawaiian voyages across the Hawaiian archipelago and beyond. This history, the lessons this history provides, and the need to further the understanding of this heritage are critical and are dealt with in other areas of this Monument Management Plan (see Section 3.1.2, the Native Hawaiian Culture and History Action Plan, and Section 3.5.3, the Native Hawaiian Community Involvement Action Plan).

Links to other Action Plans	
3.1.2	Native Hawaiian Culture and History
3.1.3	Historic Resources Action Plan
3.3.4	Emergency Response and Natural Resource Damage Assessment
3.4.1	Permitting
3.5.3	Native Hawaiian Community Involvement

Links to goals
Goal 3
Goal 4
Goal 5
Goal 7

A preliminary survey of the maritime heritage resource base began during the Northwestern Hawaiian Islands Reef Assessment and Monitoring Program research expedition in 2002 and continued in 2003, with annual surveys beginning in 2005. Initial investigations in the NWHI led to the discovery of the naval steamer USS *Saginaw*, wrecked in 1870, the submarine rescue vessel USS *Macaw*, lost in 1944, the sailing ship *Carrollton*, lost in 1906, and the whale ship *Parker*, lost in 1842. In 2004, NOAA divers located the remains of the British whaling ships *Pearl* and *Hermes*, lost in 1822. These two archaeological sites provide a unique material record of historic activities, being the oldest wrecks yet found in the Hawaiian Islands and the only known whalers of the British South Seas Company in the world. Annual surveys provide for continued documentation and discovery of new maritime heritage sites. Applying heritage practices to maritime resources challenges society to value what has only too often been considered out of sight and out of mind.

Best practices in the maritime heritage field, at both the national and international levels, highlight similarities between heritage preservation and natural resources conservation. These best practices aim to value maritime heritage resources in a manner that complements, rather than conflicts with, ecosystem management. While excavation may be appropriate in certain circumstances, in situ management is considered the first or preferred alternative in the overall research design. In situ management does not preclude recovery, but does set forth a “precautionary” approach in terms of the artifacts and their environment. Proposed heritage work in the NWHI region emphasizes a low-impact approach, to an extent consistent with the Monument’s conservation goals and guiding principles. The coordinated management of heritage and natural resources is achieved through a unified permitting process.

**Need for Action**

For the purposes of this Monument Management Plan, the definition of maritime heritage resources includes submerged and beached shipwrecks, aircraft, and other sites of historical, cultural, and archaeological significance. These resources have not been adequately inventoried or protected within the NWHI. The main Hawaiian Islands have experienced the illegal removal of historic artifacts, as well as the potential destruction of historic material from nearshore



construction and dredging projects. By comparison, NWHI maritime heritage resources are relatively intact and undisturbed. NOAA, the State of Hawai‘i, and FWS have the statutory responsibility to inventory, evaluate, and interpret these heritage resources, and together increase maritime heritage preservation in the Monument and awareness of these unique resources throughout the State.

NOAA, the State of Hawai‘i, and FWS share similar goals of heritage resource preservation in the Monument. Protection and management of sites that meet established heritage criteria are mandated by state and federal preservation laws.

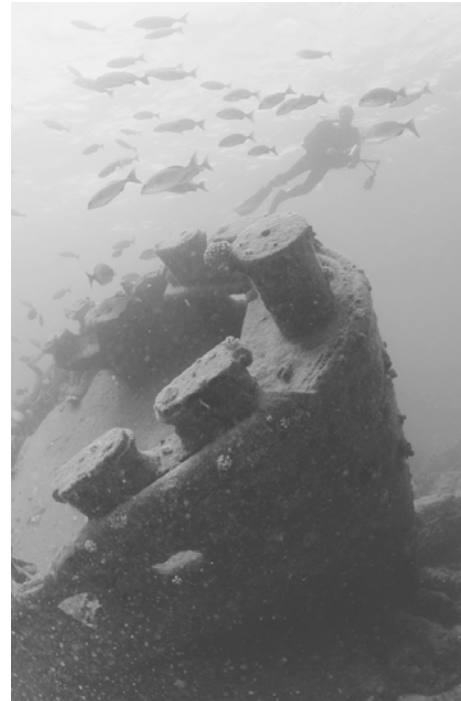
Maritime heritage resources, when properly studied and interpreted, add an important dimension to our understanding and appreciation of our nation’s rich maritime legacy, and make us more aware of the critical need to be wise stewards of our ocean planet.

NOAA and FWS comply with the Federal Archaeological Program, a collection of laws and regulations that pertain to the protection of historical and archaeological properties on federal and federally managed lands. The National Historic Preservation Act directs all federal agencies to develop programs to protect historical and archaeological resources. Section 106 requires agencies to consider the potential impacts of their actions, including the review of permit applications for projects that may allow the disturbance of the seabed, where archaeological remains may lie. Section 110 requires agencies to actively search for archaeological resources and to assess them for their significance and eligibility for inclusion in the National Register of Historic Places. This action plan presents strategies and activities for addressing maritime

heritage resource management and protection needs in the Monument. To this end, each program or agency may contribute its own particular expertise: the Maritime Heritage Program, under NOAA’s Office of National Marine Sanctuaries (ONMS), features field survey skills in underwater archaeology; FWS manages its comprehensive cultural resources program; and the State of Hawai‘i Department of Land and Natural Resources provides the context of the state inventory.

### **Strategies to Achieve the Desired Outcome**

The strategies and associated activities in this action plan are designed to increase our understanding of maritime heritage resources and foster effective and protective management in the Monument. These strategies will be carried out in collaboration with maritime heritage staff of ONMS, Pacific Islands Region; the Historic Preservation Division of the State Department of Land and Natural Resources; and the FWS Cultural Resources Team.



NOAA diver surveys the USS *Macaw* remains off Midway Atoll. Photo: James Watt

Three strategies have been developed for achieving the desired outcome of identifying, interpreting, and protecting maritime heritage resources in the NWHI. The strategies and activities are coded by the acronym for the action plan title, “Maritime Heritage” (MH). A summary of strategies and activities is provided in Table 3.1.4 at the end of this action plan.

- MH-1: Document and inventory maritime heritage resources throughout the life of the plan.
- MH-2: Incorporate maritime heritage into public education and outreach throughout the life of the plan.
- MH-3: Coordinate interagency efforts to protect maritime heritage resources for the life of the plan.

**Strategy MH-1: Document and inventory maritime heritage resources throughout the life of the plan.**

Studying and protecting maritime heritage resources begin with basic documentary research and field site surveys. These activities are similar to those involved with ecosystem research. Both involve consolidation of past research and archival data, scientific SCUBA diving operations, and bathymetric mapping and remote sensing surveys. Maritime heritage surveys are compatible with planned multitasking missions, interagency cooperation, and operational efficiency.

***Activity MH-1.1: Identify, collect, and review publications, data sets, and documents annually.***

Archival research and review of existing documents are the first steps in creating and confirming the maritime heritage resource inventory in the NWHI, as well as in formulating an effective field survey plan. Documents from at least two maritime heritage sites will be added to the site database per year.

***Activity MH-1.2: Plan and carry out coordinated field mapping surveys of selected sites annually.***

Conducting field mapping surveys is the next step in understanding and interpreting heritage sites. Techniques can include shoreline terrestrial survey and inventory; marine remote sensing using magnetometer and side-scan sonar to locate potential heritage targets; and noninvasive diving surveys to assess and inventory sites (Dean 1992). These phases generally take place during multidisciplinary research cruises and are the result of coordinated interagency planning. Results are incorporated into a comprehensive Monument maritime heritage resource inventory maintained by ONMS. As an ongoing annual activity, maritime heritage field surveys will be conducted and progress reports will be completed annually.

***Activity MH-1.3: Complete a status report on potential environmental hazards within 1 year, and update it annually.***

Wreck sites and other debris can represent potential environmental hazards that may be identified through field survey work. The MMB will be informed of any discovered potential hazards in order to assess the need for response or remediation (see Section 3.3.4, Emergency Response and Natural Resource Damage Assessment Action Plan). A status report on potential environmental hazards from wreck sites, disposal, etc. will be compiled by year 1 and updated annually.

***Activity MH-1.4: Develop status report on maritime heritage artifact recovery operations within two years, and recover and conserve maritime heritage artifacts as appropriate.***

When excavation and analysis of material remains are appropriate for site interpretation, and when these tasks can be done in a manner that respects the integrity of the ecosystem and the environmental goals of the Monument, recovery of selected artifacts is a way of bringing the data to the public, rather than taking more visitors to the NWHI site. Such recovery will be carried out through the established permitting processes of the Monument (see Section 3.4.1, Permitting Action Plan, and Appendix A). A status report on potential and completed maritime heritage recovery operations will be completed by year 2 and updated annually.

***Activity MH-1.5: Develop and implement an internal maritime heritage resource database within 5 years.***

An internal database of known maritime heritage resources will be established and maintained by the Monument maritime archaeologist for the prioritization of targets, to be completed by year 5.

**Strategy MH-2: Incorporate maritime heritage into public education and outreach throughout the life of the plan.**

Raising public awareness of the maritime heritage field is essential to better valuing and protecting the resource. Protection comes through understanding the nature of heritage resources and what we can learn from them, as well as familiarity with established preservation laws. Education and outreach efforts for maritime sites emphasize “bringing the place to the people, not the people to the place” in a responsible manner.

***Activity MH-2.1: Incorporate maritime heritage materials into Monument education and outreach projects annually.***

Resources and opportunities for collaboration for education and outreach are available through the MMB agencies and other entities. Monument maritime archaeologists will coordinate and participate in public outreach regarding Monument heritage resources and maritime history. Outreach efforts may include presentations, displays, still and video projects, and website materials. This activity includes potential support for the promotion of Native Hawaiian cultural outreach and education via Section 3.1.2, the Native Hawaiian Culture and History Action Plan.

***Activity MH-2.2: Develop and deliver public maritime heritage educational materials at selected presentations, conferences, and events.***

Shipwreck topics often appeal to large audiences at local, national, and international levels, and offer a chance to not only highlight the relatively new field of maritime heritage, but also to emphasize the unique nature of the NWHI, the need for conservation and ecosystem management, and the overall stewardship of all ocean resources. A minimum of two maritime heritage presentations will be given at professional conferences or public events each year.



**Strategy MH-3: Coordinate interagency efforts to protect maritime heritage resources for the life of the plan.**

Because of NOAA's previous maritime heritage work in the region, efforts to inventory, evaluate, interpret, and preserve maritime heritage resources in the NWHI will be coordinated by a staff maritime archaeologist through ONMS, and conducted in close collaboration and coordination with the MMB. Each program or agency provides expertise in related fields: maritime archaeology field survey (NOAA); museum program, terrestrial archaeology, and National Historic Preservation Act (NHPA) implementation (FWS); and state survey, inventory, and preservation (Department of Land and Natural Resources).

***Activity MH-3.1: Coordinate interagency maritime heritage resources management annually.***

Communication by the MMB with heritage preservation efforts on a larger scale is essential. Communication involves sharing research and preservation efforts in the Monument with the related professional fields of archaeology and cultural resource management, among others. Coordination of field activities is also necessary for the more effective use of facilities and equipment. Efforts to collaborate and coordinate will occur annually for the duration of the plan.

***Activity MH-3.2: Enhance protective measures for selected sites within the NWHI through the National Register nomination process within 2 years.***

Protection of specific heritage sites will be enhanced by federal recognition under the National Heritage Preservation Act and the National Register of Historic Places (Delgado 1985). Additionally, preservation measures of the Department of Land and Natural Resources will be implemented for resources on state submerged lands (up to 3 nautical miles from emergent lands) via the State Historic Preservation Division. Protective status for specific sites will be sought as needed using measures described above. This activity includes potential support for the protection and preservation of Native Hawaiian cultural resources discussed in the Native Hawaiian Culture and History Action Plan (Section 3.1.2). The National Register nomination process for maritime heritage sites will begin by year 2.

***Activity MH-3.3: Develop and implement a Monument Maritime Heritage Research Plan within 2 years.***

The Monument Maritime Heritage Resource Research Plan will be completed within 2 years. Working collaboratively with partner and local agencies, universities, and experts in the field, the MMB will develop a research plan that outlines maritime heritage priorities for the NWHI. This effort will be coordinated by the Monument maritime archaeologist.

**Table 3.1.4 Summary of Strategies, Activities, and Agency Leads for Maritime Heritage**

<b>Strategies and Activities</b>	<b>Agency Lead</b>
<b>Strategy MH-1: Document and inventory maritime heritage resources throughout the life of the plan.</b>	
Activity MH-1.1: Identify, collect, and review publications, data sets, and documents annually.	NOAA
Activity MH-1.2: Plan and carry out coordinated field mapping surveys of selected sites annually.	NOAA
Activity MH-1.3: Complete a status report on potential environmental hazards within one year, and update it annually.	NOAA
Activity MH-1.4: Develop status report on maritime heritage artifact recovery operations within 2 years, and recover and conserve maritime heritage artifacts as appropriate.	NOAA
Activity MH-1.5: Develop and implement an internal maritime heritage resource database within 5 years.	NOAA
<b>Strategy MH-2: Incorporate maritime heritage into public education and outreach throughout the life of the plan.</b>	
Activity MH-2.1: Incorporate maritime heritage materials into Monument education and outreach projects annually.	NOAA
Activity MH-2.2: Develop and deliver public maritime heritage educational materials at selected presentations, conferences, and events.	NOAA
<b>Strategy MH-3: Coordinate interagency efforts to protect maritime heritage resources for the life of the plan.</b>	
Activity MH-3.1: Coordinate interagency maritime heritage resources management annually.	NOAA
Activity MH-3.2: Enhance protective measures for selected sites within the NWHI through the National Register nomination process within 2 years.	NOAA
Activity MH-3.3: Develop and implement a Monument Maritime Heritage Research Plan within 2 years.	NOAA

## **3.2 Conserving Wildlife and Habitats**

---

### **3.2.1 Threatened and Endangered Species Action Plan**

### **3.2.2 Migratory Birds Action Plan**

### **3.2.3 Habitat Management and Conservation Action Plan**

---



## 3.2 Conserving Wildlife and Habitats

Coastal development in the main Hawaiian Islands has resulted in the destruction of natural habitats for many protected species, giving rise to the NWHI's function as a wildlife haven relatively undisturbed by human presence. A significant number of species found in the NWHI are at risk of extinction and depend upon the unique habitat found there for their survival. Ninety percent of the Hawaiian population of green turtles nests in the NWHI, and the majority of Hawaiian monk seals pup there. The NWHI also host one of the largest and most important assemblages of seabirds in the world.

Past human activities in the NWHI have left lasting habitat impacts in the form of sunken and grounded vessels, dilapidated buildings and structures, military sites, and introduced species that have become invasive. The remnants of these activities can sometimes pose a threat to wildlife and their natural habitat. Other impacts resulting from climate change pose significant threats to NWHI habitats and endangered species. To address these impacts, the FWS maintains a full-time presence at French Frigate Shoals, Laysan Island, and Midway Atoll to monitor wildlife, eliminate noxious weeds, restore native vegetation, prevent the extinction of native species, and clean up contaminated sites. NOAA maintains seasonal field camps at several islands to monitor Hawaiian monk seal populations and works with FWS at seasonal field camps at French Frigate Shoals. The State also maintains a part-time presence at Kure Atoll to undertake similar activities.

Action plans to take care of threatened and endangered species, migratory birds, and the habitats upon which they depend focus on undertaking on-the-ground conservation and management strategies. These strategies and activities focus on population enhancement through the maintenance and improvement of key ecosystem components. Many of the strategies and activities reflect information contained in the Hawai'i Comprehensive Wildlife Conservation Strategy developed by the Hawai'i Department of Land and Natural Resources (Mitchell et al. 2005) and were considered in the development of the Monument Management Plan.

Each action plan consists of a set of strategies to address a desired outcome. Over the next 15 years, these desired outcomes are:

- **Threatened and Endangered Species:** Safeguard and recover threatened and endangered plants and animals and other protected species within Papahānaumokuākea Marine National Monument.
- **Migratory Birds:** Conserve migratory bird populations and habitats within Papahānaumokuākea Marine National Monument.
- **Habitat Management and Conservation:** Protect, maintain, and where appropriate, restore the native ecosystems and biological diversity of Papahānaumokuākea Marine National Monument.

Action plans described in this section will be implemented in close coordination with agency partners and in conjunction with other priority management needs.

### 3.2.1 Threatened and Endangered Species Action Plan

#### Desired Outcome

Safeguard and recover threatened and endangered plants and animals and other protected species within Papahānaumokuākea Marine National Monument.

#### Current Status and Background

Two federal acts, as well as multiple state statutes, protect specific species in the NWHI. The federal acts are the Endangered Species Act of 1973 (ESA) and the Marine Mammal Protection Act of 1972 (MMPA). The ESA provides for the conservation of species at risk of extinction throughout all or a significant portion of their range and the protection of critical habitats on which they depend. The ESA also gives individual states the option to assist in managing endangered species recovery programs. The MMPA provides for the protection and conservation of all marine mammals and their ecosystems, whether or not they are listed under the ESA. Because of the overlap of protections, this action plan’s activities are directed at both ESA listed and non-ESA listed marine mammals. The State of Hawai‘i has additional protections for endangered species in its wildlife laws, which also affords other indigenous species treatment as threatened or endangered if criteria are met (HRS 195D, HRS 183D, HRS 125, and Hawai‘i Administrative Rules Title 13). The recovery plans issued pursuant to the ESA guide conservation efforts of threatened and endangered species. The most recent iterations of these plans were used to guide the strategies and activities under this action plan. Specific recovery activities for listed species are included in recovery plans, which may be accessed at: <http://www.nmfs.noaa.gov/pr/recovery/plans.htm> and <http://www.fws.gov/endangered/recovery/index.html#plans>. In addition, many of the strategies and activities are informed by Hawaii’s Comprehensive Wildlife Conservation Strategy (Mitchell et al. 2005).

Links to other Action Plans	
3.2.3	Habitat Management and Conservation
3.3.1	Marine Debris
3.3.2	Alien Species
3.4.1	Permitting Action Plan
3.5.1	Agency Coordination
3.5.4	Ocean Ecosystems Literacy
3.6.3	Coordinated Field Operations

Links to goals
Goal 1
Goal 3
Goal 4

**Hawaiian Monk Seal:** The Hawaiian monk seal is in crisis. The population is in a decline that has lasted 20 years, and as of 2008, there were about 1,200 monk seals. Modeling predicts that the species’ population will fall below 1,000 animals by the year 2012. Actions to date have not been sufficient to result in a recovering population. Most of the entire world population of Hawaiian monk seals breeds and forages inside the Monument. The recovery plan for the Hawaiian monk seal (NMFS 2007) provides a detailed description of actions that should be taken by NMFS and its collaborators to recover the species. This action plan details the ways the MMB can facilitate and support those efforts.

**Cetaceans:** In the NWHI, sighting and acoustic recordings of baleen whales as well as toothed whales and dolphins have been documented. Five species of baleen whales listed as “endangered” under the ESA and HRS 195D, and as “depleted” under the MMPA have been sighted or heard in the Monument area. In addition to these five, the endangered sperm whale and at least 18 other non-ESA listed species are found in the Monument (Barlow 2006). It has now been documented that groups of humpback whales are overwintering in the waters of the Monument, including whales with small calves and some that exhibit breeding behavior

(Johnston et al. 2007). Recovery actions for this listed species are summarized in the final recovery plan for the humpback whale, *Megaptera novaeangliae* (NMFS 1991). Draft recovery plans are available for the fin whale and sperm whale (NMFS 2006a, 2006b), and a final recovery plan is available for the blue whale (NMFS 1998).

**Marine Turtles:** Marine turtles that are known to occur in the Monument are the Hawaiian population of the green turtle and hawksbill, loggerhead, and leatherback turtles. While there are no records of the threatened olive ridley within Monument waters, their wide distribution throughout the tropical Pacific makes it likely that they do sometimes occur there. Green and loggerhead sea turtles are listed as threatened species; the hawksbill and leatherback turtles are listed as endangered species. Recovery plans are in place for each of these species in the Pacific and 5-year reviews were jointly published in 2007 (NMFS and FWS 1998a; 1998b; 1998c; 1998d; 1998e, 2007). Sea turtle population declines have occurred across the Pacific because of nesting habitat loss, harvesting of eggs and turtles for commercial and subsistence purposes, and fishery interactions. About 90 percent of nesting activity for the Hawaiian population of green turtles occurs in the NWHI at islets of French Frigate Shoals (Balazs and Chaloupka 2004a).

**Birds:** Five endangered bird species in the NWHI are afforded protection under the ESA and HRS 195D. Three species are passerines: the Laysan finch, found on Laysan Island and Pearl and Hermes Atoll, and the Nihoa finch and the Nihoa millerbird, which are endemic to Nihoa. Research, recovery, and management of these species take into consideration the recommendations of the Northwestern Hawaiian Islands Passerines Recovery Plan (FWS 1984), Hawaii's Comprehensive Wildlife Conservation Strategy for the Northwestern Hawaiian Islands (Mitchell et al. 2005) and ongoing input from species experts. Numerous sites were evaluated and ranked for translocation of these species to establish additional populations; this information and some recommendations for proceeding with translocation were provided recently by Morin and Conant (2007).

The Laysan duck has the most restricted range of any duck species and is especially vulnerable to extinction because of its small population size (fewer than 800 individuals) and extremely limited range. In 2004 and 2005, a total of 42 Laysan ducks were translocated to Midway Atoll NWR. Not all of these birds have reproduced, but the newly established population has grown since 2005 from 42 to a preliminary estimate of 192 birds in 2007 (Reynolds and Citta 2007). Additional activities are described in the Draft Revised Recovery Plan for the Laysan Duck (*Anas laysanensis*) (FWS 2004).

The short-tailed albatross breeds on Torishima, an island owned and administered by Japan. The short-tailed albatross was first observed at Midway Atoll between 1936 and 1941. Since then, one to four individuals have been observed every year in the NWHI. The Short-tailed Albatross Draft Recovery Plan (FWS 2005) provides suggestions for ways in which Monument staff can facilitate recovery of this species.

**Plants:** Six plant species known historically from the NWHI are listed as endangered. Three plant taxa have probably always been rare and restricted to Nihoa, although one species, the loulou or fan palm, also occurred on Laysan Island. *Mariscus pennatiformis* ssp. *bryanii* is known only from Laysan Island. *Cenchrus agrimonioides* var. *laysanensis* was historically known from



Laysan Island and Midway and Kure Atolls, but has not been seen there since about 1980 (O'Connor 1999; HBMP database 2007). A recovery plan for three species found only at Nihoa (Nihoa fan palm, *Schiedea verticillata*, and *Amaranthus brownii*) was finalized in 1998 (FWS 1998). Recovery actions for the other three species (*Cenchrus agrimonioides*, *Mariscus pennatiformis*, and *Sesbania tomentosa* or 'ohai) are described in the Recovery Plan for the Multi-Island Plants (FWS 1999).

### **Need for Action**

A coordinated and comprehensive approach is required to understand and address specific threats (e.g., climate change, habitat loss) in order to protect and recover these 23 endangered or threatened species. Cooperation among the MMB agencies is crucial to ensure that management actions conducted in the Monument are effective in protecting and enhancing populations of these endangered species and marine mammals because the entire world population of many of these species occurs only, or almost entirely, within the Monument.

### **Strategies to Achieve the Desired Outcome**

The strategies and associated activities in this action plan are designed to increase populations of threatened and endangered species and foster effective and protective management in the Monument. These strategies will be carried out in collaboration with and coordination by the Co-Trustees and other entities. The proposed activities in this Action Plan are characterized by more urgency, and perhaps in some cases more controversy, than those in some of the other action plans. Extra consideration is needed during prioritization of activities and in permitting in light of the high cost of failure to act. A great effort to coordinate with key stakeholder groups and the Native Hawaiian community will ensure that all interests have been identified. In addition to these management strategies for threatened and endangered species, additional and more detailed research and monitoring activities will be incorporated into the Natural Resources Science Plan.

Eight strategies have been developed for achieving the desired outcome of protecting marine mammals and aiding in the recovery of threatened and endangered plants and animals in the Monument. The strategies and activities are coded by the acronym for the action plan title, "Threatened and Endangered Species" (TES). A summary of strategies and activities is provided in Table 3.2.1 at the end of this action plan.

- TES-1: Support activities that advance recovery of the Hawaiian monk seal for the life of the plan.
- TES-2: Determine the status of cetacean populations and verify and manage potential threats over the life of the plan.
- TES-3: Ensure that nesting populations of green turtles at source beaches are stable or increasing for the life of the plan.
- TES-4: Work with the international recovery team for short-tailed albatrosses to facilitate an increase in the total breeding population of this species to at least 25 breeding pairs occurring on sites other than Torishima and Senkaku islands for the life of the plan.
- TES-5: Conduct activities to increase Laysan duck populations in the Monument over the life of the plan.

- TES-6: Maintain stable or increasing populations of the Laysan finch, Nihoa finch, and Nihoa millerbird in the Monument over the life of the plan.
- TES-7: Establish populations of each listed plant species on one to three additional Monument islands and ensure genetic material is also protected in approved repositories for the life of the plan.
- TES-8: Ensure protection of threatened and endangered species by facilitating Endangered Species Act consultations for Monument activities throughout the life of the plan.

**Strategy TES-1: Support activities that advance recovery of the Hawaiian monk seal for the life of the plan.**

For nearly 3 decades, a concerted effort has been made to save the Hawaiian monk seal. The U.S. Government, the State of Hawai‘i, nongovernment organizations, private-sector entities, and countless individuals in local communities across Hawai‘i have worked to recover the species. These efforts have not been sufficient to prevent a continued decline in the species. However, without these efforts, the situation would likely be much worse.

As recommended by the 2007 Recovery Plan for the Hawaiian Monk Seal, several key actions are required to address current and potential threats to the monk seal in attempts to alter the trajectory of the Hawaiian monk seal population and to move the species toward recovery. The most critical activities described in the plan that are applicable to the monk seal population in the Monument are to (1) investigate food limitations and take actions to increase female juvenile survival, (2) prevent entanglement of seals in marine debris, (3) reduce shark predation on seals, (4) reduce exposure to and spread of infectious disease, (5) continue population monitoring and research, (6) reduce impacts from grounded vessels, (7) reduce the impact of human interactions, and (8) conserve monk seal habitat.

To advance efforts on these key actions to address threats to monk seal survival and recovery, the MMB will pursue several key strategies in support of monk seal recovery efforts. These efforts will advance the objective of reversing the population decline of monk seal populations in the Monument and achieving a positive growth rate during the life of this plan.

***Activity TES-1.1: Support marine debris removal activities to promote recovery.***

Hawaiian monk seals have one of the highest documented entanglement rates of any pinniped species, and marine debris, such as derelict fishing gear, are chronic forms of pollution affecting the NWHI. The incidence of entangled monk seals at the breeding sites of the NWHI has been well documented and field staff actively disentangle seals. Cetaceans, sea turtles, and sea birds are also subjected to the detrimental effects of derelict fishing gear and other marine debris. Monument staff will support efforts to reduce marine debris as detailed in the strategies and activities in the Marine Debris Action Plan. These efforts, particularly in key monk seal habitat, will decrease the number of injuries and mortalities caused by entanglement (see Section 3.3.1, Marine Debris Action Plan).

***Activity TES-1.2: Support and facilitate emergency response for monk seals.***

The ability to respond to situations in the Monument that threaten monk seals, such as ship groundings, oil spills, and disease outbreak, requires a well-coordinated interagency effort and is constrained by limited transportation and logistical capabilities. Several agencies have response protocols, but further coordination and collaboration among the agencies will help minimize the effects during these events. Agreed-upon and standardized protocols will be put into place to ensure that a rapid and well-organized response, including assessment, proper collection of evidence, and continued monitoring, occurs during and after an event. The Monument can facilitate these types of responses through coordination, permitting, and transportation and logistical support.

***Activity TES-1.3: Conserve Hawaiian monk seal habitat.***

Consideration should be given to evaluating the loss of habitat caused by erosion and other factors (e.g., sea level rise) that have contributed to the loss of critical habitat for seals. Predicted increases in sea level this century and beyond may severely reduce the amount of habitat for seals to rest, breed, and rear their pups. Feasibility of restoration will be evaluated to consider rebuilding habitat essential for the reproduction of monk seals and other protected species (e.g., turtles and sea birds) at several alternative sites that could lead to rebuilding preferred, stable pupping habitat (i.e., accessibility, long shoreline, and stable beach).

***Activity TES-1.4: Reduce the likelihood and impact of human interactions on monk seals.***

Efforts will be made to ensure that all users of the NWHI are aware of the impacts of disturbing monk seals on breeding beaches and in nearshore waters. Any proposed activity in the Monument that may increase seal disturbance or threaten survival (such as nearshore ship traffic, beach use, noise, research, or any other impact that could negatively affect the marine or terrestrial habitat of the monk seal) should be scrutinized carefully during the permit review process to ensure recovery of the monk seal population is not hampered by the activity.

***Activity TES-1.5: Support outreach and education on Hawaiian monk seals.***

Increased outreach and education activities focused on the Hawaiian monk seal are now being conducted. Continuation of these activities will provide the public and interest groups with information to understand the critical status of the Hawaiian monk seal population and the urgent action that is needed to prevent extinction.

***Activity TES-1.6 Reduce shark predation on monk seals.***

More than two decades of monk seal studies indicate that predation by Galapagos sharks on pre-weaned pups is an unusual behavior, occurring primarily at French Frigate Shoals. These sharks are known to kill and injure Hawaiian monk seals, and more needs to be understood about shark abundance, prey preferences, and seasonal movement patterns. The problem should continue to be monitored. Site-specific mitigation plans and methods should be developed and implemented, as appropriate.

**Strategy TES-2: Determine the status of cetacean populations and verify and manage potential threats over the life of the plan.**

Management actions and efforts to reduce the impacts to cetaceans in the NWHI have been limited, largely because of sparse information on the distribution, abundance, and ecology of



species using the Monument. Initial efforts should address this lack of information, which should then lead to the identification and management of threats.

***Activity TES-2.1: Census cetacean populations.***

In order to best develop management strategies for cetaceans in the Monument, surveys and observations will be pursued to gain information on species distribution and abundance estimates. This information will allow managers to better define humpback whale breeding and calving areas in the NWHI.

***Activity TES-2.2: Conduct annual spinner dolphin mark and recapture photo identification surveys.***

Annual spinner dolphin mark/recapture photo identification surveys will be continued at Midway, Kure, and Pearl and Hermes Atolls in order to maintain the only long-term data set (1998-2007) in the NWHI. The census may be expanded to other locales in the future.

***Activity TES-2.3: Monitor, characterize, and address the effects of marine debris on cetaceans in the Monument.***

Monument staff will reduce the potential for cetaceans to be adversely affected by marine debris. The long-term solution is ultimately a decrease in the amount of debris entering the ocean; strategies are included in Section 3.3.1, the Marine Debris Action Plan.

***Activity TES-2.4: Respond to any suspected disease and unusual mortality incidents affecting cetaceans.***

To date, no cases of a NWHI cetacean with an infectious disease have been documented. Should an ill cetacean be sighted, when feasible, the animal will be examined and sampled for a broad spectrum of possible diseases, treated appropriately, and monitored for recovery. Performing timely and complete necropsies with cetaceans will facilitate disease surveillance and monitoring in the NWHI. Contingency response plans will be developed to respond to disease outbreaks, mass strandings, and necessary human and material resources will be identified to initiate an appropriate response.

***Activity TES-2.5: Prevent human interactions with cetaceans.***

Efforts will be made to prevent negative human-cetacean interactions that may occur as a result of visitor programs or research activities through design controls on both. The controls will aim to prevent disturbance to cetaceans resting in Monument lagoons or nearshore areas and restrict geological research using sound levels known to be dangerous to marine mammals.

**Strategy TES-3: Ensure that nesting populations of green turtles at source beaches are stable or increasing over the life of the plan.**

The Hawaiian population of the green turtle is a discrete genetic stock of *Chelonia mydas* that is endemic to the Hawaiian Archipelago. This population of threatened green turtles has been monitored since the 1970s and is one of the few populations in the Pacific that is increasing in numbers. The principal rookery for the Hawaiian population of the green turtle is located on sand islands at French Frigate Shoals. More than 90 percent of all green turtle nesting in the Hawaiian Archipelago occurs here. The main rookery island at French Frigate Shoals is East

Island, where at least 50 percent of the nesting occurs, and approximately 200 to 500 females nest each year. Other atolls within the NWHI that support green turtle nesting include Laysan Island, Lisianski Island, and Pearl and Hermes Atoll. Individual nests have been documented for the first time at Midway Atoll in 2006 and 2007.

Green turtles were listed under the ESA in 1978 because of overexploitation for commercial and other purposes, the lack of adequate regulatory mechanisms and effective enforcement, evidence of declining numbers, and habitat loss and degradation. The protections of the ESA and HRS 195D have been effective at restoring Hawaiian green turtle population abundance, as evidenced by a long-term, steady increase in the number of nesting females at the principal green turtle rookery at French Frigate Shoals.

***Activity TES-3.1: Collect biological information on nesting turtle populations.***

Research has been conducted on the green turtle nesting population in the NWHI since 1973 and comprises one of the longest time series of nesting abundance data for any sea turtle population around the globe. Information on abundance of nesting turtles is critical for making intelligent management decisions, understanding the status of the Hawaiian population of the green turtle, and evaluating the success of management programs. Maintenance of standardized and consistent monitoring protocols is crucial to understanding population trends, leading to effective management (See Section 3.1.1, Marine Conservation Science Action Plan). In addition to maintaining current nesting monitoring at East Island, distribution of nesting activity throughout the Monument will be periodically reassessed. As the population increases, or nesting sites are degraded as a result of sea level rise, new sites may be used for nesting.

***Activity TES-3.2: Protect and manage nesting and basking habitat.***

Green turtle nesting habitat, including basking beaches, will be protected by use of best management practices to prevent the introduction of mammalian predators on eggs and hatchlings, reduce artificial lighting near nesting beaches, prohibit undesirable habitat alteration, and control human access. Limited entry policies will be continued, and human activities will be strictly regulated at islands and reefs used by green turtles.

Rises in sea level as a result of climate change are predicted to reduce the availability of green turtle nesting habitat at French Frigate Shoals, and changes in nest-site temperature regimes may affect population ecology by modifying sex ratios of hatchling populations. Management actions may need to be undertaken to delay habitat loss as a result of rising sea level. Awareness of these impacts will improve our ability to reduce impacts and manage habitat for sea turtle populations.

***Activity TES-3.3: Protect and manage marine habitat, including foraging areas and migration routes.***

Areas of high turtle foraging activity in the Monument will be identified and mapped, along with high-use corridors used by turtles migrating between their breeding sites and foraging areas outside the Monument. Activities in the Monument, such as anchoring and vessel transit, will be managed to minimize disturbance to foraging areas; reduce discharge and introduction of contaminants, silt, and oil; and minimize vessel hazards to turtles transiting the open water areas of the Monument.

**Strategy TES-4: Work with the international recovery team for short-tailed albatrosses to facilitate an increase in the total breeding population of this species to at least 25 breeding pairs occurring on sites other than Torishima and Senkaku islands.**

The short-tailed albatross was listed as federally endangered in the United States in 2000. The foraging range of the short-tailed albatross overlaps with that of the black-footed and Laysan albatrosses and covers most of the northwestern and northeastern Pacific Ocean. The short-tailed population dropped dramatically as a result of feather hunters in the late nineteenth century. The world population of short-tailed albatross is currently estimated at fewer than 2,000 birds, with 85 percent of individuals breeding at a single colony on Torishima Island in Japan, and the remaining individuals breeding on Senkaku Island, just southwest of Torishima.

***Activity TES-4.1: Work cooperatively with the Japanese government to establish one or more breeding populations on islands free from threats such as active volcanoes and introduced mammals.***

While most of the recovery actions for short-tailed albatrosses will necessarily be carried out by the Japanese government, activities such as providing use of surrogate species for development of translocation techniques and technical assistance will contribute to the recovery of this species. In 2006, ten Laysan albatross chicks from Midway Atoll were translocated to Kīlauea Point National Wildlife Refuge on Kaua‘i, where Japanese ornithologists raised them to learn appropriate nurturing techniques. With this knowledge, it may be possible to translocate short-tailed albatross from Torishima to safer habitats. FWS staff also help Japanese biologists with satellite tagging projects studying feeding patterns, how weather systems and winds influence short-tailed albatross movements, and how ocean productivity and seafloor bathymetry affect their distribution.

This activity also includes attempts to attract birds to Midway Atoll using decoys and recorded colony sounds and monitoring and maintaining any new breeding colony sites established at Midway Atoll. In recent years, one to four short-tailed albatross have been attracted to Midway, and two birds were practicing their mating dance on Eastern Island at Midway in 2008.

***Activity TES-4.2: Conduct studies to examine the correlation between reproductive success and contaminant loads.***

Analysis of the feathers, eggs, and dead chicks of black-footed albatrosses at Midway Atoll will determine the levels of persistent environmental contaminants. These data will be used as a surrogate for estimating contaminant body-burdens in short-tailed albatrosses.

***Activity TES-4.3: Create and disseminate information on fisheries bycatch and bycatch reduction to all fisheries occurring outside the Monument.***

Materials will be created for public outreach and attendance at domestic and international meetings to carry out government-to-government communication on fisheries mitigation measures that can reduce bycatch during commercial fishing operations.

**Strategy TES-5: Conduct activities to increase Laysan duck populations in the Monument over the life of the plan.**



The Laysan duck, endemic to the Hawaiian Islands, was federally listed as endangered in 1967. Prior to 2004, only a single population of the species remained, on Laysan Island. Since 2004, a second population of Laysan ducks has been established at Midway Atoll, through two translocations of subadults from Laysan Island. Current population estimates at both Midway and Laysan indicate a population size of fewer than 800 individuals. Within 15 years, the target, based on interim downlisting criteria in the Draft Revised Recovery Plan for the Laysan Duck (FWS 2004), is to ensure that at least five stable populations occur in predator-free or predator-controlled sites throughout the Monument and main Hawaiian Islands, and that the population at Laysan is stable or increasing. The plan also calls for island-specific management plans for each population that identify habitat improvement, predator control, and population supplementation as needed.

***Activity TES-5.1: Continue population monitoring on Laysan Island and Midway Atoll.***

Activities include population size estimation through mark-recapture and monitoring of reproductive success and survival for population modeling; disease screening and prevention to avoid translocation of unhealthy individuals; and genetics research to prevent loss of genetic diversity during population translocations. Monitoring Laysan duck populations for potential human disturbance, especially during molt (when the birds are flightless) and during the nesting season, is necessary when disturbance may result in nest abandonment and brood fragmentation.

***Activity TES-5.2: Carry out translocations to other sites in the Monument.***

Required activities include restoring or creating habitat necessary to support Laysan duck populations; transporting juveniles from established populations to additional islands; and conducting post-release monitoring to assess foraging behavior, body condition, survival, habitat suitability, and reproductive success of translocated birds, as identified in the Draft Revised Recovery Plan for the Laysan Duck (FWS 2004).

**Strategy TES-6: Maintain stable populations of the Laysan finch, Nihoa finch and Nihoa millerbird in the Monument over the life of the plan.**

The Laysan finch, Nihoa finch, and Nihoa millerbird are endemic passerines in the NWHI that have extremely limited distributions within relatively sensitive biological systems. Because of the inherently small population sizes of these species as a result of the extremely limited habitat availability, all three of these passerine species in the Monument have been listed as federally endangered. The most recent population estimates indicate a total population size of approximately 10,000 Laysan finches, which occur only on Laysan Island and at Pearl and Hermes Atoll (a result of translocations conducted in 1967); fewer than 5,000 Nihoa finches, which occur only on Nihoa; and fewer than 600 Nihoa millerbirds, also endemic to Nihoa.

***Activity TES-6.1: Continue to conduct annual censuses of populations of each passerine species and monitor their food and habitat requirements.***

In particular, these monitoring activities allow for detection of changes in population and habitat availability by monitoring the status of native plant and terrestrial invertebrate populations. Monitoring methods will be assessed and altered as necessary to improve trend detection and develop knowledge of habitat requirements for these species.

**Activity TES-6.2: Implement translocations of each species and site restoration as needed by developing appropriate techniques for capture, translocation, release, and monitoring.**

Capture, translocation, and restoration are critical steps in establishing additional populations. These potential translocations will provide a buffer against catastrophic declines of current natural populations.

**Strategy TES-7: Establish populations of each listed plant species on one to three additional Monument islands and ensure genetic material is also protected in approved repositories.**

*Amaranthus brownii*, *Schiedea verticillata*, and *Pritchardia remota* are believed to be endemic to Nihoa. *A. brownii*, an herbaceous annual, is the rarest native plant species on Nihoa; when last seen in 1983, only 35 plants were located. *S. verticillata*, a perennial herbaceous species, is confined to approximately 10 colonies totaling fewer than 400 individuals on Nihoa. *P. remota*, a long-lived perennial fan palm, has fewer than 1,500 individuals and occurs in four valleys on Nihoa. Because of the small number of existing individuals and their extremely limited distributions, these species are subject to an increased likelihood of extinction from random events. *Cenchrus agrimonioides* var. *laysanensis* was known historically only from the NWHI at Laysan Island, Kure Atoll, and Midway Atoll. Although *C. agrimonioides* var. *agrimonioides* currently occurs on O‘ahu and Maui, the *laysanensis* variety has not been observed since 1973. *Mariscus pennatiformis* spp. *bryanii*, a member of the sedge family, is known only from Laysan Island, and comprises only one to 200 individuals annually.

**Activity TES-7.1: Ensure all endangered plant species from Nihoa and Laysan Island are fully represented in an ex situ collection such as a nursery or arboretum.**

For these extremely rare taxa, it is critical to ensure that these plants are maintained in off-site locations to protect them from extinction should these in situ populations or their critical habitat experience a catastrophic event. Using guidelines for collection described in an authorized Endangered Species Permit, seeds of all listed plants will be collected and sent to seed banks such as the Lyon Arboretum and National Tropical Botanical Garden.

**Activity TES-7.2: Increase numbers and locations of *Amaranthus brownii* and *Schiedea verticillata* on Nihoa by 2018.**

Existing colonies will be augmented via outplanting, and factors restricting colony expansion (e.g., competition from alien species) will be eliminated. Attempts will be made to establish new colonies within the historical range of these species by identifying key environmental factors associated with plant growth and reproduction, preparing the sites, propagation, outplanting, and post-planting maintenance.

**Activity TES-7.3: Establish a self-sustaining *Pritchardia remota* population on Laysan Island by 2012.**

In accordance with the Draft Laysan Island Restoration Plan (Morin and Conant 1998), sites will continue to be prepared for planting and elimination of immediate threats, such as alien plants. Purity of seed stocks will be ensured by using standard operating procedures for maintaining the plants in the field. Frequent monitoring will be conducted to improve outplanting methods

and protect the site from alien species invasion, and plant vigor data will be collected to guide future outplanting strategies and techniques.

***Activity TES-7.4: Continue greenhouse operations on Laysan Island to propagate and outplant rare plant taxa.***

The plant propagation facility at Laysan Island is described in the Draft Laysan Island Restoration Plan (Morin and Conant 1998). *Pritchardia remota* seeds are collected at Nihoa and *Mariscus pennatiformis* seeds are collected following collection guidelines, including taking no more than 15 percent of seeds from any source plant. For *Pritchardia remota*, the surface of the seeds is sterilized before transporting them to Laysan Island to ensure that they are free of pests, diseases, and pathogens. The plants are germinated in shade houses and outplanted after they reach the optimal size for subsequent survival in the wild. A plant restoration database for Laysan is maintained to document variations in handling and treatment protocols and success after outplanting. All monitoring, collection, propagation, and outplanting follow guidelines from the Hawai'i Rare Plant Restoration Group, including Instructions and Methods, Collecting and Handling Protocols, and General Reintroduction/Outplanting Guidelines.

***Activity TES-7.5: Evaluate the potential to establish one to three colonies of *Amaranthus brownii*, *Schiedea verticillata*, and *Pritchardia remota* outside of their historical ranges.***

To protect the taxa from catastrophic events and achieve recovery objectives, it may be necessary to establish colonies of each taxa on other islands outside their historical range. Impacts on native flora and fauna at transplant sites will need to be assessed and evaluated to prevent the risk of hybridization with closely related species. Factors to consider include avoiding impacts to native species at establishment sites, finding suitable habitat, and choosing areas accessible enough to allow for planting and monitoring of introduced populations. Mokumanamana, Laysan Island, Kure Atoll, and Eastern and Sand Islands at Midway Atoll should be considered as potential sites.

***Strategy TES-8: Ensure protection of threatened and endangered species by facilitating Endangered Species Act consultations for Monument activities throughout the life of the plan.***

Since threatened and endangered species occur within the Monument, actions proposed by Federal agencies frequently require consultation with NMFS or FWS. Section 7(a)(2) of the ESA requires that federal agencies consult with NMFS for listed species under its jurisdiction and with the FWS for listed species under its jurisdiction (jurisdiction for sea turtles is shared by the two agencies) on actions that the federal agencies conclude may affect listed species or designated critical habitat.

This strategy undertakes the activities required to increase the capacity of the consultation actions under the ESA, promote timely and effective coordination among the action agencies and consulting agencies, and produce current baseline assessments of key species and designated critical habitat. These activities will help to improve the consultation process for all involved and result in protection and recovery of listed species and habitat.



***Activity TES-8.1: Increase the capacity of NMFS and FWS to address ESA consultations for activities within the Monument.***

This activity will seek to build the capacity of the consulting agencies to conduct consultations and coordinate with the action agencies and Monument staff. This activity will implement programs to improve the consulting personnel's knowledge about the species, habitat, and agency consultation procedures and laws. Such a program will include, among other elements, appropriate education, training, and regular interaction with species and habitat experts who can provide valuable input and review.

Additional staffing will most likely be needed by the agencies to carry out federal consultation requirements; staff will have expertise in ESA regulatory requirements, work to complete consultations in a timely fashion, coordinate between agencies and the Monument staff, appropriately integrate relevant biological information on the subject listed species or critical habitat, and develop and deliver Section 7 workshops for action agencies.

***Activity TES-8.2: Develop baseline assessments for listed species and critical habitat and streamline the Monument consultation process to facilitate ESA consultations.***

This activity will assist Monument managers, consulting agencies, and action agencies by producing ecological baselines of listed species and critical habitat, description of sensitive areas, and other information that can be considered early in any planning process relevant to the Monument. This information will be made available to action agencies to assist them in determining whether their activities may affect listed species and, if so, improve their biological assessments for consultations. It also will assist NMFS and FWS staff in evaluating proposed actions and developing their biological opinions. Also, ESA and other consultation procedures will be reviewed and streamlined and benefit from the preparation of current descriptions.

***Activity TES-8.3: Work with federal agencies proposing activities in the Monument to increase their knowledge about the ESA and listed species and critical habitat in the Monument.***

An action agency must be knowledgeable about the species, habitat, and laws directing consultation. When an action agency makes a determination regarding whether to consult and how to consult, the determination should be based on sound science and according to the criteria set forth in the regulatory regime implementing the ESA. To help action agencies recognize when their activities may affect listed species or critical habitat and the character of the effects, NMFS and the FWS will coordinate with its partners to build capacity within the action agencies.

Capacity building activities in this activity include the development and delivery by NMFS and FWS of targeted workshops that provide information on the requirements for ESA consultations and on the Monument listed species and critical habitat and working with partners to develop a cache of "best practices" and other operations protocols to avoid any impacts to listed species and habitat. These workshops and other like information exchanges will help to reduce and avoid any detrimental effects to listed species and critical habitat, improve the overall relationship with action agencies, and facilitate timely and effective consultations.

**Table 3.2.1 Summary of Strategies, Activities, and Agency Leads for Threatened and Endangered Species**

<b>Strategies and Activities</b>	<b>Agency Lead</b>
<b>Strategy TES-1: Support activities that advance recovery of the Hawaiian monk seal for the life of the plan.</b>	
Activity TES-1.1: Support marine debris removal activities to promote recovery.	NOAA
Activity TES-1.2: Support and facilitate emergency response for monk seals.	NOAA
Activity TES-1.3: Conserve Hawaiian monk seal habitat.	NOAA
Activity TES-1.4: Reduce the likelihood and impact of human interactions on monk seals.	NOAA
Activity TES-1.5: Support outreach and education on Hawaiian monk seals.	NOAA
Activity TES-1.6: Reduce shark predation on monk seals	NOAA
<b>Strategy TES-2: Determine the status of cetacean populations and verify and manage potential threats over the life of the plan.</b>	
Activity TES-2.1: Census cetacean populations.	NOAA
Activity TES-2.2: Conduct annual spinner dolphin mark and recapture photo identification surveys.	State of Hawai'i
Activity TES-2.3: Monitor, characterize, and address the effects of marine debris on cetaceans in the Monument.	NOAA
Activity TES-2.4: Respond to any suspected disease and unusual mortality incidents affecting cetaceans.	NOAA
Activity TES-2.5 Prevent human interactions with cetaceans.	NOAA
<b>Strategy TES-3: Ensure that nesting populations of green turtles at source beaches are stable or increasing over the life of the plan.</b>	
Activity TES-3.1: Collect biological information on nesting turtle populations.	FWS
Activity TES-3.2: Protect and manage nesting and basking habitat.	FWS
Activity TES-3.3: Protect and manage marine habitat, including foraging areas and migration routes.	NOAA
<b>Strategy TES-4: Work with the international recovery team for short-tailed albatrosses to facilitate an increase in the total breeding population of this species to at least 25 breeding pairs occurring on sites other than Torishima and Senkaku islands.</b>	
Activity TES-4.1: Work cooperatively with the Japanese government to establish one or more breeding populations on islands free from threats such as active volcanoes and introduced mammals.	FWS
Activity TES-4.2: Conduct studies to examine the correlation between reproductive success and contaminant loads.	FWS
Activity TES-4.3: Create and disseminate information on fisheries bycatch and bycatch reduction to all fisheries occurring outside the Monument.	NOAA
<b>Strategy TES-5: Conduct activities to increase Laysan duck populations in the Monument over the life of the plan.</b>	
Activity TES-5.1: Continue population monitoring on Laysan Island and Midway Atoll.	FWS
Activity TES-5.2: Carry out translocations to other sites in the Monument.	FWS

Strategies and Activities	Agency Lead
<b>Strategy TES-6: Maintain stable populations of the Laysan finch, Nihoa finch, and Nihoa millerbird in the Monument over the life of this plan.</b>	
Activity TES-6.1: Continue to conduct annual censuses of populations of each passerine species and monitor their food and habitat requirements.	FWS
Activity TES-6.2: Implement translocations of each species and site restoration as needed by developing appropriate techniques for capture, translocation, release, and monitoring.	FWS
<b>Strategy TES-7: Establish populations of each listed plant species on one to three additional Monument islands and ensure genetic material is also protected in approved repositories.</b>	
Activity TES-7.1: Ensure all endangered plant species from Nihoa and Laysan Island are fully represented in an ex situ collection such as a nursery or arboretum.	FWS
Activity TES-7.2: Increase numbers and locations of <i>Amaranthus brownii</i> and <i>Schiedea verticillata</i> on Nihoa by 2018.	FWS
Activity TES-7.3: Establish a self-sustaining <i>Pritchardia remota</i> population on Laysan Island by 2012.	FWS
Activity TES-7.4: Continue greenhouse operations on Laysan Island to propagate and outplant rare plant taxa.	FWS
Activity TES-7.5: Evaluate the potential to establish one to three colonies of <i>Amaranthus brownii</i> , <i>Schiedea verticillata</i> , and <i>Pritchardia remota</i> outside of their historical ranges.	FWS
<b>Strategy TES-8: Ensure protection of threatened and endangered species by facilitating Endangered Species Act consultations for Monument activities throughout the life of the plan.</b>	
Activity TES-8.1: Increase the capacity of NMFS and FWS to address ESA consultations for activities within the Monument.	FWS NOAA
Activity TES-8.2: Develop baseline assessments for listed species and critical habitat and streamline the Monument consultation process to facilitate ESA consultations.	NOAA FWS
Activity TES-8.3: Work with federal agencies proposing activities in the Monument to increase their knowledge about the ESA and listed species and critical habitat in the Monument.	NOAA FWS



### 3.2.2 Migratory Birds Action Plan

#### Desired Outcome

Conserve migratory bird populations and habitats within Papahānaumokuākea Marine National Monument.

Links to other Action Plans	
3.2.3	Habitat Management and Conservation
3.3.2	Alien Species
3.3.4	Emergency Response
3.5.4	Ocean Ecosystems Literacy
3.6.3	Coordinated Field Operations

#### Current Status and Background

In 1903, President Theodore Roosevelt placed Midway under the jurisdiction and control of the Navy to stop the “wanton destruction of birds that breed on Midway.” In 1909, he ordered that “the following islets and reefs, namely: Cure Island, Pearl and Hermes Reef, Laysianki or Pell Island, Laysan Island, Mary Reef, Dowsetts Reef, Gardiner Island, Two Brothers Reef, French Frigate Shoal, Necker Island, Frost Shoal and Bird Island ...are hereby reserved and set apart, subject to valid existing rights, for the use of the U.S. Department of Agriculture as a preserve and breeding ground for native birds.” Thus, native birds were the first wildlife species for which the Monument area was managed for conservation purposes by the U.S. Government. Early protection was important in ensuring the large, diverse seabird and shorebird populations present today in the Monument. Seabird colonies in the NWHI constitute one of the largest and most important assemblages of tropical seabirds in the world, with approximately 14 million birds (6 million breeding annually), representing 22 species. Greater than 95 percent of the world’s Laysan and black-footed albatrosses nest here. For several other species, such as the Bonin petrel, Christmas shearwater, Tristram’s storm-petrel, and gray-backed tern, the NWHI supports colonies of global significance. For the species of boreally breeding shorebirds that overwinter in the tropical Central Pacific, the NWHI are an essential stopover or wintering site. In particular, the bristle-thighed curlew relies on the mammal-free islands of the Monument because it goes through a flightless period during molt and is very vulnerable to predation.

Links to goals
Goal 1
Goal 2
Goal 3
Goal 4
Goal 5

#### Need for Action

The majority of all tropical seabirds in Hawai‘i nest in the Monument, and those breeders plus an equal number of species of nonbreeding seabirds transit through or forage in the waters of the Monument. While the breeding colonies are secure from future development and disturbance, a variety of threats still faces seabirds in the Monument, including contaminants left from former activities in the area and contaminants, such as oil, arriving from the sea; habitat loss to sea level rise; changes in food availability resulting from climate change; marine debris, which causes both ingestion and entanglement hazards; invasive species; fisheries interactions outside the Monument boundary; and wildlife diseases. Breeding seabirds and migratory shorebirds rely on terrestrial areas of the Monument for valuable wintering habitat, free of mammalian predators.

Statute and policy at several levels mandate the protection and management of migratory bird populations in the Monument. The primary federal protective measure for these species is the Migratory Bird Treaty Act of 1918, which prohibits hunting, taking, capturing, killing, or selling of seabird species, and also fully protects eggs, nests, and feathers from collection or destruction. Additional directives from international treaties, domestic legislation, executive orders, state law, and FWS policy require the protection, monitoring, and assessment of migratory nongame birds;

determination of the effects of environmental changes and human activities on migratory birds; and active protection of colonies, roosts, loafing sites, and adjacent waters for seabirds.

### **Strategies to Achieve the Desired Outcome**

Four strategies have been identified for achieving the desired outcomes of protecting and enhancing migratory bird populations in the Monument. The strategies and activities are coded by the acronym for the action plan title, “Migratory Birds” (MB). A summary of strategies and activities is provided in Table 3.2.2 at the end of this action plan.

- MB-1: Protect and enhance habitats for terrestrial and marine migratory birds throughout the life of the plan.
- MB-2: Minimize the impact of threats to migratory birds such as habitat destruction by invasive species, disease, contaminants (including oil), and fisheries interactions for the life of the plan.
- MB-3: Monitor populations and habitats of migratory birds at a level sufficient to ascertain natural variation and then to detect changes in excess of that variation that might be attributed to human activities, including anthropogenic climate change.
- MB-4: As threats are removed, restore seabird species at sites where they have been extirpated.

### **Strategy MB-1: Protect and enhance habitats for terrestrial and marine migratory birds for the life of the plan.**

Safe habitats for breeding and foraging are essential for all of the migratory birds using the Monument. While most seabirds and shorebirds exhibit some flexibility in their habitat requirements, features of the plant community (species and structural characteristics) favor or limit populations.

#### ***Activity MB-1.1: Control or eradicate nonnative species at all sites where they have a negative impact on the survivorship or reproductive performance of migratory birds.***

Invasive species affect survival and reproduction of migratory birds by causing direct mortality through predation or parasitism, or by modifying the habitat to make it less suitable for survival or reproduction. Invasive species that have been shown to diminish the quality of migratory bird habitat in the Monument include several plants such as sandbur (*Cenchrus echinatus*), ironwood (*Casuarina equisetifolia*), and golden crownbeard (*Verbesina encelioides*), and introduced scale insects and associated ants that damage vegetation providing appropriate habitat for migratory birds. (See Section 3.3.2, Alien Species Action Plan.)

#### ***Activity MB-1.2: Restore components of the native plant communities that are important to seabird nesting.***

Opportunities for restoring native habitats for seabirds exist wherever nonnative species have been eradicated or controlled or human activities limiting migratory bird species have ceased. Translocation, propagation, and outplanting of native plants (*Eragrostis variabilis*, *Sesbania tomentosa*, *Sida fallax*, *Scaevola sericea*, etc.) to improve habitat for migratory bird nesting and foraging are ongoing at Laysan Island and Midway and Kure Atolls and are planned for other sites in the Monument (Rehkemper et al. 2005).

**Strategy MB-2: Minimize the impact of threats to migratory birds such as habitat destruction by invasive species, disease, contaminants (including oil), and fisheries interactions for the life of the plan.**

The original motivation for the protection of the area by the federal government was to eliminate illegal harvest of breeding seabirds. Minimizing threats to migratory bird populations remains a primary concern.

***Activity MB-2.1: Conduct surveillance for evidence of avian disease outbreaks, and follow existing response plan if disease is detected.***

The MMB participates with other National Wildlife Refuges and agencies as partners in the Hawai'i–Pacific Islands Working Group on Avian Influenza Surveillance to guard against wildlife diseases such as Asian H5N1 Avian Influenza. Staff report all instances of unusual mortality and collect samples using approved safety protocols and protective gear. If avian influenza is detected, Monument staff will use the Highly Pathogenic Avian Influenza Disease Contingency Plans in place for the Midway Atoll NWR and Hawaiian Islands NWR.

***Activity MB-2.2: Monitor contaminant levels in birds and their habitats, and respond if the potential exists to cause immediately lethal or sublethal effects.***

Bird health and contaminant levels in areas of contamination that have already been identified will be monitored, and unexplained health problems in other areas will be evaluated for possible links to contaminants.

***Activity MB-2.3: Ensure that all spill response plans have adequate coverage of actions necessary to minimize mortality to migratory birds.***

Monument staff will coordinate with and provide technical contributions regarding migratory birds to multiagency spill prevention and pre-spill activities, as well as actual response actions and Natural Resource Damage Assessments. (Also see Section 3.3.4, Emergency Response Plan.) Staff will contribute to keeping seabird and shorebird information current for the area contingency plan and maintain a list of restoration activities for the Co-Trustees.

***Activity MB-2.4: Maintain rigorous quarantine protocols to prevent the introduction of alien species that may prove hazardous specifically to migratory birds.***

Alien species are one of the greatest threats to migratory birds, either directly in the case of pathogens or predators, or indirectly in the case of invasive plants or animals that damage habitat. Rigorous quarantine protocols must be maintained to ensure new alien species are not introduced or transmitted from one island to another. (See Section 3.3.2, Alien Species Action Plan.)

***Activity MB-2.5: Work with partners to reduce the impact of commercial and sport fisheries outside the Monument on migratory bird populations.***

Sport and commercial fishing was eliminated, or is being phased out, within the Monument. However, such activities outside the Monument can adversely impact Monument resources. FWS established national policy in 2001 that identified the bycatch of migratory birds in fisheries as a serious conservation problem and may be inconsistent with of the underlying tenets



of the Migratory Bird Treaty Act. FWS and the U.S. Department of State worked with NMFS to draft a National Plan of Action for addressing the problem of seabird bycatch to comply with the Code of Conduct for Responsible Fisheries developed by the Food and Agriculture Organization of the United Nations. This group of agencies and representatives of the Regional Fisheries Management Councils work with industry and conservation organizations to guide implementation of the National Plan of Action to reduce fishing impacts. Laysan albatrosses and black-footed albatrosses, two of the species most affected by bycatch mortality in the northern hemisphere, nest almost exclusively in the Monument, so the responsibility to provide data on seabird population status and biological expertise regarding the problem falls to Monument staff. Staff provide additional assistance by teaching seabird identification skills to fishers and fisheries observers and by assisting with the development of mitigation techniques. Implementation of many of the actions identified in the FWS Migratory Bird Draft Conservation Action Plan for Black-footed Albatross (*Phoebastria nigripes*) and Laysan Albatross (*P. immutabilis*) will involve Monument staff.

***Activity MB-2.6: Research mite impacts on black-footed albatross chicks on Kure Atoll.***

Mites (including the native mite *Womersia midwayensis*) causing mortality and morbidity on black-footed albatross (*P. nigripes*) chicks on Kure Atoll should be investigated. This activity is necessary to determine the preferred habitat of mites and assess the potential to alter habitat or discourage albatross nesting.

**Strategy MB-3: Monitor populations and habitats of migratory birds to ascertain natural variation and to detect changes in excess of that variation that might be attributed to human activities, including anthropogenic climate change.**

Monitoring migratory bird populations and habitats is necessary to detect changes in excess of natural variation that might be attributed to human activities. Monitoring must include statistically valid sample sizes and must provide time series long enough for credible evaluations of population responses to threats and management actions.

***Activity MB-3.1: Using standard methods devised for tropical seabirds, monitor a suite of 15 focal seabird species at specific sites in the Monument to track changes in population size and understand underlying causes of that change.***

A coordinated program to assess the status and trends of seabird populations is essential to provide scientific information necessary to make management decisions and to evaluate the efficacy of management actions. The Regional Seabird Conservation Plan (FWS Pacific Region 2005) recommends inventories of all seabird colonies at long-term intervals, such as every ten years, and intensive quantitative monitoring of specific parameters, such as survival or population size of a select group of species at selected localities, on an annual basis. The 15 focal species were identified during a review of seabird monitoring in the NWHI by the U.S. Geological Survey and FWS and were chosen because they are Birds of Conservation Concern, stewardship species of the NWHI, or representative of specific foraging or breeding guilds. A recently completed assessment of seabird monitoring for Hawai'i and the Pacific (Citta, Reynolds, and Seavy 2006) will be used to develop a standardized seabird monitoring plan for the Monument as well as other areas in the U.S. Central Tropical Pacific. As part of the plan, the monitoring data will be maintained in the PIMS.

***Activity MB-3.2: Monitor changes in habitat quality by measuring reproductive performance and diet composition in selected seabird species.***

Parameters such as hatching success, fledging success, and diet composition provide a more immediate indication of ocean conditions and prey abundance and availability than does long-term population monitoring. This is because seabirds take many years to mature to recruitment into the breeding population, and actual fluctuations in the number of breeders may reflect conditions that occurred five to ten years previously. As a result, quantification of population parameters such as reproductive success and survival, and subsequent modeling of population trends, provides a better understanding of the status of these seabird populations.

***Activity MB-3.3: Develop and use standardized methods to accurately assess the population size and trends of over-wintering and migrating Pacific golden plovers, bristle-thighed curlews, wandering tattlers, and ruddy turnstones.***

Repeatable surveys at reference sites where we can predict continuity of measurement in the future will allow us to evaluate long-term changes in transient and winter resident shorebirds in the Monument and contribute to international monitoring of these wide-ranging species.

**Strategy MB-4: As threats are removed, restore seabird species at sites where they have been extirpated.**

Many examples of extremely successful conservation programs are based on the principle that populations can be restored to an area if a limiting threat is removed. Seabird populations that formerly occurred at various sites in the Monument have the potential to be restored by using behavioral manipulation techniques such as colony attraction through sound and visual stimuli or the provision of artificial nest structures.

***Activity MB-4.1: Use social attraction techniques to encourage recolonization at Midway and Kure Atolls by Bulwer's petrels and Tristram's storm-petrels.***

The introduction of Polynesian rats to Kure sometime before 1912 and of black rats to Midway in 1943 resulted in the extirpation of these two small seabird species at these two atolls. Both rat species have now been eradicated. Petrel species are typically very conservative about dispersing and starting new colonies, but successful restoration of petrels using social attractants such as playing recorded calls has been documented in several studies (Podolsky and Kress 1987), and the provision of nest boxes has been shown to enhance reproductive success and thus accelerate the recolonization process (Bolton et al. 2004).

**Table 3.2.2 Summary of Strategies, Activities, and Agency Leads for Migratory Birds**

<b>Strategies and Activities</b>	<b>Agency Lead</b>
<b>Strategy MB-1: Protect and enhance habitats for terrestrial and marine migratory birds throughout the life of the plan.</b>	
Activity MB-1.1: Control or eradicate nonnative species at all sites where they have a negative impact on the survivorship or reproductive performance of migratory birds.	FWS
Activity MB-1.2: Restore components of the native plant communities that are important to seabird nesting.	FWS
<b>Strategy MB-2: Minimize the impact of threats to migratory birds such as habitat destruction by invasive species, disease, contaminants (including oil), and fisheries interactions for the life of the plan.</b>	
Activity MB-2.1: Conduct surveillance for evidence of avian disease outbreaks, and follow existing response plan if disease is detected.	FWS
Activity MB-2.2: Monitor contaminant levels in birds and their habitats, and respond if the potential exists to cause immediately lethal or sublethal effects.	FWS
Activity MB-2.3: Ensure that all spill response plans have adequate coverage of actions necessary to minimize mortality to migratory birds.	FWS
Activity MB-2.4: Maintain rigorous quarantine protocols to prevent the introduction of alien species that may prove hazardous specifically to migratory birds.	FWS
Activity MB-2.5: Work with partners to reduce the impact of commercial and sport fisheries outside the Monument on migratory bird populations.	FWS
Activity MB-2.6: Research mite impacts on black-footed albatross chicks on Kure Atoll.	State of Hawai'i
<b>Strategy MB-3: Monitor populations and habitats of migratory birds to ascertain natural variation, including anthropogenic climate change.</b>	
Activity MB-3.1: Using standard methods devised for tropical seabirds, monitor a suite of 15 focal seabird species at specific sites in the Monument to track changes in population size and understand underlying causes of that change.	FWS
Activity MB-3.2: Monitor changes in habitat quality by measuring reproductive performance and diet composition in selected seabird species.	FWS
Activity MB-3.3: Develop and use standardized methods to accurately assess the population size and trends of over-wintering and migrating Pacific golden plovers, bristle-thighed curlews, wandering tattlers, and ruddy turnstones.	FWS
<b>Strategy MB-4: As threats are removed, restore seabird species at sites where they have been extirpated.</b>	
Activity MB-4.1: Use social attraction techniques to encourage recolonization at Midway and Kure Atolls by Bulwer's petrels and Tristram's storm-petrels.	FWS



### 3.2.3 Habitat Management and Conservation Action Plan

#### Desired Outcome

Protect, maintain, and where appropriate, restore the native ecosystems and biological diversity of Papahānaumokuākea Marine National Monument.

Links to Other Action Plans	
3.2.1	Threatened and Endangered Species
3.2.2	Migratory Birds
3.3.2	Alien Species
3.5.1	Agency Coordination
3.5.4	Ocean Ecosystems Literacy
3.6.3	Coordinated Field Operations

#### Current Status and Background

Presidential Proclamation 8031 prescribes ecosystem-based management for the Northwestern Hawaiian

Islands, and the National Wildlife Refuge System Administration Act of 1966, as amended, also requires such management for all NWRs. They require protections of ecosystem structure and function; conservation of fish, wildlife, plants, and their habitats; and ensuring the biological integrity, diversity, and environmental health of the Monument. Section 1.1 of this Monument

Links to Goals
Goal 1
Goal 2
Goal 3
Goal 4

Management Plan describes habitats in the NWHI, ranging from abyssal benthic areas to the high cliff faces of Nihoa and Mokumanamana (Necker), and Section 1.2 elaborates on the historical and current status of those habitats as well as describing resources of concern in the Monument. The Environmental and Anthropogenic Stressors section (1.3) describes known threats to biological integrity, diversity, and environmental health of the Monument. Habitat management activities included in this action plan include inventory of Monument resources, characterizing habitat health, investigating problems, changing plant communities to meet ecosystem goals, removing contaminants, preserving wilderness character, and engaging in ecological restoration of native habitats.

#### Need for Action

While the Monument remains one of the most remote and undisturbed archipelagos in the world, it still requires active habitat management on the part of managers to fulfill the mandate of protecting, maintaining, and restoring its wide range of native habitats. Furthermore, FWS has a mandate to conserve and restore, where appropriate, wildlife and habitats on NWRs. In accordance with refuge system laws and policies, management must “maintain existing levels of biological integrity, diversity, and environmental health at the Refuge scale. Following that, [managers] will restore lost or degraded elements of biological integrity, diversity, and environmental health at all landscape scales where it is feasible and supports fulfillment of refuge purposes” (601 FW 3). Restoration, when and where appropriate, will be undertaken using best available information about pre-disturbance conditions. This action plan will provide guidance for management of Monument lands and waters, rationale for the activities listed, and a framework for continuity and consistency in habitat management decisions for the life of the plan.

### Strategies to Achieve the Desired Outcome

Strategies for conservation and management in the varied habitats of the Monument have been identified to achieve the desired outcome of protecting native ecosystems and biological diversity. The strategies and activities are coded by the acronym for the action plan title, “Habitat Management and Conservation” (HMC). A summary of strategies and activities is provided in Table 3.2.3 at the end of this action plan.

- HMC-1: Within 15 years, develop and implement a strategy for restoring the health and biological diversity of the shallow reefs and shoals where anthropogenic disturbances are known to have changed the ecosystem, using best available information about pre-disturbance conditions.
- HMC-2: Within 10 years, investigate and inventory sources of known contamination from historical human uses of the NWHI and, where appropriate, coordinate with responsible parties to develop plans and complete cleanup actions.
- HMC-3: Protect and restore beach strand and crest habitats over the life of the plan.
- HMC-4: Within 10 years, restore and maintain coastal mixed grasses and shrubs on all the coralline islands and atolls of the Monument using best available historical information about the original indigenous ecosystem.
- HMC-5: Within 10 years, restore and maintain coastal mixed grasses and shrublands on basalt islands in the Monument.
- HMC-6: Maintain and better understand the Monument’s wetland and mudflat habitats to benefit migratory shorebirds and waterfowl for the life of the plan.
- HMC-7: Maintain, enhance, and, where appropriate, develop freshwater seeps, intermittent streams, and freshwater ponds as necessary for the benefit of native species for the life of the plan.
- HMC-8: Maintain no more than 150 acres of ironwood woodlands on Sand Island, Midway Atoll, to provide seabird nesting and roosting habitat for the life of the plan.
- HMC-9: Protect and maintain 120 acres of vertical rocky cliff-face habitat at Nihoa and Mokumanamana for nesting seabirds for the life of the plan.

**Strategy HMC-1: Within 15 years, develop and implement a strategy for restoring the health and biological diversity of the shallow reefs and shoals where anthropogenic disturbances are known to have changed the ecosystem, using best available information about pre-disturbance conditions.**

The shallow reef (less than 16 fathoms, 30 meters) areas of the Monument have been affected by a variety of human activities through the years, including overharvesting of some species, dredging and filling, and anchor damage from vessels stopping in the area. The extent and relative severity of these impacts are poorly understood.

***Activity HMC-1.1: Identify and prioritize restoration needs in shallow water reef habitats impacted by anthropogenic disturbances within 5 years.***

For more than 100 years, human activities in the NWHI have created disturbance in natural systems. Many such actions affecting marine and terrestrial wildlife are known, but the impacts of disturbance in the marine environment in particular, opportunities for restoration, and priorities for undertaking restoration actions are not thoroughly analyzed. One example of a

shallow-reef marine organism that has been negatively impacted by human activities is the black-lipped pearl oyster (*Pinctada margaritifera*), which has not recovered at Pearl and Hermes atoll since it was intensely harvested in the 1920s (Galtsoff 1933; Keenan et al. 2006). Where appropriate, and using the best available information about pre-disturbance conditions, opportunities for restoring species will be identified and prioritized.

***Activity HMC-1.2: Analyze historical and present impacts on reef growth at Midway Atoll and determine factors limiting nearshore patch reef growth to facilitate restoration of natural reef building.***

Midway Atoll has been the site of the most dramatic modification of reef circulation and the most prolific source of anthropogenic inputs to nearshore reefs in the NWHI. Evaluating these pressures and their effects on reefs will provide useful information to help replace lost ecosystem function and integrity of reefs at Midway and potentially at other sites with similar threats to nearshore reef habitats.

***Activity HMC-1.3: Where feasible, implement appropriate restoration activities.***

As follow-up to identifying restoration priorities (HMC-1.1), appropriate restoration activities will be assessed (HMC-1.2), actions developed and, where feasible, implemented.

**Strategy HMC-2: Within 10 years, investigate, inventory, and map sources of known contamination from historical human uses of the NWHI and, where appropriate, coordinate with responsible parties to develop plans and complete cleanup actions.**

Human occupation and activity in the NWHI have resulted in numerous impacts, some of which can be categorized as contaminants that disrupt native ecosystems in various ways. These contaminants are found in both terrestrial and marine environments of the Monument and include, but are not limited to, heavy metals, iron, PCBs, and other organochlorines. Other materials that have come into the Monument by way of the ocean include pesticides, oil from undocumented spills at sea, and plastic marine debris (see Section 3.3.1, Marine Debris Action Plan). These contaminants occur both in known dumping sites and in areas less well characterized or not yet discovered.

***Activity HMC-2.1: Evaluate effects of contamination in terrestrial and nearshore areas from shoreline dumps at French Frigate Shoals and at Kure, Midway, and Pearl and Hermes atolls and prioritize cleanup action based on risk assessments.***

Various dumps left behind from military activities during World War II and the Cold War are disintegrating quickly. Runoff, erosion, and seepage from all of these dumps have contaminated nearshore habitats. The extent of the effects of this contamination to birds nesting on the dumps and marine organisms in adjacent waters will be investigated.

***Activity HMC-2.2: Work with partners and responsible parties to verify the integrity of known landfills and dumps and to conduct additional remediation if necessary.***

Landfills and dumping sites at Midway Atoll, such as the Old Bulky Waste Landfill, which was designated as a contaminated site during the Navy's Base Realignment and Closure (BRAC) program assessment at Midway, and "Rusty Bucket" on Sand Island at Midway, which was not designated contaminated in the BRAC assessment, need to be evaluated every five years for integrity, containment effectiveness, and hazard potential. Monument staff will work with the



U.S. Environmental Protection Agency (EPA) and the Navy to ensure best practices for preventing the contained contaminants at these sites from migrating out of the dump areas at Midway. In collaboration with the Coast Guard, EPA, and Hawai'i Department of Health, the Co-Trustees will work to investigate washing and leaching of PCBs from known dumps at Kure Atoll and to finish the removal of the dump at Tern Island, French Frigate Shoals, to achieve agreed-upon levels of PCBs there.

***Activity HMC-2.3: Locate historic disposal sites at French Frigate Shoals and at Kure, Midway, and Pearl and Hermes atolls, and investigate them for contamination.***

There is a need to search for documented but not yet located landfills at Tern and East Islands, French Frigate Shoals, and Southeast Island, Pearl and Hermes Atoll, and for underground storage tanks at Eastern Island, Midway Atoll. It is also important to investigate the 1993 unlined landfill created by the Coast Guard on Green Island, Kure Atoll, during remediation of the LORAN station to confirm that the PCBs placed in the unlined landfill are not leaching to groundwater and that the documented surface hot spots have been removed. In addition, the 25 milligram/kilogram cleanup level for PCBs should be evaluated to ensure that it is adequately protective of wildlife.

***Activity HMC-2.4: Evaluate costs to ecosystem function and benefits of removing anthropogenic iron sources such as metal from shipwrecks and discarded debris from reefs throughout the Monument.***

Increasing the available iron in tropical oceanic waters often results in an overgrowth of certain cyanobacteria that are naturally rare in the iron-limited environments of the tropical Pacific away from volcanic islands. The MMB will develop a catalog of all anthropogenic iron sources and the factors associated with each site that would enable prioritization for removal and a cost-benefit analysis.

***Activity HMC-2.5: Continue collection and fingerprinting of oil found washed ashore and on wildlife from mystery spills to determine its provenance, and build an oil sample archive for possible use as evidence in liability assignment.***

The occurrence of oil on nesting seabirds and washed up on beaches in the Monument that cannot be attributed to a known spill is a regularly recorded event at all the staffed sites in the NWHI. Because of the enormous foraging range of subtropical seabirds and the large number of vessels transiting the North Pacific, these spills are rarely attributed to any responsible party. Samples collected in the Monument can be used to compare with banks of petroleum signatures and may help in understanding more about the primary sources of this pollution.

***Activity HMC-2.6: Continue monitoring the area at Laysan Island that was contaminated by the insecticide carbofuran.***

In 1988, biologists first detected unexplained mortality of carrion flies and ghost crabs at a beach crest site on Laysan Island. These scavengers were coming in to feed on dead albatross chicks, commonly seen in summer months at Laysan. Upon entering the area later referred to as the "Dead Zone," they would abruptly die. The cause was finally identified by FWS as the pesticide carbofuran, and the area was cleaned by removing and treating on-site contaminated sand in 2002. Continued vigilance is needed to make sure that such effects do not flare up again in that area because of an overlooked hot spot.

***Activity HMC-2.7: Conduct ecological risk assessment to determine allowable lead levels in soils at Midway and remove lead from buildings and soils to nonrisk levels.***

Lead in the soils around many of the buildings at Midway is adversely affecting the birds nesting and burrowing in these areas by causing droop-wing and other lethal and sublethal effects. Before the lead can be effectively removed from the soil, an ecological risk assessment will be performed to determine the cleanup level necessary to ensure the protection of human and wildlife health. The lead-based paint flaking from the buildings at Midway will be removed to eliminate this contamination.

**Strategy HMC-3: Protect and restore beach strand and crest habitats over the life of the plan.**

Beach strand and beach crest habitats on French Frigate Shoals, Laysan Island, Lisianski Island, Pearl and Hermes Atoll, Midway Atoll, and Kure Atoll provide important habitat for a variety of native organisms, several of them listed as threatened or endangered. Anthropogenic threats, including previous manipulation of shorelines and additions of structures and the suite of effects to shoreline habitats associated with global climate change, make it necessary to actively manage these habitats in the Monument.

***Activity HMC-3.1: Evaluate loss of beach strand and crest due to erosion and sea level rise to aid in formulating a restoration plan that will stop as much net loss of beach strand and beach crest habitat as is possible.***

Projected sea level rise, increased storm frequency, changes in current patterns, and large wave events pose a particular danger to the low-lying terrestrial habitats of the Monument. In addition to sea level rise, invasive species threaten the dune stability, particularly golden crownbeard (*Verbesina enceliodes*) and ironwood (*Casuarina equisetifolia*) on Kure and Midway Atolls. Monument staff will evaluate the loss of beach strand and crest in order to formulate a restoration plan.

***Activity HMC-3.2: Inventory and map manmade structures and changes in natural beach and reef state that may influence erosion and depositional processes at all of the beach strand units of the Monument.***

Human modification of shorelines and channels may be affecting ecosystem function in the NWHI. These features will be evaluated, their effects analyzed, and their restoration considered.

**Strategy HMC-4: Within 10 years, restore and maintain coastal mixed grasses and shrubs on all the coralline islands and atolls of the Monument using best available historical information about the original indigenous ecosystem.**

Coastal mixed grass and shrub habitats cover the majority of the Monument's terrestrial area and are important habitat for seabirds, shorebirds, landbirds, and terrestrial invertebrates. Careful review of historical botanical accounts and studies of pollen preserved in the anaerobic sediments of Laysan Lake (Athens, et al. 2007) provide a template for restoration of the plant communities of the coastal grass and shrublands.

***Activity HMC-4.1: Propagate and outplant native species chosen on the basis of historical records at Midway and historical and pollen records from Laysan Island in 250 acres of***

**vegetated area at Midway Atoll, focusing on the original footprint of the island and then moving to the dredge spoils section.**

Using seed sources deemed most appropriate by botanical experts, including bunchgrass (*Eragrostis variabilis*), naupaka (*Scaevola sericea*), morning glory (*Ipomoea pes caprae*, *I. indica*), *Solanum nelsonii*, *Capparus sandwichiana*, *Chenopodium oahuense*, and *Lepidium bidentatum*, and treated to maintain quarantine standards, Monument staff will propagate seeds in the greenhouse on Sand Island and outplant them in selected areas of the entire atoll.

**Activity HMC-4.2: Implement the Draft Laysan Island Restoration Plan by removing invasive plants, and propagating and outplanting all extant species identified in the pollen record or historical documents as formerly having occurred at Laysan.**

The Draft Laysan Island Restoration Plan (Morin and Conant 1998) details the biological history of the island's habitats and lays out a plan for ecological restoration of habitat structure and function. This document includes plans for restoration of plants, terrestrial arthropods, and avian components of the biological community that occurred at Laysan Island prior to human contact and the resultant loss of many of the island's species.

**Activity HMC-4.3: At Laysan Island, replace 60 acres of the introduced shrub *Indian pluchea* with native species.**

The need to provide appropriate nesting habitat and maintain elements of ecosystem function while restoring native species requires management of the timing of vegetation replacement. Reestablishment of the native shrub community (including *Sida fallax*, *Chenopodium oahuense*, and *Capparis sandwicensis*) will precede the removal of the alien plant *Pluchea indica* in order to maintain the ecosystem function of providing nesting substrate for red-footed boobies, great frigatebirds, and black noddies.

**Activity HMC-4.4: Formulate and implement a restoration plan for Lisianski Island using guidelines established for neighboring Laysan Island.**

Our current and historical knowledge of the vegetation community at Lisianski Island is less well developed than that of its neighbor, Laysan Island. Lisianski Island may provide good opportunities for ecological restoration following appropriate investigation of its botanical history. Sediments at the lowest part of the island will be sampled for ancient pollen to aid in reconstructing the composition and structure of the plant community prior to human visitation. Fossil pollen scientists believe that the soil of Lisianski Island may have characteristics amenable to the preservation of ancient pollen in the low-lying center of the island.

**Activity HMC-4.5: Propagate and outplant native vegetation on 34-acre Southeast Island at Pearl and Hermes Atoll to replace native plant community extirpated by invasion of the alien plant golden crownbeard.**

As golden crownbeard (*Verbesina encelioides*) is removed, native habitats will be restored on Southeast Island at Pearl and Hermes Atoll. This restoration is of great importance for the survival of several native plant populations, especially *Eragrostis variabilis*, *Solanum nelsonii*, *Tribulus cistoides*, *Lepidium bidentatum*, and *Boerhavia repens* at the northern end of the archipelago, and for a small translocated population of the endangered Laysan finch (*Telespyza cantans*). Propagules from the same native species still extant on several of the other islets in the atoll will be used.



***Activity HMC- 4.6: Implement coordinated ecosystem restoration activities on Kure Atoll.***

In 2007, the State of Hawai‘i began drafting a management plan for Kure Atoll. This plan includes prioritizing and eliminating ecosystem threats caused by past anthropogenic disturbances. Ongoing efforts to restore ecosystem function include removing invasive species and increasing the range of and the reintroduction of native plant species. These activities are designed to improve nesting, foraging, and resting habitat for migratory birds. Kure Atoll has been identified as a site for potential translocation of the endangered Laysan finch and Laysan duck. Assessment of the feasibility of these activities has begun.

***Activity HMC-4.7: Monitor changes in the species composition and structure of mixed grass and shrub plant communities at each site.***

An understanding of the range of natural variability caused by weather in these simple but dynamic vegetation communities allows managers to better evaluate the effectiveness of various management actions.

**Strategy HMC-5: Within 10 years, restore and maintain coastal mixed grasses and shrublands on basalt islands in the Monument.**

The coastal mixed grass and shrubland habitat of the basalt islands in the Monument (Nihoa and Mokumanamana, La Perouse Pinnacle, and Gardner Pinnacles) are remarkably intact with respect to their species composition and vegetation structure. They represent a window to the past in that they probably closely resemble the dryland coastal plant communities that have been lost in the main Hawaiian Islands.

***Activity HMC-5.1: Inventory and document life histories of endemic terrestrial invertebrates at Nihoa and Mokumanamana.***

The vegetation communities of Nihoa and Mokumanamana are the most intact native coastal plant assemblages in the State. They do suffer from the introduction of a number of alien insect species. Understanding the ecology of these new terrestrial arthropods will aid in identifying which species pose the greatest threat to the native coastal mixed grass and shrubland habitat, including the five endangered plant species there, and the endemic and native terrestrial invertebrates of these basalt islands.

***Activity HMC-5.2: Monitor changes in species composition and structure of the coastal shrub and mixed grass communities on basalt islands throughout the life of the plan.***

Surveys and mapping of the plant community will help document losses of native species and provide a template for restoration of any that are lost through invasive species competition, herbivory, or other means.

**Strategy HMC-6: Maintain and better understand the Monument’s wetland and mudflat habitats to benefit migratory shorebirds and waterfowl for the life of the plan.**

The vast oceanic areas that many boreal shorebirds and waterfowl must cross during their annual migration provide few resting places other than these small natural wetlands at Midway Atoll, Kure Atoll, Pearl and Hermes Atoll, and most importantly Laysan Island. While they are a small part of the total Monument area, they may provide a temporary habitat for migrant birds that determines their survival.

***Activity HMC-6.1: Monitor water level, salinity, and other water quality parameters of Laysan Lake, and document any loss of lake area.***

The hypersaline lake and associated mudflats at Laysan Island, and to a lesser extent, the ‘ākulikuli (*Sesuvium portulacastrum*) flats at Southeast Island, Pearl and Hermes Atoll, and Spit Island in Midway Atoll, serve as an important habitat for migratory waterfowl and shorebirds. Historically, during times of low vegetative cover caused by overbrowsing by rabbits or long periods of drought, the dunes have drifted into the lake.

***Activity HMC-6.2: As needed, restore dune habitat on Laysan Island to stabilize movement if lake loss starts to occur.***

Dune habitat can be effectively restored through vegetation protection or drift fences to minimize sand movement. Measures to slow sand movement may protect the wetland habitat at these sites.

**Strategy HMC-7: Maintain, enhance, and, where appropriate, develop freshwater seeps, intermittent streams, and freshwater ponds as necessary for the benefit of native species for the life of the plan.**

The vast majority of all the species of animals in the Monument can survive without access to any fresh water, but a few invertebrates, landbirds, and waterbirds at certain life stages (particularly the Laysan duck) require water with low salinity, and periodic access to these sources is essential. Freshwater sources are found at Nihoa, Mokumanamana, and Laysan Islands, and Midway and Kure Atolls.

***Activity HMC-7.1: Monitor salinity, parasites, contaminants, and native arthropods associated with freshwater seeps, ponds, and streams.***

The endemic passerines (particularly Nihoa finch and Laysan finch), the Laysan duck, and certainly a number of the native invertebrates, freshwater algae, and terrestrial arthropods rely on fresh water, particularly during their reproductive seasons. Water quality and abundance are important factors in the reproduction of many of these species.

***Activity HMC-7.2: Evaluate potential for development and create as needed additional freshwater sources at potential translocation sites of the Laysan duck, Nihoa finch, Laysan finch, and Nihoa millerbird.***

Some potential translocation sites for endangered endemic birds in the NWHI may contain all important habitat features for survival except for fresh water. Evaluation of the potential for water development at these locations will allow evaluation of overall translocation site suitability.

**Strategy HMC-8: Maintain no more than 150 acres of ironwood woodlands on Sand Island, Midway Atoll, to provide seabird nesting and roosting habitat for the life of the plan.**

The ironwood (*Casuarina*) forests at Sand Island provide nesting and roosting habitat for very large populations of white terns and the only breeding population of black noddies in the northern end of the Monument. While this species is an invasive nonnative, it does support these

large seabird populations and will be replaced with adequate native alternatives before removing it completely.

***Activity HMC-8.1: Remove ironwood on Sand Island from 50 acres outside designated woodland and control young ironwood in areas managed for grass and shrubs.***

Ironwood is a fast-spreading species that will displace other vegetation types if not restrained. Forested infestations can be treated with heavy machinery or cutting and application of Garlon®. Young *Casuarina* can be controlled by hand-pulling and cutting and herbicide treatment.

***Activity HMC-8.2: Devise and implement methods for monitoring population size and reproductive success in tree-nesting seabird species.***

Better census techniques for tree-nesting seabirds such as white terns and black noddies are needed to assist decisionmaking about vegetation management and ultimate replacement of introduced species with natives. These studies will enable evaluation of whether certain age classes or forest types are more productive than others for these seabirds.

**Strategy HMC-9: Protect and maintain 120 acres of vertical rocky cliff-face habitat at Nihoa and Mokumanamana for nesting seabirds for the life of the plan.**

Throughout Hawai‘i, vertical cliff habitats provide a safe haven for native birds, insects, and plants that can survive in the exposed inaccessible sites. Nihoa and Mokumanamana support colonies of cliff-nesting seabirds (white terns, black noddies, brown boobies, and white-tailed and red-tailed tropicbirds) and an unknown suite of plant and insect species on their dramatic rocky faces.

***Activity HMC-9.1: Educate other federal and state agencies about overflight rules and promote compliance regarding overflights and close approaches.***

Overflight restrictions are indicated on flight sectional charts, and the Federal Aviation Administration encourages pilots to maintain a minimum altitude of 2,000 feet above national wildlife refuges and national monuments. The Navy requires a minimum altitude of 3,000 feet over noise-sensitive areas such as national monuments. In addition, 50 CFR 27.34 prohibits the operation of aircraft at altitudes resulting in the harassment of wildlife. Aircraft approaches to the cliff habitats cause disturbance and possible loss of seabird eggs and chicks. Rapid turnover of personnel engaging in flights over the Monument has resulted in periodic overflights at too low an altitude. New staff (e.g., Coast Guard and DOD) will be made aware of the implications for wildlife disturbance.

***Activity HMC-9.2: Develop and implement techniques for monitoring plant and animal populations on cliff habitats in the Monument within 10 years.***

The cliff habitats of Nihoa and Mokumanamana are virtually inaccessible because of their height (up to 900 feet), windward location, and fragile rock type, which preclude safe climbing or rappelling. These cliffs provide habitat for significant proportions of seabirds, including white terns, black noddies, gray-backed terns, brown boobies, and red-tailed tropicbirds that nest on these islands. Monument staff will investigate culturally appropriate and innovative remote and direct methods as possible options for monitoring cliff habitats.

**Table 3.2.3 Summary of Strategies, Activities, and Agency Leads for Habitat Management and Conservation**

Strategies and Activities	Agency Lead
<b>Strategy HMC-1: Within 15 years, develop and implement a strategy for restoring the health and biological diversity of the shallow reefs and shoals where anthropogenic disturbances are known to have changed the ecosystem, using best available information about pre-disturbance conditions.</b>	
Activity HMC-1.1: Identify and prioritize restoration needs in shallow water reef habitats impacted by anthropogenic disturbances within 5 years.	NOAA
Activity HMC-1.2: Analyze historical and present impacts on reef growth at Midway Atoll and determine factors limiting nearshore patch reef growth to facilitate restoration of natural reef building.	NOAA FWS
Activity HMC-1.3: Where feasible, implement appropriate restoration activities.	NOAA FWS
<b>Strategy HMC-2: Within 10 years, investigate, inventory and map sources of known contamination from historic human uses of the NWHI and, where appropriate, coordinate with responsible parties to develop plans and complete cleanup actions.</b>	
Activity HMC-2.1: Evaluate effects of contamination in terrestrial and nearshore areas from shoreline dumps at French Frigate Shoals and at Kure, Midway, and Pearl and Hermes atolls and prioritize cleanup action based on risk assessments.	FWS
Activity HMC-2.2: Work with partners and responsible parties to verify the integrity of known landfills and dumps and to conduct additional remediation if necessary.	FWS
Activity HMC-2.3: Locate historic disposal sites at French Frigate Shoals and at Kure, Midway, and Pearl and Hermes atolls, and investigate them for contamination.	FWS
Activity HMC-2.4: Evaluate costs to ecosystem function and benefits of removing anthropogenic iron sources such as metal from shipwrecks and discarded debris from reefs throughout the Monument.	FWS
Activity HMC-2.5: Continue collection and fingerprinting of oil found washed ashore and on wildlife from mystery spills to determine its provenance, and build an oil sample archive for possible use as evidence in liability assignment.	FWS
Activity HMC-2.6: Continue monitoring the area at Laysan Island that was contaminated by the insecticide carbofuran.	FWS
Activity HMC-2.7: Conduct ecological risk assessment to determine allowable lead levels in soils at Midway and remove lead from buildings and soils to nonrisk levels.	FWS
<b>Strategy HMC-3: Protect and restore beach strand and crest habitats over the life of the plan.</b>	
Activity HMC-3.1: Evaluate loss of beach strand and crest due to erosion and sea level rise to aid in formulating a restoration plan that will stop as much net loss of beach strand and beach crest habitat as is possible.	FWS
Activity HMC-3.2: Inventory and map manmade structures and changes in natural beach and reef state that may influence erosion and depositional processes at all of the beach strand units of the Monument.	FWS



Strategies and Activities	Agency Lead
<b>Strategy HMC-4: Within 10 years, restore and maintain coastal mixed grasses and shrubs on all the coralline islands and atolls of the Monument using best available historical information about the original indigenous ecosystem.</b>	
Activity HMC-4.1: Propagate and outplant native species chosen on the basis of historical records at Midway and historical and pollen records from Laysan Island in 250 acres of vegetated area at Midway Atoll, focusing on the original footprint of the island and then moving to the dredge spoils section.	FWS
Activity HMC-4.2: Implement the Draft Laysan Island Restoration Plan by removing invasive plants, and propagating and outplanting all extant species identified in the pollen record or historical documents as formerly having occurred at Laysan.	FWS
Activity HMC-4.3: At Laysan Island, replace 60 acres of the introduced shrub Indian pluchea with native species.	FWS
Activity HMC-4.4: Formulate and implement a restoration plan for Lisianski Island using guidelines established for neighboring Laysan Island.	FWS
Activity HMC-4.5: Propagate and outplant native vegetation on 34-acre Southeast Island at Pearl and Hermes Atoll to replace native plant community extirpated by invasion of the alien plant golden crownbeard.	FWS
Activity HMC- 4.6: Implement coordinated ecosystem restoration activities on Kure Atoll.	State of Hawai'i
Activity HMC-4.7: Monitor changes in the species composition and structure of mixed grass and shrub plant communities at each site.	FWS
<b>Strategy HMC-5: Within 10 years, restore and maintain coastal mixed grasses and shrublands on basalt islands in the Monument.</b>	
Activity HMC-5.1: Inventory and document life histories of endemic terrestrial invertebrates at Nihoa and Mokumanamana.	FWS
Activity HMC-5.2: Monitor changes in species composition and structure of the coastal shrub and mixed grass communities on basalt islands throughout the life of the plan.	FWS
<b>Strategy HMC-6: Maintain and better understand the Monument's wetland and mudflat habitats to benefit migratory shorebirds and waterfowl for the life of the plan.</b>	
Activity HMC-6.1: Monitor water level, salinity, and other water quality parameters of Laysan Lake, and document any loss of lake area.	FWS
Activity HMC-6.2: As needed, restore dune habitat on Laysan Island to stabilize movement if lake loss starts to occur.	FWS
<b>Strategy HMC-7: Maintain, enhance, and, where appropriate, develop freshwater seeps, intermittent streams, and freshwater ponds as necessary for the benefit of native species for the life of the plan.</b>	
Activity HMC-7.1: Monitor salinity, parasites, contaminants, and native arthropods associated with freshwater seeps, ponds, and streams.	FWS
Activity HMC-7.2 Evaluate potential for development and create as needed additional freshwater sources at potential translocation sites of the Laysan duck, Nihoa finch, Laysan finch, and Nihoa millerbird.	FWS

Strategies and Activities	Agency Lead
<b>Strategy HMC-8: Maintain no more than 150 acres of ironwood woodlands on Sand Island, Midway Atoll, to provide seabird nesting and roosting habitat for the life of the plan.</b>	
Activity HMC-8.1: Remove ironwood on Sand Island from 50 acres outside designated woodland and control young ironwood in areas managed for grass and shrubs.	FWS
Activity HMC-8.2: Devise and implement methods for monitoring population size and reproductive success in tree-nesting seabird species.	FWS
<b>Strategy HMC-9: Protect and maintain 120 acres of vertical rocky cliff-face habitat at Nihoa and Mokumanamana for nesting seabirds for the life of the plan.</b>	
Activity HMC-9.1: Educate other federal and state agencies about overflight rules and promote compliance regarding overflights and close approaches.	FWS
Activity HMC-9.2: Develop and implement techniques for monitoring plant and animal populations on cliff habitats in the Monument within 10 years.	FWS

### **3.3 Reducing Threats to Monument Resources**

---

#### **3.3.1 Marine Debris Action Plan**

#### **3.3.2 Alien Species Action Plan**

#### **3.3.3 Maritime Transportation and Aviation Action Plan**

#### **3.3.4 Emergency Response and Natural Resource Damage Assessment Action Plan**

---

### 3.3 Reducing Threats to Monument Resources

Situated in the middle of the Pacific Ocean at the fulcrum of the North Pacific gyre and the mid-point between the economic giants of the east and west, the NWHI are subject to the full range of environmental and anthropogenic stressors despite their remote location and the absence of human population. Many threats originate far outside the NWHI. Marine debris, largely consisting of discarded or lost fishing nets from distant fleets and plastic trash, threatens and damages coral reef and coastal habitats, entangles and chokes marine life, and aids in the transport of contaminants.

The introduction of alien species to the islands has led to the establishment of invasive species that crowd out native species, altering habitat and food webs. Alien species may arrive on vessels or debris of any kind from ports around the world. Discharges from vessels operating in or transiting the NWHI can introduce pathogens that contribute to coral disease and could threaten marine mammal populations.

Vessel groundings and cargo spills occur somewhat infrequently in this remote archipelago, and response to such emergencies has required exceptional collaborative interagency effort and resources to minimize effects to the fragile coral reef and terrestrial ecosystems.

Through an ecosystem-based approach to management, of which interagency coordination and cooperation are central, reducing threats to the ecosystem is achieved through an effective regulatory framework, education and outreach, preventative measures to minimize risk, emergency response, and natural resource damage assessment and restoration when unforeseen events cause injury to natural resources.

Action plans to reduce existing and potential threats and prevent impacts to the ecosystem focus on developing and implementing risk reduction assessment and protocols, emergency response plans, and alien species prevention and eradication, where feasible. Each action plan consists of a set of strategies to address a desired outcome. The desired outcomes of these action plans over the 15-year planning horizon are:

- **Marine Debris:** Reduce the adverse effects of marine debris to Papahānaumokuākea Marine National Monument resources and reduce the amount of debris entering the North Pacific Ocean.
- **Alien Species:** Detect, control, eradicate where possible, and prevent the introduction of alien species into Papahānaumokuākea Marine National Monument.
- **Maritime Transportation and Aviation:** Investigate, identify, and reduce potential threats to Papahānaumokuākea Marine National Monument from maritime and aviation traffic.
- **Emergency Response and Natural Resource Damage Assessment:** Minimize damage to Papahānaumokuākea Marine National Monument resources through coordinated emergency response and assessment.

Action plans described in this section will be implemented in close coordination with agency partners and in conjunction with other priority management needs.



### 3.3.1 Marine Debris Action Plan

#### Desired Outcome

Reduce the adverse effects of marine debris to Papahānaumokuākea Marine National Monument resources and reduce the amount of debris entering the North Pacific Ocean.

Links to other Action Plans	
3.2.1	Threatened and Endangered Species
3.2.3	Habitat Management and Conservation
3.3.2	Alien Species
3.3.4	Emergency Response
3.5.1	Agency Coordination
3.5.4	Ocean Ecosystems Literacy
3.6.3	Coordinated Field Operations

#### Current Status and Background

In 1982 annual net and line removal began along NWHI beaches. A multiagency effort launched in 1996 strengthened and expanded efforts to address the problem of marine debris, a problem that was much larger than any agency alone might resolve. An estimated 750 to 1,000 tons of marine debris were on reefs and beaches in the NWHI. NOAA, in collaboration with 14 other partners, including the Coast Guard, Schnitzer Steel Hawai‘i Corporation (formerly Hawai‘i Metals Recycling Company), the Sea Grant College Program, the U.S. Navy, FWS, the City and County of Honolulu, the State of Hawai‘i, The Ocean Conservancy, Hawai‘i Wildlife Fund, Matson Navigation Company, and others removed 66 tons of marine debris and derelict fishing gear from 1996 to 2000.

Links to Goals
Goal 1
Goal 2
Goal 3

In 2001, the multiagency cleanup effort was extended, and yields grew from approximately 25 tons per year in 1999 and 2000 to 68 tons in 2001, 107 tons in 2002, 118 tons in 2003, 126 tons in 2004, 57 tons in 2005, 21 tons in 2006, and 19 tons in 2007. The total amount of marine debris removed from 1996 to 2007 was 582 tons. The 2006 field season marked the first year of the maintenance mode effort, in which specific study areas called “High Entanglement Risk Zones” for Hawaiian monk seals are cleaned and designated accumulation rate zones are studied. Based on a recent study, the accumulation of new debris in the NWHI is now estimated to be 57 tons (or 52 metric tons) annually (Dameron et al. 2007). Even if all new input of debris were stopped, existing debris in the ocean would continue to accumulate in the NWHI for years to come.



Pacific Island Fisheries Science Center, Coral Reef Ecosystem Division's marine debris removal team at work in the NWHI. Photo: Jake Asher

In 2005, with guidance from Congress, a Marine Debris Program was established under NOAA’s Office of Response and Restoration. This program is undertaking a national and international effort focused on identifying, removing, reducing, and preventing debris in the marine environment. This program is a significant step toward addressing the marine debris issue and

providing much-needed support to projects that address the issue. As one example, a project funded in 2005 established a port reception facility and derelict net recycling program in Honolulu for proper disposal of derelict fishing gear. Also in 2005, the Marine Debris Program joined the multiagency cleanup effort through funding for debris removal field operations.

On December 22, 2006, the Marine Debris Research, Prevention, and Reduction Act was signed into law. The Act makes the Marine Debris Program permanent and directs NOAA to work in conjunction with federal agencies such as EPA and the Coast Guard to identify the origin, location, and projected movement of marine debris within navigable waters of the United States and the U.S. exclusive economic zone. The Act specifically targets fishing gear as a threat to the marine environment and navigation safety, authorizes the research and development of alternative types of fishing gear, and allows the use of voluntary incentives to promote recovery of lost or discarded gear. The Act also authorizes NOAA to offer grants to academia, nonprofit organizations, commercial organizations, and state, local, or tribal governments to identify, assess, reduce, and prevent marine debris.

In recognition of the magnitude of the marine debris problem, NOAA has contributed to mitigating the effects of marine debris by providing funding for debris removal efforts and participating in the NWHI multiagency partnership. This work will now continue through the establishment of the Monument, and the MMB is already working to increase awareness of this very serious threat to coral reef ecosystems through national and international documentaries and publications, public outreach displays at Mokupāpapa Discovery Center, development of lesson plans about marine debris in the Navigating Change Teacher's Guide, and community presentations.

### **Need for Action**

Marine debris, especially derelict fishing gear, is a severe chronic threat to the shallow-water ecosystems of the NWHI and hinders the recovery of the endangered Hawaiian monk seal and threatened sea turtles through ingestion of debris and entanglement, which can lead to drowning and suffocation (see Section 3.2.1, the Threatened and Endangered Species Action Plan). Ocean currents carry marine debris, including derelict fishing nets and other gear from North Pacific fisheries, plastics, hazardous materials and hazardous waste lost or discarded from ships during transit, authorized and unauthorized fish aggregation devices (Donohue 2005), and other shore-based debris from Pacific Rim countries, across the greater Pacific Ocean. The North Pacific Subtropical Convergence Zone, located just north of the Hawaiian Archipelago, concentrates some of these materials. Under certain conditions, such as during an El Niño event, this convergence zone dips southward and straddles the Hawaiian Archipelago, depositing much higher volumes of debris on the island chain than in years when these conditions are not in effect (Harrison and Craig 1993; Matsumura and Nasu 1997; Ingraham and Ebbesmeyer 2001; Donohue and Foley 2007; Morishige et al. 2007).

Large conglomerations of derelict fishing nets that are carried into shallow waters degrade reef health by shading, abrading, smothering, and dislodging fragile corals and other benthic organisms and by preventing recruitment on reef surfaces (Donahue and Brainard 2001). Nets and line pose deadly entanglement hazards for all marine life. Smaller marine debris, such as disposable lighters and plastic bottle caps, are ingested by albatrosses while foraging for food

and affect survival rates of these birds. Marine debris washes ashore in the NWHI, degrading habitat and the health of the Monument's ecosystems. Debris in the form of hazardous materials, unknown substances, and unexploded ordnance endangers wildlife as well as Monument field staff. Marine debris also acts as a vector for the accelerated introduction of alien species into the region and poses a navigational hazard to maritime vessels (see Sections 3.3.2 and 3.3.4, the Alien Species and Emergency Response and Natural Resource Damage Assessment action plans). This action plan presents strategies and activities for addressing marine debris issues in the Monument as well as the North Pacific region.

### **Strategies to Achieve the Desired Outcome**

Ultimately, the Monument's desired outcome is the elimination of marine debris, including derelict fishing gear, from the NWHI. Complete elimination of marine debris in the near future is virtually impossible because of the financial cost, the size of the area, and the continuous influx of new debris. However, removal of existing debris, detection and prevention of incoming debris, and education to prevent future generations of debris are the achievable strategies to reduce the overall impact of debris. Three strategies have been developed to achieve the desired outcome. The strategies and activities are coded by the acronym for the action plan title, "Marine Debris" (MD). A summary of strategies and activities is provided in Table 3.3.1 at the end of this action plan.

- MD-1: Remove and prevent marine debris throughout the life of the plan.
- MD-2: Investigate the sources, types, and accumulation rates of marine debris within 5 years.
- MD-3: Develop outreach materials regarding marine debris within 2 years.

### **Strategy MD-1: Remove and prevent marine debris throughout the life of the plan.**

Continued support of existing debris removal programs, including the Marine Debris Program, is essential. Existing debris, particularly large fishing nets, poses an acute entanglement threat to endangered and threatened species. The only way to decrease entanglement rates from existing debris is to remove the nets from beaches and the nearshore areas, including those around French Frigate Shoals, Maro Reef, Lisianski Island, Laysan Island, Pearl and Hermes Atoll, Midway Atoll, and Kure Atoll. Nets and other debris also combine into large masses that are moved around by wave energy. These masses scour the bottom, abrading and breaking coral colonies, preventing colonization, and damaging other benthic resources. Removal of debris, particularly large nets that have come into shallow waters, is expensive and dangerous. Programs to identify, track, and remove nets both within and outside the Monument, combined with incentive programs for fishermen to pick up these nets and bring them back to shore for disposal, may be more cost effective and would prevent damage to fragile reef ecosystems. The MMB will work in partnership with the Coast Guard and other marine debris partners to provide incentives for fishing vessels to participate in disposal programs and still comply with Coast Guard policies regarding the transport of debris as "cargo-for-hire."

***Activity MD-1.1: Continue working with partners to remove marine debris in the Monument and reduce additional debris entering the Monument.***

The MMB will continue to support and participate in the multiagency cleanup effort that has been highly effective in removing marine debris from shallow-water areas and beaches. With existing infrastructure, protocols, and experience in executing this demanding and logistically intensive task, it is beneficial to all parties to continue participating in the existing effort. Data collected and analyzed as part of the multiagency effort will be entered into the Papahānaumokuākea Information Management System (PIMS), once it is developed.

Although cleanup efforts have removed the majority of accumulated large nets in NWHI waters less than 30 feet (9 meters) deep, additional debris keeps coming in. NOAA estimates that, each year, 57 tons (52 metric tons) of derelict fishing gear and other netting originating from outside the U.S. accumulates on coral reefs and beaches in the NWHI (Dameron et al. 2007). Two ways to prevent debris from entering the shallow-water reef ecosystem are to retrieve the existing debris at sea and to change existing fishing gear disposal practices. Potential changes include designing gear modifications, implementing gear loss reporting requirements, requiring permanent identification of fishing gear, requiring dockside gear accountability inspections of vessels prior to their departure on fishing trips and upon their return, working with the fishery management councils in the United States and similar agencies in foreign countries to reduce illegal fishing and destructive fishing practices, and pursuing technological means to detect and retrieve gear lost at sea.

***Activity MD-1.2: Catalog, secure, contain, and properly remove hazardous materials that wash ashore in the NWHI.***

Unidentified chemical containers, unexploded ordnance, oceanographic instruments, loose fish aggregating devices, and other unidentified objects regularly wash up on beaches in the Monument. The items will be documented, identified, and then secured until appropriate removal and disposal by approved contractors can occur.

***Activity MD-1.3: Develop and implement a 5-year marine debris removal and prevention strategy for the Monument.***

Using recommendations from national and international marine debris conferences and data from ongoing marine debris removal efforts, and in coordination with partner agencies and organizations, a coordinated strategy for marine debris removal and prevention will be developed for the NWHI. Data and information on the types, sources, locations, and impacts of debris obtained from ongoing removal efforts and additional studies will be used to develop focused, short-term and long-term initiatives geared to achieve the greatest return on investment in terms of ecological protection. The MMB will continue to pursue activities that identify, track, and collect large debris at sea, along with development of incentive programs for fishing vessels to collect debris at sea and bring it to dockside collection facilities. A dockside collection program has been implemented on O‘ahu for fishermen to offload derelict fishing gear retrieved at sea. This program illustrates the type of coordination among multiple government agencies, community groups, and the private sector needed to address this issue. The marine debris removal and prevention strategy will investigate this mechanism to provide additional incentive for debris prevention.

***Activity MD-1.4: Work with the U.S. Department of State to gain international cooperation and involvement for marine debris issues.***



The MMB will work through the Interagency Marine Debris Coordinating Committee, the U.S. Department of State, and other appropriate U.S. agencies to call international attention to marine debris problems in the NWHI and to identify approaches to reducing foreign debris sources. Approaches may include, but are not limited to, permanent identification of fishing gear, incentive programs for recovered debris, and dockside gear accountability inspections of vessels prior to their departure on fishing trips and on their return.

***Activity MD-1.5: Work with the fishery management councils to address marine debris prevention with U.S. fishing fleets.***

The MMB will work with the Western Pacific and North Pacific Fishery Management Councils to assess and address fishing practices or domestic fishing gear that contribute to the marine debris problem. The MMB will coordinate with the Councils to initiate an accountability requirement for all vessels that use the type of gear that is contributing to marine debris in the NWHI. This requirement could include permanent identification of fishing gear, incentive programs for recovered debris, disposal and recycling programs, dockside gear accountability inspections of vessels prior to their departure on fishing trips and on their return, and other approaches.

**Strategy MD-2: Investigate the sources, types, and accumulation rates of marine debris within 5 years.**

The MMB, in partnership with other governmental and nongovernmental entities, will conduct research into mechanisms to locate, track, and remove debris at sea before it reaches fragile Monument ecosystems. This program will attempt to use unmanned aircraft systems to locate the debris at sea and may also take advantage of remote sensing systems being researched for Monument enforcement purposes to detect large debris conglomerates. Once an area of high concentration of debris is located, unmanned aircraft can be launched from vessels to find individual conglomerations of debris and target removal efforts. These initiatives will help direct the cleanup effort to where it will have the greatest effect, with limited resources. Using satellite imagery, NMFS is also working with partners to design a statistical survey to census marine debris in the north Pacific. This information will provide us with an estimate of the magnitude of the marine debris problem in the Pacific. In addition, NMFS and its partners are working to track debris movement in the Pacific Ocean, including areas within the Monument, through the use of satellite-tracked drifter buoys.

Another project is to address the small plastic debris being fed to young albatrosses. Much of the debris being fed to young albatross is picked up at sea by the adults. Monitoring the debris that washes up onto the beaches at Midway Atoll will provide a snapshot of what is in the waters surrounding the Monument islands, the most economical approach to such identification. This study will also allow us to begin to identify sources of the debris and then to develop a strategy for use of this information for prevention through education and outreach targeting key stakeholders and user-groups that are associated with the behaviors that produce these forms of marine debris.

***Activity MD-2.1: Work with partners on marine debris studies.***

The MMB will work with the Marine Debris Program to support studies on the marine debris issue, including research to quantify resource impacts and to determine marine debris accumulation rates, biological and ecological impacts, efforts to track sources and types of debris, and documentation of the cost estimates of damage. One such study, implemented in August 2008, will assess resource impacts from nets found on corals and the recovery of net-scars over time at Midway Atoll reefs.

***Activity MD-2.2: Develop and standardize marine debris monitoring protocols for marine and terrestrial habitats.***

Currently, marine debris data are collected by numerous entities using a variety of data collection methods. Synthesizing, quantifying, and interpreting marine debris data are therefore difficult. The MMB will work with all federal and state partners to standardize protocols to maximize the use and utility of data collected by the various programs. Development of a statistically sound and biologically relevant marine debris monitoring protocol for Midway Atoll has begun. This protocol may serve as the basis for a long-term monitoring program within the Monument. Since 1984, 22 international marine debris conferences have recommended standardization of data collection as one of their top two priorities. This unique project at Midway Atoll, in partnership with the Dow Chemical Company and with additional funding from a National Fish and Wildlife Foundation grant, hopes to lay the foundation for a greater understanding of debris sources.

**Strategy MD-3: Develop outreach materials regarding marine debris within 2 years.**

To better explain the scope and impacts of marine debris in the NWHI, an outreach strategy will be developed with the multiagency partnership to reach both local and international audiences and specific fishing communities.

***Activity MD-3.1: Work with partners to continue to develop and implement an outreach strategy for marine debris.***

To better explain the scope and impacts of marine debris in the NWHI, an outreach strategy will be developed with the multiagency partnership to reach a broad audience and specific fishing communities. Such outreach will be coordinated with other efforts as described in the Constituency Building and Outreach Action Plan (Section 3.5.2) as well as with broader efforts of the Marine Debris Program.

Awareness of the impact of marine debris must be increased. Most people are not aware that much of the shore-based marine debris comes from the careless disposal of garbage, such as cigarette lighters and other plastics, and that much of the derelict fishing gear comes from losses at sea caused by bad weather, gear failure, and improper disposal. Educating the public about the impacts of this debris in the ocean environment aims to change behaviors and ultimately reduce the volume of debris in the ocean. Documentaries and feature stories regarding this issue already have led to significant actions by several nations aimed at reducing marine debris. Such educational activities will be encouraged by the MMB. In addition, outreach products will be developed to reach specific fishing communities and industries. These materials will target recreational fishermen and commercial fishing sectors on proper disposal and reporting of gear lost at sea. The outreach materials will highlight lost gear to better explain the scope and impacts of this type of marine debris.

**Table 3.3.1 Summary of Strategies, Activities, and Agency Leads for Marine Debris**

<b>Strategies and Activities</b>	<b>Agency Lead</b>
<b>Strategy MD-1: Remove and prevent marine debris throughout the life of the plan.</b>	
Activity MD-1.1: Continue working with partners to remove marine debris in the Monument and reduce additional debris entering the Monument.	NOAA
Activity MD-1.2: Catalog, secure, contain, and properly remove hazardous materials that wash ashore in the NWHI.	FWS
Activity MD-1.3: Develop and implement a 5-year marine debris removal and prevention strategy for the Monument.	NOAA
Activity MD-1.4: Work with the U.S. Department of State to gain international cooperation and involvement for marine debris issues.	NOAA
Activity MD-1.5: Work with the fishery management councils to address marine debris prevention with U.S. fishing fleets.	NOAA
<b>Strategy MD-2: Investigate the sources, types, and accumulation rates of marine debris within 5 years.</b>	
Activity MD-2.1: Work with partners on marine debris studies.	NOAA
Activity MD-2.2: Develop and standardize marine debris monitoring protocols for marine and terrestrial habitats.	NOAA
<b>Strategy MD-3: Develop outreach materials regarding marine debris within 2 years.</b>	
Activity MD-3.1: Work with partners to continue to develop and implement an outreach strategy for marine debris.	NOAA

### 3.3.2 Alien Species Action Plan

#### Desired Outcome

Detect, control, eradicate where possible, and prevent the introduction of alien species into Papahānaumokuākea Marine National Monument.

#### Current Status and Background

Despite the extreme remoteness of the Monument, the relatively low rate of visitation, and the high amount of administrative control over the conditions of any visits, alien species have left their mark on natural communities in the Monument. Insular ecosystems are often more vulnerable to the effects of introduced species than continental areas due to smaller total population sizes, higher endemism, and species that have evolved longer in the absence of predators and thus are less likely to have developed defenses against them (Blackburn et al. 2004). An invasive species is defined as a species (1) that is nonnative (or alien) to the ecosystem under consideration, and (2) whose introduction causes or is likely to cause economic or environmental harm or harm to human health (Executive Order 13112). Invasive species can affect native species by competitive exclusion, niche displacement, hybridization, introgression, predation, and ultimately extinction (Mooney and Cleland 2001). The known incidence and distribution of alien species in the NWHI is described in Section 1.4, Environmental and Anthropogenic Stressors.

The ecosystems of Hawai‘i have changed profoundly and at an accelerating pace since humans arrived, accompanied by an array of alien species. The NWHI now have terrestrial invaders in most taxa, some of which have caused great disruption to the native ecosystems. In the main Hawaiian Islands, alien algae have altered native habitat and in some areas have overgrown and completely smothered extensive areas of coral reef (DLNR 2003a). Other alien species have caused serious economic effects. Each year, Maui County spends thousands of dollars to remove more than a million pounds of the alien algae *Hypnea* from its beaches (Coloma-Agaran 2003). Snowflake coral (*Carijoa riisei*) has covered significant portions of black coral beds in the main Hawaiian Islands in depths greater than 250 feet (75 meters) and is now considered one of the most invasive invertebrates on deep-water coral reefs (DLNR 2003a). Hawai‘i’s harbors and bays are the most common sites for alien species introductions (Godwin et al. 2006).

In 2003, the State of Hawai‘i DLNR and various federal, state, industry, and nonprofit organizations released the State of Hawai‘i Aquatic Invasive Species Management Plan (DLNR 2003a). Many of the strategies outlined in that plan complement those outlined in this action plan but are much broader in scope, as they concern the entire archipelago, including the complexities of the highly populated and commercially active main Hawaiian Islands. An assessment of the potential threats of nonindigenous marine species in the NWHI was completed by Eldredge (2005). A 2006 report by HIMB addresses issues specific to reducing the potential impacts of invasive marine species in the NWHI (Godwin et al. 2006).

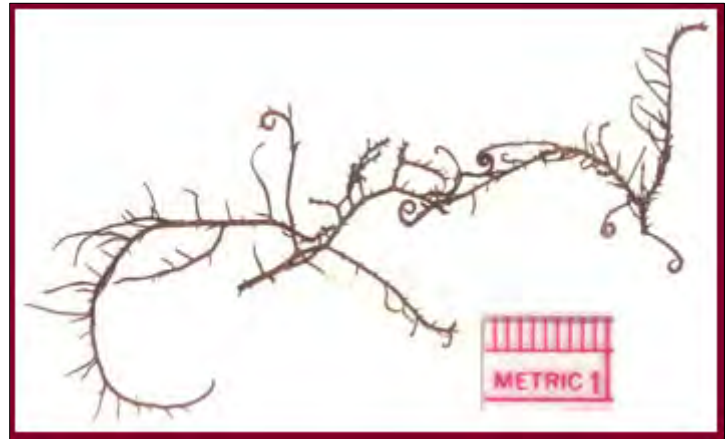
Links to other Action Plans	
3.1.1	Marine Conservation Science
3.2.1	Threatened and Endangered Species
3.2.3	Habitat Management and Conservation
3.3.1	Marine Debris
3.3.3	Maritime Transportation and Aviation
3.4.1	Permitting
3.4.2	Enforcement
3.5.2	Constituency Building and Outreach
3.5.4	Ocean Ecosystems Literacy
3.6.2	Information Management
3.6.3	Coordinated Field Operations

Links to Goals
Goal 1
Goal 2
Goal 3
Goal 4
Goal 5



Early attempts to establish human settlements in the NWHI in the late 1800s and early 1900s, especially at Laysan Island and Midway Atoll, resulted in the introduction of many alien terrestrial species, including plants, insects, and mammals. The number of alien land plants in the NWHI varies from only three introduced at Nihoa to 249 introduced at Midway Atoll. The level of threat from introduced plants also varies between species. For example, the invasive plant golden crownbeard (*Verbesina encelioides*) displaces all native vegetation in nesting areas, causing entanglement and heat prostration and killing hundreds of albatrosses each year. The invasive gray bird locust (*Schistocerca nitens*) was first detected at Nihoa in 1984 and by 2000 was periodically reaching population levels large enough to cause damage to the native plant community, including three endemic species listed as endangered. This grasshopper species has now also spread to Mokumanamana, French Frigate Shoals, and Lisianski Island. To prevent further importation of invasive plants, animals, or insects, mandatory quarantine protocols are enforced for any visitors to all the islands in the NWHI (with the exception of Midway Atoll and French Frigate Shoals). These protocols require the use of brand new or island-specific gear at each site and treatments such as cleaning, using insecticide, and freezing to minimize the transport of potentially invasive species to the island.

Of the 343 marine alien species found in the Main Hawaiian Islands, a total of 13 alien marine invertebrate, fish, and algal species have been recorded in the NWHI, with the highest concentrations occurring at Midway Atoll (see Table 1.1, and also Eldredge and Carlton 2002; Godwin et al 2006). The location, source, and year of each confirmed sighting are contained in the Monument's geodatabase. Several patterns have emerged through analyses of these data: (1) of the three alien fish species in the Monument, ta'ape (*Lutjanus kasmira*) has spread significantly farther and is more abundant than either to'au (*Lutjanus fulvus*) or roi (*Cephalopholis argus*); (2) aside from the Christmas tree hydroid (*Pennaria disticha*), invasive invertebrates are concentrated in the harbors of Midway Atoll and Tern Island in French Frigate Shoals. Invasive invertebrates commonly thrive in harbors, benefiting from anthropogenic structures, such as pier pilings and seawalls, as well as protection from wave action; (3) alien algae have not yet spread far into the Monument. *Hypnea musciformis* has been found only on lobster traps retrieved near Mokumanamana (Godwin et al. 2006).



*Hypnea musciformis*, an alien algae species which is invasive in the main Hawaiian Islands, has been documented in the waters surrounding Mokumanamana. Photo W.H. Magruder (Bishop Museum)

Although the remoteness and relative inaccessibility of the NWHI have helped to prevent the introduction of some alien species to the area, these islands are vulnerable to introductions through a variety of human activities. Maritime vessels are recognized as the primary vector for transporting marine alien species through contaminated vessel equipment, hull fouling, ballast water, and ballast sediment. Additional vectors include deliberate and accidental release and transport by artificial substrates such as fish attractant devices and marine debris (See Section

3.3.1, the Marine Debris Action Plan, and also Godwin et al. 2006.). Analyses are currently being conducted of the algal and invertebrate communities living on derelict nets collected during the 2007 marine debris removal effort. This information will provide needed insight on the quantity and diversity of alien biota living on the nets and facilitate the assessment of this threat to the ecosystems of the NWHI.

### **Existing Laws, Regulations, and Protocols**

Vessel hull fouling and ballast water discharge have been identified as two major vectors for transporting alien species in marine environments (International Maritime Organization 1997, 2001). Therefore, Monument regulations and permit requirements specifically target these pathways. Best management practices for Monument access will continue to use the latest information to address both marine and terrestrial alien species introductions and support the requirements developed by FWS to prevent alien species introductions to the Hawaiian Islands NWR (see Section 3.4.1, the Permitting Action Plan, and Appendix A).

In 2000, the State of Hawai'i Legislature designated DLNR as the lead agency for preventing the introduction of alien aquatic organisms through ballast water and hull fouling. DLNR reestablished an interagency task force to discuss and make recommendations to address concerns about alien aquatic organism issues related to ballast water and hull fouling, including adopting administrative rules and penalties. DLNR has hired a project coordinator to address issues relating to aquatic invasive species through hull fouling and ballast water. The State of Hawai'i has also been working on developing a comprehensive ballast water and hull fouling program since September 2002, with NOAA funds administered by the State Office of Planning, Coastal Zone Management Program.

Federal laws that apply in addressing alien species and invasive species in the NWHI include the Lacey Act of 1900, as amended (18 U.S.C. 42, 16 U.S.C. 3371), the Endangered Species Act of 1973, the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4701), and the National Invasive Species Act of 1996 (Public Law 104-332); Executive Order 13112 on Invasive Species (1999) also applies. Executive Order 13112 established the National Invasive Species Council and requires development of a National Management Plan for Invasive Species. Under the Nonindigenous Aquatic Nuisance Prevention and Control Act, NOAA and FWS have responsibility for control and management of invasive aquatic species.

The Coast Guard has developed the Mandatory Ballast Water Management Program for U.S. Waters. The Coast Guard published regulations on July 28, 2004, establishing a national mandatory ballast water management program for all vessels equipped with ballast water tanks that enter or operate within U.S. waters. These regulations also require each vessel to maintain a ballast water management plan that is specific to that vessel and assigns responsibility to the master or another appropriate official to understand and execute the ballast water management strategy for that vessel. The International Maritime Organization (1997) has developed ballast water exchange guidelines. In Hawai'i, the Alien Aquatic Organisms Task Force is also developing strategies to address the transport of alien species by vessels. DLNR promulgated Title 13, Chapter 76, Hawaii Administrative Rules (Non-indigenous Aquatic Species) on October 12, 2007, to manage ballast water discharge from vessels operating in Hawai'i waters (Appendix F). They are consistent with and complement the federal regulations and coincide

with the national focus to protect U.S. water in which many states have adopted their own rules.

The MMB incorporated FWS policies aimed primarily at preventing the introduction of terrestrial alien species to the islands in the Hawaiian Islands NWR (Appendix F). These policies include requiring personnel and other visitors to use new, island-specific clothing, shoes, and other gear, such as tents and bedding, that have been frozen for at least 48 hours and carefully packed to prevent contamination at all islands with the exception of Midway Atoll and French Frigate Shoals. In addition, considerable resources and staff time are devoted to controlling and eradicating invasive species on the islands. The eradication of the introduced grass *Cenchrus echinatus* at Laysan Island is an example of the success the FWS has had in its prevention and eradication programs (Rehkemper and Flint 2002). The MMB has also taken steps toward preventing marine alien species introductions through the development of protocols for reducing the risk of transmission from vessel hulls, discharge, and equipment used throughout the Monument (Appendix F).

### **Monument Regulations and Permit Requirements**

Preventing alien species from entering the NWHI ecosystem is the most important action to take in protecting the ecosystem from the impacts of invasive species. It is difficult, if not impossible, to predict whether an alien species will become invasive in a given environment. The probability of a successful eradication of an alien species in the marine environment is low. Therefore, efforts will be made to prevent all alien species from entering NWHI ecosystems. Monument regulations and permit requirements (based on best management practices) related to alien species target key vectors known for transporting alien species. Monument regulations related to preventing alien species introductions include a prohibition of the release or introduction of alien species into the Monument, and the State regulates any kind of vessel discharge (see Appendix F; HAR Title 13 Chapter 76). Mandatory hull inspections and cleaning, if needed, are a Monument permit requirement for all ships authorized to enter the Monument. In addition, aircraft landing within the Monument are subject to inspection, as are all visitors and their luggage.

In addition to regulations and permit conditions, outreach programs offer tools for enlisting the support of Monument permittees in protecting ecological integrity. (See also the action plans for Permitting, Section 3.4.1; Ocean Ecosystems Literacy, Section 3.5.4; Constituency Building and Outreach, Section 3.5.2; and Marine Transportation and Aviation, Section 3.3.3.)

### **Need for Action**

Worldwide, invasive species are causing negative ecological and economic impacts. While not all alien species will become invasive in a given environment, it is difficult, if not impossible, to determine which will have harmful impacts. Therefore, a precautionary approach treats all alien species as potentially invasive other than a select few that have been cleared for human consumption. The need to prevent introductions of both marine and terrestrial alien species to the NWHI was raised as an issue of concern during public scoping meetings in 2002 and consistently during public scoping and comment periods since that time. Protecting the lands and waters of the NWHI from the impacts of alien species is critical to achieving the Monument's primary goal of resource protection.

While few alien species are established in the waters of the NWHI, global trends suggest that others could be introduced to this relatively pristine ecosystem. For example, marine debris serves as a vector for invasive species by providing a ride for sessile aliens and a microhabitat for other species that may arrive unattached but associated with the debris. By causing mechanical damage to reef structures, it may also create favorable habitat for settling out and recruitment of nonnative species. Once established, invasive species can be extremely costly to control and would likely be impossible to eradicate. The remoteness of this area compounds the challenge. If appropriate prevention and control measures are not taken, alien species could continue to spread and may cause substantial damage to the health and integrity of marine ecosystems across the Hawaiian Archipelago. This action plan presents strategies and activities for addressing alien species needs in the Monument, as well as the NWHI region.

### **Strategies to Achieve the Desired Outcome**

Strategies identified for achieving the desired outcomes range from preventing alien species introductions to monitoring, controlling, and eradicating existing alien species in the Monument, to detecting new invasive species threats. The strategies and activities are coded by the acronym for the action plan title, “Alien Species” (AS). A summary of strategies and activities is provided in Table 3.3.2 at the end of this action plan.

- AS-1: Conduct planning to prioritize by threat level, invasiveness, and practicality of eradication or control all nonnative organisms in the Monument over the life of the plan.
- AS-2: Engage in active surveillance to monitor existing infestations and to detect new infestations of alien species over the life of the plan.
- AS-3: Establish and enforce quarantine procedures appropriate for each site and habitat (terrestrial and aquatic) in the Monument to prevent the invasion or reinfestation of nonindigenous species over the life of the plan.
- AS-4: Eradicate the house mouse population on Sand Island, Midway Atoll, within 15 years.
- AS-5: Prioritize infestations of alien terrestrial arthropods by species and locations and, within 5 years, develop and subsequently implement plans to control and if possible eradicate the highest-priority species.
- AS-6: Control and eventually eradicate the highest-priority invasive plants in the terrestrial parts of the Monument within 15 years.
- AS-7: Investigate methods to eventually eradicate aquatic invasive organisms already known to be present in the Monument, and conduct regular surveillance for new invasions.
- AS-8: Conduct and facilitate research designed to answer questions regarding invasive species detection; effects on ecosystem; and alien species prevention, control, and eradication over the life of the plan.
- AS-9: Engage Monument users and the public in preventing the introduction and spread of alien species.
- AS-10: Participate in statewide and Pacific regional alien species efforts.

**Strategy AS-1: Conduct planning to prioritize by threat level, invasiveness, and practicality of eradication or control all nonnative organisms in the Monument over the life of the plan.**



The consolidation of efforts and information and the standardization of methods for approaching invasive species problems will enable managers to prioritize invasive species projects, maintain better readiness to respond to new invasions, and prevent or reduce the probability of additional invasions.

***Activity AS-1.1: Complete an Integrated Alien Species Management plan.***

An Integrated Alien Species Management Plan (IASMP) for the Monument will be developed based on review of the effectiveness of existing protocols and a critical geospatial threat analysis of alien species found within the NWHI and risks associated with new introductions from maritime traffic from the main Hawaiian Islands and interisland travel by aircraft or vessel. The plan will be based on a comprehensive risk assessment and enable prioritization of alien species management actions. Any necessary pesticide use proposals and Section 7 consultations will address terrestrial alien species control, eradication, and response to outbreaks within two years. The IASMP and associated compliance requirements will be updated every 5 years and will include proactive components such as completing pesticide use proposals and Section 7 consultations before they are needed to facilitate rapid response.

***Activity AS-1.2: Develop best management practices to prevent, control, and eradicate alien species.***

The integrated alien species management plan will include a definition of specific protocols and requirements for preventing, controlling the spread of, and eradicating alien species, such as hull inspections and island quarantine protocols, a description of each partner's role in alien species control, best management practices to prevent the spread of species within the NWHI, and priority areas. Species of concern will be identified. One concern the plan will address is the need to prevent the spread of alien species within the NWHI, especially from Midway Atoll.

The plan will incorporate individual Co-Trustee guidelines, as appropriate, for the most effective and collaborative efforts possible. Memoranda of agreement will be developed as necessary to adopt and implement agency guidelines. Planning may also include development of a formal inter-agency rapid-response field team modeled after similar efforts for brown tree snakes, the state terrestrial and aquatic alien invasive species (AIS) response teams, oil-spill response teams, and the Federal Incident Command System. A rapid response plan that details complete areas of responsibilities for each managing partner on the discovery of a new introduction needs to be a part of the plan.

This plan will include strategies for a rapid risk assessment, possible methods for containment and eradication, and a provision for quickly accessing funding needed for the control or eradication attempt. Additionally, measures to reduce the chances that ships are transporting deleterious species should be encouraged even if no ballast water is intentionally discharged in the Monument. These measures may include exchange; pre-intake treatments such as filtration, ultraviolet treatment, or sonic treatment; post-intake extermination of organisms; and regular cleaning of ballast tanks. Coordination with existing groups already working on some of these alien species issues will be a high priority to build on the plans already drafted. Examples of these are the State of Hawai'i Aquatic Invasive Species Management Plan (DLNR 2003a), the report on Reducing Potential Impact of Invasive Marine Species in the NWHI CRER (Godwin et

al. 2006), the Assessment of the Potential Threat of Marine Nonindigenous Species in the NWHI (Eldredge 2005), the Draft Pacific Islands Rat Spill Contingency Plan (FWS in prep.), and the Draft Laysan Island Restoration Plan (Morin and Conant 1998). This activity will be closely linked with the field protocols developed in the Coordinated Field Operation Action Plan (Section 3.6.3) and in the Maritime Transportation and Aviation Action Plan (Section 3.3.3).

**Strategy AS-2: Engage in active surveillance to monitor existing infestations and to detect new infestations of alien species over the life of the plan.**

The two pressing needs in managing areas affected by invasive species are to identify what new species have recently arrived and become established and which alien species exhibit invasive characteristics and are, therefore, the most dangerous. Maintaining careful records of the distribution of known alien species and actively searching for new arrivals are essential to correctly prioritize response and restoration activities.

***Activity AS-2.1: Survey distributions and populations of known alien species at regular intervals.***

Existing invasions should be closely monitored to determine their rate of spread and distribution relative to sensitive native species in the Monument. This will assist managers in prioritizing response actions. Monument staff will incorporate alien species data collection into existing annual ecosystem monitoring activities (see Section 3.1.1, Marine Conservation Science Action Plan).

***Activity AS-2.2: Maintain a GIS database of marine and terrestrial alien species.***

Data collected during alien species monitoring will be added to the Monument's geographic information system (GIS) database for tracking and analysis purposes (see Section 3.6.2, Information Management Action Plan). These data will help track the spread of invasive species and the success of control measures instituted by Monument managers.

***Activity AS-2.3: Develop and implement monitoring protocols for early detection and characterization of new infestations.***

In accordance with the Monument's integrated alien species management plan, protocols will be developed and refined as necessary to monitor selected areas for possible alien species introduction. Discoveries of new alien species will be immediately reported to managers for appropriate response and incorporated into the Monument's GIS database.

**Strategy AS-3: Establish and enforce quarantine procedures appropriate for each site and habitat (terrestrial and aquatic) in the Monument to prevent the invasion or reinfestation of nonindigenous species over the life of the plan.**

The benefits of preventing the introduction of a new species far outweigh its cost. Reducing the probability of alien species being transported to the Monument by developing effective quarantine protocols and enforcing them is tremendously important to maintain the biological integrity, diversity, and environmental health of the system.

***Activity AS-3.1: Enforce the use of existing quarantine protocols to prevent the introduction of invasive terrestrial species to the Monument.***

Strict enforcement of existing policies (see Appendix F) requiring the use of island-specific soft gear that is brand new and has been frozen for 48 hours has resulted in a very low incidence of new invasive species being reported in the NWHI since the inception of the current program in 1991 at all high-quarantine sites (Nihoa, Mokumanamana, Gardner Pinnacles, Laysan Island, Lisianski Island, and Pearl and Hermes Atoll).

***Activity AS-3.2: Continue to require hull inspection and cleaning of all vessels, SCUBA gear, marine construction material, and instruments deployed in the Monument.***

A majority of recent marine invasive species to Hawai'i are directly attributed to sessile and mobile biofouling organisms associated with hull fouling (Godwin et al. 2006). Therefore, prevention efforts will focus on introductions by vessel dispersal. These modes of dispersal include hulls and propellers, outboard motors, anchors and chains, fishing equipment, scientific dive gear, research floating platforms, and drydocks (Godwin et al. 2005). Inspections are mandatory for all permitted vessels prior to entering the Monument. A hull cleaning may be required prior to access.

**Strategy AS-4: Eradicate the house mouse population on Sand Island, Midway Atoll, within 15 years.**

Subsequent to the eradication of the black rat (*Rattus rattus*) at Midway Atoll and the Polynesian rat (*Rattus exulans*) at Kure Atoll, the house mouse (*Mus musculus*) on Sand Island, Midway, remains the only nonnative mammal left in the NWHI. Mice can cause high mortality in seabirds as large as albatrosses (Wanless et al. 2007.) In addition, Midway now hosts a translocated population of endangered Laysan ducks that are likely to be negatively affected by high mouse populations. Mice are also a major threat to native plants and terrestrial invertebrates.

***Activity AS-4.1: Produce a house mouse eradication plan within 5 years and procure appropriate permits for chosen eradication techniques.***

The eradication of introduced rodents from islands is routine, and the successful removal of black rats at Midway Atoll in recent years has provided a model for mouse eradication. Mice present additional challenges, however, such as much smaller home range sizes and different foraging and reproductive ecology. A careful planning effort that emphasizes the minimization of effects to nontarget organisms at the site and the other biological differences that may affect the operation is necessary.

***Activity AS-4.2: Implement and complete house mouse eradication.***

All of Sand Island (1,128 acres) will be treated with rodenticide, with active management to prevent nontarget impacts to native wildlife. Surveys of the affected ecosystem components before and after the operation will provide a valuable demonstration of the effects of introduced mice on biological communities.

**Strategy AS-5: Prioritize infestations of alien terrestrial arthropods by species and locations and, within 5 years, develop and subsequently implement plans to control and if possible eradicate the highest-priority species.**

Introduced insects can have devastating effects on native plant and animal communities, but our state of knowledge of the ecology of native terrestrial invertebrates in the Monument and our understanding of technologies for controlling and eradicating introduced arthropod species are minimal. Planning and prioritization will improve our chances of successfully managing this group of invasive species while minimizing negative effects to native species (terrestrial and aquatic).

***Activity AS-5.1: Within 5 years, formulate a priority list of locations and species and a treatment plan to control and eventually eradicate all social Hymenopterans, such as ants and wasps, at all islands in the Monument.***

Nineteen different species of ants have been recorded in the NWHI through the years (Nishida 1998, 2000). All of these are alien, and some have the potential to be exceedingly invasive and damaging to native plants and animals. Some species are more dangerous to native species than others, and different species of ant may require different approaches to eradication or control in terms of toxicant delivery and effectiveness, seasonality, habitat choices, and differences in accessibility of the infested islands. Other Hymenopterans such as wasps also threaten indigenous species, particularly insects.

***Activity AS-5.2: Conduct toxicant trials to evaluate their efficacy and document ecological effects at selected islands on highest-priority invasive species of ants and wasps.***

Specific toxicants for killing target species of ants and wasps and baits most palatable to the target species will be tested for efficacy and attractiveness before full-scale eradication efforts begin.

***Activity AS-5.3: Control and if possible eradicate the two introduced mosquito species at Midway Atoll within 10 years using methods prescribed in the Integrated Alien Species Management Plan.***

Reduction or elimination of mosquitoes (*Aedes albopictus* and *Culex quinquefasciatus*) at Midway will benefit humans, nesting seabirds, and the endangered Laysan duck, as well as other endangered bird species that might be translocated to Midway in the future (see the Threatened and Endangered Species Action Plan, Section 3.2.1) by eliminating the vector for avian pox, which already occurs there, and other arthropod-borne diseases that may arrive in the future. Monument staff will continue to kill mosquito larvae in freshwater ponds and manage mosquito reproduction while avoiding harm to endangered Laysan ducks and other species of migratory waterbirds and shorebirds, using either mosquito fish (*Gambusia affinis*) or bacterial control (*Bacillus thuringiensis israelensis*), depending on the wildlife species using each site. We will also eliminate mosquito breeding habitat by getting rid of standing water sources, where possible and appropriate, and by limiting access to standing water in pipes and cisterns.

***Activity AS-5.4: Develop and implement a plan to control and if possible eradicate the invasive gray bird locust wherever it occurs.***



Gray bird locusts (*Schistocerca nitens*) have been found on Nihoa, Mokumanamana, French Frigate Shoals, and Lisianski Island. To better respond to the invasive grasshopper *Schistocerca nitens*, a workshop was held in 2005 to address this threat species. Addressing one of the recommendations, Monument staff will continue to collect climate data, along with grasshopper abundance measures, to develop and continue improving a model for predicting outbreaks. Locust outbreaks are triggered by specific combinations of rainfall and drought, with egg laying favored by warm and dry conditions and survival of young grasshoppers favored by a flush of vegetation caused by rains at the appropriate time. Looking for correlations between grasshopper abundance and moisture and temperature conditions will allow better predictions of high locust populations.

***Activity AS-5.5: Protect endangered plants threatened by gray bird locust outbreaks at Nihoa by developing appropriate baits for localized application of toxicants to protect specific high-priority plant sites.***

Control of grasshoppers on islands such as Nihoa, with its many endemic species of arthropods, requires very careful choices of agents. Lower toxicity to nontarget organisms or specificity of delivery to just grasshoppers will be ensured.

**Strategy AS-6: Control and eventually eradicate the highest-priority invasive plants in the terrestrial parts of the Monument within 15 years.**

Invasive plants brought to the Northwestern Hawaiian Islands in the course of human activity have caused extensive damage through the years by displacing native plants and by changing the structure and composition of the vegetation community to make it less useful as habitat for other native organisms.

***Activity AS-6.1: Control and eventually eradicate golden crownbeard and co-occurring weedy shrubs in all areas where they occur.***

Golden crownbeard (*Verbesina encelioides*) is an invasive annual plant that is a prolific seed producer and grows in extremely dense monotypic stands, in which most other plant species are excluded. The species is currently found at Kure, Midway, and Pearl and Hermes Atolls. Control and eventual eradication will require breaking the cycle of the plant setting seed and then depleting the soil seed bank. This task is made much more difficult because of the high density of nesting seabirds, which precludes many mechanized forms of control. Areas to be treated by hand-pulling, mowing when appropriate, and treatment with glyphosate to prevent plants from setting seed and to exhaust the seed bank include 1,098 acres on Midway Atoll, 75 acres on Kure Atoll, and 34 acres on Pearl and Hermes Atoll. Several other invasive weeds are associated with *Verbesina* at Midway Atoll and will respond to the same treatments described above. These weeds include Spanish needle or beggartick (*Bidens alba* and *B. pilosa*), spiny pigweed (*Amaranthus spinosus*), haole koa (*Leucaena leucocephala*), castor bean (*Ricinus communis*), and hairy abutilon (*Abutilon grandifolium*).

***Activity AS 6.2: Control and eventually eradicate the invasive grass sandbur from all areas of the Monument where it currently occurs.***

The invasive grass sandbur (*Cenchrus echinatus*) has been successfully eradicated at Laysan Island and French Frigate Shoals, but currently exists at Kure, Midway, and Pearl and Hermes

Atolls, and Lisianski Island, so replicating the techniques described in Rehkemper and Flint (2002) will prevent the habitat degradation and loss of native plants and breeding seabirds at other sites in the NWHI where *Cenchrus echinatus* occurs. It can be eliminated by maintaining a year-round program of hand-pulling and limited spraying of glyphosate, to be scheduled so that no plant is ever allowed to go to seed; thus, the seed bank is eventually depleted.

***Activity AS-6.3: Control and eventually eradicate Indian pluchea, Sporobolus pyramidatus, and swine cress from Laysan Island.***

The introduced shrub *Pluchea indica* will be eradicated by cutting and painting stumps with Garlon® in a gradual manner to make sure seabird nesting habitat provided now by *Pluchea* is replaced with other shrubs being used in the ecological restoration at Laysan Island, such as ‘ilima (*Sida fallax*). Replacing this invasive shrub with native plants providing the same structure used by many nesting birds at Laysan Island is prescribed by the Draft Laysan Restoration Plan (Morin and Conant 1998). Athens, Ward, and Blinn (2007) discovered the pollen of the native shrub *Sida fallax*, previously unknown to Laysan Island, in the 7,000-year pollen core they studied from Laysan Lake. ‘Ilima has a similar growth form to the *Pluchea* now favored by nesting red-footed boobies and great frigatebirds at Laysan Island. The introduced grass *Sporobolus pyramidatus* and the herbaceous plant swine cress (*Coronopus didymus*) are vulnerable to hand-pulling and glyphosate treatments and also will be treated often enough to prevent any plant from setting seed.

***Activity AS-6.4: Control and eventually eradicate prioritized alien plant species from Kure Atoll.***

A preliminary Draft Kure Atoll Management Plan (2007) prioritizes alien species that need to be eradicated. Ironwood (*Casuarina equisetifolia*) will be eradicated by cutting down trees and painting the stumps with Garlon 4®. Beach heliotrope (*Tournefortia argentea*) will be controlled in beach dune areas by selectively removing young trees that have not attained the size that seabirds utilize for nesting. Chemical (probably glyphosate) and mechanical methods will be used to control and in some cases eradicate *Flaveria trinervia*, *Setaria verticillata*, *Chenopodium murale*, *Cynodon dactylon*, *Portulaca oleracea*, and *Boerhavia coccinea*. Native plants propagated in Kure Atoll’s nursery will be used to replace the nonnative plants that are removed.

**Strategy AS-7: Investigate methods to eventually eradicate aquatic invasive organisms already known to be present in the Monument, and conduct regular surveillance for new invasions.**

Aquatic invasive species present difficulties to resource managers because the technology for detection and subsequent control and eradication is not well established in marine environments. The spread of these alien species is harder to contain than are pests located on islands. These factors make locating, characterizing, and eliminating infestations of aquatic invasive species a high priority.

***Activity AS-7.1: Map, control, and eventually eradicate invasive red algae where it occurs.***

Monument staff will map current distributions by using SCUBA, technical mixed gas diving, or remotely operated vehicles and concentrate searches in areas where lobster trapping (commercial

or research) occurred. Searching for the extent of the infestation of *Hypnea musciformis* should start in areas in the NWHI where commercial and research trapping for lobsters has occurred, because it is thought that the original transport of the invasive algae may have been made by traps previously deployed in the main Hawaiian Islands.

***Activity AS-7.2: Conduct surveillance at appropriate sites for snowflake coral and other incipient marine invasives.***

Based on preferred sites already infested by snowflake coral (*Carijoa riisei*) in other areas and on understanding of the species life history and dispersion methods, the MMB will devise a plan for surveying sites with the highest probability of invasion by this damaging species.

**Strategy AS-8: Conduct and facilitate research designed to answer questions regarding invasive species detection, effects on ecosystem, and alien species prevention, control, and eradication over the life of the plan.**

Some of the invasive species problems facing Monument managers are without precedent because of the kinds and sizes of habitats being managed, the species involved, and the logistical and technical difficulties of working there. Research designed to assist in adapting methods to the Monument situation is essential for managing this unique National Monument.

***Activity AS-8.1: Support and conduct research on alien species detection and the effects of invasive species on native ecosystems.***

Monument staff, working with subject experts, will determine which methodologies for alien species detection and control will be appropriate for use in the NWHI. As appropriate, staff will initiate or support research on alien species detection and documentation of their ecological effects. Some of this work will be based on previous research done in other places and methodologies that have already been developed. Research priorities will be identified through updates to the Monument Research and Monitoring Plan (see the Marine Conservation Science Action Plan, Section 3.1.1). Research results on ecosystem effects will aid in prioritization of control and eradication efforts.

***Activity AS-8.2: Support and conduct research on invasive species prevention, control methods, and eradication techniques.***

The high level of protection afforded the Monument enables managers to exercise unprecedented levels of influence over practices that may prevent movement of invasive species into the area. Research to document the effectiveness of these measures will aid those managing other wildlands in choosing quarantine methods. Successful invasive species control and eradication programs require systematic investigations into the efficacy of techniques chosen and the ecological impacts of any methods used. Such an investigation has been outlined for the grasshopper invasion on Nihoa (Gilmartin 2005).

**Strategy AS-9: Engage Monument users and the public in preventing the introduction and spread of alien species.**

The organisms that have caused the greatest ecological disruption in the Monument all arrived as accidental introductions by humans. Educating all visitors to the area will go a long way toward

preventing future harmful species from reaching Papahānaumokuākea and will be knowledge that applies wherever they travel.

***Activity AS-9.1: Integrate alien species information into the overall outreach program for Monument permittees.***

As part of the outreach to all Monument permittees, Monument staff will develop outreach materials that include information on regulations, permit requirements, and best management practices related to alien species. The outreach program will help people identify alien species and understand the importance of, and methods for, preventing alien species introductions. A guide to marine and terrestrial alien species with photographs, modes of transport, reporting protocols, and best management practices will be used as part of the outreach program. Outreach may consist of printed materials and videos, as well as presentations that are part of the permit application process and as taxonomy training for staff and volunteers. Such a program could be developed in partnership with the University of Hawai‘i HIMB to develop staff, partners, and volunteers with expertise in field identification of various marine taxa. This program could include a certification program that demonstrates identification skill sets. (See the action plans for Permitting, Section 3.4.1; Enforcement, Section 3.4.2; Ocean Ecosystems Literacy, Section 3.5.4; and Constituency Building and Outreach, Section 3.5.2), and the Midway Atoll Visitor Services Plan (Appendix B).)

***Activity AS-9.2: Integrate alien species information into general Monument outreach materials.***

Monument staff will integrate messages on alien species into general education and outreach materials when appropriate opportunities arise. For example, the “Navigating Change” curriculum and video series developed in 2004 contained information on the threat of invasive species to native ecosystems (see the Ocean Ecosystems Literacy Action Plan, Section 3.5.4).

**Strategy AS-10: Participate in statewide and Pacific regional alien species efforts.**

Invasive species management is a challenge shared by resource managers worldwide. Exchange of technologies, strategies, and case histories of successes and failures are invaluable for all ecosystem stewards.

***Activity AS-10.1: Build relationships with other resource managers and invasive species experts in the State, nation, and other countries based on shared challenges concerning invasive species.***

Information exchange will maximize the effectiveness of collective resources and keep the MMB current on invasive species research, management, and outreach efforts throughout Hawai‘i and the Pacific. Because most vessels bound for the NWHI come from the main Hawaiian Islands, it is particularly important to support efforts there. Groups addressing invasive species in Hawai‘i include the Hawai‘i Invasive Species Council, the Alien Aquatic Organism Task Force, and the Coordinating Group on Alien Pest Species, among several others. The Pacific Invasives Network is addressing invasive species issues in Pacific islands. The State of Hawai‘i has hired an AIS coordinator with funds from the National Aquatic Nuisance Task Force and has obtained Hawai‘i Invasive Species Council funds to support the Aquatic Alien Species Response Team. Communication with these groups will provide opportunities for information and resource



sharing and implementation of standardized protocols for alien species reporting and monitoring species, including support for hull inspections, vessel monitorings, and other joint MMB activities.

Monument staff will participate in public and professional conferences, working group meetings, and activities focused on reducing the impacts of alien species statewide and in the Pacific region.

**Table 3.3.2 Summary of Strategies, Activities, and Agency Leads for Alien Species**

<b>Strategies and Activities</b>	<b>Agency Lead</b>
<b>Strategy AS-1: Conduct planning to prioritize by threat level, invasiveness, and practicality of eradication or control all nonnative organisms in the Monument over the life of the plan.</b>	
Activity AS-1.1: Complete an Integrated Alien Species Management Plan.	FWS
Activity AS-1.2: Develop best management practices to prevent, control, and eradicate alien species.	FWS
<b>Strategy AS-2: Engage in active surveillance to monitor existing infestations and to detect new infestations of alien species over the life of the plan.</b>	
Activity AS-2.1: Survey distributions and populations of known alien species at regular intervals.	FWS NOAA
Activity AS-2.2: Maintain a GIS database of marine and terrestrial alien species.	NOAA
Activity AS-2.3: Develop and implement monitoring protocols for early detection and characterization of new infestations.	NOAA
<b>Strategy AS-3: Establish and enforce quarantine procedures appropriate for each site and habitat (terrestrial and aquatic) in the Monument to prevent the invasion or reinfestation of nonindigenous species over the life of the plan.</b>	
Activity AS-3.1: Enforce the use of existing quarantine protocols to prevent the introduction of invasive terrestrial species to the Monument.	FWS
Activity AS-3.2: Continue to require hull inspection and cleaning of all vessels, SCUBA gear, marine construction material, and instruments deployed in the Monument.	NOAA
<b>Strategy AS-4: Eradicate the house mouse population on Sand Island, Midway Atoll, within 15 years.</b>	
Activity AS-4.1: Produce a house mouse eradication plan within 5 years and procure appropriate permits for chosen eradication techniques.	FWS
Activity AS-4.2: Implement and complete house mouse eradication.	FWS
<b>Strategy AS-5: Prioritize infestations of alien terrestrial arthropods by species and locations and, within 5 years, develop and subsequently implement plans to control and if possible eradicate the highest-priority species.</b>	
Activity AS-5.1: Within 5 years, formulate a priority list of locations and species and a treatment plan to control and eventually eradicate all social Hymenopterans, such as ants and wasps, at all islands in the Monument.	FWS
Activity AS-5.2: Conduct toxicant trials to evaluate their efficacy and document ecological effects at selected islands on highest-priority invasive species of ants and wasps.	FWS
Activity AS-5.3: Control and if possible eradicate the two introduced mosquito species at Midway Atoll within 10 years using methods prescribed in the Integrated Alien Species Management Plan.	FWS
Activity AS-5.4: Develop and implement a plan to control and if possible eradicate the invasive gray bird locust wherever it occurs.	FWS
Activity AS-5.5: Protect endangered plants threatened by gray bird locust outbreaks at Nihoa by developing appropriate baits for localized application of toxicants to protect specific high-priority plant sites.	FWS

Strategies and Activities	Agency Lead
<b>Strategy AS-6: Control and eventually eradicate the highest-priority invasive plants in the terrestrial parts of the Monument within 15 years.</b>	
Activity AS-6.1: Control and eventually eradicate golden crownbeard and co-occurring weedy shrubs in all areas where they occur.	FWS
Activity AS 6.2: Control and eventually eradicate the invasive grass sandbur from all areas of the Monument where it currently occurs.	FWS
Activity AS-6.3: Control and eventually eradicate Indian pluchea, <i>Sporobolus pyramidatus</i> , and swine cress from Laysan Island.	FWS
Activity AS-6.4: Control and eventually eradicate prioritized alien plant species from Kure Atoll.	State of Hawai'i
<b>Strategy AS-7: Investigate methods to eventually eradicate aquatic invasive organisms already known to be present in the Monument, and conduct regular surveillance for new invasions.</b>	
Activity AS-7.1: Map, control, and eventually eradicate invasive red algae where it occurs.	NOAA
Activity AS-7.2: Conduct surveillance at appropriate sites for snowflake coral and other incipient marine invasives.	NOAA
<b>Strategy AS-8: Conduct and facilitate research designed to answer questions regarding invasive species detection, effects on ecosystem, and alien species prevention, control, and eradication over the life of the plan.</b>	
Activity AS-8.1: Support and conduct research on alien species detection and the effects of invasive species on native ecosystems.	NOAA
Activity AS-8.2: Support and conduct research on invasive species prevention, control methods, and eradication techniques.	FWS
<b>Strategy AS-9: Engage Monument users and the public in preventing the introduction and spread of alien species.</b>	
Activity AS-9.1: Integrate alien species information into the overall outreach program for Monument permittees.	NOAA
Activity AS-9.2: Integrate alien species information into general Monument outreach materials.	NOAA
<b>Strategy AS-10: Participate in statewide and Pacific regional alien species efforts.</b>	
Activity AS-10.1: Build relationships with other resource managers and invasive species experts in the State, nation, and other countries based on shared challenges concerning invasive species.	FWS

### 3.3.3 Maritime Transportation and Aviation Action Plan

#### Desired Outcome

Investigate, identify, and reduce potential threats to Papahānaumokuākea Marine National Monument from maritime and aviation traffic.

#### Current Status and Background

With the exception of a few small boats at Midway Atoll, French Frigate Shoals, and Kure Atoll, no vessels have home ports in the NWHI. Therefore, almost all marine traffic in the waters surrounding the NWHI is from transiting merchant vessels, research ships, and fishing vessels; with cruise ships, U.S. Coast Guard ships, and recreational vessels visiting less frequently. An estimated 50 vessels pass through the U.S. Exclusive Economic Zone surrounding the NWHI each day (Mathers 2005, pers. com.). Navy ships and vessels conduct training and participate in testing activities in the Hawaii Range Complex, which encompasses the Monument, and vessels that support missile defense tests occasionally operate in Monument waters. Vessels in shallow waters are at higher risk of impacting resources.

Links to other Action Plans	
3.2.1	Threatened and Endangered Species
3.3.2	Alien Species
3.3.4	Emergency Response
3.4.1	Permitting
3.4.2	Enforcement
3.5.2	Constituency Building and Outreach
3.5.4	Ocean Ecosystems Literacy
3.6.3	Coordinated Field Operations

Links to Goals
Goal 1
Goal 2
Goal 3
Goal 4
Goal 8

A relatively small number of flights are conducted in the Monument. The MMB agencies charter on average 27 flights to French Frigate Shoals and 45 flights to Midway Atoll each year to transport supplies and personnel. The Coast Guard conducts regular enforcement overflights, often landing at Midway Atoll for refueling. A few research and management activities associated with remote sensing, mapping, wildlife survey, and marine debris detection may be conducted by aircraft each year. The planning associated with ship, small boat, and aircraft activities is discussed in the Coordinated Field Operations Action Plan, Section 3.6.3.

#### Need for Action

All activities conducted in the Monument must meet the requirements articulated in Presidential Proclamation 8031, which established the Monument. Consistent with the spirit of the Proclamation, the MMB will investigate, identify, and reduce threats to the NWHI ecosystems. This work includes regularly evaluating the effects ships and aircraft may have on the environment during the course of normal operations and identifying ways in which they can be reduced. The MMB will periodically review vessel and aircraft activities,



recognizing that future increase in access to and use of the Monument could result in increased risks associated with transportation. The MMB is committed to minimizing the environmental footprint generated through maritime and aviation traffic.



Ships and aircraft allow human access and make activities possible in the vast and remote NWHI. However, they also bring with them the possibility of threats or environmental hazards. Some of these hazards are critical in nature and demand immediate response, such as groundings and fuel, chemical, or oil spills (see the Emergency Response and Natural Resource Damage Assessment Action Plan, Section 3.3.4). Others are biological in nature, such as the threat of alien species introductions through vessel hull fouling or ballast water discharge (see the Alien Species Action Plan, Section 3.3.2), or interactions with protected marine species (see the Threatened and Endangered Species Action Plan, Section 3.2.1). This action plan establishes a framework to evaluate various activities conducted by ships and aircraft.

### **Strategies to Achieve the Desired Outcome**

Two strategies have been identified for achieving the desired outcome of preventing and reducing impacts of vessels and aircraft operating in and transiting the NWHI. Strategies and activities are coded by the acronym for the action plan title, “Maritime Transportation and Aviation” (MTA). A summary of strategies and activities is provided in Table 3.3.3 at the end of this action plan.

- MTA-1: Increase awareness of navigational hazards and ecological sensitivity of the Monument.
- MTA-2: Conduct studies to identify potential aircraft and vessel hazards and adopt measures to prevent adverse impacts.

#### **Strategy MTA-1: Increase awareness of navigational hazards and ecological sensitivity of the Monument.**

The banks, atolls, and other reefs of the NWHI support a diverse array of species assemblages forming a system that is unique in the world (Friedlander et al. 2005), which could experience catastrophic losses in the event of a major ship grounding or oil spill. The MMB continues to analyze threats to the ecosystem from vessel traffic (see activity MTA-2.1, below). The establishment of internationally recognized shipping designations will raise awareness about the sensitivity and dangers of operating in the Monument, as well as provide information about the incidence of unreported international vessels transiting the area.

##### ***Activity MTA-1.1: Coordinate implementation of domestic and international shipping designations with appropriate entities.***

Potential impacts to Monument resources from ship traffic, including habitat damage from groundings, hazardous materials spills, and sewage and ballast water discharges, have been identified as some of the primary anthropogenic threats to the vulnerable and valuable natural and cultural resources of the area. PSSA designation will augment domestic protective measures by alerting international mariners to exercise extreme caution when navigating through the area.

On April 3, 2008, the IMO designated the Monument as a PSSA. As part of the PSSA designation process, the IMO adopted U.S. proposals for associated protective measures consisting of (1) expanding and consolidating the six existing recommendatory Areas To Be

Avoided (ATBAs) in the Monument into four larger areas and enlarging the class of vessels to which they apply; and (2) establishing a ship reporting system for vessels transiting the Monument, which is mandatory for ships 300 gross tons or larger that are entering or departing a U.S. port or place and recommended for other ships. The IMO protective measures do not apply to the activities and exercises of the Armed Forces (including the U.S. Coast Guard) that are consistent with applicable laws. Sovereign immune vessels also are not subject to the reporting requirement but all vessels are encouraged to participate.

The vessel reporting system requires that ships notify the U.S. shore-based authority (the U.S. Coast Guard; NOAA will be receiving all messages associated with this program on behalf of the Coast Guard) at the time they begin transiting the reporting area and again when they exit. Notification is made by e-mail through the Inmarsat-C system or other satellite communication system. It is estimated that almost all commercial vessel traffic will be able to report via Inmarsat-C. The Armed Forces are not subject to the access restrictions and reporting requirements in the Monument when they are conducting activities and exercises.

The PSSA and associated protective measures were adopted to provide additional protection to the exceptional natural, cultural, and historic resources in the Monument. Requiring vessels to notify NOAA upon entering the reporting area will help make the operators of these vessels aware that they are traveling through a fragile area with potential navigational hazards such as the extensive coral reefs found in many shallow areas of the Monument. The PSSA and associated protective measures are now in effect.

NOAA and FWS are establishing the infrastructure that will be required to maintain an international ship reporting system and to ensure that information regarding PSSA designation will be incorporated into nautical charts and other information sources. Appendix G of Volume III contains the relevant documents for the IMO designated PSSA around the Monument.

***Activity MTA-1.2: Develop boundary and zoning informational tools.***

Information on the PSSA designation, zones, boundaries, and regulations will be made available to Monument users to help them comply with all maritime transportation requirements. Global positioning system coordinates will be provided along with nonnavigational reference maps in the appropriate public documents. The MMB will work with NOAA's Office of Coast Survey to update NOAA navigational charts as well as to provide appropriate information to mariners in the United States Coast Pilot®, a series of nautical reference books.

***Activity MTA-1.3: Provide necessary updates to nautical charts and the Notice to Mariners.***

The MMB will work with the appropriate NOAA and Coast Guard offices to update the nautical charts and Notice to Mariners to reflect Monument boundaries, zones, and other pertinent designations. The U.S. Notice to Mariners announces updates to National Geospatial-Intelligence Agency and National Ocean Service charts using information collected from many sources, among them the Coast Guard Local Notices. The U.S. Notice to Mariners will contain only those chart corrections of interest to ocean-going vessels.

Bathymetric data collected as part of research and monitoring in the NWHI may be used to update nautical charts. However, standards for data used for benthic habitat mapping are less rigorous than are applied to hydrographic survey, so most of the data collected to date in the NWHI are unlikely to be used for updating charts Monument-wide. Nautical charts can be updated only using bathymetric surveys that meet the standards of the International Hydrographic Organization (IHO). Therefore, when a survey is to be conducted in an area where chart updates would be useful, the survey planners will work with the Hydrographic Surveys division of the Office of Coast Survey to determine whether the minimum requirements for IHO standards for chart updates are compatible with the mandated research objectives. Often, these standards are greater than the scientific survey needs, so if collaborative dual-purpose surveying is undertaken, cost-sharing agreements will be sought with the Office of Coast Survey during survey planning. Nautical charts are updated based on national prioritized needs, and even if data are collected to IHO standards, many years could pass between survey completion and the incorporation of updates to the associated charts. As such, updating all NWHI nautical charts is a long-term goal.

**Strategy MTA-2: Conduct studies to identify potential aircraft and vessel hazards and adopt measures to prevent adverse impacts.**

While many aircraft and vessel hazards are known and can be reduced through regulations and permit requirements, more information needs to be gained about potential hazards to minimize human impacts and maximize resource protection. Specific information gained through small-scale studies can strengthen or add specificity to regulations and permit requirements should they be needed.

***Activity MTA-2.1: Conduct studies on potential aircraft and vessel hazards and impacts.***

Various studies on potential aircraft and vessel hazards may be conducted based on priority threats identified in the comprehensive threat assessment discussed in the Enforcement Action Plan (Section 3.4.2). These studies may include, but are not limited to, the following: an anchoring/mooring location feasibility study; a long-term study on mandatory hull inspections and cleaning for all vessels accessing the Monument; studies on alien species introductions via aircraft; an assessment of permit reporting requirements for interactions with federally protected species and other wildlife; a light and sound study; and a discharge study.

***Activity MTA-2.2: Develop protocols and practices as needed and integrate with existing protocols for safe aircraft and vessel operations.***

The MMB will work with the ICC to convene a group of experienced aircraft and vessel operators to discuss safety for humans and wildlife during flight and boating operations. Existing protocols will be evaluated and other recommendations sought to reduce risks to personnel and the environment through pre-trip training and standard procedures. New protocols and practices will be developed as needed.

***Activity MTA-2.3: Improve existing pre-access information for inclusion on the Monument website and in permit application instructions.***

The following information will be incorporated into pre-trip training for Monument users and vessel operators: information on regulations and compliance; navigation hazards; emergency

response protocols and contacts; zoning designations, including waste discharge location and types; preventing the introduction of alien species; preventing and reporting interactions with protected species and other wildlife; preventing light and sound pollution; and preventing anchor damage to coral reefs and other benthic habitats and organisms. The information will be conveyed as appropriate to all vessel operators, captains, crews, and trip participants. The MMB will also incorporate this information into written materials to be distributed to potential visitors. (See the action plans for Permitting, Section 3.4.1; Enforcement, Section 3.4.2; Ocean Ecosystems Literacy, Section 3.5.4; and Constituency Building and Outreach, Section 3.5.2.)

***Activity MTA-2.4: Conduct activities to improve energy and water conservation measures on all vessels operating in the Monument.***

The NOAA ship *Hi'ialakai* sets an example for the fleet by increasing shipboard conservation measures each year. In 2006, the ship began a recycling program and began installing water-saving devices to reduce impacts to the Monument as well as other parts of the ocean where the ship operates. In 2008, NOAA plans to test the use of biofuels and nonpetroleum-based hydraulic fluid on the *Hi'ialakai*. The MMB will continue to work with ship managers on these measures and encourage similar practices for all vessels that operate in the Monument.



**Table 3.3.3 Summary of Strategies, Activities, and Agency Leads for Maritime Transportation and Aviation**

Strategies and Activities	Agency Lead
<b>Strategy MTA-1: Increase awareness of navigational hazards and ecological sensitivity of the Monument.</b>	
Activity MTA-1.1: Coordinate implementation of domestic and international shipping designations with appropriate entities.	NOAA
Activity MTA-1.2: Develop boundary and zoning informational tools.	NOAA
Activity MTA-1.3: Provide necessary updates to nautical charts and the Notice to Mariners.	NOAA
<b>Strategy MTA-2: Conduct studies to identify potential aircraft and vessel hazards and adopt measures to prevent adverse impacts.</b>	
Activity MTA-2.1: Conduct studies on potential aircraft and vessel hazards and impacts.	NOAA
Activity MTA-2.2: Develop protocols and practices as needed and integrate with existing protocols for safe aircraft and vessel operations.	NOAA
Activity MTA-2.3: Improve existing pre-access information for inclusion on the Monument website and in permit application instructions.	NOAA
Activity MTA-2.4: Conduct activities to improve energy and water conservation measures on all vessels operating in the Monument.	NOAA

### 3.3.4 Emergency Response and Natural Resource Damage Assessment Action Plan

#### Desired Outcome

Minimize damage to Papahānaumokuākea Marine National Monument resources through coordinated emergency response and assessment.

#### Current Status and Background

The history of shipwrecks and groundings is as old as the history of ships in the NWHI. Many islands and atolls are named for ships that went aground. This history continues, with four recent vessel groundings. The *Paradise Queen* and *Grendel* went aground at Kure Atoll in 1998 and 2007, respectively, and the *Swordman II* and *Casitas* went aground at Pearl and Hermes Atoll in 2000 and 2005, respectively. Natural disasters such as tropical cyclones and tsunamis, while rare, also threaten Monument natural, cultural, and historic resources. The remote locations in the Monument have logistically and financially challenged effective response and remediation efforts to date and will continue to be a primary factor in future emergency response efforts.

Links to other Action Plans	
3.3.2	Alien Species
3.3.3	Maritime Transportation and Aviation
3.4.1	Permitting
3.6.2	Information Management

Links to Goals
Goal 1
Goal 2
Goal 3
Goal 4

Emergency response in the NWHI will be coordinated under a series of plans and systems, including the National Response Plan and the National Incident Management System. The National Response Plan establishes a comprehensive all-hazards approach to enhance the ability of the United States to manage domestic incidents, including oil and hazardous chemical spills. This plan incorporates the National Contingency Plan and its regulations governing how oil pollution response is conducted by the Coast Guard, EPA, the affected state, and resource trustees, including NOAA and FWS. The NWHI are covered specifically by the Hawai‘i Area Contingency Plan (Version 5.0 - May 02, 2005; <http://homeport.uscg.mil/mycg/portal/ep/portDirectory.do?tabId=1&cotpId=27>). This Area Contingency Plan describes the strategy for a coordinated industry, federal, state, and local response to a discharge or substantial threat of discharge of oil or a release of a hazardous substance. The Area of Responsibility of U.S. Coast Guard Sector Honolulu Captain of the Port Zone includes the Northwestern Hawaiian Islands.



Houei Maru #5 bow section. Wrecked in 1976 at Kure Atoll. Photo: Dan Suthers

FWS and NOAA have designated representatives who are federal members of the Regional Response Team, which makes response recommendations to the federal on-scene coordinator.

The Hawai'i DLNR and the Hawai'i Department of Health are the designated state representatives for all marine injury events. The Department of Health is the state on-scene coordinator. These representatives work closely with all parts of FWS, NOAA, the State, and the MMB in making recommendations on the use of alternative response technologies, such as dispersants. Unlike the State, NOAA and DOI can make only consultative recommendations; they do not have a formal vote in that process.

While the Monument and state regulations regulate access, they also provide a general exemption for activities necessary to respond to emergencies. The general exemption for emergencies allows for individuals responding to emergencies threatening life, property, or the environment to conduct necessary activities without the need for a permit. The general exemption applies only to the emergency response activity itself and not to ancillary activities, such as training for emergency response, salvage operations, remediation, or restoration. These ancillary actions also require timely response and would be covered under the appropriate agency's conservation and management permit.

Monument staff have access to resources-at-risk information that is of interest during contingency planning and spill response through the Sanctuaries Hazardous Incident Emergency Logistics Database System, a web-based decision support tool commonly referred to as "SHIELDS." This tool includes regulatory information, contact lists, GIS maps, environmental sensitivity indexes, information on resources at risk, and significant terrestrial and submerged historic and cultural resource and hazards data. Environmental Sensitivity Indices were last produced by NOAA for this area in 2001. Environmental Sensitivity Indices identify resources at risk on a seasonal and location basis and facilitate decisions about response options given threats to specific resources at risk.

In addition, the Monument's own GIS database of spatial resource data and the FWS Asset Maintenance Management System will be used to document this information. As the Monument continues to move toward a comprehensive biogeographic, cultural, and historic understanding of the NWHI, prevention and emergency response methods will improve (see the Information Management Action Plan, Section 3.6.2).

### **Need for Action**

In light of recent vessel grounding events in the NWHI and devastating natural disasters around the world, a clear need exists for the Monument to participate in emergency response efforts to address situations that threaten resources in and around the Monument. Grounded vessels and their related debris and pollution must be removed from the reefs as soon as possible to prevent damage to coral reef ecosystems and protected marine mammals, turtles, and seabirds.

Emergency response for events such as vessel groundings; oil, fuel, or chemical spills; or releases of hazardous substances is addressed through the Hawai'i Area Contingency Plan, which is a local plan under the larger structure of the National Response Plan. The Monument Co-Trustees and Interagency Coordinating Committee will seek to address NWHI responses as part of the Area Contingency Plan.

Developing a response capacity for events that fall beyond the scope of the existing response structure of the Area Contingency Plan is necessary to support the mission of the Monument and

the long-term protection of the resources of the NWHI. Events that may require an MMB-directed response include vessel groundings that neither pose the threat of hazardous release nor navigational hazard, as well as detrimental natural events such as disease outbreaks, severe storms, alien species introductions, or impacts of climate change (e.g., coral bleaching).

This action plan describes strategies and activities to plan for and respond to an emergency within the established Incident Command System (ICS) for the region, and other unanticipated events that fall outside the scope of the Hawai‘i Area Contingency Plan. The MMB will establish a Monument Emergency Response and Assessment Team (ERAT) that will determine what types of emergencies are likely within the Monument. For each identified possible emergency, the type and scope of necessary response will be determined.

### **Strategies to Achieve the Desired Outcome**

Within the context of the existing Area Contingency Plan and other informational tools, including SHIELDS, the MMB seeks to integrate its resources in a way that benefits both Monument resources and regional efforts. The MMB can contribute primarily through building an internal and interagency capacity to contribute to emergency response efforts and by providing relevant and current information regarding NWHI resources so that current data are readily available and accessible to the Regional Response Team and any unified command that may be established to address an incident.

To coordinate Monument response to emergencies in a manner that minimizes damage to resources and mechanisms to assess damage, the following strategies have been identified. The strategies and activities are coded by the acronym for the action plan title, “Emergency Response and Natural Resource Damage Assessment” (ERDA). A summary of strategies and activities is provided in Table 3.3.4 at the end of this action plan.

- ERDA-1: Create a Monument Emergency Response and Assessment Team within 1 year.
- ERDA-2: Assess response needs for non-Incident Command System emergencies within 2 years.
- ERDA-3: Update and create, as necessary, Monument resource protection plans and protocols within 3 years.

### **Strategy ERDA-1: Create a Monument Emergency Response and Assessment Team within 1 year.**

An interagency team will be created and integrated with local responders from other federal and state agencies to assess resource damage and respond to emergencies in the Monument. The Monument ERAT will interface with the existing local area response team within the Incident Command. Whenever possible, the team will provide assistance and coordination in an actual response. Following an emergency, the ERAT will participate in an injury assessment with other federal and State of Hawai‘i natural, cultural, and historic resource trustees. In the event of a response to and assessment of injury from a non-ICS event, such as severe storm damage or coral bleaching, the team will conduct this assessment and initiate appropriate monitoring.



***Activity ERDA-1.1: Create a Monument Emergency Response and Assessment Team for ICS responses.***

An ERAT will be created to interface with the existing local area response team within the Incident Command, the Regional Response Team, and the Scientific Support Team. The team members will include specific species experts, law enforcement, and experts by area and habitat type, and may recruit or consult other such experts as needed. Because this is an interagency effort, regular reports on the status of the ERAT will be made to the ICC. The team will also assist in identification of primary and compensatory restoration options as well as implementation and oversight of restoration and monitoring. The team will also develop standard operating procedures for onsite incident investigations, resource injury determination, asset conditions, emergency detection, assessment, and restoration.

***Activity ERDA-1.2: Acquire and maintain training and certification to complement and support the Regional Response Team.***

Under the Area Contingency Plan, the Regional Response Team is charged with preparedness for emergencies. This preparedness will necessitate training and certifications, including ICS, Hazardous Waste Operations and Emergency Response (HAZWOPR), boat safety, flight safety, first responder, and first aid.

***Activity ERDA-1.3: Participate in emergency response and preparedness drills and meetings throughout the life of the plan.***

The ERAT will attend Regional Response Team meetings, as appropriate, to keep abreast of current communication and training and to build working relationships with agency staff that make up both the Regional Response Team and the Coast Guard agency staff. Participation in emergency response drills and other events will help with preparedness and better integration into the response process. One of the main functions of the ERAT is to provide information and data to minimize impact on Monument resources by the event or the response.

***Activity ERDA-1.4: Participate in damage assessment programs and training throughout the life of the plan.***

Damage assessment is an important component of any emergency response. The ERAT is expected to contribute in area and resource knowledge; therefore, training in natural resource damage assessment is necessary. The ERAT will work closely with the FWS Environmental Contaminants Program and Oil Spill Response Coordinator and the ONMS Resource Protection Team in Silver Spring, Maryland, State on-scene coordinator, and State Department of Health Office of Hazard Evaluation and Emergency Response, as appropriate, to ensure that appropriate response, injury assessment, and restoration activities take place for any given case. This effort may include coordination with the DOI, FWS, NOAA Natural Resource Damage Assessment and Restoration Programs, the U.S. Department of Justice, Coast Guard, and other federal and State of Hawai'i resource damage assessment programs to assess the extent of injury from a particular emergency event (see Section 3.3.2, Alien Species Action Plan, Activity AS-1.1).

**Strategy ERDA-2: Assess response needs for non-Incident Command System emergencies within 2 years.**

***Activity ERDA-2.1: In the second year, determine the non-ICS emergencies and the necessary type and scope of responses.***

The ERAT will be responsible for determining what types of non-ICS emergencies are likely within the Monument. In the event of a needed response to natural events—such as disease outbreaks, severe storms, alien species introductions, or coral bleaching events,—or vessel groundings not releasing oil or hazardous substances, the ERAT will need specialized protocols for response. For each identified possible non-ICS emergency, the type and scope of necessary response will be determined.

***Activity ERDA-2.2: Designate appropriate Monument personnel for each non-ICS response team.***

The team members will include specific species experts and experts by area and habitat type, and may recruit or consult other such experts as needed. Because this is an interagency effort, regular reports on the status of the response teams will be made to the Papahānaumokuākea ICC. Each team member will also assist in the identification of primary and compensatory restoration options, if warranted, as well as implementation and oversight of restoration and monitoring. Team members will also develop standard operating procedures for injury determination, emergency detection, assessment, and restoration.

***Activity ERDA-2.3: Throughout the life of this plan, ensure that appointed personnel acquire and maintain training and certifications.***

Designated response personnel will maintain preparedness for emergencies. Preparedness will necessitate training and certifications including HAZWOPR, boat safety, flight safety, and first aid. Additional training considerations can include the Oil Pollution Act (OPA) and Natural Resource Damage Assessment (NRDA) process.

**Strategy ERDA-3: Update and create, as necessary, Monument resource protection plans and protocols within 3 years.**

Multiple agency and interagency emergency plans that apply to the Monument currently exist, such as continuity of operations plans, oil spill response plans, and aircraft incident plans. To ensure efficiency and effectiveness, the MMB agencies will coordinate and update these plans, as well as develop new plans or protocols as needed.

***Activity ERDA-3.1: Update and improve upon the Area Contingency Plan and the Environmental Sensitivity Indices.***

In concert with partners, MMB staff will update and improve upon the Hawai‘i Area Contingency Plan to better describe a range of potential emergency response actions in the NWHI and appropriately define how the ERAT will assess and respond to an emergency. Monument-specific information will be presented to the area committee for inclusion as appropriate in the Area Contingency Plan. In order to determine and develop appropriate response strategies to emergencies in the NWHI, a workshop will be held involving all partner agencies, parties that are typically involved in responses, and individuals, organizations, and researchers who are active in the region or have a particular specialty area that relates to the NWHI.

***Activity ERDA-3.2: Within 3 years, create damage assessment criteria and protocols.***

Following an emergency, the ERAT will participate in an injury assessment with other federal and State of Hawai‘i natural resource trustees. In the event of an MMB response to a non-ICS event, the team will conduct the assessment and initiate appropriate monitoring. Therefore, the ERAT will develop damage assessment criteria and protocols for the natural, cultural, and historic resources in the Monument.

**Table 3.3.4 Summary of Strategies, Activities, and Agency Leads for Emergency Response and Natural Resource Damage Assessment**

<b>Strategies and Activities</b>	<b>Agency Lead</b>
<b>Strategy ERDA-1: Create a Monument Emergency Response and Assessment Team within 1 year.</b>	
Activity ERDA-1.1: Create a Monument Emergency Response and Assessment Team for ICS responses.	NOAA
Activity ERDA-1.2: Acquire and maintain training and certification to complement and support the Regional Response Team.	NOAA
Activity ERDA-1.3: Participate in emergency response and preparedness drills and meetings throughout the life of the plan.	NOAA
Activity ERDA-1.4: Participate in damage assessment programs and training throughout the life of the plan.	NOAA
<b>Strategy ERDA-2: Assess response needs for non-Incident Command System emergencies within 2 years.</b>	
Activity ERDA-2.1: In the second year, determine the non-ICS emergencies and the necessary type and scope of responses.	NOAA
Activity ERDA-2.2: Designate appropriate Monument personnel for each non-ICS response team.	NOAA
Activity ERDA-2.3: Throughout the life of this plan, ensure that appointed personnel acquire and maintain training and certifications.	NOAA
<b>Strategy ERDA-3: Update and create, as necessary, Monument resource protection plans and protocols within 3 years.</b>	
Activity ERDA-3.1: Update and improve upon the Area Contingency Plan and the Environmental Sensitivity Indices.	NOAA
Activity ERDA-3.2: Within 3 years, create damage assessment criteria and protocols.	NOAA



## **3.4 Managing Human Uses**

---

### **3.4.1 Permitting Action Plan**

### **3.4.2 Enforcement Action Plan**

### **3.4.3 Midway Atoll Visitors Services Action Plan**

---

### **3.4 Managing Human Uses**

Globally, pollution, coastal development, resource extraction, climate change, natural hazards, and alien species introductions threaten terrestrial and marine ecosystems. As many of these threats are associated with human activities, a common element shared among most protected areas is the need to regulate human activities to minimize impacts. Indeed, this need to regulate human activities is the reason most protected areas are established. In certain sites, protection is achieved through prohibiting all access to a given area. In other areas, education may be the sole tool used to lessen the impacts people have on a given environment. Most protected areas utilize an assortment of management strategies, including zoning, permit authorization, regulations, and conservation plans to manage human activities and their potential impacts.

As a remote site without a significant resident or visitor population, the Monument has an advantage over many other protected areas in that the number of people and overall activity occurring is relatively low. Conversely, the Monument's remote location presents surveillance and enforcement challenges for effective management.

The NWHI have a long history of human activity, including early discovery and use by Native Hawaiians; exploitation of terrestrial and marine resources beginning in the late 1800s; commercial fishing beginning in the mid-1900s; and military activity during World War II. More recent activities in the NWHI include the U.S. Navy's use of Midway Atoll, the U.S. Coast Guard's stations at Kure Atoll and Tern Island, an ecotourism operation at Midway Atoll, and a commercial lobster fishery that was subject to zero harvest in 2000. Current activities are limited primarily to management activities by jurisdictional agencies, including habitat conservation and management, research, education, Native Hawaiian practices, recreation and historic preservation at Midway Atoll, and fishing by a small commercial bottomfish and pelagic trolling fleet. The DOD also conducts missile defense testing and Navy training and testing activities.

Human activities in the Monument are managed through a framework of regulations, permitting, zoning, and enforcement. The three action plans in this section focus on regulating activities through permits and compliance, through enforcement surveillance of activities in the Monument, and under a visitor services program at Midway Atoll. Zoning through Special Preservation Areas, Ecological Reserves, and the Midway Atoll Special Management Area establish spatial restrictions on human activities and are described in more detail in Section 2.0.

The Monument regulations prohibit access except for: passage without interruption; activities and exercises of the Armed Forces (including those of the Coast Guard); activities necessary to respond to emergencies or necessary for law enforcement; and, until June 15, 2011, bottomfish fishing conducted pursuant to a valid permit issued by NOAA. Monument permits are required for activities conducted in the Monument. Prior to the establishment of the Monument, each jurisdictional agency would have considered and issued separate permits for the same activity. Development of the Monument permit application process and application instructions was completed within a year after Monument designation. This process produced a single permit application for all applicants and a general permit template used by Co-Trustees when issuing permits throughout the Monument. Most of the Co-Trustee agency mandates and policies are

met by this general template. Those that are not met are addressed by special conditions that are added in addition to the general terms and conditions listed on each permit.

Compliance with regulations, laws, and permit requirements for all activities is enforced using surveillance, Vessel Monitoring System tracking, relevant technology, operations plans, and penalties. Co-Trustee and interagency cooperation on enforcement will become increasingly integrated and coordinated, allowing for greater capacity, effectiveness, and efficiency over time.

With the establishment of the Monument, Midway Atoll takes on the additional role of providing a “window” so that visitors can learn about and enjoy a small portion of the largest fully protected marine managed area in the world. The Co-Trustees remain committed to offering a high-quality, small-scale visitor program at Midway Atoll. By physically experiencing the Northwestern Hawaiian Islands, visitors will return home with a personal connection and commitment to protecting and conserving the Monument’s unique resources.

Each action plan consists of a set of strategies to address a desired outcome. The desired outcomes of these action plans over the 15-year planning horizon are:

- **Permitting:** Implement an effective and integrated permit program for Papahānaumokuākea Marine National Monument that manages, minimizes, and prevents negative human impacts by limiting access only for those activities consistent with Presidential Proclamation 8031 and other applicable laws, regulations and executive orders.
- **Enforcement:** Achieve compliance with all regulations within Papahānaumokuākea Marine National Monument.
- **Midway Atoll Visitor Services:** Offer visitors opportunities to discover, enjoy, appreciate, protect, and honor the unique natural, cultural, and historic resources of Papahānaumokuākea Marine National Monument.

Action plans described in this section will be implemented in close coordination with Co-Trustee partners and in conjunction with other priority management needs.

### 3.4.1 Permitting Action Plan

#### Desired Outcome

Implement an effective and integrated permit program for Papahānaumokuākea Marine National Monument that manages, minimizes, and prevents negative human impacts by limiting access only for those activities consistent with Presidential Proclamation 8031 and other applicable laws, regulations and executive orders.

#### Current Status and Background

The Monument permit program is an integral part of a management framework based on Monument regulations (see Appendix D), other federal and state regulations, zoning, enforcement, goals, Native Hawaiian cultural values, and collaboration within the MMB. This permit program is designed to ensure long-term protection of the NWHI by providing the Co-Trustees with a management tool to regulate, monitor, and understand the impacts of permitted activities on the ecosystem.

Proclamation 8031 requires a Monument permit for access to the Monument for a limited range of activities. State regulations (HAR sections 13-60.5 and 13-125, 50 CFR Part 25, 26, 38, and 404) are subject to permit requirements in State waters as well. Prior to Monument designation, many of these activities would have required multiple access permits from different agencies. Permits authorized for activities conducted within the national wildlife refuges, the state’s Northwestern Hawaiian Islands Marine Refuge, the State Seabird Sanctuary at Kure Atoll, or the Reserve may have required one or more permits issued by FWS, the State of Hawai‘i, or the Reserve. However, with the advent of the Monument, all proposed activities are reviewed and considered jointly by all three Co-Trustees.

Development and implementation of a unified Monument permit application, application instructions, and Monument permit template occurred within the first year following Monument designation. All permitted activities are authorized under the issuance of a single Monument permit signed by designees of the three Co-Trustees. Most of the Co-Trustee agency mandates and policies are met by this unified permit. Those that are not met by the permit general terms and conditions are added as special conditions. The Co-Trustees issue Monument permits under the authority of the implementing regulations for the Monument, as described in 50 CFR 404.11 and consistent with all other applicable state and federal laws.

Previously, the State of Hawai‘i Land Board was the primary public forum for notification of Monument permit applications under consideration by Co-Trustees. To ensure the general public has access to and is informed of all permit applications under review, a policy on public posting was developed and finalized in November 2007 (Appendix A). This policy was developed jointly by the MMB to guide public notification of permit applications and provide an opportunity to review all proposed activities in the Monument.

Links to other Action Plans	
3.1.1	Marine Conservation Science
3.1.2	Native Hawaiian Culture and History
3.2.1	Threatened and Endangered Species
3.2.2	Migratory Birds
3.2.3	Habitat Management and Conservation
3.4.2	Enforcement
3.4.3	Midway Atoll Visitors Services
3.5.1	Agency Coordination
3.5.2	Constituency Building and Outreach
3.5.3	Native Hawaiian Community Involvement
3.5.4	Ocean Ecosystems Literacy
3.6.2	Information Management

Links to Goals
Goal 1
Goal 2
Goal 3
Goal 4
Goal 5
Goal 7
Goal 8



### **Monument Permit Types**

All activities in the Monument, with limited exceptions, require a permit (see Monument regulations, Appendix D). Activities are either prohibited, excluded (no permit is needed), or regulated (must be considered through permitting process). Prohibited activities include:

- Exploring for, developing, or producing oil, gas, or minerals within the Monument;
- Using or attempting to use poisons, electrical charges, or explosives in the collection or harvest of a Monument resource;
- Introducing or otherwise releasing an introduced species from within or into the Monument; and
- Anchoring on or having a vessel anchored on any living or dead coral with an anchor, anchor chain, or anchor rope.

Exempted activities include:

- Response to emergencies threatening life, property, or the environment;
- Law enforcement purposes;
- Activities and exercises of the Armed Forces; (including the United States Coast Guard) and
- Passage without interruption.

Domestic vessels wishing to pass through the Monument must meet notification requirements, including notification by phone or email at least 72 hours prior to entry and within 12 hours of leaving the Monument (see Appendix D, Monument Regulations).

The Proclamation allows the Secretaries of the Interior and Commerce to issue permits for sustenance fishing outside of any Special Preservation Area as a term or condition of any permit issued, if the activity is conducted in a manner compatible with the Proclamation. Sustenance fishing in the Midway Atoll Special Management Area can be permitted only if it is determined by the Director of the FWS (or designee) to be compatible with the purposes for which the Midway Atoll NWR was established. In accordance with these specifications, the draft FWS Appropriateness Finding and Compatibility Determination for this activity was available as a part of the Draft MMP and has been finalized.

The existing federally regulated commercial bottomfish fishery (permitted under the authority of NOAA Fisheries) does not require a Monument permit. However, in addition to compliance with the fisheries regulations, these permittees must also comply with the Proclamation and Monument regulations. The Proclamation closes the remaining commercial bottomfish fishery in June 2011.

Regulated activities must be considered in the permit process. Under Monument permit criteria, access may be permitted for six types of activities. These are:

- Research,
- Education,
- Conservation and management,
- Native Hawaiian practices,
- Special ocean uses, and

- Recreation.

These permit categories, although different in name from the three types of activities listed in section 13-60.5-5, HAR are consistent with activities that may be allowed under state law. All activities eligible for a Monument permit must comply with all applicable laws. The unified Monument permitting system was specifically developed to address and incorporate the differences. For example, sustenance fishing is not allowed in state waters.

### ***Research***

Research permits are required for activities designed to enhance understanding of Monument resources and activities to improve resource management decisionmaking. Priority is given to research proposals that help meet the management needs of the Monument and its Co-Trustees, as identified in this Monument Management Plan or the Monument Natural Resources Science Plan (see Section 3.1.1, Marine Conservation Science Action Plan). The types of activities that can be conducted under a research permit include, but are not limited to, biological inventories, ecosystem-based research, restoration investigations, cultural studies, and terrestrial and marine archaeological research.

In the event sampling is requested, research proposals will be evaluated to ensure proposed sample sizes allow for the effective application of statistical techniques while minimizing harm to the population or ecosystem under study. Collection of samples must be justified and meet Proclamation findings.

### ***Education***

Education permits are required for activities that further the educational value of the Monument. Educational activities may enhance the understanding of the NWHI ecosystems, improve resource management decisionmaking, promote Native Hawaiian knowledge and values, or aid in enforcement and compliance efforts. Permits are considered for activities that have clear educational or public outreach benefits to understand Monument resources or management and that promote “bringing the place to the people rather than the people to the place.” Some examples of potentially eligible projects are teacher-at-sea programs, distance learning projects, and university classes.

### ***Conservation and Management***

Conservation and management permits are required for general management of the Monument. This may include activities associated with resource management, such as field station operations, benthic mapping, habitat characterization, marine debris removal, development and maintenance of infrastructure, species and habitat restoration, and long-term resource monitoring programs such as monitoring of endangered species and seabird populations, and terrestrial native plant communities (see Section 3.2.3, the Habitat Management and Conservation, Section 3.2.2, Migratory Bird, and Section 3.2.1, Threatened and Endangered Species action plans). Conservation and management permits provide a mechanism to respond and follow up to urgent events in the Monument that may not have been anticipated, such as response to vessel groundings, coral bleaching episodes, and invasive species detection.

### ***Native Hawaiian Practices***

Permits are required for Native Hawaiian cultural practices. The Native Hawaiian Cultural Working Group, working closely with the Office of Hawaiian Affairs, is currently developing a process whereby permit applications will be reviewed by select cultural practitioners or cultural resource managers. The findings and criteria in Proclamation 8031 and regulations (see Appendices D and E) state that Native Hawaiian Practice permits must be noncommercial, deemed appropriate and necessary by traditional standards, benefit the NWHI and Native Hawaiian community, perpetuate traditional knowledge, and restrict the consumption of harvested resources from the Monument. Permit conditions and protocols will continue to be developed by the Co-Trustees and the Office of Hawaiian Affairs through consultation with the Native Hawaiian Cultural Working Group and the Native Hawaiian community, as appropriate. (See Section 3.1.2, the Native Hawaiian Culture and History, and Section 3.5.3, Native Hawaiian Community Involvement Action Plans.)

### ***Special Ocean Use***

Special ocean use permits are required for projects related to commercial ocean uses, including ecotourism and documentary filmmaking that have a net benefit to the Monument. Special ocean use is defined as any activity or use of the Monument that is engaged in to generate revenue or profits for one or more of the persons associated with the activity or use. These permits are not restricted to activities in the ocean.

Special ocean use permits must meet the additional findings stated in Monument regulations (see Appendix D). These findings include the requirement to provide public notice for any activity not previously identified as a special ocean use and all activities being considered as special ocean use for locations outside of Midway. In addition, the Co-Trustees will authorize the conduct of a special ocean use permit activity only if the activity is compatible with the purposes for which the Monument is designated and is consistent with the protection of Monument resources. Special ocean use permits for activities being permitted for the first time will be restricted to pilot projects. Pilot projects will be closely monitored and restricted in duration. Only after a pilot project for the category has been determined by the Co-Trustees to meet the criteria in Proclamation 8031 can subsequent special ocean use permits be issued for the category of activity. Activities that could qualify as another permit type (e.g., research or education) but that directly generate revenue or profit for one of the persons involved in the activity must be permitted as special ocean use. Furthermore, special ocean use proposals involving activity outside of the Midway Atoll Special Management Area must be for educational or research purposes that directly benefit the conservation and management of the Monument. These activities may not involve use of a commercial passenger vessel, defined in the Monument regulations as “a vessel that carries individuals who have paid for such carriage.”

### ***Recreation***

Recreational permits are required for all recreational activities and are limited to the Midway Atoll Special Management Area. In addition to the general findings, recreational activities may not be associated with any for-hire operation or involve any extractive use. Examples of activities that may be permitted under a recreational activity permit include snorkeling, SCUBA diving, wildlife viewing, and kayaking.

FWS, in close consultation with the MMB, has updated the Interim Visitor Services Plan for the Midway Atoll National Wildlife Refuge, the Battle of Midway National Memorial, and the Papahānaumokuākea Marine National Monument's Midway Atoll Special Management Area (see Section 3.4.3, the Midway Atoll Visitor Services Action Plan, and Appendix B). This plan details the types of recreational activities permitted within the Midway Atoll Special Management Area. This plan also describes the permitting process for recreational activities, the number of annual recreational visitors expected within the Midway Atoll Special Management Area, and accommodations on Midway Atoll.

### **Findings and Review Criteria**

Monument findings and review criteria must be met by all applicants to demonstrate that their proposed activities are consistent with the Proclamation and the goals of the Monument (see Section 2, Management Framework). The MMB may require applicants to submit additional information, apply special conditions, or undergo additional training. To issue a permit, the Secretaries must determine the following:

- The activity can be conducted with adequate safeguards for the resources and ecological integrity of the Monument.
- The activity will be conducted in a manner compatible with the management direction of the Proclamation, considering the extent to which the conduct of the activity may diminish or enhance Monument resources, qualities, and ecological integrity; any indirect, secondary, or cumulative effects of the activity; and the duration of such effects.
- There is no practicable alternative to conducting the activity within the Monument.
- The end value of the activity outweighs its adverse impacts on Monument resources, qualities, and ecological integrity.
- The duration of the activity is no longer than necessary to achieve its stated purpose.
- The applicant is qualified to conduct and complete the activity and mitigate any potential impacts resulting from its conduct.
- The applicant has adequate financial resources available to conduct and complete the proposed activity and mitigate any potential impacts resulting from its conduct.
- The methods and procedures proposed by the applicant are appropriate to achieve the proposed activity's goals in relation to their impacts to Monument resources, qualities, and ecological integrity.
- The applicant's vessel has been outfitted with a mobile transceiver unit approved by NOAA Office of Law Enforcement and complies with the requirements of Proclamation 8031.
- There are no other factors that would make the issuance of a permit for the activity inappropriate.

Additional findings are required for Native Hawaiian Practices, special ocean use, and recreation applications. See Appendix D for additional findings from regulations.

Permit applications include requests for information that will assist the Co-Trustees in determining how the proposed activities are compatible with conservation and management of all of the resources of the Monument: natural, historic and cultural.



### **Permit General Terms and Conditions**

Permitted activities are subject to general terms and conditions that satisfy Proclamation 8031 and Monument regulations (see Appendices D and E) and comply with MMB agency mandates and policies. All authorized permits must meet all applicable federal and state regulations. As previously mentioned, those mandates and policies that are not met within the general permit terms and conditions are addressed by special conditions. General terms and conditions in Monument permits address the following categories, as required by Monument regulations, Proclamation 8031, and other MMB agency mandates and policies:

- Monthly, annual, and summary reporting
- Submittal of a copy of all data acquired under each respective Monument permit
- Adherence to all federal, state, and local laws and regulations
- Coordination with Monument staff while in the field
- Prohibition of alcohol possession and consumption in Hawaiian Islands NWR
- Adherence to hazardous material storage and transport guidelines
- Requirement to demonstrate proof of insurance, or financial capability to cover evacuation in the event of an emergency, medical evacuation, or weather
- Requirement for permittees to attend a cultural briefing on the significance of Monument resources to Native Hawaiians
- Prohibition against the disturbance of any cultural or historic property.

Additional terms for entering the Monument via vessel:

- Maintenance of cruise log
- Notification of entry and exit
- Requirement to demonstrate proof of vessel hull, tender, gear, ballast water, and rat inspections
- Vessel Monitoring System requirements.

### **Permit Special Terms and Conditions**

Each permit may contain special terms and conditions that place additional restrictions on the permitted activity to minimize or eliminate impacts to Monument resources or qualities. Permits may contain terms and conditions addressing sustenance and subsistence fishing reporting requirements, permitted activity locations, scientific collection methods, maintenance and retrieval of temporary structures in the Monument, or disinfection of gear and collecting equipment between permitted activity locations. Special terms and conditions are placed in permits depending on the nature of the permitted activity request and the location and duration of activities permitted to take place in the Monument. For example, all permits that involve collection of samples or specimens contain a special condition prohibiting the sale of the organisms collected, as well as the use or sale of any organisms, by-product, or materials collected within the Monument for obtaining patent or intellectual property rights.

One definition of bioprospecting is the search for new chemicals compounds, genes and their products in living things that will have some value to people. This inherently involves the identification of biological resources with potential commercial value that may be developed into marketable commodities such as pharmaceuticals, pesticides and cosmetics. Thus these conditions, applied to all permits, in effect prohibit bioprospecting for commercialization or for obtaining patent or intellectual property rights for organisms collected within the Monument.

### **Permit Tracking**

The MMB will track and monitor all permitted activities to evaluate potential impacts to Monument resources. A multiagency-accessible database that records and tracks information on all Monument permits is currently under development. Application and reporting data from all permits will provide information on the nature, extent, and location of activities occurring in the Monument. This information is essential for managers to make informed decisions about evaluating types and locations of activities proposed in the Monument. It also provides necessary information to conduct a geospatial assessment of impacts and to assess cumulative impacts over time. The tracking system will also provide data essential for conducting a threat assessment for the Monument.

### **Need for Action**

The Monument is a vast protected natural area, largely uninhabited by humans, and rich in biodiversity, history, and culture. The NWHI have a history of Native Hawaiian cultural access and practices, as well as protections interspersed with periods of commercial exploitation and military use. With the advent of new technology and dedicated resources, there is increased awareness and interest in the region. Access to the Monument for all activities, with limited exceptions, requires a Monument permit.

The Monument permit program allows for a comprehensive review of proposed activities and will be administered to ensure compliance with Presidential Proclamation 8031, as well as other applicable federal and state laws and regulations. Efforts are ongoing to make the permitting process more efficient for applicants, the MMB, and the public while maintaining safeguards for the ecosystem. The following strategies and activities are designed to ensure that the permit program is refined in accordance with Monument requirements and policies within existing law and that permit data are effectively tracked and collected for management purposes.

### **Strategies to Achieve the Desired Outcome**

Three strategies have been identified to achieve the desired outcome to implement an effective and integrated Monument permit program that manages, minimizes, and prevents negative human impacts by allowing access only for those activities consistent with the purpose of the Monument. The strategies and activities are coded with the letter “P,” for “Permitting.” A summary of strategies and activities is provided in Table 3.4.1 at the end of this action plan.

- P-1: Refine, implement, and improve the permit process to integrate all state and federal regulations into a single permitting process on an ongoing basis.
- P-2: Track and monitor permitted activities and their impacts.
- P-3: Coordinate information, outreach, and education regarding Monument permits and regulations.

### **Strategy P-1: Refine, implement, and improve the permit process to integrate all state and federal authorities into a single permitting process on an ongoing basis.**

The strategy of the Monument permitting program is to integrate the previous three jurisdictionally based permitting programs into one. A joint permit application, application

instructions, and a permit template were approved and implemented (see Appendix A). The permitting program for the Monument allows for a comprehensive review of proposed activities to ensure compliance with the regulatory provisions of the Proclamation as well as other applicable federal and state laws and regulations. Efforts are ongoing to make the permitting process more efficient for both applicants and MMB while maintaining safeguards for the natural, cultural, and historic resources of the Monument.

***Activity P-1.1: Effectively and promptly review permit applications to ensure informed permit-related decisionmaking across Co-Trustee agencies.***

Monument staff serve as the central portal through which all permit inquiries and applications are received and processed. These staff will continue to work together to discuss and coordinate permit assessment and review efforts by each Trustee agency. Monument staff will bring all permits and permit-related issues before the MMB on a regular basis for discussion and decisionmaking.

***Activity P-1.2: Refine and update the permit application, instructions, and permit template through feedback from permittees and other users.***

The permit application was developed with extensive input from legal counsel and the MMB to meet agency requirements. Each year, the permit application, instructions, and template will be evaluated and updated based on lessons learned from the previous year. In addition, feedback from permittees and applicants will be gathered on an annual basis to maintain the most efficient and comprehensible permit program possible.

***Activity P-1.3: Coordinate appropriate environmental review for all permitted activities.***

NEPA, the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), and Chapter 343, Hawai‘i Revised Statutes (“Environmental Impact Statements”), are planning tools used to integrate environmental concerns into federal and state actions and programs, using environmental quality as the essential component. NEPA requires federal agencies to consider the impacts of their actions on the natural and human environment prior to making final management decisions. Hawai‘i requires additional analysis on state agency actions’ potential impacts on the state’s resources, Native Hawaiian culture, and traditional and customary rights. The issuance of Monument permits requires environmental review compliance in the form of one of three documents: Environmental Impact Statements, Environmental Assessments, or Categorical Exclusions. When state agency actions are involved in a permit, a Cultural Impact Assessment is also required. Currently, the federal Co-Trustees follow their individual agency procedures to ensure appropriate environmental review for all permitted activities. However, the Monument staff, along with the MMB and other Co-Trustee experts, will work to develop an efficient integrated process by which all Co-Trustee agencies can continue fulfilling their respective environmental review requirements and effectively document compliance for every Monument permit.

***Activity P-1.4: Engage outside experts in review of permit applications.***

External reviews of Monument permit applications can provide valuable and unbiased technical evaluations of proposed activities. The MMB utilizes experts to consult on permit applications.

This practice will continue by identifying and engaging a pool of experts trained in Monument-related subject matter including culture, policy, purpose, and proclamation findings.

***Activity P-1.5: Investigate individual and vessel insurance and other avenues to fund mitigation of any damages associated with permitted activities.***

Activities conducted throughout the Monument pose varying degrees of risk to the resources of the Monument. Medical evacuations, vessel groundings, alien species introductions, and hazardous material spills are among the possible scenarios that might be mitigated by some form of insurance. The MMB will develop joint criteria for insurance that may be required before a permit authorizes activities in the Monument.

**Strategy P-2: Track and monitor permitted activities and their impacts.**

Detailed tracking of all permitted activities assists the Monument Co-Trustees in making informed decisions about the types and locations of activities permitted in the Monument. It also provides necessary information to conduct a geospatial assessment of impacts and to assess cumulative impacts over time.

***Activity P-2.1: Develop a Geographic Information System-based permit tracking system.***

The Monument will develop a GIS-based system to track and monitor NWHI permit data to aid enforcement and management decisions. This system and associated data will be established to integrate into the Co-Trustee agencies' individual databases. Each agency will enter and document permit data consistent with the individual agency's requirements. Through data-sharing agreements which are consistent with applicable federal and state laws and confidentiality considerations, the GIS-based tracking system will include partner agency information to ensure a comprehensive portrayal of activities in the region (see the Information Management Action Plan, Section 3.6.2). The MMB will also work together to provide input on cruise dates and locations and shared resources to prevent redundancy (see the Coordinated Field Operations Action Plan, Section 3.6.3).

***Activity P-2.2: Analyze permit data to inform management decisionmaking.***

The extent to which current and future levels of activity in the NWHI have the potential to cause cumulative impacts on the ecosystem is an active area of investigation. To assist in ecosystem-based management decisionmaking, a system will be developed to analyze data generated from each permit application and reporting requirements to provide the insight needed to make informed management choices about appropriate levels and locations of permitted activities. This system will allow Monument Co-Trustees and partners to better understand uses and use patterns in the Monument and to develop methodology for assessing the cumulative impacts caused by various activities. Analyses conducted with these data will also be used to modify reporting requirements and make them more relevant, as well as aiding enforcement and other program area planning efforts. In addition to being used to assess the cumulative impacts of the human activities, the data will also be used in the development of a Monument threat assessment (see EN-2.1).

Special ocean use permits issued as pilot projects will require additional tracking to develop an understanding of how often each category of special ocean use activity occurs in the Monument,



as well as the location of these activities. This information will be used to conduct ecological and socioeconomic evaluations to aid in management decisions on authorizing future special ocean use permits.

***Activity P-2.3: Analyze permit data for patterns of compliance.***

The MMB will regularly review permit files for patterns of compliance, and compliance will be evaluated every two years (see the Enforcement Action Plan, Section 3.4.2). Specifically, the MMB should undertake a technical analysis of the effectiveness and consistency of the permits that were issued compared to the permitting criteria. Permit criteria, permits issued, applications processed, and patterns of use which will be evaluated.

***Activity P-2.4: Develop and implement a Monument reporting process.***

Permits are issued based on regulatory requirements as well as proclamation findings and other criteria established by the MMB to assist with permit reviews. One of those criteria is the submittal of reports. An integrated MMB review of the follow-up process is needed to ensure that reports are complete and submitted on time. Additional follow-up includes recording data, ensuring that the results of research are made available, ensuring the systematic reporting of sustenance fishing, and ensuring adherence to regulations and laws. Follow-up may also require compliance visits from enforcement agents.

**Strategy P-3: Coordinate information, outreach, and education regarding Monument permits and regulations.**

Information, education, and outreach are important aspects of the Monument permitting program. Strategies have been developed to ensure that the public is kept informed of Monument regulations and permit requirements. These strategies are geared toward achieving the highest degree of user compliance and assistance, while fostering a broader public understanding of the NWHI ecosystem and cultural values. Coordination will be conducted across partner agencies to ensure that the public is engaged in and informed of the Monument permitting program. In addition, the MMB has established and will maintain a policy to ensure the public is informed of activities proposed to occur in the Monument.

***Activity P-3.1: Develop and implement a permit and regulatory education program.***

Many of the action plans include educational or outreach activities related to permitting or regulations, such as the Enforcement (Section 3.4.2), Ocean Ecosystems Literacy (Section 3.5.4), Midway Atoll Visitor Services (Section 3.4.3), Native Hawaiian Culture and History (Section 3.1.2), Alien Species (Section 3.3.2), and Maritime Transportation and Aviation (Section 3.3.3) action plans. Monument staff will work together to ensure that the educational activities proposed in these action plans are integrated to provide a consistent and effective message.

***Activity P-3.2: Develop and implement a Native Hawaiian cultural education program for permit applicants.***

The MMB will develop and implement an educational program that can be provided online from the Monument web page, which will educate prospective applicants about the Native Hawaiian culture. Those interested in applying for a Monument permit may complete the educational program before submitting their application for review. This educational program will also provide avenues for

additional knowledge gathering should the applicant wish to delve deeper into the Hawaiian culture and develop a greater understanding of the values of the Monument.

***Activity P-3.3: Coordinate permitting outreach.***

Additional information and outreach will aid interagency permitting efforts and better inform the public about Monument permitting. Information on the permitting process will be posted on Monument websites, including application forms and instructions. This information will reduce delay and confusion for applicants, the public, and agencies as they plan for activities in the Monument. Outreach materials such as presentations, publications, and DVDs will be designed to aid public understanding of agency regulatory and permitting responsibilities. In addition, individual MMB agencies will further exchange information on their roles and responsibilities so that each may better understand and explain permitting requirements.

***Activity P-3.4: Develop a pre-access training and briefing program.***

Pre-access training is an important component of all permitted activities. Pre-access training is required for all those planning to enter the Monument for the first time. Several MMB agencies have formal and informal training mechanisms already in place. Many activities conducted in the Monument will span multiple agencies; thus, the MMB will work with Monument staff to develop a comprehensive pre-access training and briefing program that is appropriate for a variety of activities and locations within the Monument. This training will include information on the proclamation regulations, permit terms and conditions, reporting requirements, the significance of the NWHI to Native Hawaiians, and ways to best conduct activities to reduce human impacts to the natural environment and cultural resources. The training program will build on protocols and materials already in place by FWS, the State of Hawai‘i, and NOAA. For those users who have already undergone pre-access training, shorter update briefings will be developed to ensure that all users have the most up-to-date information on the Monument rules and policies.

***Activity P-3.5: Regularly update the public on proposed and permitted activities.***

The MMB is committed to keeping the public engaged and informed on a regular basis on all proposed and permitted activities that will be conducted in the Monument. To ensure broad dissemination to the public, Co-Trustees will share a single URL address that will be designated as the Monument website. This site will be the location for the public to access information regarding the Monument, including information on the Monument permit program. Information such as lists of permitted activities along with associated permit reports, publications, and productions will be made available or referenced on the Monument website. It will also serve as a primary point of access to notify the public of proposed activities to be conducted in the Monument, as both permit summaries and permit applications will be posted (see Appendix A). As required by the Federal Privacy Act, the privacy of individual applicants will be protected, and all sensitive information will be removed from the permit application prior to public posting. Additional opportunities for the public to be notified and comment on Monument permit applications include:

- Special ocean use permit applications are posted for public notice and comment 30 days prior to the issuance of a permit (Monument regulations, 50 CFR Part 404.11).

- Environmental reviews (e.g., environmental impact statements, environmental assessments, and compatibility determinations) related to Monument permit applications are posted for public comment.
- Monument permit applications that include proposed activities within the state's Northwestern Hawaiian Islands Marine Refuge are posted to the Board of Land and Natural Resources (BLNR) website for 7 days prior to the scheduled BLNR meeting as part of the overall Land Board submittal.

**Table 3.4.1 Summary of Strategies, Activities, and Agency Leads for Permitting**

<b>Strategies and Activities</b>	<b>Agency Lead</b>
<b>Strategy P-1: Refine, implement, and improve the permit process to integrate all state and federal authorities into a single permitting process on an ongoing basis.</b>	
Activity P-1.1: Effectively and promptly review permit applications to ensure informed permit-related decisionmaking across Co-Trustee agencies.	NOAA
Activity P-1.2: Refine and update the permit application, instructions, and permit template through feedback from permittees and other users.	NOAA
Activity P-1.3: Coordinate appropriate environmental review for all permitted activities.	NOAA
Activity P-1.4: Engage outside experts in review of permit applications.	NOAA
Activity P-1.5: Investigate individual and vessel insurance and other avenues to fund mitigation of any damages associated with permitted activities.	
<b>Strategy P-2: Track and monitor permitted activities and their impacts.</b>	
Activity P-2.1: Develop a Geographic Information System-based permit tracking system.	NOAA
Activity P-2.2: Analyze permit data to inform management decisionmaking.	NOAA
Activity P-2.3: Analyze permit data for patterns of compliance.	NOAA
Activity P-2.4: Develop and implement a Monument reporting process.	NOAA
<b>Strategy P-3: Coordinate information, outreach, and education regarding Monument permits and regulations.</b>	
Activity P-3.1: Develop and implement a permit and regulatory education program.	NOAA
Activity P-3.2: Develop and implement a Native Hawaiian cultural education program for permit applicants.	OHA
Activity P-3.3: Coordinate permitting outreach.	NOAA
Activity P-3.4: Develop a pre-access training and briefing program.	NOAA
Activity P-3.5: Regularly update the public on proposed and permitted activities.	NOAA



### 3.4.2 Enforcement Action Plan

#### Desired Outcome

Achieve compliance with all regulations within Papahānaumokuākea Marine National Monument.

#### Current Status and Background

The three principal entities with responsibility for managing lands and waters of the Monument—NOAA, FWS, and the State of Hawai‘i—are working cooperatively to administer Monument policies and regulations. This role and the relationships among the three Co-Trustees are further described in a Memorandum of Agreement among the Co-Trustees that provides the general terms and conditions under which they will cooperate. Particular to enforcement activities, the Memorandum of Agreement directs the cooperating agencies to coordinate research and monitoring efforts to better understand and address major threats to Monument resources; to provide access and support for enforcement purposes; share enforcement resources and data, as appropriate; and develop joint enforcement capabilities as needed to ensure compliance with applicable state and federal laws. It also gives the agencies the ability to develop additional interagency agreements, grants, memoranda of understanding, or other appropriate instruments that allow for ease in sharing resources, including funds as appropriate, and a sharing of in-kind assistance and support—such as the sharing of vessel time, aircraft missions, or other logistical support—as a means of facilitating cooperation.

Links to other Action Plans	
3.3.2	Alien Species
3.4.1	Permitting
3.5.1	Agency Coordination
3.5.4	Ocean Ecosystems Literacy
3.6.2	Information Management

Links to goals
Goal 1
Goal 2
Goal 3

In addition to the federal and state laws in place prior to the establishment of the Monument, NOAA and FWS promulgated joint regulations (50 CFR Part 404, see Appendix D) that implement the provisions of the President’s Proclamation. These regulations were issued under NOAA and FWS statutory authorities.

#### Need for Action

The size and remote location of the NWHI present challenges to enforcement. The Monument is the largest conservation area under U.S. jurisdiction. An effective law enforcement program is needed to protect and conserve Monument resources. The primary aim of the Monument enforcement program is for the jurisdictional partners to achieve resource protection by gaining compliance with all applicable laws and regulations. Increased law enforcement capacity will move agency partners toward more effective enforcement of all federal and state rules that protect the Monument’s resources.

Managers and law enforcement personnel must work together to prioritize and initiate appropriate activities that will have the greatest impact. Depending on the complexity and breadth of a particular enforcement activity, a single agency may not have the manpower or other resources to commit to the effort. Opportunities to efficiently and economically accomplish priority enforcement activities in the Monument must be optimized.

All activities within the Monument, with the limited, specific exceptions discussed in the Permitting Action Plan (Section 3.4.1), require a permit. In addition, all activities within the Monument, including the transit of vessels, present varying degrees of threat to Monument

resources and varying potential for noncompliance with Monument rules and regulations. To increase voluntary compliance, outreach tailored to address these threats will be emphasized. Informing the permitted and potential users, as well as the general public, about the Monument resource threats and the regulations in place to protect them is important to ensure responsible behavior before resources can be adversely impacted.

### **Strategies to Achieve Desired Outcome**

Effective law enforcement is an essential component to fulfill the overall management vision to protect Monument resources. The enforcement of regulations in the remote Monument can be difficult and time consuming. Natural barriers to law enforcement, such as remoteness and distance from operating bases, must be overcome.

Enforcement capabilities utilized to monitor activity and detect violations within the Monument will include traditional strategies such as patrols by vessel and aircraft. However, the application of emerging technologies will also be necessary to assure the comprehensive coverage of this vast area. Though Vessel Monitoring Systems (VMS) are currently being utilized, the potential use of other technological capabilities such as satellite based surveillance, remote sensors, or use of unmanned aircraft (drones) will need to be researched further to determine if such use is practical and feasible, and if so, how they may be used.

VMS are prevalent in commercial fisheries and are required to be carried by all vessels permitted to operate in the Monument. VMS is useful to monitor the locations and travel of vessels so equipped; however, to assure viable deterrence and compliance, it is important to establish the capacity to intercept and make at-sea contact with vessels actively engaged in activities that constitute a violation, particularly those not equipped with VMS that cannot be tracked or monitored remotely. This is an area that will rely upon an enforcement partner, the U.S. Coast Guard, to play a key role.

Outreach is an essential part of any law enforcement program. Community Oriented Policing and Problem Solving (COPPS), also referred to as “interpretive enforcement,” is a key component to the Monument law enforcement strategy. The goal is to inform Monument users and the general public about the regulations and allowed activities, as well as educate them about the detrimental effects of illegal activities on Monument natural, cultural, and historic resources and the surrounding environment. This goal can be accomplished through focused workgroups with regular and potential permit applicants, public forums, printed materials, interpretive signs, displays, and public service announcements.

This action plan contains three management strategies to achieve the desired outcome of achieving compliance with all regulations within the Monument. The strategies and activities are coded by the abbreviation for the action plan title, “Enforcement” (EN). A summary of strategies and activities is provided in Table 3.4.2 at the end of this action plan.

- EN-1: Increase law enforcement capacity and integration over the life of the plan.
- EN-2: Implement a threat-based detection and monitoring program within 2 years.
- EN-3: Develop and implement a multiagency COPPS/interpretive enforcement program within 2 years.

**Strategy EN-1: Increase law enforcement capacity and integration over the life of the plan.**

This strategy undertakes the activities required to increase the capacity (i.e., quantity and quality of services) of the law enforcement agencies, promote cooperation among these agencies, and build on existing resources to execute an integrated law enforcement program in the Monument.

Standard operating procedures will increase the efficiency of law enforcement activities and may include monitoring responsibilities, coordinating response to intelligence handling of possible violations, standardizing communications, and reporting activities.

***Activity EN-1.1: Charter a Monument law enforcement working group.***

A successful Monument law enforcement program must have active involvement and oversight by each of the law enforcement agencies that have responsibilities in the NWHI. The primary law enforcement team entities for the Monument are NOAA Office of Law Enforcement, NOAA Office of General Counsel for Enforcement & Litigation, FWS Office of Law Enforcement and National Wildlife Refuge System Law Enforcement, U.S. Attorneys, U.S. Coast Guard, and Hawaii DLNR - Division of Conservation and Resource Enforcement, Hawaii Attorney General's Office. Numerous other agencies have enforcement authority and will be consulted as appropriate. Staff from these agencies, primarily credentialed law enforcement officers, will form the Monument law enforcement group. The group will meet regularly to (1) coordinate enforcement-related tasks for each agency in support of this plan, (2) develop operating protocols, and (3) assist in evaluating the overall effectiveness of law enforcement efforts.

***Activity EN-1.2: Develop necessary interagency agreements.***

Effective law enforcement in the Monument would be enhanced by the establishment of formal agreements between law enforcement agencies. At the national level, NOAA and FWS share agreements on enforcement. Cooperative enforcement agreements at a regional level would allow law enforcement officers of partner agencies to enforce statutes under each other's authorities. The MMB will discuss opportunities to formalize Coast Guard support through a memorandum of agreement or other means. Officers of partner agencies can be dedicated to Monument efforts with appropriate funding. For the most effective use of scarce resources on the part of all agencies, law enforcement officers should seek ways to maximize collaboration.

***Activity EN-1.3: Develop an integrated law enforcement training program.***

Training courses will be conducted by Monument staff to ensure that all law enforcement personnel have the most up-to-date information, including environmental education and Native Hawaiian cultural practices. Enforcement personnel must understand the environmental consequences that could occur as a result of violations. In addition, environmental training will enhance the ability of these officers to provide outreach.

***Activity EN-1.4: Assess Monument law enforcement capacity and program effectiveness.***

The Monument law enforcement working group will assess the effectiveness of ongoing law enforcement activities, including analyzing efforts to determine if there are any "hot spots" that require focus. On an annual basis, the group will present a formal briefing to the MMB on

ongoing and planned activities, consider new technologies, and discuss potential opportunities for new personnel and sharing law enforcement resources.

***Activity EN-1.5: Increase law enforcement capacity on Midway Atoll within two years.***

As a predicted hub of activity for the Monument and the site of the only authorized recreational activities, Midway Atoll will be a major access point into the Monument. Presence of credentialed officers at Midway Atoll is necessary to ensure visitor and staff safety, regulatory compliance, and enforcement. Midway is unique in that it is located outside the State of Hawai‘i and, as such, regulations are in place to direct public civil obedience (50 CFR Part 38).

**Strategy EN-2: Implement a threat-based detection and monitoring program within 2 years.**

Before surveillance resources can be effectively deployed Monument-wide, law enforcement agencies should accurately assess current existing threats. Threats to be assessed include the potential for regulatory violations as well as the potential for resource damage. Once threats are well described, the law enforcement agencies can orient detection and monitoring activities toward the highest-priority areas. Traditional surveillance methods (aircraft and vessel patrols), electronic sensors (land and satellite-based), and automated monitoring (VMS) should be implemented immediately, where needed, to detect violations and resource threats. If needed, expansion of the program to include high-tech and emerging remote surveillance technologies (e.g., unmanned aerial vehicles) may bring long-term cost savings.

***Activity EN-2.1: Conduct a comprehensive threat assessment and draft an enforcement plan.***

It is important to analyze the level and types of activities occurring throughout the Monument, and then assess the potential for violations and threats to Monument resources. Multiple sources of information should be accessed to analyze vessel and activity patterns. The MMB has already initiated a threat assessment in late 2007 that will continue through 2008 and will include cost-benefit analyses of applicable technologies and solutions. The Monument law enforcement working group will collaborate on this threat assessment and subsequent enforcement plan. The plan will identify effective means of coordination, opportunity for further collaboration and efficient use of limited resources.

***Activity EN-2.2: Operate a Vessel Monitoring System for all permitted vessels.***

A mandatory monitoring system for all permitted vessels was identified as one of the most critical components of a successful law enforcement program in the NWHI. NOAA Office of Law Enforcement will maintain and operate a VMS to monitor compliance with Monument regulations (50 CFR Part 404).

***Activity EN-2.3: Integrate additional automated monitoring systems and ship reporting systems for all vessels transiting the Monument.***

Existing automated monitoring and ship reporting systems will be utilized for vessels transiting the monument and that are so equipped. Many “larger” vessels are required to carry and utilize Automated Identification Systems. As mandated through the Maritime Transportation Security Act, the use of Automated Identification Systems is required on all commercial vessels longer than 65 feet. As Coast Guard and Naval researchers develop and expand the systems to collect,



manage (sort), and distribute this information through shore based and satellite technologies, its use may be an effective tool to monitor ship traffic within and around the monument.

***Activity EN-2.4: Increase available platforms to support law enforcement.***

On-the-water presence will help to ensure that users of Monument resources are deterred from willful or inadvertent violations and will place law enforcement personnel in a better position to respond to violations and other resource emergencies. Because of the remoteness of this area, increased aerial and ship-based resources, both for surveillance and for response, are needed. The Monument law enforcement working group will identify existing platforms that could be used if deemed necessary to increase enforcement, surveillance, and response; as well as to develop proposals to acquire new assets if feasible.

**Strategy EN-3: Develop and implement a multiagency COPPS/interpretive enforcement program within 2 years.**

COPPS and interpretive enforcement are approaches that seek voluntary compliance with Monument regulations, primarily through education of users about existing regulations, why and how they apply, and how users can play a role in protecting Monument resources. The primary objectives of interpretive law enforcement are to protect Monument resources by increasing the public's understanding of the importance of Monument regulations and to inform the public through educational messages and literature about responsible behavior. On-site methods will be used to reach the public with educational messages. For example, Monument enforcement officers will deliver interpretive programs both onsite and in the main Hawaiian Islands, targeting specific user groups. Reaching out to the community through educational messages and literature is a cost-effective, prevention-oriented measure to reduce the number of violations and foster a sense of stewardship among Monument users.

***Activity EN-3.1: Integrate regulations briefings into pre-access training required for all Monument users.***

As part of pre-access briefings for all users of the Monument, training programs will be developed to inform users of regulations, permit requirements, and best management practices. Working closely with partner agencies and in consultation with the NWHI enforcement group, specific information on all applicable laws will be developed for these workshops. Workshop materials will include videos, printed materials, and presentations (see the Permitting Action Plan, Section 3.4.1, and Alien Species Action Plan, Section 3.3.2).

**Table 3.4.2 Summary of Strategies, Activities, and Agency Leads for Enforcement**

<b>Strategies and Activities</b>	<b>Agency Lead</b>
<b>Strategy EN-1: Increase law enforcement capacity and integration over the life of the plan.</b>	
Activity EN-1.1: Charter a Monument law enforcement working group.	NOAA
Activity EN-1.2: Develop necessary interagency agreements.	NOAA
Activity EN-1.3: Develop an integrated law enforcement training program.	NOAA
Activity EN-1.4: Assess Monument law enforcement capacity and program effectiveness.	NOAA
Activity EN-1.5: Increase law enforcement capacity on Midway Atoll within 2 years.	FWS
<b>Strategy EN-2: Implement a threat-based detection and monitoring program within two years.</b>	
Activity EN-2.1: Conduct a comprehensive threat assessment and draft an enforcement plan.	NOAA
Activity EN-2.2: Operate a Vessel Monitoring System for all permitted vessels.	NOAA
Activity EN-2.3: Integrate additional automated monitoring systems and ship reporting systems for all vessels transiting the Monument.	NOAA
Activity EN-2.4: Increase available platforms to support law enforcement.	NOAA
<b>Strategy EN-3: Develop and implement a multiagency COPPS/interpretive enforcement program within two years.</b>	
Activity EN-3.1: Integrate regulations briefings into pre-access training required for all Monument users.	NOAA

### 3.4.3 Midway Atoll Visitor Services Action Plan

#### Desired Outcome

Offer visitors opportunities to discover, enjoy, appreciate, protect, and honor the unique natural, cultural, and historic resources of Papahānaumokuākea Marine National Monument.

Links to other Action Plans	
3.4.1	Permitting
3.5.2	Constituency Building and Outreach
3.5.4	Ocean Ecosystems Literacy
3.6.3	Coordinated Field Operations

#### Current Status and Background

Since 1995, FWS has been strongly committed to welcoming visitors to Midway Atoll. This island is the first and only remote NWR in the Pacific to provide the general public with an opportunity to learn about and experience these unique ecosystems. With the establishment of the Monument, Midway Atoll takes on the additional role of providing a “window” so that visitors can learn about and enjoy a small portion of the largest fully protected marine managed area in the world.

Links to Goals
Goal 3
Goal 4
Goal 5
Goal 7
Goal 8

A regularly scheduled visitor program operated on Midway Atoll from 1995 until early in 2002, but ended when the FWS cooperator left the atoll. Since then, visitors have arrived almost exclusively by the occasional cruise ship or sailboat, or for a Battle of Midway commemorative event. In May 2007, the FWS approved an interim visitor services plan to guide a small-scale visitor program on Midway Atoll until the Monument Management Plan is completed. In January 2008, a regularly scheduled visitor program began, offering limited opportunities for people to experience Midway’s wildlife and history.

As part of the interim visitor services plan and in accordance with the National Wildlife Refuge System Administration Act of 1966, the following wildlife-dependent recreational uses were determined to be compatible at Midway Atoll Special Management Area and National Wildlife Refuge: wildlife observation and photography, environmental education and interpretation, and participatory research. Hunting and fishing, which normally are given priority on national wildlife refuges if they are determined to be compatible, will not take place at Midway Atoll. All animal species are protected by law or occur in numbers too low for harvest to allow hunting opportunities. Recreational fishing is precluded under the Presidential Proclamation designating the Monument. Additional compatibility determinations allow for nonwildlife-dependent beach use activities such as swimming and volleyball, nonadministrative airport operations, limited outdoor sports such as bicycling and jogging, and amateur radio use.

Each compatibility determination includes stipulations necessary to ensure protection of Midway’s natural, cultural, and historic resources. These compatibility determinations are valid for 15 years for wildlife-dependent visitor activities and ten years for nonwildlife-dependent activities.

Any additional activities that may be proposed within Midway Atoll NWR would need to be evaluated through the compatibility determination process with formal public review. Activities that are determined to be compatible are authorized through the issuance of Monument permits, which fall within six permit types: conservation and management, research, education, Native Hawaiian practices, special ocean uses, and recreation. The permitting process is discussed in Section 3.4.1, the Permitting Action Plan.

Some strategies and activities outlined in the Midway Atoll Visitor Services Plan are included within other action plans; see the Ocean Ecosystems Literacy (Section 3.5.4), Constituency Building and Outreach (Section 3.5.2), and Coordinated Field Operations (Section 3.6.3) action plans.



Visitors spend part of their time on Midway helping to restore wildlife habitat.

### **Need for Action**

Since the Interim Visitor Services Plan was designed to be in effect only until a Monument Management Plan was completed, this action plan addresses a longer-term visitor services program for Midway Atoll. The interim program was initiated in January 2008, so only minimal updates are included in the Midway Atoll Visitor Services Plan (Appendix B).

The Co-Trustees remain committed to offering a high-quality, small-scale visitor program at Midway Atoll as a “window” to the Monument. The aim is that by physically experiencing the Northwestern Hawaiian Islands, visitors will return home with a personal connection and a commitment to protecting and conserving the Monument’s unique resources.

### **Strategies to Achieve the Desired Outcome**

The Midway Atoll Visitor Services Plan includes numerous detailed activities that constitute the visitor program. Since the reinitiated program is only a few months old, the MMB will be monitoring the program and adapting it as necessary to ensure protection of natural, cultural, and historic resources and visitor safety, accessibility under the Americans with Disabilities Act (ADA), and satisfaction. The strategies and activities are coded by the acronym for the action plan title, “Visitor Services Action Plan” (VS). A summary of strategies and activities is provided in Table 3.4.3 at the end of this action plan.

- VS-1: Implement the Midway Atoll Visitor Services Plan, providing visitor opportunities for up to 50 overnight guests at any one time.



- VS-2: Assess the level of visitor satisfaction, financial stability of the program, staffing needs, and program structure, resulting in recommendations for improvement beginning in 2009 and biennially thereafter.

**Strategy VS-1: Implement the Midway Atoll Visitor Services Plan, providing visitor opportunities for up to 50 overnight guests at any one time.**

The Midway Atoll Visitor Services Plan extends the interim visitor program that was reinitiated on a regular schedule in January 2008. Most of the same restrictions and stipulations identified in the interim plan have been carried over into this longer-term plan. In light of infrastructure limitations and to ensure a quality program, the maximum number of overnight visitors will be limited to no more than 50 people at any one time; because of transportation availability, that number generally will be from 15 to 30 people. This number of visitors may be exceeded for short-duration prearranged visits (less than one day) by ocean vessels or aircraft.

***Activity VS-1.1: Provide visitors with opportunities for wildlife-dependent recreation to enhance their knowledge and appreciation of the Monument's natural resources.***

As outlined in the Midway Atoll Visitor Services Plan, visitors will be offered opportunities for guided interpretive tours, wildlife photography, snorkeling, diving, kayaking, and self-guided walks. At few other places in the world can visitors be so totally surrounded by wildlife. Midway's seabirds have little fear of humans, and visitors are offered opportunities to observe and photograph them from the time they arrive until they leave. More sensitive species, such as the Hawaiian monk seal and green turtle, are observed from a distance to ensure they are not disturbed. Snorkeling and diving will allow visitors a glimpse of the Monument's magnificent coral reefs and their inhabitants. The focus of all activities will be educational in nature, and visitors will be encouraged to share their experiences and knowledge when they return to their homes to develop a broader constituency for the Monument.

***Activity VS-1.2: Provide visitors with opportunities to learn about and appreciate the Monument's cultural and historic resources.***

Visitors will be offered guided interpretive tours, self-guided walks, interpretive exhibits, and written materials that focus on Midway's and the Monument's distinguished human history. In establishing the Battle of Midway National Memorial, FWS was charged with helping others keep knowledge of this important battle alive for future generations. Numerous historic structures on Midway Atoll were present during World War II and serve as reminders of the heroic courage of the men who risked their lives in the midst of the Pacific and turned the tide of the war.

Because it serves as the "window" to the Monument, it is important that interpretation at Midway be broadened to include information about the Northwestern Hawaiian Islands' importance in Native Hawaiian culture. Interpretive exhibits will be developed to reflect all of Midway's "eras," from prerecorded history to Polynesian and Western contact, to shipwrecks and the Commercial Pacific Cable Company days, the Pan American Flying Clipper period, the Battle of Midway, and on through the Cold War and Vietnam conflicts. Additional exhibits will focus on the cultural and historic sites throughout the NWHI, such as the archaeological remains at Nihoa and Mokumanamana and submerged resources throughout the NWHI.

To the extent possible, remnants of these eras will be interpreted as they exist on Midway. To ensure all cultural and historic resources are included in the story, one of the historic buildings on Sand Island will be restored to house a permanent museum and library that will be available to all visitors.

***Activity VS-1.3: Continuously monitor the impacts of visitors and other users on wildlife and historic resources to ensure their protection.***

Monument staff will monitor the impacts of visitors and other users on wildlife and historic resources to ensure continuing compatibility, as required by Monument and FWS policies. Monitoring methodology to assess impacts on seabirds, Hawaiian monk seals, sea turtles, corals, and fishes has been developed based on previous work on other refuges and protected areas and is included in the Midway Atoll Visitor Services Plan. The visitor program supervisor, in consultation with FWS and NOAA Cultural Resources Program staffs, monitors impacts on historic resources.

Based on FWS experience from 1996 to 2002, when up to 100 overnight visitors were allowed on Midway at any one time, few impacts are anticipated as long as visitors comply with Refuge and Monument rules and regulations.

**Strategy VS-2: Assess the level of visitor satisfaction, financial stability of the program, staffing needs, and program structure, resulting in recommendations for improvement beginning in 2009 and biennially thereafter.**

A more regularly scheduled visitor program resumed operation on Midway Atoll in January 2008 during development of this Monument Management Plan. After gathering approximately one year of experience and data, Monument staff will be in a better position to make recommendations to improve the program.

***Activity VS-2.1: Monitor visitor satisfaction surveys completed by outgoing visitors, adjusting activities, facilities, and maintenance schedules as appropriate on a monthly basis.***

The FWS contractor has designed and implemented a visitor satisfaction survey to be completed as visitors depart Midway Atoll. These questionnaires provide valuable insight into how the visitor program could be improved, as well as providing practical information such as room maintenance needed. The information is compiled on a monthly basis and provided to the refuge manager for appropriate action.

***Activity VS-2.2: Convene a team of visitor services specialists and Midway Atoll staff to review the visitor program on a biennial basis.***

Beginning in March 2009, the team will conduct a visitor services requirements evaluation to assess whether the visitor program is meeting the standards outlined in the Visitor Services Plan, as well as the purposes and goals of the Refuge and Monument, and provide recommendations to management based on their evaluation. The team will also review the results of monitoring visitor activities for impacts to wildlife and historic resources, review financial information relevant to the visitor program to assess the need to adjust visitor fees, and make recommendations on the program's financial stability, including staffing and facility needs.

***Activity VS-2.3: Based on the assessment above, seek funding, authority, or other needs to implement the recommendations for improvement.***

Depending on the results of the visitor services evaluation, steps will be taken to implement improvements to the visitor program. Possible improvements could include revisions to the Midway Atoll Visitor Services Plan, facility improvements, additional staffing, changes in fee structure, changes to visitor activities or stipulations associated with them, or new implementation structures (such as working through a concessionaire).

**Table 3.4.3 Summary of Strategies, Activities, and Agency Leads for Midway Atoll Visitors Services**

Strategies and Activities	Agency Lead
<b>Strategy VS-1: Implement the Midway Atoll Visitor Services Plan, providing visitor opportunities for up to 50 overnight guests at any one time.</b>	
Activity VS-1.1: Provide visitors with opportunities for wildlife-dependent recreation to enhance their knowledge and appreciation of the Monument's natural resources.	FWS
Activity VS-1.2: Provide visitors with opportunities to learn about and appreciate the Monument's cultural and historic resources.	FWS
Activity VS-1.3: Continuously monitor the impacts of visitors and other users on wildlife and historic resources to ensure their protection.	FWS
<b>Strategy VS-2: Assess the level of visitor satisfaction, financial stability of the program, staffing needs, and program structure, resulting in recommendations for improvement beginning in 2009 and biennially thereafter.</b>	
Activity VS-2.1: Monitor visitor satisfaction surveys completed by outgoing visitors, adjusting activities, facilities, and maintenance schedules as appropriate on a monthly basis.	FWS
Activity VS-2.2: Convene a team of visitor services specialists and Midway Atoll staff to review the visitor program on a biennial basis.	FWS
Activity VS-2.3: Based on the assessment above, seek funding, authority, or other needs to implement the recommendations for improvement.	FWS



## **3.5 Coordinating Conservation and Management Activities**

---

### **3.5.1 Agency Coordination Action Plan**

### **3.5.2 Constituency Building and Outreach Action Plan**

### **3.5.3 Native Hawaiian Community Involvement Action Plan**

### **3.5.4 Ocean Ecosystems Literacy Action Plan**

---

### 3.5 Coordinating Conservation and Management Activities

Many government agencies and nongovernmental organizations work in close coordination with the MMB to achieve Monument goals. Implementation of action plans relies on resources and efforts from a variety of partners. The Co-Trustees and the MMB generally have a high level of involvement for most action plans, while other governmental agencies and nongovernmental organizations will contribute to action plans at varying levels. As Monument projects develop, more organizations will likely be involved. Section 2, Management Framework, and Section 3.5.1, the Agency Coordination Action Plan, provide discussions on the importance of collaboration and partnerships in effectively achieving Monument goals.

Participation by a broad sector of the public is also essential to any successful system of governance (Creighton 1981). The NWHI face an array of complex issues and competing interests. Public input into the decisionmaking process can help ensure that those interested are fairly represented and a strong base of support is built. Without a forum for participation and collaboration, disputes can linger and resources degrade (Pew 2003).

Working together, the MMB will adopt a three-part approach to coordinate management of the Monument. Each part is integral to the success of the whole: (1) agency coordination, which is essential to foster stewardship that takes ecosystem effects into account, (2) involvement of stakeholders, and (3) a strong program of education and outreach to build community support for ecosystem conservation.

Responsibility for management of the Monument is shared by the Co-Trustees. Stakeholders include Native Hawaiians, researchers, educators, conservation groups, fishers, and others. Collaborative management mechanisms are needed to facilitate effective interagency coordination for management and to provide opportunities for active stakeholder participation and input from community forums and various partnerships, and specifically from the Native Hawaiian community.

Action plans to facilitate collaboration and partnerships in the management of the NWHI focus on providing the operational framework to enhance interagency coordination and to provide broad stakeholder involvement in managing the NWHI. Each action plan consists of a set of strategies to address a desired outcome. The desired outcomes of these action plans are as follows:

- **Agency Coordination:** Successfully collaborate with government partners to achieve publicly supported, coordinated management in Papahānaumokuākea Marine National Monument.
- **Constituency Building and Outreach:** Cultivate an informed, involved constituency that supports and enhances conservation of the natural, cultural, and historic resources of the Papahānaumokuākea Marine National Monument
- **Native Hawaiian Community Involvement:** Engage the Native Hawaiian community in active and meaningful involvement in Papahānaumokuākea Marine National Monument management.

- **Ocean Ecosystems Literacy:** Cultivate an ocean ecosystems stewardship ethic, contribute to the nation's science and cultural literacy, and create a new generation of conservation leaders through formal environmental education.

Action plans described in this section will be implemented in close coordination with agency partners and in conjunction with other priority management needs.

### 3.5.1 Agency Coordination Action Plan

#### Desired Outcome

Successfully collaborate with government partners to achieve publicly supported, coordinated management in Papahānaumokuākea Marine National Monument.

Links to other Action Plans	
3.3.1	Permitting
3.3.2	Enforcement
3.5.3	Coordinated Field Operations

#### Current Status and Background

The NWHI has had a long history of multiagency coordination as a result of the divided responsibilities among several management agencies over the past 100 years (Shallenberger 1984). The Navy assumed jurisdiction over Midway Atoll in 1903. In 1909, President Theodore Roosevelt signed Executive Order 1019 to create the Hawaiian Islands Reservation, and management responsibility was given to the U.S. Department of Agriculture; the reservation was later renamed the Hawaiian Islands National Wildlife Refuge and managed under the authority of the FWS. On February 10, 1936, President Franklin Roosevelt set aside Kure Island to the U.S. Navy by Executive Order 7299. Sixteen years later, President Harry Truman “restored” “Kure (Ocean) Island, together with the surround reef, ... to the possession, use, and control of the Territory of Hawaii” (Executive Order 10413, November 17, 1952). The Hawaii Organic Act and the Hawaii Admission Act gave the Territory of Hawai‘i responsibility for nearshore waters of the NWHI, excluding Midway. In 1988, Midway Atoll was designated a National Wildlife Refuge. Under federal law, NOAA Fisheries is responsible for the management of monk seals, as well as for sea turtles when they are in marine waters; FWS is responsible for the management of sea turtles when they are on land. The State of Hawai‘i also has jurisdiction over these species under state wildlife and endangered species laws. NOAA’s National Ocean Service, through the National Marine Sanctuary Program, joined the jurisdictional players in December 2000, when Executive Order 13178 (as amended by 13196) created the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve (adapted from Shallenberger 2004).

Links to Goals
Goal 1
Goal 2
Goal 4

Several innovative programs involving federal, state, and private entities have resulted in cooperative efforts to protect and restore natural, cultural, and historic resources in the NWHI. Notable examples include the following:

- The creation of a State Marine Refuge in the NWHI in 2005.
- Several multiagency collaborative research efforts under the Northwestern Hawaiian Islands Reef Assessment and Monitoring Program, conducted since 2000.
- Collaborative educational partnerships, including Navigating Change, Hawai‘i’s Living Reef program, and outreach for the 2002 and 2004 Northwestern Hawaiian Islands Research and Monitoring Program efforts.
- A multiagency collaborative process to establish a regional research forum and to identify regional research and science priorities.
- The NWHI Third Scientific Symposium (2004).
- A regional collaboration that led to the identification of several maritime archaeology and history sites.
- A process to identify opportunities for collaborative permitting and enforcement efforts.
- Development of a unified permitting system for the Monument.



- Critically needed multiagency marine debris removal efforts, ongoing since 1996.
- Collaborative support of Hawaiian monk seal and green turtle recovery and field camps.

Coordination of Monument resource management is overseen by the Co-Trustee agencies, while day-to-day management is implemented by the MMB, as described in Section 2. However, several other federal agencies, including the U.S. Coast Guard, U.S. Geological Survey, EPA, and DOD and various state agencies have roles to play in the Monument, including helping to implement the various strategies and activities in the Monument Management Plan. They could be part of the larger Interagency Coordinating Committee (ICC). Coordination among all parties with regulatory and management responsibilities is crucial to successful Monument operations. The ICC is further described in Section 2.2.

### **Need for Action**

The creation of the Papahānaumokuākea Marine National Monument in 2006 offers a unique opportunity to carry out coordinated management across multiple federal and state agencies to achieve strong, long-term protection of the NWHI. While management of the Monument is the responsibility of the three Co-Trustees, as described in Proclamation 8031, many important government partners also have missions that are affected by and may affect Monument management strategies. Collaboration with all government stakeholders is essential, which is why the MMB and the ICC were established. The unique biological, cultural, scientific, educational, historic, and recreational values of the NWHI require that the region be carefully managed to ensure these values are not diminished for future generations. This action plan presents strategies and activities for facilitating interagency coordination to successfully collaborate with government partners in the NWHI.

### **Strategies to Achieve the Desired Outcome**

Agency coordination in the remote Monument ecosystems is essential to the lasting protection of ecosystems and resources. To achieve the desired outcome of publicly supported coordinated management, three strategies have been developed. The strategies and activities are coded by the acronym for the action plan title, “Agency Coordination” (AC). A summary of strategies and activities is provided in Table 3.5.1 at the end of this action plan.

- AC-1: Ensure effective communications and procedural operations of the MMB.
- AC- 2: Establish and support cooperative management agreements with agency partners.
- AC-3: Promote international, national, and local agency collaborations to increase capacity building and foster networks that will improve management effectiveness.

### **Strategy AC-1: Ensure effective communications and procedural operations of the MMB.**

The MMB was established by the Co-Trustee MOA in 2006 (see Section 2, Management Framework). The MMB is charged with promoting coordinated management of the Monument at the field level and implementing day-to-day management activities necessary to achieve strong, long-term protection of the NWHI for current and future generations. Working across multiple agencies can present a challenge to management if clear and effective procedures are not established.

***Activity AC-1.1: Establish standard operating procedures, as needed, to provide direction and improve communication within the MMB.***

Standard operating procedures are often necessary to facilitate consistent implementation and ensure that processes are continued and completed on a prescribed schedule. They also serve as a historical record of steps taken and a basis for revising the steps when changes to the process are proposed. In order to ensure that unwritten knowledge and skills do not disappear when positions are filled with new staff, standard operating procedures for the MMB will be written and properly maintained. Standard operating procedures will be developed and included in the interagency MMB charter that will guide the operations of the MMB. These procedures will be reviewed on a regular basis and updated as necessary.

**Strategy AC-2: Establish and support cooperative management agreements with agency partners.**

The MOA signed in 2006 by the State of Hawai‘i, the DOI, and the DOC promotes coordinated management of the Monument and establishes the functional relationships to effectively coordinate on all management actions. This agreement serves as the foundation for entering into other agreements among the Co-Trustees and with agencies and other entities, as appropriate. Formal partnerships and agreements will be developed with essential agency partners who can help provide comprehensive protection for the ecosystems and resources of the NWHI. The MMB will explore the potential of developing new agreements, including the possibility of amending the 2006 MOA to increase Native Hawaiian involvement in the management of the Monument.

***Activity AC-2.1: The MMB will explore the potential of developing new agreements, including the possibility of amending the 2006 MOA to increase Native Hawaiian involvement in the management of the Monument.***

The Native Hawaiian voice is missing at the Co-Trustee level under the MOA signed in 2006 for the coordinated management of Papahānaumokuākea, which is precious and sacred to Native Hawaiians. The MMB will explore the potential of developing new agreements, including the possibility of amending the 2006 MOA to increase Native Hawaiian involvement in the management of the Monument. If it is determined that the 2006 MOA should be amended to include a Native Hawaiian governmental organization as a signatory party, the Office of Hawaiian Affairs could fill the position of the fourth Co-Trustee until a Native Hawaiian governing entity is re-established to assure that the cultural significance of Papahānaumokuākea is given as much importance as is noted in Presidential Proclamation 8031.

***Activity AC-2.2: Establish agreements for coordinated management and conduct cooperative management operations.***

Building on the MOA signed in 2006 and any subsequent amendments, new agreements will be developed among the MMB to support collaborations that facilitate coordinated management. Such agreements will specify roles, responsibilities, and periodic reviews. Opportunities for interagency collaboration may include personnel agreements and crosscutting budget initiatives to promote coordinated management and effective implementation of strategies identified in the action plans. The MMB will work together to establish priorities and initiate joint activities.

***Activity AC-2.3: Develop interagency agreements, grants, and memoranda of agreement as needed to carry out specific program priorities.***

Cooperative projects will be pursued with agencies outside of the MMB that allow for ease in sharing resources and in-kind assistance and support, as appropriate. Efforts will continue to coordinate with and support the ICC. Formal agreements required for specific program areas will be developed as needed. Collaborative agency efforts that may benefit from formal and other informal agreements are described in the following action plans: Alien Species (Section 3.3.2), Coordinated Field Operations (Section 3.6.3), Emergency Response and Natural Resource Damage Assessment (Section 3.3.4), Enforcement (Section 3.4.2), Threatened and Endangered Species (Section 3.2.1), Information Management (Section 3.6.2), Maritime Heritage (Section 3.1.4), Marine Debris (Section 3.3.1), Permitting (Section 3.4.1), and Habitat Management and Conservation (Section 3.2.3).

***Activity AC-2.4: Convene Interagency Coordinating Committee meetings, including an annual workshop.***

The ICC is an important venue for state and federal agencies to share information about the Monument's natural and cultural resources and their activities in and around the Monument. This venue also provides an opportunity to facilitate agency coordination and collaboration on implementing the various MMP strategies and activities. The MMB is committed to organizing and supporting periodic ICC meetings to improve coordination and information exchange and as necessary to discuss and resolve interagency issues. An annual interagency strategic planning workshop will be conducted with the ICC to discuss previous year activities and align planned activities and priorities. Gaps and additional needs will be identified along with strategies to address them. (See the Evaluation Action Plan, Section 3.6.4)

**Strategy AC-3: Promote international, national, and local agency collaborations to increase capacity building and foster networks that will improve management effectiveness.**

Collaborations at the international, national, and local levels are needed to promote information sharing, relationship building, and adaptive use of management tools for conservation and resource management. These partnerships can provide a regional and global context to better understand the significance of traditional knowledge in resource management, the need for scientific and cultural research, and the development of management models that could be applied to the Pacific and beyond.

***Activity AC-3.1: Enhance communication and cooperation with the U.S. Department of Defense and the U.S. Navy Pacific Fleet.***

Through the ICC and other forums, the MMB will maintain open communication with the DOD and the Navy on potential areas of cooperation, including enforcement; minimizing adverse impacts on Monument resources and qualities; support of zoning, permitting, and tracking programs; and regional and local restoration and wildlife protection efforts.

***Activity AC-3.2: Network with other marine protected areas in the Pacific.***

The MMB will foster and promote relationships with the marine protected area managers and constituents in Hawai'i and the Pacific that face impacts of climate change, enforcement,

surveillance, and other challenges common to coral reef ecosystem management. Through such regional collaboration, participating organizations could share information on subjects such as coordinated management plan development, mitigation and response strategies to deal with climate change, enforcement, incorporating traditional knowledge, research, and outreach about the importance of coral reef ecosystems to the world. Networking with other marine protected areas in the Pacific is essential for promoting collaborations and to establish the role of the Pacific in the overall global context of marine conservation. Efforts will also be made to promote exchanges within the Pacific Region to an international audience.

**Activity AC-3.3: Support the bid for World Heritage Site status.**

In 2007, the Monument was included on the new U.S. World Heritage Tentative List as a site within the United States for outstanding universal value for both its natural and cultural heritage. The U.S. Tentative List was submitted to the UNESCO World Heritage Center for consideration in February 2008. The MMB will continue to support the bid for World Heritage designation across agencies to ensure a high level of communication and coordination.

**Table 3.5.1 Summary of Strategies, Activities, and Agency Leads for Agency Coordination**

Strategies and Activities	Agency Lead
<b>Strategy AC-1: Ensure effective communications and procedural operations of the MMB.</b>	
Activity AC-1.1: Establish standard operating procedures, as needed, to provide direction and improve communication within the MMB.	NOAA
<b>Strategy AC-2: Establish and support cooperative management agreements with agency partners.</b>	
Activity AC-2.1: Explore the potential of developing new agreements, including the possibility of amending the 2006 MOA to increase Native Hawaiian involvement in the management of the Monument.	OHA
Activity AC-2.2: Establish agreements for coordinated management and conduct cooperative management operations.	NOAA
Activity AC-2.3: Develop interagency agreements, grants, and memoranda of agreement as needed to carry out specific program priorities.	NOAA
Activity AC-2.4: Convene Interagency Coordinating Committee meetings, including an annual workshop.	NOAA
<b>Strategy AC-3: Promote international, national, and local agency collaborations to increase capacity building and foster networks that will improve management effectiveness.</b>	
Activity AC-3.1: Enhance communication and cooperation with the U.S. Department of Defense and the U.S. Navy Pacific Fleet.	State of Hawaii
Activity AC-3.2: Network with other marine protected areas in the Pacific.	State of Hawai‘i
Activity AC-3.3: Support the bid for World Heritage Site status.	State of Hawai‘i



### 3.5.2 Constituency Building and Outreach Action Plan

#### Desired Outcome

Cultivate an informed, involved constituency that supports and enhances conservation of the natural, cultural, and historic resources of Papahānaumokuākea Marine National Monument.

Links to other Action Plans
All Action Plans

#### Current Status and Background

The MMB currently conducts diverse constituency building and outreach activities related to the Monument, such as:

Links to Goals
Goal 4 Goal 5 Goal 6 Goal 8

- Operating discovery centers and visitor facilities, including Mokupāpapa Discovery Center in Hilo and the Midway Atoll visitor center;
- Developing and disseminating informational materials such as fact sheets, brochures, planning updates, and reports;
- Updating and maintaining Monument websites;
- Conducting informational meetings, workshops, and seminars to inform constituencies and seek input on various aspects of Monument management;
- Issuing news releases, feature stories, and public service announcements;
- Working with partners in community fairs, photography exhibits, and documentaries;
- Partnering with support groups such as the Friends of Midway Atoll NWR and the National Marine Sanctuary Foundation;
- Involving volunteers in management and support activities;
- Seeking public review of Monument permit applications for activities proposed in State waters at the State Board of Land and Natural Resources; and
- Seeking public review of draft plans and environmental analyses through NEPA requirements.

The Monument’s diverse constituencies in Hawai‘i and beyond include federal and state agencies with responsibilities for the region; industry and community stakeholders; and prospective and permitted users. Key Monument constituencies that have been identified to date include, but are not limited to, the following:

- Government agencies with responsibilities in the NWHI
- Native Hawaiian community
- Conservation groups
- Research/academia
- Commercial and recreational fishers
- Local community experts
- Schools, organizations, and institutions that conduct marine education and outreach programs throughout Hawai‘i
- Other states, territories, and Pacific nations managing coral reefs
- Business/industry
- Elected officials
- General public at large

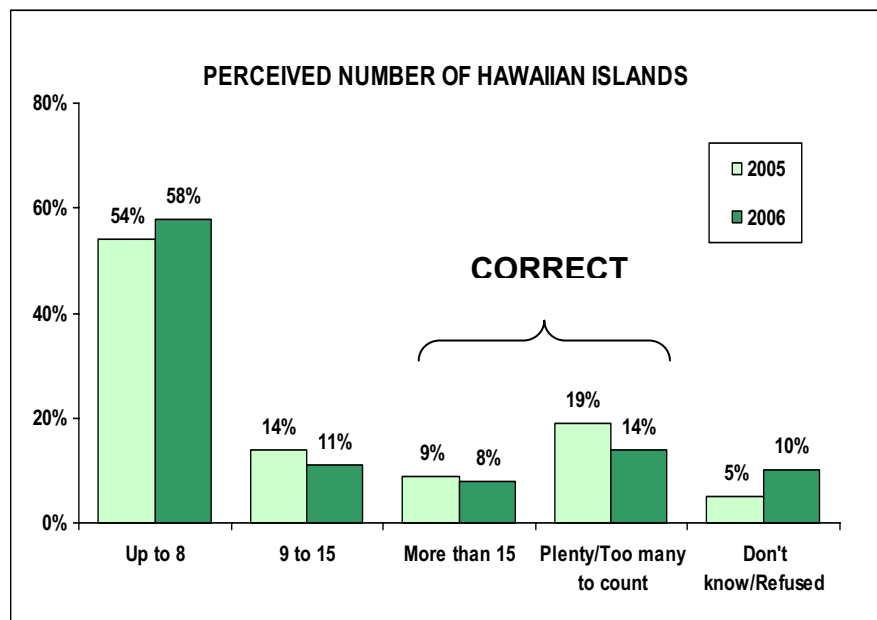
Outreach to these diverse communities must be coordinated closely with the strategies and activities identified in the individual action plans detailed in this management plan. A vigorous public outreach and education effort that bridges community concerns and needs with measures applied to protect the resources of the Monument will galvanize broader support for ocean and island conservation and the MMB’s work. Such support will bolster the MMB’s ability to effectively protect NWHI marine resources.

A strong, sustained constituency-building effort is particularly important in the Monument’s early formative years to establish its role in the region and in local, national, and global resource management circles and to set a proactive course into the future.

**Need for Action**

Stakeholder and community involvement is an integral component to creating an informed and engaged constituency that would further the successful protection of the ecosystems and resources of the NWHI, thus achieving the goals of the Monument (see Section 2, Management Framework). Active and meaningful engagement between management and local experts is considered integral to resilient and adaptive approaches (Berkes 2003; Leslie & Mcleod 2007).

A study conducted by Ward Research in March 2006 for the National Marine Sanctuary Foundation found that the majority of residents of the State of Hawai‘i were unaware of the NWHI and its protected status. More than 50 percent of Hawai‘i’s residents believed that there are only eight Hawaiian Islands (Ward Research 2006). For the question, “How many islands, atolls, and other land masses make up what we know as the Hawaiian Islands?,” the proportion of residents who answered the correct, “more than 15” or “plenty/too many to count” decreased from the previous year (22 percent, compared with 28 percent in 2005).



**Figure 3.1 Perceived Number of Hawaiian Islands**

The establishment of the Monument provides opportunities for the managing agencies to collaborate and share resources for effective constituency building and outreach activities. Currently, the agencies often implement public outreach activities separately, use a similar and limited range of strategies and activities, and target similar constituencies. As the Monument constituencies comprise a wide range of user groups and individuals, various methods will be

needed to best engage them in Monument management. A range of strategies and activities are needed to develop, engage, and sustain the active involvement and support of constituencies in Hawai'i as well as national and international publics. These strategies and activities will keep the public informed as well as provide opportunities for input on management decisionmaking from various stakeholder groups. This action plan presents strategies and activities to develop an integrated constituency-building framework supported by collaborative activities of the Co-Trustees.

### **Strategies to Achieve the Desired Outcome**

The following strategies have been identified to achieve the desired outcome of cultivating an informed, involved constituency that supports and enhances conservation of the natural, cultural, and historic resources of the Monument. These strategies provide both capacity building, which will ensure continuity and effectiveness of Monument communication efforts, and public interface, which will allow for various levels of support for and participation in activities related to the Monument. The strategies and activities are coded by the acronym for the action plan title, "Constituency Building and Outreach" (CBO). A summary of strategies and activities is provided in Table 3.5.2 at the end of this action plan.

- CBO- 1: Develop and implement an integrated communications strategy, based on an assessment of ongoing activities and future needs, to coordinate outreach and engage Monument constituencies within 5 years.
- CBO-2: Continue to develop and disseminate materials and improve and update tools that help inform Monument constituencies about the Monument over the life of the plan.
- CBO-3: Continue initiatives that allow Monument constituencies to be more involved in the Monument and enhance opportunities for long-term engagement over the life of the plan.
- CBO-4: Develop and implement an overarching Monument interpretive strategy, including site-specific planning documents for the Monument's visitor facilities, within 5 years.

#### **Strategy CBO-1: Develop and implement an integrated communications strategy, based on an assessment of ongoing activities and future needs, to coordinate outreach and engage Monument constituencies within 5 years.**

The integrated communications strategy will be made up of various components, including visitor site administration, capacity building, research and development, telecommunication tools, and assessment. The following activities will help to achieve the initiatives of these components and ensure the effectiveness of the integrated strategy.

##### ***Activity CBO-1.1: Develop an integrated communications strategy based on an assessment of ongoing activities and future needs.***

A unified strategy for constituency building and outreach for the Monument will be developed. The integrated strategy will include a description of the different types of constituencies that need to be informed, engaged, and sustained in support of the Monument; specific strategies, messages, and activities related to each constituency; and indicators to evaluate effectiveness. In developing the document, the MMB will engage analogous entities, such as administrating agencies of

Australia's Great Barrier Reef, to learn lessons from their constituency building and outreach successes. Existing constituency building activities of all MMB agencies generally will be continued under the new Monument framework. This will ensure continued support for already successful programs and the development of new activities that enhance existing support for the region. The Monument communications strategy will be reviewed and updated every 3 years, at a minimum.

***Activity CBO-1.2: Continue to refine and implement the Monument Media Communications Protocol to engage news media in informing the public about the Monument's resources and activities.***

A key aspect of the communications strategy is media protocol. In February 2007, a Monument media communications protocol was developed to ensure the media receive accurate, consistent, and timely information about the Monument; its natural, cultural, and historic resources; and ongoing activities related to the Monument. An interagency communications team implements the strategy, ensuring that all of the managers are included in the review process and presenting a unified position to the public. Contacts, standards, and procedures are clearly identified within the protocol. Unlike the communications strategy overall, the protocol will be reviewed any time the need arises from any agency or is deemed necessary because of unforeseen external circumstances.

***Activity CBO-1.3: Develop a consistent Monument identity to be used in all communications strategies that reflects its comanagement within 1 year.***

The Co-Trustees currently maintain their three separate identities and include all agency logos on most communications materials. The MMB will develop a new Monument "corporate identity," reflecting its shared management on behalf of the American people.

***Activity CBO-1.4: Incorporate new perspectives for understanding the value of NWHI ecosystems, including socioeconomic studies, to increase ocean ecosystems literacy and conservation in the Monument within 5 years.***

The Monument will serve as a powerful focal point for understanding climate change and increasing ocean ecosystems literacy. To engage a broad and diverse base of constituents and local experts, Monument staff must continuously expand the types of products, messages, and modes of communication used in education and outreach programs. The MMB will support and seek out traditional and local knowledge as well as new perspectives that contribute different ways of valuing the ecosystems of the NWHI. New and innovative ways to look at the value of marine ecosystems, such as socioeconomic analysis of the nonmarket value of coral reefs, will also be supported.

***Activity CBO-1.5: Research and implement new technologies and tools to increase public understanding of the NWHI ecosystems within 5 years.***

Telepresence (technologies that allow a person to feel as if they were present, to give the appearance that they were present, or to have an effect at a location other than their true location) is an important tool for helping to educate the larger community about the special region of the Monument. Since most people will not be able to visit the Monument because of its remoteness and fragility, it is important to bring the place to the people. Telepresence technologies such as underwater video cameras, real-time video transmission, virtual field trips, website interfaces,



and exhibits in discovery centers that present this content will play an important role in educating the public about the NWHI. Obstacles to implementing these technologies do exist, such as cost, feasibility, and ecological sensitivities, but the Monument will continue to invest in and utilize new technologies for providing this virtual experience.

**Strategy CBO-2: Continue to develop and disseminate materials and improve and update tools that help inform Monument constituencies about the Monument over the life of the plan.**

Providing information about the Monument through products such as websites, brochures, and other media is one of the first steps toward raising the overall awareness of the Monument with the public (local, national, and international). The MMB will also seek to provide versions of materials in ‘ōlelo Hawai‘i when appropriate and possible.

***Activity CBO-2.1: Establish a new Monument website that will allow constituents to visit a single site for all Monument-related information within 1 year.***

Currently, the three Co-Trustee agencies all maintain separate websites that provide information about the Monument. The MMB is developing a single interagency website (<http://www.papahānaumokuākea.gov>) that will be jointly managed and regularly updated with information about permit and management activities, planning updates, and other information.

***Activity CBO-2.2: Continue to develop and update printed materials to aid Monument constituencies in understanding key aspects of the Monument.***

Although an overall site brochure is the primary informational mechanism to help the public understand the Monument, additional materials will be developed to aid in the understanding of more specific aspects of the entire region and on the ways in which the public can participate. Topics to be addressed will include, but will not be limited to, Native Hawaiian culture; research; management activities; permitting; Monument wildlife, historic, and cultural resources; impacts associated with climate change; and volunteer activities. These materials will be printed pieces, such as the update letter that was provided to the public during the development of the Monument Management Plan, but may also include multimedia components or be developed as a suite of materials.

***Activity CBO-2.3: Support other entities’ efforts to broaden knowledge of and appreciation for Monument resources and management priorities.***

Establishment of the Monument has created interest from documentary filmmakers, writers, photographers, and other entities to help us “bring the place to the people.” The MMB will support those endeavors that provide benefit to Monument resources and management and our constituents without impacting Monument resources.

**Strategy CBO-3: Continue initiatives that allow Monument constituencies to be more involved in the Monument and enhance opportunities for long-term engagement over the life of the plan.**

This strategy will continue efforts to create an interactive experience with constituents by providing the support and activities necessary to develop a long-term commitment to the

Monument from a growing number of increasingly knowledgeable constituents. This strategy will also explore means by which local experts can be actively and meaningfully involved in the management of the Monument. The Monument is a vast region that will need a strong network of constituents who are connected to the NWHI in order to ensure that the plans initiated today are carried out and implemented successfully over time. However, this kind of success is realized only when the support is rooted in an engaged community and when the relationship between the agency and its constituents has matured into one of collaboration.

***Activity CBO-3.1: Continue to seek out and participate in events that reach a broader audience and provide constituents with knowledge of the Monument.***

The MMB agencies individually have a history of participating in various public outreach activities. We will collaborate to enhance existing participation and find new venues. Examples of such activities include, but are not limited to, events such as fairs, lecture series, and public forums.

***Activity CBO-3.2: As needed, hold focused forums on various Monument-related issues or topics to inform and engage a broader range of constituents.***

The MMB will offer public forums on specific topics or issues both to exchange information with our constituencies and to build awareness and support. These forums will be offered at various locations to facilitate participation by a broad range of constituents.

***Activity CBO-3.3: Continue to seek out and support partnership opportunities that focus on Oceania-related issues.***

As the Hawaiian Archipelago is most closely related to other sites across Oceania, it is important for the Monument to collaborate with a network of marine managed areas in this region. These partnerships will allow for a greater exchange of knowledge and expertise. They will also provide opportunities to build awareness about the important connection between cultural and conservation practices.

***Activity CBO-3.4: Continue to build and nurture volunteer programs that develop knowledge of, involvement in, and support for Monument programs and resources.***

Volunteers offer an opportunity to build a new base of constituents who are closely connected to and involved in efforts of the Monument. Volunteers are essential in carrying out our mission to protect this valuable resource. We will work to enhance existing efforts and to build capacity to support these important efforts.

Long-term volunteers help with outreach and education needs, especially at Mokupāpapa Discovery Center and Midway Atoll, and with habitat restoration and wildlife monitoring, especially at Tern Island, Laysan Island, Midway Atoll, and Kure Atoll. In addition, we will incorporate Midway Atoll visitors into volunteer programs for habitat restoration, wildlife population monitoring, and historic restoration projects, as outlined in the Midway Atoll Visitor Services Plan. Overnight visitors will be encouraged to participate in volunteer activities, including eradication of invasive plants, collection of marine debris, and restoration of native plants and historic structures. Many visitors want to “give something back” to the environment during their time on the atoll, and these activities will help restore acres of habitat.

***Activity CBO-3.5: Establish and support a Papahānaumokuākea Marine National Monument Alliance to engage a broad range of constituents, who will provide recommendations and information on specific management issues on a regular basis.***

The Co-Trustees are committed to establish a Monument Alliance within 1 year, composed of individuals who represent communities and stakeholders interested in the Monument's stewardship. The Alliance will provide individual advice and recommendations to the Monument management agencies regarding management of Monument resources over which the Co-Trustees have responsibilities. It will serve as a community-based forum to exchange information; provide community input and individual recommendations on Monument policies, activities, and management; advocate for Monument conservation; and enhance broader community and public understanding. Within 2 years after the release of the Monument Management Plan, the Co-Trustees will charter the Alliance as an advisory committee under the Federal Advisory Committee Act (FACA), or as a FACA-exempt advisory body to allow the Alliance to provide consensus advice to the Co-Trustees, per the amended Memorandum of Agreement. Meetings of the Monument Alliance will be convened on a regular basis, with specific topics identified for each meeting. The meetings will be well publicized and open to the public, and will be held at various locations to facilitate

***Activity CBO-3.6: Continue to support the Native Hawaiian Cultural Working Group through the Office of Hawaiian Affairs.***

This group is made up of members of the Native Hawaiian community who provide guidance to the State of Hawai'i through the Office of Hawaiian Affairs. This group has offered support on permit review and cultural protocols, and provided the Monument with its name. By better incorporating Hawaiian culture into Monument management, we gain long-term support and greater understanding from the community that represents the host culture of the entire Hawaiian Archipelago.

***Activity CBO-3.7: Continue working with the Friends of Midway Atoll National Wildlife Refuge through FWS and support the establishment of a Monument-related "friends" group.***

The Friends of Midway Atoll NWR is a nonprofit group that was formed in 1999 and currently has more than 200 members from across the nation who contribute to the interpretation, recreation, and educational programs of the Refuge. In addition to continuing to work with the Friends of Midway Atoll NWR, we will work with other Monument-wide "friends" groups if established.

***Activity CBO-3.8: Continue to convene the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve Advisory Council through NOAA's Office of National Marine Sanctuaries until the Monument Alliance is established.***

The Reserve Advisory Council (RAC) was formed in 2001 and has served as a mechanism for public input and a venue for public comment on management activities. The composition of the Reserve Advisory Council is designed to provide formal advice to the ONMS from a variety of stakeholder viewpoints and geographic representation. Continuing the RAC would provide a public forum for members of the community and constituencies to allow for input on the Reserve until such a mechanism is established for the Monument.

**Strategy CBO- 4: Develop and implement an overarching Monument interpretive strategy, including site-specific planning documents for the Monument’s visitor facilities, within 5 years.**

As one of many means of communication, several facilities that interpret Monument resources and activities have been developed, most of them prior to designation of the Monument. This strategy includes the development of an interpretive plan, as well as evaluation strategies and maintenance schedules. By unifying all Monument interpretation under a single strategy, the MMB can ensure targeted, appropriate messages are delivered to our constituents in a consistent manner that leads to achievement of Monument goals.

***Activity CBO-4.1: Develop interagency Monument interpretive themes to guide all interpretive products and activities.***

Although initial discussions of Monument-wide interpretive themes have been held among the Co-Trustee agencies, a more focused study is needed. These interpretive themes will guide the development and presentation of interpretive sites and products, linking tangible resources to intangible meanings, creating emotional and intellectual connections to the meanings of the resource, and making the Monument personally relevant to individuals.

***Activity CBO-4.2: Review existing interpretive sites and activities to determine their current relevance to the Monument and how they could better represent Monument themes.***

Two existing interpretive facilities—Mokupāpapa: Discovery Center for Hawai‘i’s Remote Coral Reefs in Hilo, Hawai‘i, and the Midway Atoll NWR visitor center on Sand Island, Midway Atoll—and the proposed visitor facility at NOAA’s Pacific Regional Center on Ford Island, O‘ahu, will be reviewed and updated so that they better reflect the Monument’s cultural, natural and historic resources as a whole.

***Activity CBO-4.3: Develop a Monument interpretive plan to guide future interpretive projects and activities.***

The overarching Monument interpretive strategy will identify the Monument’s interpretive themes, audiences, messages, and media, and include information on project priorities, costs, staffing needs, and schedules.

***Activity CBO-4.4: Seek additional opportunities to expand Monument interpretive efforts to new sites and through new technologies, creating a network of coordinated interpretive sites.***

The MMB will identify new sites and technologies to better reach our audiences. In many cases, we will work with private or other government entities to include Monument messages in broader arenas. Possible partnership opportunities exist in aquaria, schools and universities, parks, government buildings, hotels, and many other locations.

***Activity CBO-4.5: Working with the National Park Service, U.S. Navy, and other key entities, develop off-site exhibits on the Battle of Midway and the associated National Memorial to be integrated into World War II memorial sites of the Pearl Harbor Historic District.***

In establishing the Battle of Midway National Memorial at Midway Atoll, FWS was charged with ensuring that the heroic courage and sacrifice of those involved in the battle will never be forgotten. Although this interpretive theme will be important at Midway Atoll, a relatively small



number of visitors will be reached. A much broader audience will be found within the Pearl Harbor Historic District, where the USS Arizona Memorial, USS Missouri, USS Bowfin, and sites on Ford Island receive at least 1.5 million visitors each year. The MMB, working with partner agencies and other key entities, will develop exhibits about the Monument that can be integrated with other existing interpretative facilities and sites.

**Table 3.5.2 Summary of Strategies, Activities, and Agency Leads for Constituency Building and Outreach**

Strategies and Activities	Agency Lead
<b>Strategy CBO-1: Develop and implement an integrated communications strategy, based on an assessment of ongoing activities and future needs, to coordinate outreach and engage Monument constituencies within 5 years.</b>	
Activity CBO-1.1: Develop an integrated communications strategy based on an assessment of ongoing activities and future needs.	FWS
Activity CBO-1.2: Continue to refine and implement the Monument Media Communications Protocol to engage news media in informing the public about the Monument’s resources and activities.	FWS
Activity CBO-1.3: Develop a consistent Monument identity to be used in all communications strategies that reflects its comanagement within 1 year.	NOAA
Activity CBO-1.4: Incorporate new perspectives for understanding the value of NWHI ecosystems, including socioeconomic studies, to increase ocean ecosystems literacy and conservation in the Monument within 5 years.	NOAA
Activity CBO-1.5: Research and implement new technologies and tools to increase public understanding of the NWHI ecosystems within 5 years.	NOAA
<b>Strategy CBO-2: Continue to develop and disseminate materials and improve and update tools that help inform Monument constituencies about the Monument over the life of the plan.</b>	
Activity CBO-2.1: Establish a new Monument website that will allow constituents to visit a single site for all Monument-related information within 1 year.	NOAA
Activity CBO-2.2: Continue to develop and update printed materials to aid Monument constituencies in understanding key aspects of the Monument.	NOAA
Activity CBO-2.3: Support other entities’ efforts to broaden knowledge of and appreciation for Monument resources and management priorities.	FWS
<b>Strategy CBO-3: Continue initiatives that allow Monument constituencies to be more involved in the Monument and enhance opportunities for long-term engagement over the life of the plan.</b>	
Activity CBO-3.1: Continue to seek out and participate in events that reach a broader audience and provide constituents with knowledge of the Monument.	NOAA
Activity CBO-3.2: As needed, hold focused forums on various Monument-related issues or topics to inform and engage a broader range of constituents.	State of Hawai‘i

<b>Strategies and Activities</b>	<b>Agency Lead</b>
Activity CBO-3.3: Continue to seek out and support partnership opportunities that focus on Oceania-related issues.	NOAA
Activity CBO-3.4: Continue to build and nurture volunteer programs that develop knowledge of, involvement in, and support for Monument programs and resources.	FWS
Activity CBO-3.5: Establish and support a Papahānaumokuākea Marine National Monument Alliance to engage a broad range of constituents, who will provide recommendations and information on specific management issues on a regular basis.	NOAA
Activity CBO-3.6: Continue to support the Native Hawaiian Cultural Working Group through the Office of Hawaiian Affairs.	OHA
Activity CBO-3.7: Continue working with the Friends of Midway Atoll National Wildlife Refuge through FWS and support the establishment of a Monument-related “friends” group.	FWS
Activity CBO-3.8: Continue to convene the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve Advisory Council through NOAA’s Office of National Marine Sanctuaries until the Monument Alliance is established.	NOAA
<b>Strategy CBO-4: Develop and implement an overarching Monument interpretive strategy, including site-specific planning documents for the Monument’s visitor facilities, within 5 years.</b>	
Activity CBO-4.1: Develop interagency Monument interpretive themes to guide all interpretive products and activities.	NOAA
Activity CBO-4.2: Review existing interpretive sites and activities to determine their current relevance to the Monument and how they could better represent Monument themes.	FWS
Activity CBO-4.3: Develop a Monument interpretive plan to guide future interpretive projects and activities.	FWS
Activity CBO-4.4: Seek additional opportunities to expand Monument interpretive efforts to new sites and through new technologies, creating a network of coordinated interpretive sites.	NOAA
Activity CBO-4.5: Working with the National Park Service, U.S. Navy, and other key entities, develop off-site exhibits on the Battle of Midway and the associated National Memorial to be integrated into World War II memorial sites of the Pearl Harbor Historic District.	FWS

### 3.5.3 Native Hawaiian Community Involvement Action Plan

#### Desired Outcome

Engage the Native Hawaiian community in active and meaningful involvement in Papahānaumokuākea Marine National Monument management.

Links to other Action Plans	
3.1.2	Native Hawaiian Culture and History
3.5.1	Agency Coordination
3.5.2	Constituency Building and Outreach

#### Current Status and Background

The Executive Order that designated the NWHI Coral Reef Ecosystem Reserve (Reserve) in 2000 required that Native Hawaiians, among others, provide advice regarding management of the Reserve and ensuring the continuance of Native Hawaiian practices. It did so through provisions allowing for “culturally significant, noncommercial subsistence, cultural, and religious uses” in the Reserve by Native Hawaiians, and set aside three voting seats on the Reserve Advisory Council for Native Hawaiians. During its first five years of operation, the RAC established a Native Hawaiian Cultural Working Group, which broadened the inclusion of Native Hawaiians in the operations of the Reserve and in planning for a proposed National Marine Sanctuary.

Links to Goals
Goal 2
Goal 3
Goal 4
Goal 5
Goal 6
Goal 7

In addition to Native Hawaiian representation on the RAC and the establishment of a Native Hawaiian Cultural Working Group, the Reserve began efforts to consult with the Native Hawaiian community through a grant to the University of Hawai‘i’s Kamakakūokalani Center for Hawaiian Studies. This grant provided an opportunity for Native Hawaiians to develop the content of NOAA’s report on the cultural history of the NWHI from an indigenous point of view. The grant also convened key Native Hawaiian community members for a two-day planning session to make recommendations about future research, educational, and cultural activities that should be made available to Native Hawaiians and others to ensure a strong cultural link in the planning and management of the Reserve and throughout the sanctuary designation process.

These efforts provided a foundation for Native Hawaiian involvement in the Reserve, and this foundation has continued and expanded in the management of the Monument. Many Native Hawaiians remain unaware of efforts under way to protect the NWHI through management of the Monument. Although several prominent members of the Native Hawaiian community have been involved in the management and implementation of the Reserve, many others should be engaged, in part by working more closely with Native Hawaiian institutions.



Participants of the 2004 NWHI workshop on Native Hawaiian issues and concerns held at Kamakakūokalani Center for Hawaiian Studies at U.H. Mānoa. Photo: Dr. Kekuni Blaisdell

The Reserve set a standard for recognition and inclusion of Native Hawaiians in determining the future management of the NWHI. Strategies will be developed to involve the Native Hawaiian



community in the management of the Monument not only because of strong public support, but also because of the mandates of the Office of National Marine Sanctuaries to protect biological and cultural resources in the areas it manages, of the FWS to preserve historic sites as well as conserve and promote wildlife and their habitat, and of the State to protect ceded lands and the rights of Native Hawaiians.

An increasing number of resource management and conservation partnerships are being formed between indigenous groups and governmental bodies worldwide. In Hawai‘i, the Kaho‘olawe Island Reserve Commission and Mo‘omomi, Moloka‘i partnerships are examples of how traditional knowledge and values are integrated into resource management. An international example is seen in New Zealand, where Maori involvement in government conservation management projects ranges from consultation to full control over marine and terrestrial tribal regions.

The Native Hawaiian community has expressed a strong interest in participating in management decisions affecting the Reserve and Monument. Respecting Native Hawaiian traditions and values and providing an effective degree of participation in the protection and stewardship of the Monument will provide an opportunity for Native Hawaiians to maintain ancestral connections to the NWHI. Such connections will continue to further ongoing reconciliation efforts between Native Hawaiians and the United States.

Efforts are needed to directly engage Native Hawaiian concepts and participation in resource management, including perspectives in managing natural, cultural, and historic resources. The resulting synthesis of western and Hawaiian management concepts and practices is a significant step toward improving relationships and communication regarding Monument management. The MMB is committed to working with the Native Hawaiian community to identify specific and meaningful ways of engagement in managing the Monument. A variety of strategies to promote this engagement have been identified in this action plan as well as those in Section 3.1.2, the Native Hawaiian Culture and History Action Plan.

### **Need for Action**

Numerous public comments collected during the scoping process for the proposed National Marine Sanctuary identified the need to include Native Hawaiians and Native Hawaiian traditional resource management practices in the management of the NWHI. Communities also expressed concern that Native Hawaiians must have access to continue cultural practices in the region. The comments indicated the need for direct consultation with Native Hawaiians, or more consultation over and beyond the representation of Native Hawaiians currently included in the management of the Monument.

The inclusion of terrestrial areas (particularly Nihoa, Mokumanamana, and Kure Atoll) and waters in the Monument creates a greater urgency to include Native Hawaiian perspectives in the Monument’s management. All of the documented Native Hawaiian archaeological sites in the NWHI are on Nihoa and Mokumanamana; they hold some of the densest scatters or concentrations of prehistoric structural sites in Hawai‘i; and they represent a pure example of the culture prevailing in Hawai‘i before the 13<sup>th</sup> century.

The Constitution of the State of Hawai‘i requires the State to care for Hawai‘i’s public trust resources and recognizes the state’s obligation to work for the cultural rights of Native Hawaiians. Given the unique history and constitutional and statutory requirements of the State to protect the claims and rights of Native Hawaiians in their homeland, the Native Hawaiian community must be involved in the planning, management, and operations of the Monument.

### **Strategies to Achieve the Desired Outcome**

Three strategies have been identified for achieving the desired outcome of engaging the Native Hawaiian community in active and meaningful involvement in Monument management. The strategies and activities are coded by the acronym for the action plan title, “Native Hawaiian Community Involvement” (NHCI). A summary of strategies and activities is provided in Table 3.5.3 at the end of this action plan.

- NHCI-1: Regularly involve the Native Hawaiian community for the life of the plan.
- NHCI-2: Develop and annually maintain partnerships with Native Hawaiian organizations and institutions.
- NHCI-3: Identify and integrate Native Hawaiian traditional knowledge and management concepts into Monument management annually for the life of the plan.

### **Strategy NHCI-1: Regularly involve the Native Hawaiian community for the life of the plan.**

The MMB includes representation by the Office of Hawaiian Affairs (OHA). Currently, OHA is the only State agency with a statutory mandate to advocate for Native Hawaiians and to assess the policies and practices of other agencies’ impacts on Native Hawaiians. OHA, on behalf of the MMB, will continue to convene the Native Hawaiian Cultural Working Group to obtain advice and guidance from Native Hawaiian cultural experts, including kūpuna (respected elders) and practitioners, on all Monument actions affecting Native Hawaiians and cultural resources in the Monument. Over time, the MMB may develop other mechanisms to bring together Native Hawaiians to participate in Monument activities and management.

#### ***Activity NHCI-1.1: Formalize, expand, and convene the Native Hawaiian Cultural Working Group.***

During year 1, the MMB, through OHA, will formally establish a cultural working group, expanding the previously established working group, to ensure a strong cultural link in the planning and management of the Monument. Like its predecessor, this body would consist of kūpuna, cultural practitioners, Native Hawaiian resource managers, and others (see Section 3.5.2, the Constituency Building and Outreach Action Plan).

#### ***Activity NHCI-1.2: Engage the Native Hawaiian Cultural Working Group in the development of a Monument Cultural Resources Program.***

The MMB will work with the Native Hawaiian Cultural Working Group and other Native Hawaiian organizations and institutions to develop a Monument Cultural Resources Program and corresponding cultural resource management activities. (See Section 3.1.2, the Native Hawaiian Culture and History Action Plan.)

***Activity NHCI-1.3: Establish an annual cultural resources exchange.***

The MMB will annually convene groups of Native Hawaiians who have visited the Monument to provide a safe venue to discuss the knowledge, experiences, and new questions gained during the past research season. The MMB will also update the Native Hawaiian community on its lessons learned from the last research season, including synopses of nonproprietary cultural reflections provided in various permittees' final reports. These exchanges may also include previous and on-going research, as well as status of curated cultural resources. These exchanges will not only update the Native Hawaiian community, but will also engage that community in determining the priorities and proposed methodologies of forthcoming research queries, theories, and needs. (See Section 3.1.2, the Native Hawaiian Culture and History Action Plan.)

**Strategy NHCI-2: Develop and annually maintain partnerships with Native Hawaiian organizations and institutions.**

Memoranda of Understanding, grant programs, and cooperative agreements have been useful in developing working relationships with partner agencies and organizations. Partnerships with Native Hawaiian organizations could similarly help to strengthen that community's involvement in Monument management and the development and implementation of programs involving Native Hawaiians. Partnering will help the Monument to consult with the broader Native Hawaiian community and aid in gathering information about cultural resources and practices.

***Activity NHCI-2.1: Continue to expand and explore opportunities to partner with institutions serving Native Hawaiians.***

In 2003, the Reserve established a partnership with the Kamakakūokalani Center for Hawaiian Studies and the University of Hawai'i to conduct cultural research, consult with the Native Hawaiian community, and produce educational materials related to the NWHI. The MMB will seek other opportunities to formally consult with and engage other Native Hawaiian groups and will develop outreach programs for the Native Hawaiian community. (Interagency partnerships are also addressed in Section 3.5.1, the Agency Coordination Action Plan.) Additional partnerships, contracts, grants, or formal agreements with Native Hawaiian organizations will be considered and established as opportunities arise.

**Strategy NHCI-3: Identify and integrate Native Hawaiian traditional knowledge and management concepts into Monument management annually for the life of the plan.**

Traditional resource management involves recognizing local variations, observing patterns, periodically applying kapu (restrictions on resource extraction and other activities) by konohiki (local managers), and maintaining a deep respect for, and intimate knowledge of, the environment. Integrating traditional knowledge will not only strengthen the relationship between Monument managers and the Native Hawaiian community, but will also provide additional tools and methods for improving management practices. This relationship will also perpetuate the application of traditional knowledge across the Hawaiian Archipelago.

***Activity NHCI-3.1: Engage the Native Hawaiian community to identify how traditional knowledge will be integrated into Monument activities.***

The Monument's cultural resources staff, to be developed pursuant to the Native Hawaiian Culture and History Action Plan (Section 3.1.2), will work with the Native Hawaiian community

and cultural experts to preserve and recover the knowledge of traditional Hawaiian resource management strategies and to identify how traditional knowledge and associated practices may be woven into Monument management and research activities. This activity will include developing recommendations for integrating these skills and knowledge into Monument management, and preparing a report of the recommendations within 2 years.

***Activity NHCI-3.2: Use and integrate Native Hawaiian traditional knowledge in Monument management activities.***

Based on recommendations developed under Activity NHCI-3.1, the MMB will integrate traditional perspectives, knowledge, and approaches in the management of Monument resources.



**Table 3.5.3 Summary of Strategies, Activities, and Agency Leads for Native Hawaiian Community Involvement**

<b>Strategies and Activities</b>	<b>Agency Lead</b>
<b>Strategy NHCI-1: Regularly involve the Native Hawaiian community for the life of the plan.</b>	
Activity NHCI-1.1: Formalize, expand, and convene the Native Hawaiian Cultural Working Group.	OHA
Activity NHCI-1.2: Engage the Native Hawaiian Cultural Working Group in the development of a Monument Cultural Resources Program.	OHA
Activity NHCI-1.3: Establish an annual cultural resources exchange.	OHA
<b>Strategy NHCI-2: Develop and annually maintain partnerships with Native Hawaiian organizations and institutions.</b>	
Activity NHCI-2.1: Continue to expand and explore opportunities to partner with institutions serving Native Hawaiians.	OHA
<b>Strategy NHCI-3: Identify and integrate Native Hawaiian traditional knowledge and management concepts into Monument management annually for the life of the plan.</b>	
Activity NHCI-3.1: Engage the Native Hawaiian community to identify how traditional knowledge will be integrated into Monument activities.	NOAA
Activity NHCI-3.2: Use and integrate Native Hawaiian traditional knowledge in Monument management activities.	NOAA

### 3.5.4 Ocean Ecosystems Literacy Action Plan

#### Desired Outcome

Cultivate an ocean ecosystems stewardship ethic, contribute to the Nation’s science and cultural literacy, and create a new generation of conservation leaders through formal environmental education.

Links to other Action Plans	
All action plans in:	
3.1	Understanding and Interpreting the NWHI
3.2	Conserving Wildlife and their Habitats
3.3	Reducing Threats to Monument Resources
3.4	Managing Human Uses

#### Current Status and Background

Prior to the establishment of the Monument, the Co-Trustees took active steps to address the need for ocean ecosystems literacy. Adopting a cooperative approach has exponentially enhanced and extended the agencies’ educational efforts. Educational partnerships have enabled the implementation of programs far beyond the resources of any one agency, institution, or organization alone.

Links to Goals
Goal 5
Goal 6
Goal 8

The NWHI provide a model and rare benchmark of a healthy, intact ecosystem, conserved in its natural state, that may serve to inspire Hawai’i residents, all Americans, and the global community to take part in ocean restoration efforts. Inspired by the Polynesian Voyaging Society, this guiding premise brought together resource management agencies and partners to implement the multiyear “Navigating Change” project, which focuses on raising awareness and motivating people to change their attitudes and behaviors to better care for Hawai’i’s land and ocean resources. A five-part video, standards-based educational curriculum, and teleconferences with the traditional Polynesian voyaging canoe *Hōkūle‘a* during its 2004 expedition to the NWHI have been completed in partnership with several agencies and organizations. Teacher workshops on the “Navigating Change” program have been held since 2003 across Hawai’i. The MMB also organized a number of education-at-sea initiatives.

The multiagency educational partnership remains active and fluid and continues to work well, even in the absence of formal agreements because of the clear benefits to all parties. Shared objectives include information sharing, aligning education with management needs, setting regional priorities, reducing duplication of efforts, and sharing resources. Through partnering, organizations and agencies are better able to meet their educational mandates. Partnerships take advantage of existing expertise and experience, as well as preexisting markets for educational outreach. Cost and staff sharing of education and outreach programs help to alleviate limited funding and staffing issues for these programs.

#### Mokupāpapa: Discovery Center for Hawai’i’s Remote Coral Reefs

The Reserve built a visitor/education center collocated with its Hilo office to



Students visit Mokupāpapa Discovery Center in Hilo.  
Photo: James Watt

spur greater public awareness of the region and ocean conservation issues. Mokuapāpapa: Discovery Center for Hawai‘i’s Remote Coral Reefs was conceived and built in 2003 to interpret the natural science, culture, and history of the NWHI and surrounding marine environment. The 4,000-square-foot center brings the region to people by proxy, since most will never have the opportunity to visit the area. At the time of this publication, more than 300,000 people have been exposed to the wonders of the NWHI through the center. The center has served as a physical hub of learning, regularly hosting well-attended educational talks, summer programs, and activities, while drawing a constant stream of field trips for school and community groups from around the State and beyond.

### **Need for Action**

The U.S. Commission on Ocean Policy (2004) stressed the need to strengthen the nation’s ocean awareness and to improve ocean-related education efforts as “critical to building an ocean stewardship ethic, strengthening the nation’s science literacy, and creating a new generation of ocean leaders.” The report concluded that an interested, engaged public is an essential prerequisite “to successfully address complex ocean- and coastal-related issues, balance the use and conservation of marine resources, and realize future benefits from the ocean.”

The President’s Ocean Action Plan places a major emphasis on ocean-related awareness and education. This action plan addresses the need to build upon our environmental education efforts to cultivate students as an informed, involved constituency that cares about restoring, protecting, and conserving our precious ocean resources. Strengthening awareness of the importance of the NWHI as a model of a wild marine ecosystem being maintained in its natural state requires a heightened focus on stewardship values and resource management issues through both formal and informal education efforts. School curricula, starting in kindergarten, will expose students to ocean issues and prepare the next generation of scientists, managers, educators, and leaders through diverse educational opportunities. Furthermore, students’ increased understanding is anticipated to naturally influence their families, extending the extracurricular reach of the Monument’s educational activities.

### **Strategies to Achieve the Desired Outcome**

Monument staff will work closely with existing and new partners to further their environmental education goals. Two strategies have been identified to cultivate an ocean ecosystem ethic, strengthen the nation’s science literacy, and create a new generation of conservation leaders. The strategies and activities are coded by the acronym for the action plan title, “Ocean Ecosystems Literacy” (OEL). A summary of strategies and activities is provided in Table 3.5.4 at the end of this action plan.

- OEL-1: Develop and implement educational programs in Hawai‘i to increase ocean ecosystems literacy and promote stewardship values within 5 years.
- OEL-2: Develop and implement new tools to “bring the place to the people” with a focus on students, within 3 years.

**Strategy OEL-1: Develop and implement educational programs in Hawai‘i to increase ocean ecosystems literacy and promote stewardship values within 5 years.**

A coordinated and long-term strategy for mainstreaming NWHI and ocean ecosystem stewardship values-based educational materials into Hawai‘i’s schools will be developed. Appropriate educational materials and curricula geared to improve ocean literacy, understand climate change and increase ocean stewardship will be developed in concert with the NWHI education partnership and the State of Hawai‘i Department of Education, Independent Schools of Hawai‘i, Nā Lei Na‘auao Native Hawaiian Charter School Alliance, and the Charter School Association of Hawai‘i. Materials developed through activities in other action plans will be used as resource and support materials for development of curricula. Programming will also be developed in the Hawaiian language for use in Hawaiian language immersion and culture-based charter schools. Ultimately, increased knowledge of ocean ecosystems issues, in particular of the NWHI, will allow Hawai‘i’s children, their families, and lifetime learners to be more active ocean stewards and to better understand the issues related to ocean management and climate change.

***Activity OEL-1.1: Expand and improve the NWHI educational partnership’s Navigating Change curriculum for elementary and middle school students, with increased focus on ocean ecosystems literacy, within 3 years.***

Building on existing NWHI-based curricula developed under the Navigating Change partnership and the new Hawai‘i Marine Curriculum, the MMB will contract with curricula developers to improve and expand “A Teacher’s Guide to Navigating Change.” Additional study units will be added for the current guide targeted at 4<sup>th</sup> and 5<sup>th</sup> grade students, and units focusing on other grade levels will be developed. As the effects of climate change are further studied and potential mitigations are identified, a unit on this topic will be developed. External grants for curricula development will also be sought. Education partners will work with the Department of Education and private and charter schools as curricula are being developed to ensure that the department’s and schools’ needs are incorporated into the work and to facilitate incorporation of the new curricula into existing educational programming. Whenever possible, families will be drawn into the lesson plans and activities. Planting the seed of awareness in young minds and those of their families concerning alien species, climate change and ocean acidification, and marine debris cleanup and prevention issues will effectively support long-range prevention efforts to deal with these threats.

***Activity OEL-1.2: As curricula are developed, work with Hawaiian-language immersion schools to ensure the curricula meet their needs, including translation into the Hawaiian language.***

The Navigating Change partnership will work closely with the Native Hawaiian community to ensure appropriate cultural information is included within all curricula, and that the units meet the needs of Hawaiian-language immersion and culture-based charter schools.

***Activity OEL-1.3: Develop an ocean stewardship program for middle school and high school students within 5 years.***

In concert with development of Navigating Change educational materials for primary schools, an ocean stewardship program will be developed with educational partners to give middle and high school students real-world, hands-on experience with the issues of ocean management. Real



examples from the Monument will be used as the basis for the science- and culture-based program, which will use educational activities such as interviews with people in the student's communities, and collecting and analyzing research data to resolve management issues. Through these activities, students will be encouraged to apply their newfound knowledge to help restore the ecosystems closer to their homes.

***Activity OEL-1.4: Conduct at least four teacher workshops in the main Hawaiian Islands per year to introduce and support the elementary school and middle/high school environmental education programs.***

Teacher workshops to present and demonstrate the use of Monument-developed educational materials, activities, and curricula, as well as those developed with partners, are effective ways to get Monument-based information into classrooms and informal education venues. Development and distribution of educational materials is not enough; teachers are often overwhelmed by available materials and should be taught how to use them, assisted in implementing materials in their classrooms, and supported by follow-up activities.

***Activity OEL-1.5: Continue Teacher and Class-at-Sea programs on an annual basis.***

In 2005, the first teacher and class-at-sea educational expedition to the NWHI was conducted. During NOAA vessel allocation meetings, NOAA agreed to accommodate annual education missions aboard one of the several research vessels active in the NWHI. Teachers who have been active in using existing Monument educational materials will be chosen to participate in these educational cruises, and select students will be sought. These programs allow teachers and students who are active in learning about the NWHI to experience the area firsthand and share the wonder of the place with the rest of the educational community. Annual expeditions will be planned in conjunction with educational opportunities with state and FWS partners. Monument educational materials developed in activity OEL-1.3 will be used during these expeditions. For linked activities, see also the Native Hawaiian Culture and History Action Plan, strategy NHCH-5, in Section 3.1.2.

***Activity OEL-1.6: Expand educational programs for school groups at Mokupāpapa: Discovery Center for Hawai'i's Remote Coral Reefs to host at least ten groups per month.***

Educational programming at the Monument's premier education and outreach venue, Mokupāpapa: Discovery Center for Hawai'i's Remote Coral Reefs, will be expanded. Working closely with local public, private, and charter schools, Discovery Center staff will create educational partnerships to promote Mokupāpapa as an educational facility and field trip venue. Discovery Center staff will collaborate with the Monument's educational partners to co-develop standards-based education programs at the Discovery Center for K-12 students. Visitation calendars, pre- and post-visit teacher background and activities packets, and volunteer docent capacity will be developed to meet the various needs of school and community groups. Expanded programming, such as guided tours in the Hawaiian language, monthly talks, tide pool classes, and reef-at-night visits to the aquarium, will provide continuing education opportunities for adults. Discovery Center staff will work with partner facilities and agencies on Hawai'i Island to codevelop on- and off-site programming, where appropriate, and to develop an education strategy and identify areas of collaboration.

***Activity OEL-1.7: Provide annual wildlife-dependent educator and conservation leader workshops at Midway Atoll, targeting a mix of formal and informal educators and community and conservation leaders and building upon Navigating Change curricula and vision.***

One goal of these educator and conservation leader workshops is to inspire a new group of educators as a method of connecting students and lifelong learners to Hawai'i's wildlife and culture. Another goal is to have participants in these workshops actually propose and implement an environmental stewardship program in their community, utilizing their experience at Midway as inspiration. The major themes discussed during these workshops could provide the stepping stones for future development of educational activities such as telepresence, distance learning projects, and ocean stewardship programs.

Agency planning for Midway Atoll educator workshops began in 2007, and a focus group of teachers, curriculum developers, educational leaders, and Navigating Change Educational Partnership members held a planning workshop on Midway Atoll in January 2008. Co-Trustee education staff will be coordinating and conducting these workshops with input from previous classes of workshop attendees, collectively referred to as Alaka'i. As curricula geared at new grade levels and targeting different audiences are developed, the number of educator workshops offered within the Monument may increase. Offering more educators and conservation leaders the opportunity to experience Midway Atoll and bring the Monument back to their students and lifetime learners will be an important role for Midway in the coming years.

***Activity OEL-1.8: Facilitate at least two opportunities per year for educational groups, private/nonprofit environmental, or historical organizations to conduct wildlife-dependent or historical courses or to administer informal educational camps, within 2 years.***

Organizations have already shown their interest in using Midway for educational experiences, since it provides unparalleled wildlife-dependent educational opportunities. Sponsoring organizations will be responsible for providing instructors and leading their participants. Monument staff will provide guidance during a mandatory advance orientation. When possible, Monument staff can provide learning opportunities that engage participants in biological and historical projects such as habitat restoration or historic preservation. FWS staff will also monitor group activities to ensure Midway's wildlife and historic resources are protected.

The MMB also will collaborate with universities to offer semester internship opportunities for students interested in resource management, cultural studies, history, or natural sciences. In the future, the MMB will investigate opportunities to bring select middle and high school students to Midway for courses in atoll ecosystems. The MMB supports expanding environmental education opportunities to the extent feasible on Midway Atoll. Developing lower-cost housing, increasing classroom and laboratory space, providing grants to help cover their costs at Midway, and finding a lower-cost means of transportation, will facilitate these programs. An opportunity to study Midway's unique natural resources could be the catalyst to inspire lifelong devotion to the field of science.

***Activity OEL-1.9: Build formal evaluations into education programs within 2 years.***

Evaluation of education and outreach programs and activities is critical to ensuring that the MMB is achieving its desired goals and reaching target audiences. This information is also

useful in helping to redesign current efforts to be more successful. Formal evaluations take time, expertise, and will require external assistance in development.

**Strategy OEL-2: Develop and implement new tools to “bring the place to the people,” with a focus on students, within 3 years.**

The Monument will serve as a powerful focal point for increasing ocean literacy in Hawai‘i, the nation, and the world. To engage a broad and diverse base of students around the world, the MMB will continuously expand the types of products and modes of communication used in educational programs. The MMB will benefit from continually exploring new research initiatives, new technologies, and best management practices that may advise its efforts and enhance its ability to restore, protect, and conserve Monument resources.

***Activity OEL-2.1: Identify and prioritize research and development projects to increase ocean ecosystems literacy and conservation in NWHI.***

The MMB, working together with educational partnerships and other relevant groups, including the private sector, will identify and prioritize research and development projects for new products and innovative technologies that could be employed to increase ocean ecosystems literacy and support for conservation of the NWHI. These tools may include technologies for making remotely collected scientific data available for education purposes on a real-time basis, and the possibility of hosting student research projects in the Monument, similar to what NASA does with the space shuttle and space station. Since the challenges of increasing awareness of the Monument have been likened to those involved in increasing understanding of space, the MMB will work with NASA to learn from their extensive education programs.

***Activity OEL-2.2: Use telepresence technology for educational and outreach activities within 5 years.***

Telepresence is an important tool for helping to educate the larger community about the special ocean region of the NWHI. Since most people will not be able to visit the NWHI because of its remoteness and fragility, it is important to bring the place to the people. Technologies such as underwater video cameras, real-time video transmission, virtual field trips, formal distance learning programs, website interfaces, and exhibits in discovery centers can play an important role in educating students and the public about the NWHI. Obstacles to implementing these technologies do exist, such as cost, feasibility, and ecological sensitivities, but the MMB will continue to invest in and use new technologies for providing this virtual experience.

**Table 3.5.4 Summary of Strategies, Activities, and Agency Leads for Ocean Ecosystems Literacy**

Strategies and Activities	Agency Lead
<b>Strategy OEL-1: Develop and implement educational programs in Hawai‘i to increase ocean ecosystems literacy and promote stewardship values within 5 years.</b>	
Activity OEL-1.1: Expand and improve the NWHI educational partnership’s Navigating Change curriculum for elementary and middle school students, with increased focus on ocean ecosystems literacy, within 3 years.	NOAA
Activity OEL-1.2: As curricula are developed, work with Hawaiian-language immersion schools to ensure the curricula meet their needs, including translation into the Hawaiian language.	NOAA
Activity OEL-1.3: Develop an ocean stewardship program for middle school and high school students within 5 years.	NOAA
Activity OEL-1.4: Conduct at least four teacher workshops in the main Hawaiian Islands per year to introduce and support the elementary school and middle/high school environmental education programs.	NOAA
Activity OEL-1.5: Continue Teacher and Class-at-Sea programs on an annual basis.	NOAA
Activity OEL-1.6: Expand educational programs for school groups at Mokupāpapa: Discovery Center for Hawai‘i’s Remote Coral Reefs to host at least ten groups per month.	NOAA
Activity OEL-1.7: Provide annual wildlife-dependent educator and conservation leader workshops at Midway Atoll, targeting a mix of formal and informal educators and community and conservation leaders and building upon Navigating Change curricula and vision.	FWS NOAA
Activity OEL-1.8: Facilitate at least two opportunities per year for educational groups, private/nonprofit environmental, or historical organizations to conduct wildlife-dependent or historical courses or to administer informal educational camps, within 2 years.	FWS
Activity OEL-1.9: Build formal evaluations into education programs within 2 years.	NOAA
<b>Strategy OEL-2: Develop and implement new tools to “bring the place to the people,” with a focus on students, within 3 years.</b>	
Activity OEL-2.1: Identify and prioritize research and development projects to increase ocean ecosystems literacy and conservation in NWHI.	NOAA
Activity OEL-2.2: Use telepresence technology for educational and outreach activities within 5 years.	NOAA



## **3.6 Achieving Effective Monument Operations**

---

### **3.6.1 Central Operations Action Plan**

### **3.6.2 Information Management Action Plan**

### **3.6.3 Coordinated Field Operations Action Plan**

### **3.6.4 Evaluation Action Plan**

---

### 3.6 Achieving Effective Monument Operations

Monument operations provide the support system for implementing strategies and activities described in other action plans. This support system includes improvement and maintenance of infrastructure in Honolulu to support field sites in the NWHI, information management, coordination of field operations and improvement and maintenance of field infrastructure, and program evaluation for both Honolulu and field sites.

Action plans to achieve effective operations focus on building and maintaining the vital personnel and infrastructure needs, both on land and at sea. The Information Management and Evaluation Action Plans (Sections 3.6.2 and 3.6.4) describe programs and functions necessary to effectively carry out and assess the effectiveness of all other action plans. Each action plan consists of a set of strategies and corresponding activities to address a desired outcome. The desired outcomes of these action plans over the 15-year planning horizon are as follows:

- **Central Operations:** Conduct effective and well-planned operations with appropriate human resources and adequate physical infrastructure in the main Hawaiian Islands to support management of Papahānaumokuākea Marine National Monument.
- **Information Management:** Consolidate and make accessible relevant information to meet educational, management, and research needs for Papahānaumokuākea Marine National Monument.
- **Coordinated Field Operations:** Coordinate field activities and provide adequate infrastructure to ensure safe and efficient operations while avoiding impacts to the ecosystems in the Papahānaumokuākea Marine National Monument.
- **Evaluation:** Determine the degree to which management actions are achieving the vision, mission, and goals of Papahānaumokuākea Marine National Monument.

Action plans described in this section will be implemented through close coordination among the MMB and in conjunction with other priority management needs.

### 3.6.1 Central Operations Action Plan

#### Desired Outcome

Conduct effective and well-planned operations with appropriate human resources and adequate physical infrastructure in the main Hawaiian Islands to support management of Papahānaumokuākea Marine National Monument.

<b>Links to other Action Plans</b>
All action plans

#### Current Status and Background

The Hawaiian Islands NWR, Midway Atoll NWR, NWHI Coral Reef Ecosystem Reserve, NWHI Marine Refuge, and State Seabird Sanctuary at Kure Atoll were established prior to 2006, and remain part of the Monument. The MMB agencies had varying levels of human resources and facility infrastructure in place when the Monument was established. The majority of the staff and administrative support is located in Honolulu. Outreach and other activities are conducted at other locations within the main Hawaiian Islands, and some on-site management is conducted as needed at a few sites within the Monument.

<b>Links to Goals</b>
Goal 1 Goal 4

The FWS and its preceding natural resource agencies have conducted management activities in the NWHI since the establishment of the Hawaiian Islands NWR in 1909. Full-time staff were assigned for administrative and logistical support in 1979 when the U.S. Coast Guard abandoned its presence at French Frigate Shoals. These FWS operations in support of the Hawaiian Islands NWR were first conducted at Kīlauea Point NWR on the island of Kaua‘i, and were later moved to the central FWS refuge office in Honolulu. FWS assumed wildlife management responsibilities at Midway Atoll NWR in 1988.

The FWS currently maintains numerous Monument staff, in diverse roles, in Honolulu in the Prince Jonah Kūhiō Kalaniana‘ole Federal Building. Support also is provided by other FWS staff within the federal building, including from the Hawaiian and Pacific Islands National Wildlife Refuge Complex, the Pacific Islands External Affairs and Visitor Services, and the Pacific Islands Fish and Wildlife Office. Both the Hawaiian Islands and Midway Atoll NWRs, under the Monument staffing structure, maintain staff in Honolulu and in the NWHI (see Section 3.6.3, Coordinated Field Operations Action Plan). In addition to the facilities at the federal building, FWS maintains a bunkhouse and storage facility in the Kapahulu area of Honolulu. This facility, while periodically available for FWS Monument needs, is administered by and primarily serves the Pacific Remote Islands National Wildlife Refuge Complex.

Much of the necessary NOAA-related infrastructure and personnel were established while implementing the Reserve from 2001 to the present. This infrastructure included the creation of an office in Hilo and an office in Honolulu, hiring of key staff, and the design, construction, and opening of the Mokuapāapa: Discovery Center for Hawai‘i’s Remote Coral Reefs in Hilo.

Prior to Monument designation, Reserve staff carried out operations specific to the Reserve while devoting a considerable amount of time working toward the designation of the Reserve as a national marine sanctuary. Because of these demands, staff size increased steadily between 2000 and 2005, with most staff managing multiple diverse roles and becoming more centralized in the

Honolulu office. In 2004, Honolulu Reserve staff located to offices shared by the NMSP Pacific Region and Hawaiian Islands Humpback Whale National Marine Sanctuary. Also in 2004, NOAA began plans to relocate all Hawai‘i NOAA offices to a new consolidated Pacific Regional Center on Ford Island by 2010. The Mokuāpapa: Discovery Center exceeded expectations for the number of annual visitors in its first year of operation requiring additional staff for managing the facility.

In 2006, when the NWHI were designated as a marine national monument by Presidential Proclamation 8031, staff involved in managing the Hawaiian Islands NWR, Midway Atoll NWR, and the Reserve became Monument staff and immediately began carrying out a rolling implementation of management of the newly designated Papahānaumokuākea Marine National Monument.

NMFS provides management support and program coordination for the Monument from the Pacific Islands Regional Office (PIRO), located in downtown Honolulu. Established in 2004, PIRO has increased its resources to meet a growing number of regional, national and international requirements. In addition to senior leadership direction, a NMFS Management Officer was reassigned from existing staff to directly support the development and implementation of Monument activities. NOAA’s Pacific Islands Fisheries Science Center, located adjacent to the University of Hawai‘i’s Mānoa campus, supports a variety of scientific activities taking place within the Monument.

The State of Hawai‘i has had an active presence in monitoring and managing resources in NWHI, starting with assessing and managing fisheries in the 1950s and continuing with the on-site management of Kure Atoll in the late 1980s when the U.S. Coast Guard returned atoll management to the State. Resources under state jurisdiction are mainly managed by the DLNR. The key line offices for undertaking this management are the Division of Aquatic Resources and the Division of Forestry and Wildlife, both administrative offices located in the Kalanimoku Building in downtown Honolulu. Staff involved in the management of the Monument are located at this site and are also collocated with NOAA staff at its offices in Hawai‘i Kai. Staff involved in the management of the State NWHI Marine Refuge immediately began carrying out rolling implementation of the Monument as the needs of comanagement evolved. While state staff involved in Monument operations have not grown in the past few years, recent state administrative and legislative action has created additional positions to implement state Monument activities.

In addition to those activities undertaken at the state administrative offices, staff involved in the management of the State Seabird Sanctuary at Kure Atoll are located at the Division of Forestry and Wildlife baseyard. All staff associated with the support of wildlife activities in the O‘ahu district (of which Kure is a component) are located at this site. The Division of Aquatic Resources also has an additional site for staging all boating and diving operations at its Ānuenu Fisheries Research Facility at Sand Island in Honolulu Harbor.

Additional support activities, including conservation enforcement, alien species response, emergency response, and historic preservation, are located throughout the DLNR and the Department of Health.



OHA serves as a member of the MMB, and, along with the Native Hawaiian Cultural Working Group, represents Native Hawaiian interests on Monument matters. The nine OHA trustees and OHA's main administrative staff are housed in the Pacific Plaza Building in Honolulu, with community resource offices on five of the main Hawaiian Islands, including two offices on Hawai'i Island.

Volunteers currently provide support to the Monument in a number of locations, including administrative offices, the Mokupāpapa Discovery Center in Hilo, French Frigate Shoals, Laysan Island, Midway Atoll, and Kure Atoll. These volunteers help Monument staff in carrying out their missions to protect the natural, cultural, and historic resources of the Monument (see Section 3.5.2, Constituency Building and Outreach Action Plan).

### **Need for Action**

Effectively managing such an extraordinary and high profile marine conservation project requires a strong operational foundation to support management goals. Operational support of on-site management and day-to-day operations require that highly trained and experienced staff are maintained and recruited to implement the strategies and activities described throughout this management plan. Volunteer services are also needed to augment this staff. In addition, the appropriate physical infrastructure must be in place to support operations. Each of the MMB agencies currently has infrastructure to maintain and possibly collocate both in Honolulu and elsewhere in the main Hawaiian Islands. Successful site operations are achieved through a synergy of personnel and available resources. This action plan presents strategies and activities designed to implement the shared facilities, coordinated schedules, and cooperative agreements required to achieve effective site operations.

### **Strategies to Achieve the Desired Outcome**

Three strategies have been identified to ensure the necessary human resources, physical infrastructures, and administrative procedures are in place to successfully manage the Monument. The strategies and activities are coded by the acronym for the action plan title, Central Operations (CO). A summary of strategies and activities is provided in Table 3.6.1 at the end of this action plan.

- CO-1: Coordinate annual site operations planning and implementation over the life of the plan.
- CO-2: Assess and enhance human resource and organizational capacity over the life of the plan.
- CO-3: Assess and enhance physical infrastructure and facilities, as necessary, in the main Hawaiian Islands over the life of the plan.

### **Strategy CO-1: Coordinate annual site operations planning and implementation over the life of the plan.**

Monument management agencies develop annual operating plans guided by their agency policies and procedures and consistent with the Monument Management Plan. These individual agency operating plans may be integrated to the extent possible to better guide day-to-day activities based on budget allocations to ensure efficient and effective use of public resources.

***Activity CO-1.1: Coordinate and implement annual operating plans.***

Annual operating plans will be developed and coordinated in accordance with agency requirements and guided by site-specific needs articulated in planning documents and based upon funding availability. The results of annual evaluation activities and current priorities will be reviewed and considered in developing annual operating plans (see Section 3.6.4, Evaluation Action Plan). Financial administration includes budget tracking, managing the financial portions of memoranda of understanding and contracts, and purchasing and travel planning according to state and federal purchasing regulations. Administrative procedures and functions also include planning for emergencies to ensure staff safety; complying with programmatic reporting requirements; records retention; purchasing and maintaining equipment, supplies, and vehicles; maintaining communication equipment including telephones, cellular phones, satellite phones and connections, and radios, as well as communication policy. Although each agency will follow their own procedures, activities will be coordinated to the extent possible to increase efficiencies and, where possible, standard operating procedures will be developed to outline roles and responsibilities as needed.

**Strategy CO-2: Assess and enhance human resource and organizational capacity over the life of the plan.**

Both human resource and organizational capacity are needed to achieve effective site operations. With the proclamation announcement comes high expectations for the Monument to implement management actions in a short amount of time. To effectively meet Monument goals, the MMB will develop a strong operational framework of human resources as early as possible. Human resources and organizational capacity may be increased to carry out programs, including administration, research and monitoring, threat reduction, education and outreach, information management, and enforcement.

***Activity CO-2.1: Regularly assess current status and future needs for human resources.***

In order to implement the Monument Management Plan effectively, human resource and organizational capacity needs will be regularly assessed. These assessments will be used to organize and better utilize existing staff, and identify technical and administrative human resource overlaps and gaps. The assessments will also identify and prioritize capacity building opportunities, and regional capacities and opportunities to coordinate and share resources with partners. Alternative human resource capacity-building measures, such as internships, volunteer programs, and partnerships, will be considered in the assessments as a means to increase staffing capacity.

***Activity CO-2.2: Improve human resources and organizational capacity.***

As funding, field-based housing, and other factors allow, the human resource and organizational capacity of the Monument will be enhanced to address specific needs and carry out the strategies and activities contained within the Monument Management Plan. Human resource development includes staff recruitment, retention, recognition, training, communication, regular meetings, time and attendance, as well as staff safety.

**Strategy CO-3: Assess and enhance physical infrastructure and facilities, as necessary, in the main Hawaiian Islands over the life of the plan.**

Effective and efficient human resources must be supported by sufficient physical infrastructure resources. Efforts will be ongoing to maintain existing facilities in the main Hawaiian Islands and design and improve facilities as required to support Monument administration and operations and to ensure compliance with the ADA.

***Activity CO-3.1: Regularly assess current status and future needs for infrastructure and facilities.***

In conjunction with assessments of human resource needs, infrastructure and facilities needs will also be reviewed to optimize facilities utilization. These assessments will aim to organize and better utilize existing facilities and infrastructure in the main Hawaiian Islands, identify physical resource overlaps and gaps, and identify needs to support projected future growth and collocation. These assessments will also identify and prioritize capacity building opportunities, and regional capacities and opportunities to coordinate and share resources with partners.

Additional educational venues, such as Mokuapāpapa, will be considered for development as stand-alone facilities or in partnership with existing educational and interpretive facilities. Additional consideration will be given to the already planned and scheduled NOAA transition to the NOAA consolidated facility.

***Activity CO-3.2: Maintain and improve infrastructure and facilities.***

Maintenance and retention of current physical assets and the procurement or lease of additional assets will be driven by need and available funding. All efforts will be made to combine utilization of assets among MMB agencies for more efficient use of available resources.

***Activity CO-3.3: Improve information technology infrastructure.***

Computer and information technology are an integral part of site infrastructure. Appropriate equipment will be acquired, upgraded, and maintained to meet management needs. New technologies will be regularly integrated (see Section 3.6.2, Information Management Action Plan).

**Table 3.6.1 Summary of Strategies, Activities, and Agency Leads for Central Operations**

Strategies and Activities	Agency Lead
<b>Strategy CO-1: Coordinate annual site operations planning and implementation over the life of the plan.</b>	
Activity CO-1.1: Coordinate and implement annual operating plans.	NOAA State of Hawai‘i FWS OHA
<b>Strategy CO-2: Assess and enhance human resource and organizational capacity over the life of the plan.</b>	
Activity CO-2.1: Regularly assess current status and future needs for human resources.	NOAA State of Hawai‘i FWS OHA
Activity CO-2.2: Improve human resources and organizational capacity.	NOAA State of Hawai‘i FWS OHA
<b>Strategy CO-3: Assess and enhance physical infrastructure and facilities, as necessary, in the main Hawaiian Islands over the life of the plan.</b>	
Activity CO-3.1: Regularly assess current status and future needs for infrastructure and facilities.	NOAA
Activity CO-3.2: Maintain and improve infrastructure and facilities.	NOAA
Activity CO-3.3: Improve information technology infrastructure.	NOAA



### 3.6.2 Information Management Action Plan

#### Desired Outcome

Consolidate and make accessible relevant information to meet educational, management, and research needs for Papahānaumokuākea Marine National Monument.

Links to other Action Plans
3.1.1 Marine Conservation Science
3.1.4 Maritime Heritage
3.3.1 Permitting
3.3.2 Alien Species

#### Current Status and Background

Biogeographic studies, bathymetric spatial data, temporal analyses, research notes, maritime heritage data, Native Hawaiian cultural research, historic charts, published field project results, and other data all comprise the large and varied collection of NWHI information. These data sets include databases, oral histories, raw scientific results, physical specimens, and digital imagery. This collection has in the past been scattered among federal and state agencies, universities, museums, and other agencies and institutions in varied formats, and some has simply remained in the possession of the individual investigator. Often, the data are not adequately documented, creating the need for resource intensive validation for future integration purposes. Both the data and associated documentation are needed in order to be useful for long-term ecosystem-based management.

Links to Goals
Goal 1
Goal 2
Goal 3
Goal 4

Strategic efforts to address the broad issue of data management for the NWHI have begun. Multiagency Reef Assessment and Monitoring Program expeditions in the NWHI, begun in 2000, represent an initial attempt to establish a multiagency data clearinghouse for management purposes. To date, only a portion of the many years of existing NWHI data have been processed and made available.

Several complementary projects have been initiated to address information management needs. A GIS spatial bibliography database for the NWHI is under development. This GIS incorporates georeferenced journal articles, gray literature and other sources of information into a spatially reference on-line search tool. Additionally, an annotated bibliography of cultural resources for the NWHI is available on line at <http://www2.bishopmuseum.org/noaanwhi/index.asp>, which incorporates past cultural, geological, and biological studies in the NWHI. This annotated bibliography of past cultural, geological, and biological studies in the NWHI was created with the support of NOAA’s National Ocean Service and the Reserve. The resources catalogued are primarily available in the Bishop Museum Library and Archives, the libraries at the University of Hawai‘i at Mānoa, and the State of Hawai‘i Archives. Additionally, the Office of Hawaiian Affairs is developing an archipelago-wide Wahi Pana Database of cultural information, and the MMB is working to integrate this database with other Monument data sets.

The MMB also participates in the ONMS Information Management and Spatial Technology (IMaST) plan for all field sites. The IMaST plan organizes the many spatial resources within the National Marine Sanctuary System and makes them available to all sites and partner staff needing geospatial information, data, training, software, hardware, and hands-on experience. IMaST enhances capacity and integrates capabilities for site and national program staff in the utilization of geospatial technology.

Additionally, the MMB has initiated the development of a field-based data collection tool that will help to facilitate collection of research and vessel activity data from scientific expeditions conducted aboard research vessels active in the NWHI. This system will help to meet permit criteria for data management and reporting, and will assist in data entry, metadata recording, and data integrity. This system is one component of the larger information management system that is addressed in strategies outlined below and is already being developed based on management data needs.

### **Need for Action**

Access to accurate information is essential to implement an adaptive, ecosystem approach to the management of the Monument. A large amount of data have been, and will continue to be, collected on the NWHI environments by various state, federal, and academic institutions, as well as private-sector partners. Presently, results of research efforts are in multiple independent locations and in formats not readily available to resource managers, who need access to pertinent characterization information and up-to-date reports as a basis to make decisions for the protection of ecosystems. To address this difficulty, this action plan presents strategies and activities to develop a comprehensive data management and retrieval system, and to consolidate and organize information gathered from diverse sources, thus ensuring that stakeholders will share access to an expanding repository of knowledge on the NWHI.

### **Strategies to Achieve the Desired Outcome**

Research and information compilation on the Monument is ongoing; therefore, gathering and consolidating that information is also an ongoing process. A comprehensive approach is critical to achieving the desired outcome, which is to ensure that relevant information is collected and integrated in a standardized and useable manner, consolidated, and made accessible. Only a broad and comprehensive approach can ensure that information management will promote data gap analysis for the purposes of management and research. The Monument will not duplicate data, but along with partners, has already begun to build a decentralized information system that allows data discovery and access while allowing principal investigators and major agencies to house and maintain their own data.

The MMB will create the Papahānaumokuākea Information Management System (PIMS), a crucial tool for integrated management of the Monument. Aggregated data in the PIMS will provide material for multiple purposes, including outreach and education products, Monument management and evaluation, regional coordination among partners, and comparative data for regional research work. As a clearinghouse node for information, the PIMS must ensure that appropriate material is made available to managers, researchers, and the public in a timely manner. Some of the data available for management or research purposes may be of a sensitive nature and, therefore, not appropriate for public and education-focused release. Security procedures and policies will be in place to ensure that only appropriate users can access specific data, including proprietary cultural information.

Through the PIMS, managers will have access to integrated biogeographic and spatial analyses, maps, and reports that define the characterization of the ecosystem diversity, maritime heritage data, and Native Hawaiian cultural information to aid in evaluating the interaction and effectiveness of past, current, and future management efforts. Management of information in a

manner that is responsive to the changing needs of the Monument is part of an adaptive, ecosystem-based management system and ensures that NWHI research will be fully valued. The following strategies are designed to consolidate and make more readily available the abundance of useful information on the NWHI for management, research, education, and enforcement purposes. The strategies and activities are coded by the acronym for the action plan title, “Information Management” (IM). A summary of strategies and activities is provided in Table 3.6.2 at the end of this action plan.

- IM-1: Within 5 years, develop and implement a system for handling Monument data.
- IM-2: Within 5 years, facilitate appropriate access and use of PIMS.

**Strategy IM-1: Within 5 years, develop and implement a system for handling Monument data.**

The sources and types of NWHI data are diverse and do not necessarily adhere to uniform data management. For all data to be accessible by the PIMS, data protocols and Federal Geographic Data Committee-compliant metadata standards will be implemented. These standards must also adhere to existing data management and metadata protocols established by the federal government. Agreements between various agencies for data sharing, access, security, and use must also be developed and implemented.

***Activity IM-1.1: Develop and implement a data discovery, inventory, and acquisition strategy.***

A data discovery, inventory, and acquisition strategy will be developed and implemented based on meetings and workshops with partners and other organizations. The strategy will identify the types, format, and sources of existing information and data sets, as well as potential new data sources. Workshops will be held annually to review progress of data acquisition and revise the strategy as needed.

***Activity IM-1.2: Develop appropriate data management protocols, procedures, and agreements with partner agencies.***

One of the first tasks in information management, after data sources have been identified, is to develop and implement protocols for how data are collected, documented, stored, and shared, as well as their schema and format. Existing metadata standards within NOAA will be utilized to document the data. Agreements with data providers to define use and access restrictions, as well as data transfer methods, will be developed. A shipboard data collection tool is currently being developed and implemented aboard the NOAA ships active in the NWHI. This tool will help to facilitate data capture, standardization, and chain of custody. A rigorous quality assurance/quality control protocol will be developed and implemented to maintain information and data quality in the system in accordance with the Data Quality Act (Public Law 106-554). A long-term strategy for data assimilation and review will be developed in conjunction with data providers.

***Activity IM-1.3: Continue to design, build, and maintain the Papahānaumokuākea Information Management System.***

An information and database management system is being designed, developed, and configured to meet a broad spectrum of needs of the MMB, including Monument program and site applications, research and educational needs, and public access. The system is built on a sophisticated data model implemented in a relational database, and incorporates custom applications for spatial data management, tabular data management, data import/export and reconciliation, and reporting as an integral part of the data management strategy. Storage and security of data, as well as ease of access, are some of the issues that are being addressed. Agreements with data providers developed in the previous activity (IM-1.2) will be essential to the success and utility of this system, since the PIMS is not a massive data archive but is instead a system that defines interrelationships between distributed data sources, which are the vast majority of data. The PIMS stores some data that are not already maintained by other partner agencies, such as image and video data, and the spatial bibliography.

***Activity IM-1.4: Begin incorporating information into PIMS.***

A significant amount of effort will be involved in data entry, formatting, and regular review. A long-term strategy for data assimilation and review processes will be developed in conjunction with data providers. The prioritization of data entry will be based on specific management and scientific questions. This activity will initiate in-depth analyses to answer these questions. The data needed and accessed for these analyses will be documented and loaded into the inventory. Collaborative links to data that are being maintained by partners will be created and maintained to ensure seamless access to these data. Co-Trustee agencies will make data collected in the Monument available to the PIMS system.

**Strategy IM-2: Within 5 years, facilitate appropriate access and use of PIMS.**

Tools and protocols to access the data in PIMS need to be developed and deployed. Some information may be public domain, and other information, such as the exact locations of historic shipwrecks, will be restricted by law to protect the resources. Levels of access to the data will be determined through agreements with partners. Educational materials that interpret the data and make the information accessible and understandable to a wider audience will also be developed and deployed.

***Activity IM-2.1: Design tools for accessing the PIMS.***

Using the latest technologies, the MMB will develop tools for accessing, updating, analyzing, and retrieving PIMS data. Access tools will be primarily web-based. These tools will allow for integration into GIS, on-line analytical processing via open database connectivity, object linking and embedding, and synchronization with analogous database management system resources.

Tools will include integrated biogeographic and spatial analyses, maps, and reports that define the characterization of the ecosystem diversity, interaction, and health, and the effectiveness of past, current, and future management efforts.

***Activity IM-2.2: Assess data access needs and provide training for PIMS users.***



Assessing the uses of the PIMS will be an evolving process, and providing access will be tightly integrated with activity IM-2.1, above. Before any access is provided, rules and access restrictions will be determined to ensure security and confidentiality of the data. These restrictions will be established in coordination with data providers. A training program for management and other users of the PIMS will be developed so that access and use are facilitated.

***Activity IM-2.3: Develop interfaces to feed data to repositories such as National Biological Information Infrastructure, Pacific Basin Information Node, Coral Reef Information System, and Integrated Ocean Observing System.***

The MMB will maintain standardized metadata records for data indexed within the PIMS to help facilitate the population of other data repositories with NWHI data. To automate this process, agreements and data streaming and sharing mechanisms will need to be developed.

**Table 3.6.2 Summary of Strategies, Activities, and Agency Leads for Information Management**

Strategies and Activities	Agency Lead
<b>Strategy IM-1: Within 5 years, develop and implement a system for handling Monument data.</b>	
Activity IM-1.1: Develop and implement a data discovery, inventory, and acquisition strategy.	NOAA
Activity IM-1.2: Develop appropriate data management protocols, procedures, and agreements with partner agencies.	NOAA
Activity IM-1.3: Continue to design, build, and maintain the Papahānaumokuākea Information Management System.	NOAA
Activity IM-1.4: Begin incorporating information into PIMS.	NOAA
<b>Strategy IM-2: Within 5 years, facilitate appropriate access and use of PIMS.</b>	
Activity IM-2.1: Design tools for accessing the PIMS.	NOAA
Activity IM-2.2: Assess data access needs and provide training for PIMS users.	NOAA
Activity IM-2.3: Develop interfaces to feed data to repositories such as National Biological Information Infrastructure, Pacific Basin Information Node, Coral Reef Information System, and Integrated Ocean Observing System.	NOAA

### 3.6.3 Coordinated Field Operations Action Plan

#### Desired Outcome

Coordinate field activities and provide adequate infrastructure to ensure safe and efficient operations while avoiding impacts to the ecosystems in Papahānaumokuākea Marine National Monument.

**Links to other Action Plans**  
All Action Plans are related to carrying out field operations

#### Current Status and Background

Field operations in the Monument to support protection and management rely on ships, aircraft, seasonal field camps, and three field stations with varying degrees of infrastructure. Interagency planning and sharing of resources for fieldwork began with the Tripartite Commission’s work in the late 1970s (Tripartite Agreement 1978). Recent field activities in the NWHI continue this cooperative work through a number of projects. One of the most significant of these is the annual NWHI Reef Assessment and Monitoring Program (RAMP) research and outreach expeditions. These expeditions are made possible through sharing of both vessels and dive teams.

**Links to goals**  
Goal 1  
Goal 2  
Goal 3  
Goal 4  
Goal 7  
Goal 8

Two NOAA ships service the majority of ship based management needs in the Monument. The NOAA Ship *Oscar Elton Sette* first arrived in Hawai‘i in 2003 primarily to support the scientific missions of NMFS, Pacific Islands Fisheries Science Center in Honolulu. *Oscar Elton Sette* is a 224-foot T-AGOS-class research ship that is designed to conduct and facilitate research operations in remote areas. The ship normally operates throughout the central and western Pacific and conducts fisheries assessment surveys, physical and chemical oceanography, marine mammal projects, and coral reef research. The *Oscar Elton Sette* has participated in coordinated RAMP efforts since its arrival in 2003.

In September 2004, the NOAA ship *Hi‘ialakai* became the first oceanographic research platform primarily dedicated to the National Ocean Service.

*Hi‘ialakai*, the sister ship to the *Oscar Elton Sette*, is a 224-foot T-AGOS-class research ship that is designed to conduct and facilitate research operations in remote areas throughout the



NOAA Ship *Hi‘ialakai*. Photo: Dan Suthers

Pacific. The ship’s primary mission is to support the

research, monitoring, assessment, restoration, and outreach needs of NOAA’s National Ocean Service in waters around the Hawaiian Islands and the American Flag Territories. Maintenance and operations of NOAA ships are managed by NOAA Marine and Aircraft Operations.

Several other vessels, such as the NOAA ships *Ka‘imimoana* and *Okeanos Explorer*, the

University of Hawai‘i’s R/V *Kilo Moana* and R/V *Kaimikai-O-Kanaloa*, Coast Guard vessels, and chartered vessels, are engaged in mapping, deep-water benthic characterization, marine debris removal, protected species recovery activities, management-oriented research, and resupply missions to FWS and state land-based operations throughout the Monument. Collectively, these ships conduct approximately 10 to 12 missions per year during the months of April through November. Much of the field work conducted in the Monument is supported by NOAA ships.

FWS maintains permanent staff and infrastructure at Tern Island (French Frigate Shoals) and Midway Atoll, as well as a year-round FWS field camp at Laysan Island. The State maintains facilities at Kure Atoll, which are staffed for much of the year. Seasonal field camps are located at Nihoa, Lisianski Island, and Pearl and Hermes Atoll.

Midway Atoll NWR includes facilities and infrastructure left by the military when the Naval Air Facility closed. It includes 237 real property assets, including a Federal Aviation Administration (FAA)-approved commercial airport, numerous buildings, airplane hangars, roads, utilities, docks, seawalls, shipping channel, in addition to structures eligible for listing on the National Register of Historic Places. The infrastructure at Midway supports refuge management operations, airport operations, and a limited number of partners and visitors. The FWS and FAA have partnered together to manage Henderson Airfield and maintain Midway Atoll’s aging infrastructure. Over the past 6 years, FWS has been upgrading and rightsizing Midway’s operating systems, and FAA has constructed a new airfield operations building and provided funding for other airfield improvements.

By utilizing the existing World War II and Cold War era buildings, FWS managers are able to preserve the history of the atoll, provide support to the many ongoing management and research projects, and focus on protecting the islands and surrounding reefs for the benefit of the unique mix of species that live at Midway Atoll. In order to effectively plan for future Monument operations at Midway, the Midway Atoll Conceptual Site Plan was drafted. The Conceptual Site Plan (Volume IV) outlines the vision and practical realities of future uses and provides an overarching view of priority actions. Field infrastructure requirements for education, research, restoration, and management programs were identified by the MMB in a requirements planning process carried out in 2007.

Tern Island is the support hub for management operations at French Frigate Shoals. The facilities consist of 42 real property assets that remain from prior Coast Guard use. These facilities include shore protections, two septic tanks, a small barracks that serves as a residential and office facility, a single warehouse, several small storage and utility buildings, water catchment systems, a 3,000-foot crushed coral runway, a shipping channel, and a small boat ramp and dock. All of the Tern Island real property assets are utilized by and support MMB agencies and are maintained by FWS.

Laysan Island is a temporary year-round field camp that supports management of the island. The facility consists of seven temporary wood-framed platform tents used for sleeping, offices, communications, cooking, and storage. To support this field camp, a reverse osmosis water



system, a photovoltaic power system, and a hurricane shelter for high wind and surf emergencies are maintained. Laysan Island is currently accessible only by ship.

Green Island serves as the hub for the State of Hawai'i's Seabird Sanctuary at Kure Atoll. The facilities consist of storage buildings, a four room residential and office building, water tank, septic tank, a nonoperational coral runway, and a small boat pier. The assets on Green Island are maintained by the State.

#### *Past coordination efforts*

In the past, NOAA has hosted an annual NWHI field calendar meeting to facilitate overall field coordination among the Co-Trustees. The goal of this type of meeting was to create a master calendar of all field operations, scheduled flights, cruise plans, field camps, and similar activities. These meetings were open to managers, scientists, and staff from all agencies and groups conducting research or field activities in the NWHI. Attendees provided dates, places, and other logistical details of planned fieldwork to the calendar. Field activities typically included NOAA research vessel cruises, scheduled FWS charter flights to Midway and Tern Island, marine debris cleanup activities, ship charters to support FWS field stations, and special field activities such as *Hōkūle'a* voyages. The purpose of the common calendar was to increase coordination, efficiency, and safety for all NWHI fieldwork.

#### *Impacts of field work*

Well-planned field activities benefit wildlife habitats and historic and cultural resource protection, and are designed to minimize negative impacts to ecosystems, avoid redundant efforts, and achieve efficient use of agency resources. Each year, coordinated planning benefits management activities such as the multiagency-supported effort to remove derelict fishing gear from the reefs and beaches; implementation of endangered plant, monk seal, sea turtle, and bird recovery actions; management and restoration of marine and terrestrial species and their habitats; and conducting management-oriented research. This emphasis on coordinated planning and the application of consistent interagency permit requirements will prevent or minimize potential impacts that could be associated with these types of activities.

#### *Diving Protocols*

Standardization of safety training and diving protocols among different agencies has proved difficult in the past. MMB agencies have established interagency reciprocity agreements for diving protocols and with affiliated institutions of the American Academy of Underwater Sciences. These agreements are renewed and updated as necessary.

#### **Need for Action**

Appropriate vessels, aircraft, facilities, equipment, and training are critical to carrying out field operations in a safe and effective manner. Coordinating these assets among Co-Trustees is central to achieving the goals of the Monument. Field coordination among the MMB and the ICC provides for efficient use of public funds, increased availability of assets, reduced duplication of effort, and minimized impacts to Monument resources. Because of the remote nature of the region and limited availability of facilities, coordination is essential to the success of activities such as emergency response, wildlife and habitat management, law enforcement, research, as well as marine debris removal and other threat reduction tasks.

This plan provides strategies and activities for coordinating the implementation of low-impact field operations by ensuring that necessary facilities, equipment, and transportation are available and that staff is properly trained (see Section 3.3.4, Emergency Response and Damage Assessment Action Plan). One of the important principles in all of these strategies and activities is to use the latest “greening” methodologies and technologies in future operations and infrastructure improvement projects at Midway and all other field sites, including NOAA ships. As required, facilities and other infrastructure will be ADA compliant.

### **Strategies to Achieve the Desired Outcome**

Nine strategies have been identified for achieving the desired outcome of coordinating field activities and providing adequate infrastructure to ensure safety and efficient operations while avoiding impacts to ecosystems in the Monument. The strategies and activities are coded by the acronym for the action plan title, “Coordinated Field Operations” (CFO). A summary of strategies and activities is provided in Table 3.6.3 at the end of this action plan.

- CFO-1: Conduct necessary site planning and infrastructure improvements to increase safety and enhance Monument field operations capacity over the life of the plan.
- CFO-2: Enhance interagency planning and coordination for field operations in support of Monument protection and management, and develop protocols and processes that will be utilized throughout the life of the plan.
- CFO-3: Maintain and improve housing and field camp safety and operational efficiency using short-, medium- and long-term approaches to protect Monument resources across the life of the plan.
- CFO-4: Meet fuel requirements for aircraft, vessel, utility, and equipment needs at Midway Atoll to support operations to protect and manage Monument resources.
- CFO-5: Rehabilitate critical utility systems and ailing structures and facilities at Midway Atoll within 5 to 15 years.
- CFO-6: Within 5 years, improve the small boat operational capacity to enable quick, reliable access to the region in support of protection and management and continue to enhance the program throughout the life of the plan.
- CFO-7: Within 5 years, identify interisland aircraft transportation needed to protect and manage the Monument.
- CFO-8: Develop a safe and comprehensive dive operations program for Monument management activities within 5 years.
- CFO-9: Provide for necessary research, education, visitor, and administrative facilities that will further the protection of Monument resources across the life of the plan.

### **Strategy CFO-1: Conduct necessary site planning and infrastructure improvements to increase safety and enhance Monument field operations capacity over the life of the plan.**

In-depth site planning and analyses are needed to ensure that field operations align with the purpose and mission of the Monument, as well as the purposes of the Midway Atoll and Hawaiian Islands National Wildlife Refuges, NWHI Coral Reef Ecosystem Reserve, the State of Hawai‘i NWHI Marine Refuge, and the Seabird Sanctuary at Kure Atoll. This effort will help

meet the shared responsibilities for management, emergency response, enforcement, education, recreation, and research in the Monument.

***Activity CFO-1.1: Initiate and complete necessary planning to implement the Midway Atoll Conceptual Site Plan.***

Substantial time and resources are required for infrastructure rehabilitation, reconstruction, and development included in the Midway Atoll Conceptual Site Plan (Volume IV). Priority actions for Midway have been identified in Chapter 6 of the Midway Atoll Conceptual Site Plan and are included in this action plan. Several of these actions are projected for completion in the short term, while others will require additional planning and environmental analysis and are anticipated to take place over the life of the plan.

***Activity CFO-1.2: Develop conceptual site plans for Hawaiian Islands National Wildlife Refuge and Seabird Sanctuary at Kure Atoll to enhance management and restoration capabilities.***

Individual conceptual site plans will be developed for the Hawaiian Islands NWR and the State Seabird Sanctuary at Kure Atoll to identify long-term infrastructure alternatives and priorities. These plans will be based on the identification of field requirements developed by the MMB in 2007 and will assess the opportunity for education, research, habitat restoration, and management programs. It is anticipated that these plans will be developed within 3 years.

***Activity CFO-1.3: Develop alternative energy system and waste reduction strategies for the Monument within 2 years.***

In accordance with agency building standards, the strategy will consider solar and other renewable energy generation, integration of kitchen waste with biodiesel or other sustainable fuel types use in machinery, composting of food waste, growing produce on site (at Midway only), passive lighting and cooling, and replacing aging infrastructure using sustainable nontoxic building materials. Each building will be evaluated to determine the feasibility of generating its own power. In the interim period, proven energy efficiencies will be implemented.

***Activity CFO-1.4: Plan for use of sustainable engineering, technology, and landscape architecture for facilities and assets throughout the Monument.***

In support of the “Greening of America” government-wide initiative, the managing agencies will apply feasible “greening” methodologies and technologies to future operations and infrastructure improvement projects at Midway and all other field sites, including NOAA ships. Greening will also be applied to alternative transportation options and opportunities, particularly at Midway. These green principles will be applied to the operation of vehicles at Midway, small boats, selection of nontoxic lubricants and maintenance materials, and development of fuel capacity.

**Strategy CFO-2: Enhance interagency planning and coordination for field operations in support of Monument protection and management, and develop protocols and processes that will be utilized throughout the life of the plan.**

One of the Monument’s operating principles is to use effective planning and communication to coordinate activities in order to minimize resource impacts, avoid redundant or duplicative efforts, and achieve efficient use of agency resources in the implementation of priority

management needs. The MMB will work with partners in planning field operations for these purposes and to contribute to the success of each project. Ship scheduling, coordination of logistical support, and interagency collaboration are elements of field operations that will be addressed in advance of each field season.

***Activity CFO-2.1: Develop interagency agreements to facilitate effective field coordination throughout the Monument.***

Interagency agreements to coordinate field operations, share resources, and commit to joint implementation of field priorities will be developed as appropriate. Agreements will be considered among the Co-Trustee agencies and the Interagency Coordinating Committee, as appropriate. (See Section 3.5.1, Agency Coordination Action Plan)

***Activity CFO-2.2: Develop and implement standardized field operation protocols.***

Environmental, safety, and preparedness protocols for field operations consistent with partner agency standards will be developed to provide resource protection and safe field operations. A field operations manual will be prepared and updated as needed that includes these protocols, as well as protocols and chain of command procedures for reporting environmental and safety incidents, personnel communication, and evacuations. All principal investigators and managers working in the NWHI will receive a copy of the field operations manual.

***Activity CFO-2.3: Assess threats that field activities pose to Monument resources.***

Permitted activities will be monitored through field activity reports to assess the threats they may pose to the resources. Reporting requirements will be developed with partners that will draw on existing databases when available. Any incidents will be tracked to assess potential damages to resources. Data will be managed in PIMS to provide for adaptive management by the MMB in conducting or authorizing future field activities (see the Information Management Action Plan, Section 3.6.2).

***Activity CFO-2.4: Annually coordinate field operations to efficiently deploy personnel and share resources among agency partners.***

The MMB will create an annual NWHI master field calendar of all field operations, scheduled flights, cruise plans, field camps, and similar activities. Agency partners will contribute information on dates and locations of research, management, and field activities in the NWHI. The common field calendar will be developed to ensure that the highest priority management needs are met as efficiently and economically as possible, and with the highest possible level of safety.

***Activity CFO-2.5: Develop a staff coordination agreement between Midway Atoll NWR and the State Seabird Sanctuary at Kure Atoll.***

To assist in island management activities, occasional site “exchange” visits will be conducted between the State and FWS staff at Midway and Kure Atolls. These visits will ensure that habitat restoration and management activities and wildlife monitoring activities are coordinated between FWS and the State.



**Strategy CFO-3: Maintain and improve housing and field camp safety and operational efficiency using short-, medium-, and long-term approaches to protect Monument resources across the life of the plan.**

There is a critical need to plan and design facilities at various field sites to ensure that activities can be accomplished without impairing the ecosystem. Some of the field sites within the Monument include existing buildings, roads, airstrips, and other structures. Many of these buildings are important for management of the Monument. Others will be removed as they outlast their useful life. As structures are re-used and others removed, we expect a net decrease in the number of facilities within the Monument. The needs of resources, visitors, staff, volunteers, contractors, researchers, and educators will be considered, as well as temporary accommodations in case of emergency aircraft landings, ship evacuations, or emergency response events. As stated in Activity CFO-1.4, the MMB will apply all feasible green engineering methods and technologies to all future projects.

***Activity CFO-3.1: Design and construct a pilot low-impact shelter.***

A low-impact shelter will be built on the footprint of a previously existing building, as a pilot project in the housing zone on Midway Atoll within 4 years in accordance with the Midway Atoll Conceptual Site Plan. This pilot project will serve to gauge the feasibility of using this type of structure on Midway. These structures may be used to replace aging, energy-inefficient buildings and will be designed to optimize renewable energy resources. The buildings will incorporate recycled materials, will be nonpolluting, and may potentially increase the available wildlife habitat. The buildings will serve as lodging for short-term and transient visitors.

***Activity CFO-3.2: Utilize the existing footprint of Bravo Barracks for replacement housing at Midway Atoll.***

Bravo Barracks houses permanent operations and maintenance personnel, but the end of its current useful life is within 3 years. The barracks are in critical need of demolition and replacement or major repair. Replacement or improvement is essential in order to provide safe housing for personnel to sustain island operations. The replacement building will be designed to optimize renewable energy resources and improve wildlife habitat.

***Activity CFO-3.3: Utilize the existing footprint of Charlie Barracks for replacement housing at Midway Atoll.***

Charlie Barracks replacement or major repair is essential in order to provide safe housing for island visitors and transient personnel. Such improvement is envisioned to take place within 10 years and will follow the low-impact guidelines.

***Activity CFO-3.4: Rehabilitate “Officers’ Row” Housing at Midway Atoll.***

The ten historic Officers’ Row houses, present during the Battle of Midway, serve as examples of historic Albert Kahn architecture and are identified for restoration in the draft Midway Atoll Conceptual Site Plan. Optimizing the housing capacity within these existing structures will accommodate increased agency and partner personnel without adding structures to the island. The rehabilitation of these structures would take place within 10 years.

***Activity CFO-3.5: Maintain and enhance, where appropriate, the infrastructure at Kure Atoll.***

Well-established, permanent biological monitoring and restoration programs at Kure Atoll are dependent on existing housing and facilities on Green Island at Kure Atoll. Given the harsh environmental conditions that exist, there is an ongoing need to maintain, improve, or replace communications equipment, solar power and water production units, sewage treatment infrastructure, buildings, and equipment. All field operations requirements at Kure Atoll will be assessed in accordance with Activity CFO-1.2.

***Activity CFO-3.6: Maintain and enhance, where appropriate, the infrastructure at French Frigate Shoals.***

A permanent biological field station exists on Tern Island at French Frigate Shoals. The biological monitoring programs that operate from the island are dependent on existing housing, warehouses, small boat facilities, and a short coral rubble air strip. Given the harsh environmental conditions, there is an ongoing need to maintain, improve or replace communications equipment, solar power and water production units, buildings, and equipment. For example, the barracks roof requires replacement by 2012. All field operations requirements at French Frigate Shoals will be assessed in accordance with Activity CFO-1.2.

***Activity CFO-3.7: Evaluate, maintain, and enhance the small tent field camp at Pearl and Hermes Atoll on Southeast Island.***

A seasonal three-person tent field camp is currently maintained at Pearl and Hermes Atoll to support the long-term Hawaiian monk seal population monitoring and recovery effort. Periodic overwashing of the islands by storm surges will require tent platforms to be built as soon as possible to provide for personnel safety and to minimize resource impacts. A year-round small tent camp is also needed to improve habitat by supporting invasive plant species eradication. The establishment of a permanent field camp in addition to upgrading the existing seasonal camp will be evaluated in accordance with Activity CFO-1.2.

***Activity CFO-3.8: Maintain and enhance the existing tent field camp at Laysan Island to support on the ground management and restoration capacity.***

An intensive alien species eradication and native habitat restoration program is currently under way at Laysan Island. A year-round presence of staff on island is necessary. Staff reside in a minimal tent camp, which requires routine maintenance and replacement of solar power, water purification, and communications equipment, as well as periodic replacement of tents and other structures.

**Strategy CFO-4: Meet fuel requirements for aircraft, vessel, utility, and equipment needs at Midway Atoll to support operations to protect and manage Monument resources.**

The current fuel capacity at Midway Atoll was designed to meet the requirements of the FWS, FAA, and the Coast Guard. This capacity includes fuel for island power supply, aircraft, and heavy equipment and a limited amount of gasoline for small boats and vehicles. Additional Co-Trustee fuel requirements will be met by adding storage capacity, using biodiesel or other sustainable fuel types, and improving fuel efficiency in all of Midway's operations.

***Activity CFO-4.1: Maintain recently replaced fuel farm at Midway Atoll.***

The Midway Atoll fuel farm is designed to meet current FWS, FAA, and Coast Guard needs. In the short term, a Memorandum of Agreement will be drafted describing how the MMB agencies can share and replenish existing supplies, while increasing the capacity of gasoline, biodiesel, or other sustainable fuel types. The MMB will convert existing and new small boats, vehicles, heavy equipment, and generators to more fuel-efficient models using other sustainable fuel types where feasible.

***Activity CFO-4.2: Develop biodiesel fuel capacity or other sustainable fuel types at Midway Atoll within 2 years.***

The MMB will work toward converting existing and new small boats, vehicles, and heavy equipment to the use of biodiesel or other sustainable fuel types where feasible. Two locations will be evaluated for storage and distribution of this type of fuel. The first is located on the concrete pad adjacent to the north seawall on the inner harbor of the atoll. This location has the advantage of being close to future small boat piers, which would allow for simple and safe fueling procedures. However, this would require regular supervision of this fuel supply in addition to that required at the fuel farm. Alternatively, the fuel could be stored at the existing fuel farm location, but this option would necessitate a fueling truck or the use of boat trailers to complete fueling operations.

**Strategy CFO-5: Rehabilitate critical utility systems and ailing structures and facilities at Midway Atoll within 5 to 15 years.**

A number of centralized systems, such as water and sewage, and a number of facilities and buildings are utilized by personnel throughout the Monument. Critical infrastructure is also the backbone of all operations that support Midway's conservation and management purpose. Without substantial investment in the rehabilitation and repair of these resources, operations would be seriously impaired. System needs have been identified through the draft Midway Atoll Conceptual Site Plan and will continue to be evaluated to reduce reliance on centralized utilities. All rehabilitation and repair work will follow low-impact guidelines. Additional needs for other islands and atolls throughout the Monument will be developed in the future, as cited in Activity CFO-1.2.

***Activity CFO-5.1: Rehabilitate water catchment and distribution system.***

Within 5 years, the water catchment and distribution system will be rehabilitated in order to adequately supply existing needs and those envisioned in the draft Midway Atoll Conceptual Site Plan.

***Activity CFO-5.2: Rehabilitate septic and wastewater systems.***

Reliable septic and wastewater systems will be required to support existing and additional needs envisioned in the draft Midway Conceptual Site Plan. The rehabilitation of these systems will take place within 5 years.

***Activity CFO-5.3: Treat all wooden historic structures at Midway Atoll for termites.***

All wooden historic structures must be treated for termites within 3 to 5 years in order to maintain the structural integrity of the buildings. Without treatment, the buildings will deteriorate beyond repair.

***Activity CFO-5.4: Evaluate and optimize food services as necessary.***

The Clipper House currently serves as the primary food service facility at Midway. Overall food services will need to be optimized to accommodate population needs.

***Activity CFO-5.5: Rehabilitate seaplane hangar.***

Because of its size (large enough to hold heavy equipment, boats, and workshops), its location (short distance from inner harbor and boat ramp), and its historic significance (designed by Albert Kahn and still contains scars from the Battle of Midway), the seaplane hangar needs to be maintained. A priority is to replace the roof of the building.

***Activity CFO-5.6: Repair inner harbor sea wall.***

The inner harbor is critical to operations at Midway. Any future docking and pier facilities in the harbor must be preceded by the repair of the existing seawall within 15 years.

**Strategy CFO-6: Within 5 years, improve the small boat operational capacity to enable quick, reliable access to the region in support of protection and management and continue to enhance the program throughout the life of the plan.**

Improved access to the islands and atolls of the NWHI has been identified as a top priority. Small boat support is a key component to reliable access between islands and around individual island reef systems. Small boat capacity is instrumental to research, conservation, enforcement, outreach, education, and emergency response throughout the archipelago.

***Activity CFO-6.1: Inventory, maintain, and coordinate the use of small boats and related field resources.***

The Co-Trustees have a variety of small boats and related field resources that are used for fieldwork within the Monument. An inventory of small boats and support equipment will be conducted Monument-wide to determine whether these resources can be used more effectively by the Co-Trustees and to reduce duplicative efforts.

***Activity CFO-6.2: Within 2 years, station additional vessels at Midway for use during the summer marine research field season.***

New vessels will be used to support existing field activities at Midway Atoll and to establish an annual research and monitoring program for marine debris, maritime heritage, and coral reef communities. These vessels will expand the range of operations both inside and outside the lagoon as well as to neighboring islands and atolls on a limited basis.

***Activity CFO-6.3: Within 5 to 10 years, station a small research/enforcement vessel at Midway Atoll.***

A small research/enforcement vessel would expand research, enforcement, education, response, and restoration capabilities from French Frigate Shoals to Kure Atoll. Repair and maintenance facilities will be improved at Midway, and full-time support personnel will be identified to properly manage this asset. This vessel will be permanently based at Midway, but could also be based out of the main Hawaiian Islands for part of the year to service the southeastern portions of



the Monument. This vessel will provide the opportunity to dedicate short cruises to individual projects on a regular basis.

***Activity CFO-6.4: Construct new finger piers inside of Midway's inner harbor.***

To meet the small boat needs, within 5 years evaluate the structural integrity of the inner harbor seawall, make appropriate improvements, and construct up to three finger piers. These piers will be designed to simplify, and increase the safety, of fueling and loading as well as to provide short-term in-water storage for a variety of small boats. Any new piers will follow the low-impact guidelines. Midway's inner harbor is not fully protected from outside sea conditions, and additional piers will allow for sheltered small boat storage under a variety of conditions.

***Activity CFO-6.5: Redevelop existing boathouse at Midway into a multiuse facility.*** Consistent with the priorities contained within the Midway Atoll Conceptual Site Plan, redevelop the existing boathouse at Midway into a multipurpose boathouse, dive center, and storage facility. The facility will have maintenance bays for servicing small boats and a dive locker, including a compressor, recompression chamber, appropriate storage, and work area. The facility may also include temporary, short-term bunk space and limited, interim lab space until other facilities were renovated and reconstructed to meet these needs. The building will be re-sited and potentially raised to address concerns over flooding on the seaplane pad, and to minimize resource impacts. Small boat operations depend on a reliable means of removing the boats from the water. At present, the seaplane ramp that is used is not sufficiently steep and results in inadvisable launch and recovery methods. A new boat ramp will be constructed to address this concern, while renovating the adjacent small boat pier.

***Activity CFO-6.6: Evaluate needed improvements to Pier No. 1 in the ship basin and the Tug Pier at Midway Atoll.***

In order to ensure access for large vessels such as NOAA, Coast Guard, and university research vessels, Pier No. 1 and the Tug Pier will be evaluated for needed renovations and maintenance. The ability for ships to dock at Midway, in conjunction with reliable air transport, will assist in efficient research operations and crew changes on cruises, while also providing an additional place for supply ships and other vessels to dock. All pier renovations will follow the low-impact guidelines.

***Activity CFO-6.7: Make needed improvements to or replace the pier at Eastern Island.***

Eastern Island pier renovation is required to ensure continued access for researchers and field workers. Attention is required as soon as feasible to prevent damage to boats and improve passenger safety. Eastern Island pier renovations will follow the low-impact guidelines.

**Strategy CFO-7: Within 5 years, identify interisland aircraft transportation needed to protect and manage the Monument.**

The small number of regularly scheduled flights to and from the Monument is a limiting factor to the expansion of a visitor services program and science station at Midway Atoll, and a host of management, research, educational activities, and enforcement and emergency response throughout the Monument. Frequent and reliable access in support of these activities is needed. Regular flights are currently contracted and managed by the FWS. Additional flights are

currently booked by individual entities on an as-needed basis, which contributes to their high costs. The following activities will be conducted to ensure that Monument aircraft needs are considered and met.

***Activity CFO-7.1: Identify a reliable, efficient, cost-effective aircraft service to improve the delivery capacity of personnel and cargo between Honolulu and Midway.***

Without reliable air transport, the vast majority of current operations at Midway, as well as many operations in the other islands of the NWHI, would cease to exist. Air transport maintains the link between Midway and Honolulu and allows Midway to serve as the logistical hub for the northern end of the archipelago. Air transport is currently limited by the small cargo and personnel capacity of the aircraft being used. Identifying a more capable aircraft service is key to optimizing the operations on Midway and other areas within the Monument.

***Activity CFO-7.2: Within 5 to 10 years, evaluate the need for a dedicated aircraft for transportation, research, evacuation, education, surveillance, management, and enforcement in the Pacific region.***

A shared aircraft that would be used across the Pacific region, throughout the year or seasonally, may be an effective way to defray the high costs of air transportation. Maintenance facilities and staffing would need to be considered if such a craft were acquired. The need for a dedicated aircraft will be evaluated within 5 to 10 years.

***Activity CFO-7.3: Within 15 years, acquire appropriate aircraft to service the Monument and the Pacific region.***

Pending the outcome of the evaluation (Activity CFO-7.2), an appropriate aircraft or use of multiple platforms will be acquired as necessary to meet the needs of the Monument and region.

**Strategy CFO-8: Develop a safe and comprehensive dive operations program for Monument management activities within 5 years.**

Coordinated dive operations are critical to effectively and safely carrying out marine research, monitoring, emergency response, and management activities. Such a program will require infrastructure and equipment investments, training, interagency communication and agreements, and compliance with all agency requirements.

***Activity CFO-8.1: Refurbish or replace the dive recompression chamber at Midway.***

A dive recompression chamber was installed and refurbished on Midway in the late 1990s in support of commercial dive tour operations and research. The chamber has not been serviced in more than 5 years and needs to be assessed and refurbished or replaced. This chamber would be maintained by an on-site chamber operator or dive technician.

***Activity CFO-8.2: Investigate acquisition of a portable dive recompression chamber for use on a small research vessel.***

A small, portable recompression chamber aboard the small research vessel referenced in CFO-6.3 would vastly extend the SCUBA-based research capacity of scientists in the remote NWHI. This equipment would be based at Midway and maintained by an on-site chamber operator or dive technician.

***Activity CFO-8.3: Incorporate a dive operations center into the refurbished boathouse facility at Midway.***

Consistent with the draft Midway Atoll Conceptual Site Plan, the boathouse facility on Sand Island should be re-sited and refurbished to include a dive center complete with storage, maintenance facility, compressor, recompression chamber, and dive locker, as articulated in Activity CFO-6.5.

***Activity CFO-8.4: Support interagency dive operations.***

Agency dive supervisors will support interagency and contract field operations by maintaining updated reciprocity agreements, open communication among agency dive masters and chief scientists, and current records on agency and contract divers to ensure certifications and training requirements are current. Each agency is responsible for maintaining and ensuring the proficiency of its divers.

**Strategy CFO-9: Provide for necessary research, education, visitor, and administrative facilities that will further the protection of Monument resources across the life of the plan.**

A variety of infrastructure needs have been identified by the MMB and partner agencies for research, education, visitor interpretation, and administration to effectively meet the vision, mission, and goals of the Monument. Planning and appropriate redevelopment of existing buildings and limited construction of new low-impact facilities will take place according to the priorities identified in the draft Midway Atoll Conceptual Site Plan and the future Seabird Sanctuary at Kure Atoll and Hawaiian Islands National Wildlife Refuge conceptual site plans, as cited in Activity CFO-1.2.

***Activity CFO-9.1: Design a marine laboratory at Midway and develop in phases.***

A variety of needs will be met by the development of a marine laboratory at Midway. An evaluation and planning effort will help determine if the research and educational needs of potential users will be best met by developing several small facilities over time, or by a design that allows new requirements to be filled as they arise. Initially, the laboratory would provide basic amenities to augment research and education capacity including field schools, seasonal research, and long-term monitoring. A monk seal captive care facility (as outlined in Activity CFO-9.2), wet/dry laboratory infrastructure, and quarantine standards will be included in the plan and engineered as funding becomes available. Several existing buildings are well suited for conversion into a laboratory and will be evaluated to determine which is the most appropriate site.

***Activity CFO-9.2: Complete planning for and construct a captive care monk seal facility on Sand Island.***

A monk seal captive care facility at Midway Atoll has been identified as a critical component for survival of the species. Holding tanks, water treatment and pumping capability, freezer storage, and a dedicated food preparation area are required to be included in this facility, which will dramatically improve the effectiveness of rehabilitating ailing monk seals in the NWHI.

***Activity CFO-9.3: Provide logistical, infrastructure, and transportation support for threatened and endangered species recovery actions.***

Advanced recovery efforts, particularly efforts to address juvenile survival, will require logistical, infrastructure, and transportation capabilities that currently do not exist. For example, the ability to hold Hawaiian monk seals in a temporary facility, likely on Midway Atoll, is a critical component of these types of recovery actions. The ability to transport threatened and endangered species, equipment, and personnel among the various atolls is a challenge to animal relocation efforts, as is the capture and return of animals that may be brought into captivity for nutritional support or medical treatment.

***Activity CFO-9.4: Complete Phase I rehabilitation of Midway Mall and the commissary building.***

Collectively, the commissary building and the Midway Mall present ideal central locations for MMB and partner offices, classroom space, storage, visitor services, and basic laboratory space. Phase I rehabilitation of Midway Mall and the commissary will include cleaning and maintenance, renovation of office and classroom space and a feasibility study of how best to incorporate solar and other renewable energy, a green roof, and other sustainable design principles. The complete Midway Mall rehabilitation will require more substantial work and resources.

***Activity CFO-9.5: Construct airport welcome center on Sand Island within 2 years.***

A passenger terminal/welcome facility will be constructed at the airport to handle passenger arrival to and departures from Midway. This simple facility will offer restrooms, baggage handling, and a waiting area out of the weather. Design of the welcome center will follow the low-impact guidelines.



**Table 3.6.3 Summary of Strategies, Activities, and Agency Leads for Coordinated Field Operations**

Strategies and Activities	Agency Lead
<b>Strategy CFO-1: Conduct necessary site planning and infrastructure improvements to increase safety and enhance Monument field operations capacity over the life of the plan.</b>	
Activity CFO-1.1: Initiate and complete necessary planning to implement the Midway Atoll Conceptual Site Plan.	FWS
Activity CFO-1.2: Develop conceptual site plans for Hawaiian Islands National Wildlife Refuge and Seabird Sanctuary at Kure Atoll to enhance management and restoration capabilities.	State of Hawai'i FWS
Activity CFO-1.3: Develop alternative energy system and waste reduction strategies for the Monument within 2 years.	FWS
Activity CFO-1.4: Plan for use of sustainable engineering, technology, and landscape architecture for facilities and assets throughout the Monument.	FWS
<b>Strategy CFO-2: Enhance interagency planning and coordination for field operations in support of Monument protection and management, and develop protocols and processes that will be utilized throughout the life of the plan.</b>	
Activity CFO-2.1: Develop interagency agreements to facilitate effective field coordination throughout the Monument.	NOAA
Activity CFO-2.2: Develop and implement standardized field operation protocols.	FWS
Activity CFO-2.3: Assess threats that field activities pose to Monument resources.	NOAA
Activity CFO-2.4: Annually coordinate field operations to efficiently deploy personnel and share resources among agency partners.	NOAA
Activity CFO-2.5: Develop a staff coordination agreement between Midway Atoll NWR and the State Seabird Sanctuary at Kure Atoll.	State of Hawai'i
<b>Strategy CFO-3: Maintain and improve housing and field camp safety and operational efficiency using short-, medium- and long-term approaches to protect Monument resources across the life of the plan.</b>	
Activity CFO-3.1: Design and construct a pilot low-impact shelter.	FWS
Activity CFO-3.2: Utilize the existing footprint of Bravo Barracks for replacement housing at Midway Atoll.	FWS
Activity CFO-3.3: Utilize the existing footprint of Charlie Barracks for replacement housing at Midway Atoll.	FWS
Activity CFO-3.4: Rehabilitate "Officers Row" Housing at Midway Atoll.	FWS
Activity CFO-3.5: Maintain and enhance, where appropriate, the infrastructure at Kure Atoll.	State of Hawai'i
Activity CFO-3.6: Maintain and enhance, where appropriate, the infrastructure at French Frigate Shoals.	FWS
Activity CFO-3.7: Evaluate, maintain, and enhance the small tent field camp at Pearl and Hermes Atoll on Southeast Island.	FWS
Activity CFO-3.8: Maintain and enhance the existing tent field camp at Laysan Island to support on the ground management and restoration capacity.	FWS

Strategies and Activities	Agency Lead
<b>Strategy CFO-4: Meet fuel requirements for aircraft, vessel, utility, and equipment needs at Midway Atoll to support operations to protect and manage Monument resources.</b>	
Activity CFO-4.1: Maintain recently replaced fuel farm at Midway Atoll.	FWS
Activity CFO-4.2: Develop biodiesel fuel capacity or other sustainable fuel types at Midway Atoll within 2 years.	NOAA FWS
<b>Strategy CFO-5: Rehabilitate critical utility systems and ailing structures and facilities at Midway Atoll within 5 to 15 years.</b>	
Activity CFO-5.1: Rehabilitate water catchment and distribution system.	FWS
Activity CFO-5.2: Rehabilitate septic and wastewater systems.	FWS
Activity CFO-5.3: Treat all wooden historic structures at Midway Atoll for termites.	FWS
Activity CFO-5.4: Evaluate and optimize food services as necessary.	FWS
Activity CFO-5.5: Rehabilitate seaplane hangar.	FWS
Activity CFO-5.6: Repair inner harbor sea wall.	FWS
<b>Strategy CFO-6: Within 5 years, improve the small boat operational capacity to enable quick, reliable access to the region in support of protection and management and continue to enhance the program throughout the life of the plan.</b>	
Activity CFO-6.1: Inventory, maintain, and coordinate the use of small boats and related field resources.	NOAA
Activity CFO-6.2: Within 2 years, station additional vessels at Midway for use during the summer marine research field season.	NOAA
Activity CFO-6.3: Within 5 to 10 years, station a small research/enforcement vessel at Midway Atoll.	NOAA
Activity CFO-6.4: Construct new finger piers inside of Midway's inner harbor.	FWS
Activity CFO-6.5: Redevelop existing boathouse at Midway into a multiuse facility.	FWS NOAA
Activity CFO-6.6: Evaluate needed improvements to Pier No. 1 in the ship basin and the Tug Pier at Midway Atoll.	FWS
Activity CFO-6.7: Make needed improvements to or replace the pier at Eastern Island.	FWS
<b>Strategy CFO-7: Within 5 years identify interisland aircraft transportation needed to protect and manage the Monument.</b>	
Activity CFO-7.1: Identify a reliable, efficient, cost-effective aircraft service to improve the delivery capacity of personnel and cargo between Honolulu and Midway.	FWS
Activity CFO-7.2: Within 5 to 10 years, evaluate the need for a dedicated aircraft for transportation, research, evacuation, education, surveillance, management, and enforcement in the Pacific region.	NOAA
Activity CFO-7.3: Within 15 years, acquire appropriate aircraft to service the Monument and the Pacific region.	NOAA
<b>Strategy CFO-8: Develop a safe and comprehensive dive operations program for Monument management activities within 5 years.</b>	
Activity CFO-8.1: Refurbish or replace the dive recompression chamber at Midway.	NOAA

<b>Strategies and Activities</b>	<b>Agency Lead</b>
Activity CFO-8.2: Investigate acquisition of a portable dive recompression chamber for use on a small research vessel.	NOAA
Activity CFO-8.3: Incorporate a dive operations center into the refurbished boathouse facility at Midway.	FWS NOAA
Activity CFO-8.4: Support interagency dive operations.	NOAA State of Hawai‘i FWS OHA
Strategy CFO-9: Provide for necessary research, education, visitor and administrative facilities that will further the protection of Monument resources across the life of the plan.	
Activity CFO-9.1: Design a marine laboratory at Midway and develop in phases.	FWS NOAA
Activity CFO-9.2: Complete planning for and construct a captive care monk seal facility on Sand Island.	FWS NOAA
Activity CFO-9.3: Provide logistical, infrastructure, and transportation support for threatened and endangered species recovery actions.	NOAA
Activity CFO-9.4: Complete Phase I rehabilitation of Midway Mall and the commissary building.	FWS
Activity CFO-9.5: Construct airport welcome center on Sand Island within 2 years.	FWS

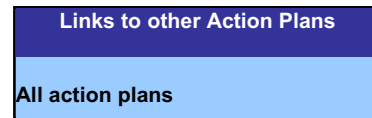
This page intentionally left blank.



### 3.6.4 Evaluation Action Plan

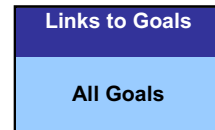
#### Desired Outcome

Determine the degree to which management actions are achieving the vision, mission and goals of Papahānaumokuākea Marine National Monument.



#### Current Status and Background

The Monument evaluation process is designed to meet specific site-level vision, mission, goals, and desired outcomes, as well as FWS', NOAA's, and the State of Hawai'i's overarching missions, goals, and priorities. The Government Performance and Results Act seeks to make the federal government more accountable to the American people for the tax dollars it spends and the results it achieves. NOAA and FWS view the use of performance measures for assessment and evaluation as critical to continued success.



Act 100, Session Laws of Hawaii, 1999, 'Relating to Government Operations' holds departments and agencies of the State of Hawai'i responsible for identifying their goals, objectives, and policies in order to provide a basis for determining priorities and allocating limited public funds and human resources. The State of Hawai'i DLNR approach in responding to these requirements was to develop an annual response that includes goals and objectives against which performance will be measured over the next one, two, and five years. This approach is designed to produce a more effective tool for measuring performance and will assist DLNR in establishing departmental priorities (DLNR Report to the Twenty-Fourth 2008 Legislature).

NOAA's strategic plan (2004a) and NOAA's National Ocean Service Strategic Plan (NOAA 2003a) outline four mission goals and six cross-cutting priorities. ONMS falls under the first mission goal:

Protect, restore, and manage the use of coastal and ocean resources through ecosystem-based management.

The ONMS also clearly supports five of the six cross-cutting priorities:

- Integrated global environmental observation and data management system
- Environmental literacy, outreach, and education
- Sound, reliable, state-of-the-art research
- International cooperation and collaboration
- Organizational excellence

The DOI is complying with the Government Performance and Results Act through its performance management system, which provides useful information to managers and promotes accountability for results. Specifically, FWS has adopted the following principles and priorities, which all apply to Monument management:

#### Conservation Principles:

- Science: Our work is grounded in thorough, objective science.

- Stewardship: Our ethic is to conserve natural resources for future generations.
- Service: It is our privilege to serve the American people.
- Professionalism: We hold ourselves to the highest ethical standards, strive for excellence, and respect others.
- Partnerships: We emphasize creative, innovative partnerships.
- People: Our employees are our most valued asset.
- Legacy: We ensure the future of natural resource conservation by connecting people with nature.

Priorities:

- National Wildlife Refuge System: Conserving our lands and resources.
- Landscape Conservation: Working with others.
- Migratory Birds: Conservation and management.
- Threatened and Endangered Species: Achieving recovery and preventing extinction.
- Aquatic Species: National Fish Habitat Initiative and trust species.
- Connecting People with Nature: Ensuring the future of conservation.

Given the similarity of NOAA and FWS priorities and the alignment of DLNR's Goals with the unifying Monument vision, mission, and goals, the Co-Trustees are committed to developing management plan performance measures to evaluate whether the strategies and activities contained in the action plans are achieving the goals and desired outcomes of the Monument. The management plan performance measures fall into three categories: annual benchmarking, management capacity assessment, and outcome assessment.

Annual benchmarking measures will be used to determine whether activities have occurred as planned. Management capacity assessment measures will be used every two to three years to determine the adequacy of implementation mechanisms and processes, including interagency coordination and stakeholder and community participation. Outcome assessment measures will be used every four to five years to evaluate the impacts of management actions on the resources and ecosystem status. These measures will be further defined through the process described in Activity EV-1.1, below.

**Need for Action**

One of the largest challenges in the management of ocean resources lies in knowing whether management actions are effective over time (Pomeroy 2004). Research and long-term monitoring programs are essential in an ecosystem-based management context, to provide reliable information and data to determine whether management actions are achieving desired outcomes. A second and equally important challenge is improving management based on reliable information and data, a sound governance process, and experience (Olsen et al. 1999).

Evaluation is needed to determine if management actions are achieving the desired outcomes, addressing priority management needs, and meeting the goals of the Monument. The outcomes of evaluation processes can then be used to improve processes, programs, and accountability; prioritize activities; and inform constituents.

The U.S. Commission on Ocean Policy recommends that national goals and guidelines be developed leading to a uniform process for effective design, implementation, and evaluation of marine protected areas. The President's Ocean Action Plan has elements addressing this issue. Since the Monument is the largest marine protected area in the United States, NOAA, FWS, and the State of Hawai'i are in a unique position to respond to these challenges and recommendations through a comprehensive evaluation process.

### **Strategies to Achieve the Desired Outcome**

A meaningful evaluation requires the use of measurable strategies and the ability to monitor, evaluate, provide feedback, and then assess what is working and what needs to be changed in terms of desired outcomes, strategies, and activities. The strategy and activities are coded by the abbreviation for the action plan title, "Evaluation" (EV). A summary of strategies and activities is provided in Table 3.6.4 at the end of this action plan.

- EV-1: Implement a comprehensive evaluation process within 1 year.

### **Strategy EV-1: Implement a comprehensive evaluation process within 1 year.**

Management plan measures will be used to determine the degree to which management actions achieve desired outcomes, address priority management needs, and meet the goals of the Monument. The use of site performance measures will ensure that potential changes are consistent with the Monument vision, mission, management principles, and goals.

Evaluation activities will be developed and implemented by the MMB. Evaluation reports will be prepared and reviewed by partner agencies and organizations for review and recommendations.

#### ***Activity EV-1.1: Prepare a comprehensive Monument evaluation strategy.***

A comprehensive evaluation strategy will be designed to guide evaluation activities over a 5-year period. The strategy will describe information and data needs and methods to evaluate activity outputs and to quantify site measures. The output from this activity is a Monument evaluation strategy that describes site performance measures, their evaluation methods and timeframes, measurable elements, and roles and responsibilities of the Co-Trustees, partner agencies, and other organizations involved in the evaluation process.

#### ***Activity EV-1.2: Conduct annual program review.***

Agency leads will be identified and responsible for developing milestones for each plan, tracking progress, and reporting to the MMB regarding milestones reached or interventions needed. The status of implementation of each action plan will be reviewed annually. MMB staff leads for each action plan will be responsible for determining the status of completion of planned activities and accomplishment of activity outputs. Data and information on site indicators will be compiled and analyzed in accordance with the timeframes described in the evaluation plan. The output of this activity is an annual report describing the status of activity implementation and recommended adjustments.

***Activity EV-1.3: Conduct comprehensive evaluation and prepare a State of the Monument Report.***

Every 5 years, a comprehensive evaluation will be conducted, considering the results of preceding annual reports and incorporating surveys, assessments, and long-term research and monitoring studies as described in the comprehensive evaluation plan (Activity EV-1.1). The comprehensive evaluation will describe the degree to which management actions have achieved desired outcomes, addressed priority management needs, and met goals for the Monument over the 5-year period. Status and trends of Monument resources, management issues, and ecosystem components will be described with recommendations for improved management actions. The output from this activity is a State of the Monument Report.

***Activity EV-1.4: Conduct a management plan review.***

As part of an adaptive management approach to ensure that Monument management is effective, the Monument Management Plan will undergo a review every 5-years. Scientific discoveries, identification of new sensitive or representative resilient areas for rezoning, advancements in managing marine resources and human dimensions approaches, and new resource management issues or approaches to issues will be updated over time.

The comprehensive evaluation and State of the Monument Report will serve as the primary input for the 5-year management plan review. Monument staff, together with partner agencies and organizations, will review past activities, revise strategies and activities accordingly and, as appropriate, add new strategies and activities based on priority management needs. The output of this activity will be a revised Monument Management Plan and revised regulations (as needed) for the next 5 years of operations, based on the review of recommended changes identified by the comprehensive evaluation.



**Table 3.6.4 Summary of Strategies, Activities, and Agency Leads for Evaluation**

Strategies and Activities	Agency Lead
<b>Strategy EV-1: Implement a comprehensive evaluation process within 1 year.</b>	
Activity EV-1.1: Prepare a comprehensive Monument evaluation strategy.	NOAA
Activity EV-1.2: Conduct annual program review.	NOAA
Activity EV-1.3: Conduct comprehensive evaluation and prepare a State of the Monument Report.	NOAA
Activity EV-1.4: Conduct a management plan review.	NOAA

---

## **GLOSSARY**

---

## GLOSSARY

**Abiotic:** Pertaining to the non-living components of the environment.

**Abyssal (zone):** Relating to the bottom waters of oceans, usually below 1,000 meters.

**Adaptive management:** The process of adjusting management actions or directions as new and better information emerges about the ecosystem

**Adaptive reuse:** A process that changes a disused or ineffective item into a new item that can be used for a different purpose.

**Alien species (exotic, nonnative):** With respect to a particular ecosystem, any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem.

**Anthropogenic:** Caused by humans.

**Apex predator:** A species (e.g., fish) at the top of the food chain.

**Appropriate Use (NWR):** A proposed or existing use on a refuge that meets the criteria in 603 FW 1.

**Aquaculture:** Cultivation of aquatic organisms under controlled or semi-controlled conditions.

**Archipelago:** A group or cluster of islands.

**Ballast water:** Any water and associated sediments used to manipulate the trim and stability of a vessel

**Bathymetry:** Study and mapping (benthic mapping) of sea floor elevations and the variations of water depth; the topography of the sea floor.

**Battle of Midway:** A naval battle in the Pacific Theater of World War II. It took place from June 4, 1942 to June 7, 1942, approximately one month after the Battle of the Coral Sea, about five months after the Japanese capture of Wake Island, and six months after the Empire of Japan's attack on Pearl Harbor that had led to a formal state of war between the United States and Japan.

**Benthic habitat:** Of the sea floor, or pertaining to organisms living on or in the sea floor.

**Biodiversity:** Defined as the number of different organisms or species that inhabit a given ecosystem or the earth overall. It can also refer to the variability within species and among species living on the earth or in a particular community. Many ecologists also include the interaction of species the environment when describing biodiversity. All biodiversity has its origins in the different combinations of genetic material (DNA) and how this is expressed in different organisms.

**Biogeographical:** Of relating to or involved with biogeography, a branch of biology that deals with the geographical distribution of animals and plants.

**Biological community:** A naturally occurring assemblage of plants and animals that live in the same environment and are mutually sustaining and interdependent.

**Biological inventory or Biodiversity inventory:** Catalog of all biota in a given area.

Inventories of large clades (a clade is a related group with a common ancestor) of organisms that are likely to contain many undescribed species or otherwise require major revision to complete their taxonomy.

**Biomass:** The total weight of all the living organisms, or some designated group of living organisms, in a given area.

**Bioprospecting:** Search for new chemicals compounds, genes and their products in living things that will have some value to people.

- Biota:** All the organisms, including animals, plants, fungi and microorganisms, living components of an ecosystem.
- Biotic:** Pertaining to any aspect of life, especially to characteristics of entire populations or ecosystems.
- Bishop Museum:** Founded in 1889, the Bishop Museum is the largest museum in Hawai‘i and the premier natural and cultural history institution in the Pacific, recognized throughout the world for its cultural collections, research projects, consulting services and public educational programs. It also has one of the largest natural history specimen collections in the world.
- Board of Land and Natural Resources:** An appointed Board of the State of Hawai‘i composed of seven members, one from each land district and two at large, and the Chairperson, the executive head of the Department. Members are nominated and, with the consent of the Senate, appointed by the Governor for a 4-year term. The BLNR convenes twice monthly to review and take action on department submittals, including Monument permits.
- Bottomfish species:** Means bottomfish management unit species as defined at 50 CFR 665.198.
- Bottomfishing:** Fishing for bottomfish species using hook-and-line method of fishing where weighted and baited lines are lowered and raised with electric, hydraulic, or hand-powered reels.
- Calderas:** A crater whose diameter is many times that of the volcanic vent because of the collapse or subsidence of the central part of a volcano or because of explosions of extraordinary violence.
- Catch-per-unit-effort (CPUE):** The average number of fish caught in a discrete amount of time.
- Categorical Exclusion:** A category of actions that the agency has determined does not individually or cumulatively have a significant effect on the quality of the human environment.
- Ciguatera toxin:** Toxins produced by a marine microalgae called *Gambierdiscus toxicus*. These toxins become progressively concentrated as they move up the food chain from small fish to large fish that eat them, and reach particularly high concentrations in large predatory tropical reef fish.
- Co-Trustees:** U.S. Department of Commerce, through the National Oceanic and Atmospheric Administration, the U.S. Department of the Interior through the Fish and Wildlife Service, and the State of Hawai‘i.
- Commercial Fishing:** Fishing in which the fish harvested, either in whole or in part, and are intended to enter commerce through sale, barter or trade.
- Compatible use:** A proposed or existing wildlife-dependent recreational use or any other use of a national wildlife refuge that, based on sound professional judgment, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the national wildlife refuge. (50 CFR 29.21)
- Comprehensive Conservation Plan:** A document that describes the desired future conditions of the refuge, and provides long-range guidance and management direction for the refuge manager to accomplish the purposes of the refuge, contribute to the mission of the system, and to meet other relevant mandates.
- Coral bleaching:** When zooxanthellae, symbiotic algae that live in coral tissue, leave the coral as a result of thermal and other types of stress.
- Crustacean:** A member of the phylum Crustacea, such as a crab, shrimp, or lobster.



- Cultural literacy:** The art and understanding of the intangible meanings and emotions conveyed through a particular written cultural language.
- Cultural resources:** Any resources, whether they are tangible or intangible, such as stories, people, structures, or artifacts that identifies a certain native people's culture inherent in the way they live and practice their traditions.
- Cumulative effects** (National Environmental Policy Act, NEPA): Cumulative impact of the direct and indirect effects of the proposed action and its alternatives when added to the aggregate effects of past, present, and reasonably foreseeable future actions.
- Customary rights:** Rights customarily and traditionally exercised for subsistence, cultural, and religious purposes and possessed by ahupua‘a tenants who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778.
- Derelict:** Abandoned, especially by the owner or occupant; forgotten or unused.
- Direct effects** (NEPA): Effects caused by the action and occurring at the same time and place.
- Distance-learning:** Education initiated on-site at a remote location offered to others often times providing two way communication through audio or video (or both) technology links.
- Ecological:** Of, or having to do with, the environments of living things or with the pattern of relations between living things and their environments.
- Ecological impacts:** The effect that a human-caused or natural activity has on living organisms and their environment.
- Ecological Reserve:** An area of the Monument consisting of contiguous, diverse habitats that provide natural spawning, nursery, and permanent residence areas for the replenishment and genetic protection of marine life, and also to protect and preserve natural assemblages of habitats and species within areas representing a broad diversity of resources and habitats found within the monument.
- Ecological Restoration:** Replacement of lost ecosystem function and integrity.
- Ecosystem:** A geographically specified system of organisms (including humans), the environment, and the processes that control its dynamics.
- Ecosystem Health:** A condition in which structure and functions allow the desired maintenance over time of biological diversity, biotic integrity, and ecological processes.
- Ecological Integrity:** A condition determined to be characteristic of an ecosystem that has the ability to maintain its function, structure, and abundance of natural biological communities, including rates of change in response to natural environmental variation.
- Ecosystem Services:** The natural processes by which the environment produces resources. Common examples are water, timber, and habitat for fisheries, and pollination of native and agricultural plants.
- Ecosystem-based management approach:** Management that carefully considers impacts to all species and trophic interactions, including maintenance of biological communities and the protection of natural habitats, populations and ecological processes. The approach emphasizes the inherent value of ecosystems and recognizes the importance of species interactions and conservation of habitats, and only permits resource utilization in a manner that is consistent with the Monument's primary goal of resource protection.
- Ecotourism:** Travel to natural areas to foster environmental and cultural understanding, and appreciation and conservation. The Proclamation defines Ocean-Based Ecotourism as a class of fee-for-service activities that involves visiting the Monument for study, enjoyment, or volunteer assistance for purposes of conservation and management.

**Effects (Impacts):** As defined by NEPA (direct, indirect, cumulative): Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions that may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial.

**El Niño:** A climatic phenomenon characterized by a large scale weakening of the trade winds and warming of the surface layers in the eastern and central equatorial Pacific Ocean. El Niño events occur irregularly at intervals of two to seven years, although the average is about once every three to four years and typically last 12 to 18 months. During El Niño, unusually high atmospheric sea level pressures develop in the western tropical Pacific and Indian Ocean regions, and unusually low sea level pressures develop in the southeastern tropical Pacific. Southern Oscillation tendencies for unusually low pressures west of the date line and high pressures east of the date line have also been linked to periods of anomalously cold equatorial Pacific sea surface temperatures, sometimes referred to as **La Niña**.

**Endangered species:** An animal or plant species in danger of extinction throughout all or a significant portion of its range.

**Endemic:** Referring to species native to and confined to a particular region, thus often having a comparatively restricted distribution.

**Environmental Assessment (EA):** A concise public document, prepared in compliance with the National Environmental Policy Act, that briefly discusses the purpose and need for an action, alternatives to such action, and provides sufficient evidence and analysis of impacts to determine whether to prepare an environmental impact statement or finding of no significant impact.

**Environmental Impact Statement (EIS):** Documentation that assesses the impacts of major Federal actions significantly affecting the quality of the human environment as required by Section 102(2)(C) of NEPA.

**Exclusive Economic Zone (EEZ):** A zone contiguous to the territorial sea, including zones contiguous to the territorial sea of the United States, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands (to the extent consistent with the Covenant and the United Nations Trusteeship Agreement), and United States overseas territories and possessions extending to a distance of 200 nautical miles from the baseline from which the breadth of the territorial sea is measured.

**Fathom:** A unit of length equal to 1.8 meters (6 feet) used to measure water depth.

**Field camp (camp):** In this document refers to both seasonal camps that are placed on Lisianski, Pearl and Hermes, Kure, and Nihoa; and one permanent camp at Laysan Island. Seasonal camps are established for specific activities such as monk seal research. The Laysan Island camp is staffed year-round to work on restoration of the island. Camps depend on tents, import all water, and have very limited communications and physical access.

**Field station:** In this document is used to refer to permanent infrastructures on Tern Island or Midway Atoll. These stations have buildings, water-making abilities, greater power sources, advanced communication, and regular access by boat and aircraft.

**Fishery:** The act, process, or season of taking fish or other sea products for sale or consumption.

**Friends of Midway Atoll NWR:** Association whose mission is “[t]o support the Midway Atoll National Wildlife Refuge in its efforts to preserve, protect and restore the biological diversity

and historic resources of Midway Atoll, while providing opportunity for wildlife-dependent recreation, education and scientific research.”

**Geographic Information System (GIS):** A system of spatially referenced information, including computer programs that acquire, store, manipulate, analyze, and display spatial data.

**Geomorphologic:** Relating to geomorphology, a science that deals with land and submarine relief features of the earth’s surface.

**Hazardous material:** A substance or material that is capable of posing an unreasonable risk to health and safety or property when transported in commerce and has been designated as hazardous under the Federal Hazardous Materials Transportation Law (49 USC 5103).

**Hazardous Waste:** The Resource Conservation and Recovery Act (RCRA) specifically defines a hazardous waste as a solid waste (or combination of wastes) that, based on its quantity, concentration, physical, chemical, or infectious characteristics, can cause or significantly contribute to an increase in mortality. RCRA further defines a hazardous waste as one that can increase serious, irreversible, or incapacitating reversible illness or pose a hazard to human health or the environment when improperly treated, stored, disposed of, or otherwise managed.

**Hi‘ialakai:** NOAA research vessel. Hi‘ialakai means “embracing pathways to the sea” in the Hawaiian language.

**Hōkūle‘a:** A traditional Hawaiian double hulled voyaging canoe recreated by the Polynesian Voyaging Society in the 1970s which signified a rebirth of ancient voyaging and navigation and a new cultural renaissance period in Hawaiian history. [*Hōkūle‘a* is Hawaiian for star of gladness].

**Hypersaline:** Salinity well in excess of that of seawater; found in enclosed water bodies.

**Impacts:** See **Effects**

**Indirect effects (NEPA):** Those are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

**In situ** [Latin]: In place

**In-reach:** Purposefully communicating to personnel working within your agency, or Co-Trustees.

**Indigenous (species):** Existing within a historical ecological range, usually within a balanced system of coevolved organisms.

**Infrastructure:** In this document refers to physical buildings and structures, roads, and utility and communications systems.

**Interagency:** Involving two or more public or government agencies.

**Introduced Species:**

1. A species (including, but not limited to, any of its biological matter capable of propagation) that is nonnative to the ecosystem(s) protected by the Monument; or
2. Any organism into which genetic matter from another species has been transferred in order that the host organism acquires the genetic traits of the transferred genes.

“Introduction” means the intentional or unintentional escape, release, dissemination, or placement of a species into an ecosystem as a result of human activity.

- Invasive species:** A nonindigenous species that may threaten the diversity or abundance of native species or the ecological stability and or uses of infested waters and the introduction of which into an ecosystem may cause harm to the economy, environment, human health, recreation, or public welfare.
- Invertebrates:** Any animal that is not a vertebrate, that is, whose nerve cord is not enclosed in a backbone of bony segments.
- Island-specific:** Pertains to a specific island of the Monument and may not be translated to other islands.
- Knowledge-base:** Information and ideas acquired through pre-existing experiences and cumulative education.
- La Niña:** see **El Niño**
- Larval:** An immature stage of any invertebrate animal that differs dramatically in appearance from the adult.
- Lead-based paint:** Paint that contains high levels of lead, generally found in houses and apartments built before 1978, when the federal government banned it from housing.
- Longline Protected Species Zone:** The area in the Northwestern Hawaiian Islands where longline fishing is prohibited, described as within a 50 nm radius from the geographic centers of Nihoa, Mokumanamana, French Frigate Shoals, Gardner Pinnacles, Maro Reef, Laysan Island, Lisianski Island, Pearl and Hermes Atoll, Midway Atoll, and Kure Atoll.
- Management Zones:** Special Preservation Areas, Ecological Reserves, and the Midway Atoll Special Management Area (SMA) as defined in Monument regulations (50 Code of Federal Regulations [CFR] 404).
- Marine debris:** Any persistent solid material and contents that is manufactured or processed and directly or indirectly, intentionally or unintentionally, disposed of or abandoned into the marine environment.
- Maritime:** Of or relating to navigation or commerce on the sea.
- Memorandum of Agreement or Understanding (MOA/U):** A nonbinding agreement between state or federal agencies, or divisions within an agency, that delineates tasks, jurisdiction, standard operating procedures or other matters which the agencies or units are duly authorized and directed to conduct.
- Meta-population:** A subdivided population of a single species.
- Midway Atoll Special Management Area:** The area of the monument surrounding Midway Atoll out to a distance of 12 nautical miles, established for the enhanced management, protection, and preservation of Monument wildlife and historical resources.
- Migratory bird:** Birds that are listed in Title 50 of the Code of Federal Regulations, Section 10.13.
- Mitigate (mitigation):** To make less severe. An action or series of actions that offset the environmental impact, or reduce the severity or consequences. Usually done by sequestering or reducing contact thereby reducing risk or by compensating, enhancing, or restoring areas adversely affected.
- Mobile transceiver unit:** A vessel monitoring system or VMS device installed on board a vessel that is used for vessel monitoring and transmitting the vessel's position as required by this proclamation.
- Monument Management Board (MMB):** The MOA established a locally based Monument Management Board (MMB) to guide field level coordination. The seven-member MMB includes representation of the Co-Trustee agencies and the Office of Hawaiian Affairs.



- Monument Regulations:** Initial regulations prescribed by Presidential Proclamation 8031 completed jointly by the FWS and NOAA on August 29, 2006 (71 FR 51134). Monument regulations, codified under 50 CFR Part 404, establish the scope and purpose, boundary, definitions, prohibitions, marine zones, and regulated activities for managing the Monument.
- National Historic Landmark:** Nationally significant historic places designated by the Secretary of the Interior possessing exceptional value or quality in illustrating or interpreting the heritage of the United States.
- National Historic Properties:** Properties listed in, or eligible for listing in the National Register of Historic Places (National Historic Preservation Act of 1966, as amended; implementing regulation for evaluation and determination of eligibility are in 36 CFR 60), “National Register of Historic Places.”
- National Marine Sanctuary Foundation:** A private, nonprofit, 501(c)(3) tax-exempt organization created to assist the federally managed National Marine Sanctuary Program with education and outreach programs designed to preserve, protect, and promote meaningful opportunities for public interaction with the nation’s marine sanctuaries.
- National Monument:** An area on lands owned or controlled by the Government of the United States designated by the President of the United States under the Antiquities Act of 1906, to recognize historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest.
- National Register of Historic Places:** The nation’s official list of cultural resources worthy of preservation. Authorized under the National Historic Preservation Act of 1966, the National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect our historic and archeological resources.
- National Wildlife Refuge System:** All lands, waters, and interests therein administered by the U.S. Fish and Wildlife Service as wildlife refuges, wildlife ranges, wildlife management areas, waterfowl production areas, and other areas for the protection and conservation of fish, wildlife, and plant resources.
- Native Hawaiian:** Any individual who is a descendent of the aboriginal people who, prior to 1778, occupied and exercised sovereignty in the area that now constitutes the State of Hawai‘i.
- Native Hawaiian Practices:** Cultural activities conducted for the purposes of perpetuating traditional knowledge, caring for and protecting the environment, and strengthening cultural and spiritual connections to the Northwestern Hawaiian Islands that have demonstrable benefits to the Native Hawaiian community. This term may include, but is not limited to, the noncommercial use of monument resources for direct personal consumption while in the Monument.
- Native species:** A species (plant or animal) within its natural range or natural zone of dispersal without human aid.
- Natural variability:** Uncertainties that stem from inherent or assumed randomness and unpredictability in the natural world.
- Northwestern Hawaiian Islands (NWHI):** Beginning 155 miles (249.4 kilometers) from the main Hawaiian Island of Kaua‘i, the 10 islands and atolls of this chain that extend for 1,200 miles (1,931 kilometers) to Kure Atoll. In past decades, also known as the Leeward or Kūpuna Islands, and now as Papahānaumokuākea.

**NOWRAMP or NWHIRAMP:** The Northwestern Hawaiian Islands Coral Reef Assessment and Monitoring Program, which began in 2000, to rapidly evaluate and map the shallow water reef habitats in the NWHI.

**Oceania:** Collective name for the islands scattered throughout most of the Pacific Ocean.

**Oceanographic:** Of or relating to oceanography, a science that deals with the ocean and its phenomena.

**Outreach:** The act of communicating activities and conceptual ideas to public audiences outside the administering agency/agencies and actively involving them in Monument activities.

**Pacific Rim:** includes the countries that lie along the Pacific Ocean, plus the island countries of the Pacific.

**Passage without interruption:** A vessel passing through waters within the Monument boundary without stopping anywhere within the boundary of the Monument.

**Pelagic:** Referring to the open ocean.

**Pelagic species:** From the Proclamation: Pelagic Species means Pacific Pelagic Management Unit Species as defined at 50 CFR 660.12.

**Permit:** As used in the Monument Management Plan, authorization by the Co-Trustees to conduct an activity within the Monument that: (i) is research designed to further understanding of monument resources and qualities; (ii) will further the educational value of the monument; (iii) will assist in the conservation and management of the monument; (iv) will allow Native Hawaiian practices; (v) will allow a special ocean use; or (vi) will allow recreational activities.

**Petrels:** Any of numerous seabirds constituting the families Procellariidae and Hydrobatidae.

**Polynesian Voyaging Society (PVS):** A society founded in 1973 to research how Polynesian seafarers discovered and settled on the islands in the Pacific Ocean before European explorers arrived in the 16th century.

**Pono:** [Hawaiian] Appropriate, correct, and deemed necessary by traditional standards in the Hawaiian culture.

**Precautionary approach:** In the decisionmaking process, if there is a reasonable suspicion of harm, this approach urges a full evaluation of available alternatives for the purpose of preventing or minimizing harm. When consequences are uncertain, managers err on the side of caution thereby giving the benefit of the doubt to nature, public health, and community well-being.

**Predator-dominated marine ecosystem:** Reef ecosystems that have relatively greater abundance of large fish, such as sharks and jacks and fewer smaller fish that graze on the coral and algae.

**Presidential Proclamation 8031:** Establishment of the Northwestern Hawaiian Islands Marine National Monument, A Proclamation by the President of the United States of America, June 15, 2006. **(also Proclamation, Presidential Proclamation, and Proclamation 8031)**

**Productivity:** Rate of energy fixation or storage per unit time; not to be confused with production.

**Prohibitions:** Actions prohibited by authority of law.

**Recreational Activity:** For the purposes of the Monument, an activity conducted for personal enjoyment that does not result in the extraction of Monument resources and that does not involve a fee-for-service transaction. This term includes, but is not limited to, wildlife viewing, SCUBA diving, snorkeling, and boating.

**Remediation:** Rehabilitation of a section of the environment that has been polluted or degraded from a sustainable (self-repairing) state.

**Repatriation:** The transfer of legal interest in and physical custody of Native American cultural items to lineal descendants, culturally affiliated Indian tribes, and Native Hawaiian organizations.

**Resiliency:** The ability of an ecosystem to recover from, or adjust to, stress or change.

**Restoration:** Replacement of lost ecosystem function and integrity.

**SCUBA:** A self-contained underwater breathing apparatus and includes, but is not limited to, open circuit and rebreather technology.

**Seamount:** Submerged volcanic mountain rising above the deep-sea floor.

**Secretaries:** For the Monument, collectively refers to the Secretary of Commerce and the Secretary of the Interior

**Sessile invertebrates:** Organism being attached to a substrate.

**Shoal:** Elevation of the sea bottom comprising any material except rock or coral (in which case it is a reef) and which may endanger surface navigation.

**Socioeconomic:** Relating to or involving a combination of social and economic factors.

**Spawning:** The direct release of sex cells into the water for reproduction.

**Special Ocean Use:** An activity or use of the Monument that is engaged in to generate revenue or profits for one or more of the persons associated with the activity or use, and does not destroy, cause the loss of, or injure monument resources. This term includes ocean-based ecotourism and other activities such as educational and research activities that are engaged in to generate revenue, but does not include commercial fishing for bottomfish or pelagic species conducted pursuant to a valid permit issued by NOAA.

**Special Preservation Area (SPA):** Discrete, biologically important areas of the Monument within which uses are subject to conditions, restrictions, and prohibitions, including but not limited to access restrictions. SPAs are used to avoid concentrations of uses that could result in declines in species populations or habitat, to reduce conflicts between uses, to protect areas that are critical for sustaining important marine species or habitats, or to provide opportunities for scientific research.

**Stakeholder:** Any and all interested parties; an organization, governmental entity, or individual that has a stake in, or may be affected by, a given approach to environmental regulation or other agency action.

**Submersible:** A research submarine, designed for manned or remote operation at great depths.

**Substrate:** The material making up the base on which an organism lives or to which it is attached.

**Substratum:** The bottom of the bay, the soils of the bay bottom. May also refer to any surface that allows for the colonization of marine life.

**Sustenance Fishing:** For the Monument, sustenance fishing means fishing for bottomfish or pelagic species in which all catch is consumed within the Monument, and that is incidental to an activity permitted.

**Symbiotic:** Situation in which two dissimilar organisms live together in close association.

**Temporary Structure (Nonpermanent):** A structure with no permanent foundation that is easy to assemble, dismantle, and transport and is removed from a site between periods of actual use except as specifically permitted otherwise.

**Terrestrial species:** Plants and animals living on land.

**Threatened species:** Any species that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

**Topographic:** General elevation pattern of the land surface or the ocean bottom.

**Traditional knowledge:** A way of knowing and learning that is acquired through expressions of dance or other forms of art, orally, or thru actual hands-on experiences passed down from generation to generation.

**Trolling:** Fishing using one or more lines with hooks or lures attached and drawn through the water behind a moving vessel.

**Trophic:** Relating to nutrition; the position of an organism in a food chain or food pyramid.

**Unexploded Ordnance (UXO):** Munitions that contain explosive components. In the Monument, refers to lost or abandoned military items.

**Unified Ocean Governance:** An integrated ecosystem-based management approach using an overall governance framework of shared principles and authority, clear communications and protocols.

**Unusual Mortality Events:** Criteria used to determine if mortalities seen in the Hawaiian monk seal are significantly abnormal to indicate an underlying vector. Criteria include: a marked increase in the magnitude of strandings is occurring when compared with prior records; animals are stranding at a time of the year when strandings are unusual; an increase in strandings is occurring in a very localized area; the species, age, or sex composition of the stranded animals is different; stranded animals exhibit similar or unusual pathologic findings, or the general physical condition; mortality is accompanied by unusual behavior patterns; and endangered species are stranding.

**Vessel Monitoring System (VMS):** Means a vessel monitoring system or mobile transceiver unit approved by the NOAA Office for Law Enforcement for use on vessels permitted to access the Monument in accordance with the Proclamation and 50 CFR 404. The hardware and software used by vessels to track and transmit their positions to a receiver in a remote location.

**Wayfinding:** Noninstrument navigation. Wayfinding involves navigating on the open ocean without sextant, compass, clock, radio reports, or satellites reports. The wayfinder depends on observations of the stars, the sun, the ocean swells, and other signs of nature for clues to the direction and location of a vessel at sea.

**Zooxanthellae:** A group of dinoflagellates living symbiotically in association with one of a variety of invertebrate groups and found in corals and other marine organisms.



---

## **REFERENCES**

---

## REFERENCES

Act 50, Session Laws of Hawaii 2000. A Bill for an Act Relating to Environmental Impact Statements

Aeby, G.S. 2006. Baseline levels of coral disease in the Northwestern Hawaiian Islands. *Atoll Research Bulletin* 543:471-488.

Aeby, G.S., J.C. Kenyon, J.E. Maragos, and D.C. Potts. 2003. First record of mass coral bleaching in the Northwestern Hawaiian Islands. *Coral Reefs* 22 (3): 256.

Agard, B. 2000. Public comment during Western Pacific Regional Fishery Management Council. 104<sup>th</sup> Western Pacific Regional Fisheries Management Council Meeting, June 16, 2000. Honolulu.

Ainley, D.G., D.N. Nettleship, H.R. Carter, and A.E. Storey. 2002. In: *The Birds of North America*, No. 666, eds. A. Poole and F. Gill. Philadelphia: The Birds of North America, Inc.

Alexander, C., R. Kosaki, S. Gittings, and M.S. Tartt. 2004. Information Needs for Conservation Science and Management of the Northwestern Hawaiian Islands: A product of the I Ke Āmio O Nā Wa'a Workshop. Silver Spring, MD: Marine Sanctuaries Division, National Ocean Service, NOAA.

Amerson, A.B. 1971. The natural history of French Frigate Shoals, Northwestern Hawaiian Islands. *Atoll Research Bulletin*. 150:1-383.

Amerson, A.B., Jr., R.C. Clapp, and W.O. Wirtz, II. 1974. The Natural History of Pearl and Hermes Reef, Northwestern Hawaiian Islands. *Atoll Research Bulletin*. 174:1-306.

Andrews, K.R., L. Karczmarski, W.W.L. Au, S.H. Rickards, C.A. Vanderlip and R.J. Toonen. 2006. Patterns of genetic diversity of the Hawaiian spinner dolphin *Atoll Research Bulletin* 543: 65-73.

Antiquities Act. 1906, as amended 16 U.S.C. § 431-433, *et seq.*

Antonelis, G.A., J.D. Baker, T.C. Johanos, R.C. Braun, A.L. Harting. 2006. Hawaiian Monk Seals (*Monachus schauinslandi*): Status and Conservation Issues. *Atoll Research Bulletin* 543:75-101.

Apology Resolution. 1993. Pub. L. 103-150, (Presidential and Congressional Resolution)

Archaeological Resources Protection Act. 1979. Public Law 96-95; 16 U.S.C. 470 aa-mm

Ashmole, M.J., and N.P. Ashmole. 1967a. The use of food samples from seabirds in the study of seasonal variation in the surface fauna of tropical oceanic areas. *Pacific Science* 22: 1-10.

———. 1967b. Notes on the breeding season and food of the Red-footed Booby (*Sula sula*) on Oahu, Hawaii. *Ardea* 55: 265-267.

Ashmole, N.P. 1963. The biology of the Wide-awake or Sooty Tern (*Sterna fuscata*) on Ascension Island. *Ibis* 103b: 297-364.

- Athens, J.S., J.V. Ward, and D.W. Blinn. 2007. Vegetation History of Laysan Island, Northwestern Hawaiian Islands. *Pacific Science* 61: 17-37.
- Au, D.K. and R.L. Pitman. 1986. Seabird Interactions with Dolphins and Tuna in the Eastern Tropical Pacific. *The Condor* 88 (3): 304-317.
- Auman, H.J., J.P. Ludwig, C.L. Summer, D.A. Verbrugge, K.L. Froese, T. Colborn, and J.P. Giesy. 1997. PCBs, DDE, DDT, and TCDD-EQ in two species of albatross on Sand Island, Midway Atoll, North Pacific Ocean. *Env. Toxicol. Chem.* 16(3): 498-504.
- Auman, H.J., J.P. Ludwig., J.P. Giesy, and T. Colborn. 1998. Plastic ingestion by Laysan albatross chicks on Sand Island, Midway Atoll, in 1994 and 1995. In *Albatross Biology and Conservation*, eds. G. Robertson and R. Gales, pp. 239-244. Chipping Norton: Surrey Beatty & Sons.
- Ayau, H., and T.K. Tengan. 2002. Ka Huaka'i o Nā 'Ōiwi – The Journey Home. In *The Dead and Their Possessions: Repatriation in Principle, Policy, and Practice*, eds. Frode et al., pp. 171-189. New York: Routledge Publications.
- Baco-Taylor, A.E. Yam, E.C. Kelley, Smith, J.R, and S. Cairns. 2006. Distribution of Deep-Sea Corals in Relation to Geological Setting in the Northwestern Hawaiian Islands. *Eos Trans. AGU*, 87 (36), Ocean Sci. Meet. Suppl., Abstract OS11E-03.
- Baker, J.D, C.L. Littnan, and D.W. Johnston. 2006. Potential effects of sea level rise on the terrestrial habitats of endangered and endemic megafauna in the Northwestern Hawaiian Islands. *Endang. Species Res.* 4(1): 1-10.
- Bakun, A. (2006) Fronts and eddies as key structures in the habitat of marine fish larvae: Opportunity, adaptive response and competitive advantage. *Scientia Marina* 70 (S2): 105-122.
- Balazs, G.H., and D.M. Ellis. 2000. Satellite telemetry of migrant male and female green turtles breeding in the Hawaiian Islands. In *Proceedings of the 18th International Sea Turtle Symposium*, eds. A. Abreu-Grobois, R. Briseño-Dueñas, R. Márquez-Millán, L. Sarti-Martínez, 3-7 March 1998, pp. 281-283. U.S. Dept. of Comm., NOAA Tech. Memo. NOAA-TM-NMFS-SEFSC-436.
- Balazs, G.H., and M. Chaloupka. 2004a. Thirty-year recovery trend in the once depleted Hawaiian green sea turtle stock. *Biological Conservation* 117: 491–498.
- Balazs, G.H., and M. Chaloupka. 2004b. Spatial and temporal variability in somatic growth of green sea turtles (*Chelonia mydas*) resident in the Hawaiian Archipelago. *Mar. Bio.* 145 (5): 1043-1059.
- Balazs, G.H., and S. G. Pooley. 1991. Research plan for marine turtle fibropapilloma. NOAA Technical Memorandum NMFS-SWFSC-156.
- Ballantine, W.J. 1991. *Marine Reserves for New Zealand*. Auckland: University of New Zealand.

- . 1997. No-take marine reserve networks support fisheries. *Conservation Biology* 17 (6): 1769-1784.
- Balwani, S. 2006. Personal communication with Emily Fielding. February 8.
- Barlow, J. 2003. Cetacean abundance in Hawaiian waters during summer/fall of 2002. NMFS Southwest Fisheries Science Center manuscript.
- . 2006. Cetacean Abundance in Hawaiian Waters Estimated From a Summer/Fall Survey In 2002 *Marine Mammal Science* 22: 446–464.
- Beckwith, M., ed. & trans. 1951. The Kumulipo: A Hawaiian Creation Chant. University of Hawai‘i Press. Honolulu.
- Benoit-Bird, K.J., W.W.L. Au, R.E. Brainard, and M. O. Lammers. 2002. Diel Horizontal Migration of the Hawaiian Mesopelagic Boundary Community Observed Acoustically. *Marine Ecology Progress Series* 217: 1-14.
- Berkes, F. 2003. Re-thinking community-based conservation. *Conservation Biology* 18: 621-630.
- Berkley, S.A., M.A. Hixon, R.J. Larson, and M.S. Love. 2004. Fisheries Sustainability Via Protection of Age Structure and Spatial Distribution of Fish Populations. American Fisheries Society. Fisheries Magazine, August. URL: [www.fisheries.org](http://www.fisheries.org)
- Beyer, W.N., E.E. Connor, and S. Gerould. 1994. Estimates of soil ingestion by wildlife. *J. Wildl. Manage* 58(2): 375-382.
- Blackburn, T.M., P. Cassey, R.P. Duncan, K.L. Evans, and K.J. Gaston. 2004. Avian extinction and mammalian introductions on oceanic islands, *Science* 305: 1955–1958.
- Boehlert, G. 1993. Fisheries and marine resources of Hawaii and the U.S.-associated Pacific Islands: an introduction. *Marine Fisheries Review* 55: 3-7.
- Boland, R.C., and M. Donohue. 2003. Marine debris accumulation in the nearshore marine habitat of the endangered Hawaiian monk seal, *Monachus schauinslandi* 1999-2001. *Mar. Poll. Bull.* 46(11): 1385-1394.
- Bolton, M.R. Medeiros, B. Hothersall and A. Campos. 2004. The use of artificial breeding chambers as a conservation measure for cavity-nesting procellariiform seabirds: a case study of the Madeiran storm petrel (*Oceanodroma castro*). *Biological Conservation* 116: 73-80.
- Botsford, L., G. DiNardo, M. Fogarty, D. Goodman, and J. Hampton. 2002. Workshop proceedings on the development of spatially structured population models for Northwestern Hawaiian Islands lobster resources. Southwest Fisheries Science Center, Administrative Report, H-02-01.



- Bowen, B.W., A.B. Meylan; J.P. Ross; C.J. Limpus; G.H. Balazs; J.C. Avise. 1992. Global Population Structure and Natural History of the Green Turtle (*Chelonia mydas*) in Terms of Matriarchal Phylogeny. *Evolution* 46: 865-881.
- Brodziak, J. 2007. An investigation of alternative production models to assess the Hawaiian Bottomfish Complex. NMFS Pacific Islands Fisheries Science Center. Admin. Rep. H-07-01
- Browman, H.L., and K.I. Stergiou. 2004. Politics and socio-economics of ecosystem-based management of marine resources: Introduction. *Marine Ecology Progress Series*, vol. 300: 241-296. September 16.
- Brueggemann, M.M. 1995. Report on a botanical survey of Midway Atoll, April 1-7, 1995. United States Fish and Wildlife Service, U.S. Department of the Interior, Honolulu.
- Campbell, S., M. David, L.A. Woodward, & Q.X. Li. 2004. Persistence of carbofuran in marine sand and water. *Chemosphere* 54(2004): 1155-1161.
- Carpenter, E.J., S.J. Anderson, G.R. Harvey, H.P. Miklas, and B.B. Peck. 1972. Polystyrene spherules in coastal waters. *Science* 178: 749-750.
- Carpenter, E.J., and K.L. Smith, Jr. 1972. Plastics on the Sargasso Sea Surface. *Science* 175 (4027): 1240 – 1241.
- Center for Biodiversity Conservation. 2004. *Sustaining Seascapes: the science and policy of marine resource management. Symposium glossary* [online]. American Museum of Natural History, New York.
- Cho, D. 2004. Derelict Fishing Gear and Related Marine Debris: An Educational Outreach Seminar among APEC Partners. Paper read at APEC Marine Debris Seminar, 13-16 January 2004, Honolulu.
- Christensen, N.L., A.M. Bartuska, J.H. Brown, S. Carpenter, C. D'Antonio, R. Francis, J.F. Franklin, J.A. MacMahon, R.F. Noss, D.J. Parsons, C.H. Peterson, M.G. Turner, and R.G. Woodmansee. 1996. The Report of the Ecological Society of America Committee on the Scientific Basis for Ecosystem Management. *Ecological Applications* 6 (3): 665-691.
- Christie, P., B. McCay, M. Miller, C. Lowe, A. White, R. Stoffle, D. Fluharty, L. McManus, R.R. Chuenpagdee, C. Pomeroy, D. Suman, B. Blount, D. Huppert, R. Eisma, E. Oracion, K. Lowry, and R. Pollnac. 2003. Toward developing a complete understanding: A social science research agenda for marine protected areas. *Fisheries* 28 (12): 22-26.
- Citta, J., M.H. Reynolds, and N.E. Seavy. 2006. Seabird Monitoring Assessment for Hawaii and the Pacific Islands. USGS Pacific Island Ecosystems Research Center. Unpubl. Rept. to U.S. Fish and Wildlife Service, Migratory Birds and Habitat Programs, Portland, Oregon.
- Clague, D.A. 1996. The Growth and Subsidence of the Hawaiian-Emperor volcanic chain. In: *The origin and evolution of Pacific Island biotas, New Guinea to Eastern Polynesia: patterns and processes.* :Keast, A.:Miller, S.E.: (Editors), SPB Academic Publishing, Amsterdam. 35-50.

- Clapp, R.B. 1972. The natural history of Gardner Pinnacles, northwestern Hawaiian Islands. *Atoll Research Bulletin*. 163:1-25.
- Clapp, R.B., and E. Kridler. 1977. The natural history of Necker Island, Northwestern Hawaiian Islands. *Atoll Research Bulletin*. 207: 1-147.
- Clarke, R.P., S.S. Yoshimoto, and S.G. Pooley. 1992. A Bioeconomic Analysis of the Northwestern Hawaiian Islands Lobster Fishery. *Marine Resource Economics* 7: 225-240.
- Cleghorn, P. 1988. The Settlement and abandonment of Two Hawaiian Outposts: Nihoa and Necker. In: *Bishop Museum Occasional Papers* 28:35-49. Bishop Museum Press, Honolulu.
- Cohen, S. 1985. *Wings to the Orient*. Pictorial Histories Publishing Company, Missoula, Montana.
- Colley, Ben. *Midway*. MS DOC 29. Bishop Museum Library and Archives, Honolulu.
- Coloma-Agaran, G. 2003. First Quarterly report for Nuisance Seaweed Control, Kihei, Maui, Hawai'i. Report submitted to EPA.
- Creighton, J.L. 1981. *The Public Involvement Manual*. Abt Books, Cambridge, Massachusetts.
- Cressman, R.J., S. Ewing, B. Tillman, M. Horan, C. Reynolds, and S. Cohen, 1990. "A Glorious Page in Our History" *The Battle of Midway 4-6 June 1942*. Pictorial Histories Publishing Company, Missoula, Montana.
- Cury, P.M. 2004. Tuning the Ecoscope for the Ecosystem Approach to Fisheries. *Marine Ecological Progress Series* 274: 277-275.
- Dalrymple, G.B., E.A. Silver, E. Jackson. 1974. NASA. Ames Res. Center Guidebook to the Hawaiian Planetology Conference: 23-36.
- Dameron, O.J., M. Parke, M.A. Albins, and R. Brainard. 2007. Marine debris accumulation in the Northwestern Hawaiian Islands. *Marine Pollution Bulletin*. 54(4): 423-433.
- David, M., S. Campbell, L.A. Woodward, & Q.X. Li. 2001. Characterization of a carbofuran-contaminated site in the Hawaiian Islands National Wildlife Refuge. J.J. Johnston, ed., *Pesticides and Wildlife: ACS Symposium Series 771*. Chapter 3. pp. 22-37.
- Dean, M., ed., 1992. *Archaeology Underwater: the NAS Guide to Principles and Practice*. Nautical Archaeology Society, London.
- DeFelice, R.C., S.L. Coles, D. Muir, and L.G. Eldredge, 1998. Investigation of the marine communities of Midway Harbor and adjacent lagoon, Midway Atoll, Northwestern Hawaiian Islands. Hawai'i Biological Survey Contribution No. 1998-014. Bishop Museum, Honolulu.
- DeFelice, R.C., D. Minton, and L.S. Godwin. 2002. Records of shallow-water marine invertebrates from French Frigate Shoals, Northwestern Hawaiian Islands, with a note on non-indigenous species.

Report to the U.S. Fish and Wildlife Service. Technical Report No. 23. Contribution No. 2002-01 to the Hawai'i Biological Survey Bishop Museum, Honolulu.

De Leo, G.A., and S. Levin. 1997. The multifaceted aspects of ecosystem integrity. *Conservation Ecology* 1(1): 3. URL: <http://www.consecol.org/vol1/iss1/art3/>

Delgado, J.P. 1985. Nominating Historic Vessels and Shipwrecks to the National Register of Historic Places. *National Register Bulletin* 20. National Park Service, U.S. Department of the Interior.

DeMartini, E.E., G.T. DiNardo, and H.A. Williams. 2003. Temporal changes in population density, fecundity and egg size of the Hawaiian spiny lobster, *Panulirus marginatus*, at Necker Bank, Northwestern Hawaiian Islands. *Fish. Bull.*, U. S. 101:22-31.

DeMartini, E.E. and A.M. Friedlander. 2004. Spatial Patterns of Endemism in Shallow Reef Fish Populations of the Northwestern Hawaiian Islands. *Marine Ecology Progress Series* 271:281-296.

———. 2006. Predation, endemism, and related processes structuring shallow-water reef fish assemblages of the NWHI. *Atoll Research Bulletin*. 543: 237-256.

Department of the Interior. 1997. Department of the Interior Manual Chapter 411, Chapters 1 through 3; and Reclamation Policy and Directives & Standards for Cultural Resources Management and Museum Property Management. 411 DM and 36 CFR Part 800; 43 CFR Part 7.

Department of the Interior. 2008. U.S. World Heritage Tentative List 2008. URL [www.doi.com](http://www.doi.com)

Department of the Interior Secretary's Order 3217. 13 September 2000. Designation of the Battle of Midway National Memorial.

DLNR (Department of Lands and Natural Resources, State of Hawai'i). 2003a. The State of Hawai'i Aquatic Invasive Species Management Plan. Division of Aquatic Resources, Honolulu.

———. 2003b. Wao Akua: Sacred Source of Life. Honolulu: State of Hawai'i, Department of Land and Natural Resources, Division of Forestry and Wildlife.

———. 10 August 2007. Hawai'i Administrative Rules Chapter 13-76. Non-Indigenous Aquatic Species. Division of Aquatic Resources.

Diamond, A.W. 1978. Feeding strategies and population size in tropical seabirds. *American Naturalist* 112: 215-223.

DiNardo, G.T., and R. Marshall. 2001. Status of Lobster Stocks in the Northwestern Hawaiian Islands, 1998-2000. Southwest Fisheries Science Center, Administrative Report, H-01-04.

Dollar, S.J. 1982. Wave stress and coral community structure in Hawai'i. *Coral Reefs* 1: 71-81.

Dollar, S.J., and R.W. Grigg. 2004. Anthropogenic and Natural Stresses on Selected Coral Reefs in Hawai'i: a multi-decade synthesis of impact and recovery. *Pacific Science* 58(2): 281-304.

Donohue, M.J. 2005. Eastern Pacific Ocean source of Northwestern Hawaiian Islands marine debris supported by errant fish aggregating device. *Marine Pollution Bulletin* 50: 886-888.

Donohue, M.J., and D. Foley. 2007. Remote sensing reveals links among the endangered Hawaiian monk seal, marine debris and El Niño. *Marine Mammal Science* 23 (2): 468-473.

Donohue, M.J., and R.E. Brainard. 2001. A comprehensive effort to mitigate marine debris and restore coral reef habitat in the Northwestern Hawaiian Islands. [Abstr.] For Oceans 2001, 5-8 November 2001, Pelagic Fisheries Session, Hilton Hawaiian Village, Honolulu, Hawai'i.

Duda, A.M., and K. Sherman. 2002. A New Imperative for Improving Management of Large Marine Ecosystems. *Ocean and Coastal Management* 45: 797-833.

Eagles, P.F.J., S.F. McCool, and C.D. Haynes. 2002. *Sustainable Tourism in Protected Areas: Guidelines for Planning and Management*. IUCN, Gland, Switzerland and Cambridge, UK.

Ehler, R. 2004. Socio-Economic Assessment of Commercial Bottomfishing in the Northwestern Hawaiian Islands (Draft). National Marine Sanctuary Program, NOAA-NOS. Silver Spring, MD.

Eldredge, L.G. 2002. Literature Review and Cultural, Geological, and Biological History for the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve. Contribution to the Hawaii Biological Survey No. 2002-026. Bishop Museum, Honolulu.

———. 2005. Assessment of the potential threat to the introduction of marine non-indigenous species in the Northwestern Hawaiian Islands. Final Report Prepared for Environmental Defense. Contribution No. 2005-001 to the Hawaii Biological Survey. Bishop Museum, Honolulu.

Eldredge, L. and J. Carlton .2002. Hawaiian Marine Bioinvasions: A Preliminary Assessment. *Pacific Science*. 56(2): 211-212.

Ely, C.A., and R.B. Clapp. 1973. The natural history of Laysan Island, Northwestern Hawaiian Islands. *Atoll Research Bulletin*. 171: 1-361.

Emanuel, K. 2005. Increasing destructiveness of tropical cyclones over the past 30 years. *Nature* 436:686-688.

Emory, K. 1928. The Archaeology of Nihoa and Necker Islands. *Bishop Museum Bulletin* 53. Bishop Museum Press, Honolulu.

Endangered Species Act of 1973, as amended, 16 U.S.C. § 1531 *et seq.*

Engilis, Jr., A and M. Naughton. 2004. U. S. Pacific Islands Regional Shorebird Conservation Plan. U. S. Shorebird Conservation Plan. U. S. Dept. of Interior. Portland, OR.

Entsch, B., R.G. Sim, and B. G. Hatcher, 1983. Indication from photosynthetic components that iron is a limiting nutrient in primary producers on coral reefs. *Mar. Biol.* 73(1): 17-30.



Evenhuis, N.L. and L.G. Eldredge, (eds). 2004. Natural History of Nihoa and Necker Islands. Bishop Museum Press, Honolulu.

Executive Order 1019—Hawaiian Islands Reservation, February 3, 1909

Executive Order 10413—Restoring Kure (Ocean) Island to the Jurisdiction of the territory of Hawaii, November 17, 1952 (17 FR 10497)

Executive Order 13022—Administration of the Midway Islands, October 31, 1996 (61 FR 56875)

Executive Order 13089—Coral Reef Protection, June 11, 1998 (63 FR 32701)

Executive Order 13112—Invasive Species, February 3, 1999 (64 FR 6183)

Executive Order 13158—Marine Protected Areas, May 26, 2000 (65 FR 34909)

Executive Order 13178 and 13196—Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, December 4, 2000 (65 FR 76903) and January 18, 2001 (66 FR 7395)

Executive Order 13287—Preserve America, March 3, 2003 (68 FR 10635).

Feare, C.J., 1976. The breeding of the Sooty Tern *Sterna fuscata* in the Seychelles and the effects of experimental removal of its eggs. *Journal of Zoology, London* 179: 317–360.

Fefer, S.I., C.S. Harrison, M.B. Naughton, and R.J. Shallenberger. 1984. Synopsis of results of recent seabird research conducted in the Northwestern Hawaiian Islands. In: R.W. Grigg and K.Y. Tanoue (ed.s). Resource investigations in the Northwestern Hawaiian Islands, University of Hawaii Sea Grant College Program, UNIHI-SEAGRANT-MR-84-01, Honolulu, Hawaii, pp 9-76.

Fine, M. and D. Tchernov. 2007. Scleractinian Coral Species Survive and Recover from Decalcification. *Science* 315: 1811.

Finkelstein, M.E., K.A. Grasman, D.A. Croll, B.R. Tershy, B.S. Keitt, W.M. Jarman, and D.R. Smith. 2007. Contaminant-associated alteration of immune function in black-footed albatross (*Phoebastria nigripes*), a North Pacific predator. *Environ. Toxicol. Chem.* 26:1896-1903.

Firing, J. and R.E. Brainard. 2006. Ten years of shipboard ADCP measurements along the Northwestern Hawaiian Islands. *Atoll Research Bulletin* 543:347-364.

Fish and Wildlife Improvement Act. 1978. 16 U.S.C. § 7421

Flint, E. 1991. Time and energy limits to the foraging radius of sooty terns *Sterna fuscata*. *Ibis*. 133: 43-46.

———. 2004. Personal communication with Sean Corson, NWHI Coral Reef Ecosystem Reserve. April 12.

———. 2006. Personal communication with Emily Fielding, NWHI Coral Reef Ecosystem Reserve. February 1.

Flint, E. and C. Rehkemper. 2002. Control and Eradication of the Introduced Grass, *Cenchrus echinatus*, at Laysan Island, Central Pacific Ocean. In *Turning the Tide: The Eradication of Invasive species* (pp. 110-115), Auckland, New Zealand, IUCN SSC Invasive Species Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.

Floros, C.D., M.J. Samways, and B. Armstrong. 2004. Taxonomic patterns of bleaching within a South African coral assemblage. *Biodiversity and Conservation* 13: 1175-1194.

Fowler, C.W., and L. Hobbs. 2002. Limits to natural variation: Implications for systematic management. *Animal Biodiversity and Conservation* 25: 7-45.

Fowler, H.W., and S.C. Ball. 1925. Fishes of Hawai'i, Johnston Island, and Wake Island. (Tanager Expedition Publ. 2). *Bull. B.P. Bishop Mus.* 26: 1-31. Honolulu.

Franklin, E.C. 2008. An assessment of vessel traffic patterns in the Northwestern Hawaiian Islands between 1994 and 2004. *Marine Pollution Bulletin* 56 (2008): 136-162.

Frid, C.L.J., S. Hansson, S.A. Ragnarsson, A. Rijnsdorp, and S.A. Steingrímsson. 1999. Changing Levels of Predation on Benthos as a Result of Exploitation of Fish Populations. *Ambio*. 28, 7:578-582.

Friedlander, A. and E. DeMartini. 2002. Contrast in density, size, and biomass of reef fishes between the Northwestern and the main Hawaiian Islands: the effects of fishing down apex predators. *Marine Ecological Progress Series* 230: 253-264.

Friedlander, A., G. Aeby, R. Brainard, A. Clark, E. DeMartini, S. Godwin, J. Kenyon, R. Kosaki, J. Maragos, and P. Vroom. 2005. The State of Coral Reef Ecosystems of the Northwestern Hawaiian Islands. In: *The State of Coral Reef Ecosystems of the United States and Pacific Freely Associated States: 2005*, ed. J. Waddell, pp. 270-311. NOAA Technical Memorandum NOS NCCOS 11. NOAA/NCCOS Center for Coastal Monitoring and Assessment's Biogeography Team. Silver Spring, MD.

Friedlander, A., J. Sladek Nowlis, J. Sanchez, R. Appeldoorn, P. Usselio, C. McCormick, S. Benharano, and A. Mitchell-Chui. 2003. Designing Effective Marine Protected Areas in Seaflower Biosphere Reserve, Colombia, Based on Biological and Sociological Information. *Conservation Biology* 6: 1769-1784.

Fry, D.M., S.I. Fefer, and L. Sileo. 1987. Ingestion of plastic debris by Laysan albatrosses and wedge-tailed shearwaters in the Hawaiian Islands. *Marine Pollution Bulletin* 18: 339-343.

Galver, L. 2000. The molecular ecology of spinner dolphins, *Stenella longirostris*: genetic diversity and population structure. Ph.D. dissertation, University of California, San Diego, 192 p

Geitz, M. 2004. Cruise Tourism on Slavbard. Norway: WWF International Arctic Programme.

Giambelluca, T.W., and T.A. Schroeder 1998. Climate. In: *Atlas of Hawaii*, J. Juvik and S. Juvik, (eds). University of Hawai'i Press. Honolulu.

Glimartin, W.G., ed. 2005. Workshop to Identify Research and Mitigation Measures on Nihoa Island, Northwestern Hawaiian Islands. April 25-26, 2005 Honolulu. Hawai'i Wildlife Fund, Volcano, HI. 96785.

Gilmartin, W., S. Canja, C. Vanderlip, and J. Mangel. 1990. Managing human activity aids recovery of endangered Hawaiian monk seals at Midway Islands. Abstract in: *Society for Marine Mammalogy Proceedings of the 13th Biennial Conference on the Biology of Marine Mammals*, p. 67. Hawai'i.

Gittings, S., M. Tartt, C. Alexander, and R. Kosaki. 2004. Information needs for conservation science and management of the Northwestern Hawaiian Islands. National Marine Sanctuary Program, NOAA. Silver Spring, MD., 66 pp.

Giongo, F., J. Bosco-Nizeye, and G.N. Wallace. 1994. A Study of Visitor Management in the World's National Parks and Protected Areas. Paper prepared for Colorado State University, The Ecotourism Society and the World Conservation Monitoring Centre.

Godwin, L.S. 2000. NWHI derelict fishing net removal project: Survey of marine organisms associated with net debris. Report submitted to: NMFS, Coral Reef Ecosystem Investigation.

———. 2002. Preliminary report on non-coral marine invertebrates: NMFS.

Godwin, S. 2005. Preliminary species inventory for marine invertebrates associated with the coral reef communities of the Northwestern Hawaiian Islands. Report submitted to the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve. Honolulu.

Godwin, S., K.S. Rodgers, and P.L. Jokiel. 2006. Reducing potential impacts of invasive marine species in the Northwestern Hawaiian Islands Marine National Monument. A report for research conducted under DOI, NOAA, National Ocean Service. MOA 2005-008/6882 Amendment No. 001, Research in Support of the NWHI Coral Reef Ecosystem Reserve, HIMB, SOEST, University of Hawai'i at Mānoa, Honolulu.

Godwin, L.S. 2008. The marine invertebrate species associated with the biofouling of derelict fishing gear in the Papahānoumokuākea Marine National Monument. Report submitted to NOAA-NMFS, PIFSC, Coral Reef Ecosystem Division. (In Review).

Gon, S. 2003. Application of Traditional Ecological Knowledge and Practices of Indigenous Hawaiians to the Revegetation of Kaho'olawe. *Ethnobotany Research and Applications* 1:5-20.

Grandcourt, E.M. 2003. The Effect of Intensive Line Fishing on the Virgin Biomass of a Tropical Deepwater Snapper, the Crimson Jobfish (*Pristipomoides filamentosus*). *Fisheries Bulletin* 101:305-311.

Graves, M., and K. Kikiloi. In prep. Preliminary Reconnaissance Report for the Archaeological Sites of Nihoa Islands, February 2006. Prepared for the U.S. Fish and Wildlife Service.

Grigg, R.W. 1981. *Acropora* in Hawaii. Part II. Zoogeography. *Pacific Science* 35: 15-25.

———. 2006. The history of marine research in the Northwestern Hawaiian Islands: lessons learned from the past and hopes for the future. *Atoll Research Bulletin* 543: 13-22.

Grigg, R.W., and R. Pfund, eds. 1980. *Proceedings of the Symposium on the Status of Resource Investigations in the Northwestern Hawaiian Islands*. Sea Grant Miscellaneous Report UNIHI-SEAGRANT-MR-80-04. University of Hawai‘i Sea Grant College Program. Honolulu.

Grigg, R.W., and K.Y. Tanoue, eds. 1984. *Proceedings of the Second Symposium on Resource Investigations in the Northwestern Hawaiian Islands*. Sea Grant Miscellaneous Report UNIHI-SEAGRANT-MR-84-01. University of Hawai‘i Sea Grant College Program. Honolulu.

Handy, C.E.S., E.G. Handy, and M.K. Pukui. 1972. Native Planters in Old Hawai‘i: Their Life, Lore, and Environment. *Bishop Museum Bulletin* 233. Bishop Museum Press. Honolulu.

Harbottel-Boyd, J. 1886. Report to the Minister of Interior relative to the Annexation of the above or Mokupāpapa to the Hawaiian Islands. Interior Dept. of Land, Sept. 1886, Box 87, Hawai‘i State Archives. Honolulu.

Harrison, D., and A. Craig, 1993: Ocean Model Studies of Upper-Ocean Variability at 0°, 160°W during the 1982–1983 ENSO: Local and Remotely Forced Response. *J. Phys. Oceanogr.* 23: 425–451.

Harrison, C.S., T.S. Hida, M.P. Seki. 1983. Hawaiian Seabird Feeding Ecology. *Wildlife Monographs* 85:1-71.

Harvell, C., K. Kim, J. Burkholder, R. Colwell, P. Epstein, D. Grimes, E. Hofmann, E. Lipp, A. Osterhaus, R. Over-Street, J. Porter, G. Smith, and G. Vasta. 1999. Emerging Marine Diseases—climate links and anthropogenic factors. *Science* 285: 1505-1510.

Havlik, B. 2005. Branch Chief, Aids to Navigation, United States Coast Guard, District 14. Personal communication with Joel Paschal, Tetra Tech, Inc., January 4

Hawai‘i Administrative Rules, 2007. Title 13, Department of Land and Natural Resources. Subtitle 4, Part IV, Fisheries Resource Management. Chapter 76, Non-Indigenous Aquatic Species.

Hawai‘i Admissions Act. 8 March 1959. Pub. L. 86-3, 73 Stat. 4 § 2.

Hawai‘i Biodiversity and Mapping Program. 2007. Program database. unpublished, Honolulu.

Hawai‘i Endangered Species. Hawaii Revised Statutes, Chapters 183D and 195D, State of Hawai‘i.

Hawai‘i Environmental Impact Statements. Hawaii Revised Statutes. Chapter 343, State of Hawai‘i

Hawai‘i Fishing Adventures and Charters (HFAC). 2004. Hawai‘i Fishing Adventures and Charters. Available from the Internet. URL: <http://www.sportfishhawaii.com/midwayreports.htm>.



Hawai'i Organic Act of 30 April 1900, c339, 31 Stat.141 § 2.

Hawai'i State Constitution, Article XI, §§ 1,2,6,9; and Article XII § 7.

Helber Hastert & Fee 1995. *Cultural Resources Management Plan* for Midway Islands. Submitted to the Department of the Navy, Pacific Division, Naval Facilities Engineering Command, Pearl Harbor, Hawai'i.

Henderson, J.R. 1984a. Encounters of Hawaiian Monk Seals with Fishing Gear at Lisianski Island, 1982. *Marine Fisheries Review* 46(3):59-61.

———. 1984b. A Review of Hawaiian Monk Seal Entanglements in Marine Debris. In: *Proceedings of the Workshop of the Fate and Impact of Marine Debris, 26-29 November 1984*, eds. R. S. Shomura and H. O. Yoshida, pp. 326-335. NOAA-TM-NMFS-SWFSC-54.

———. 1990. Recent Entanglements of Hawaiian Monk Seals in Marine Debris. In: *Proceedings of the Second International Conference on Marine Debris, 2-7 April, 1989*, eds. R. S. Shomura and M. L. Godfrey, pp. 540-553. NOAA-TM-NMFS-SWFSC-154.

———. 2001. A Pre- and Post- MARPOL Annex V Summary of Hawaiian Monk Seal Entanglements and Marine Debris Accumulation in the Northwestern Hawaiian Islands, 1982-1998. *Marine Pollution Bulletin* 42 (7): 584-589.

———. 2006. Personal communication with Emily Fielding, NWHI Coral Reef Ecosystem Reserve, March 13.

Hepburn Board Report. Jan 3, 1939. House Doc No. 65, 76<sup>th</sup> Congress, 1<sup>st</sup> Session, "Report on the Need of additional Naval bases to defend the coast of the United States, Its Territories and Possessions".

Herbst, L.H. 1995. Green turtle fibropapillomatosis: Challenges to assessing the role of environmental cofactors. *Environmental Health Perspectives* 103 (Supp.4): 27-30.

Hilborn, R., 2004. Ecosystem-based fisheries management: the carrot or the stick? *Marine Ecological Progress Series* 274: 275-278.

Hoegh-Guldberg, O., and et. al. 2007. Coral Reefs Under Rapid Climate Change and Ocean Acidification. *Science* 318.

Hoeke, R., R. Brainard, R. Moffitt, and M. Merrifield 2006. The role of oceanographic conditions and reef morphology in the 2002 coral bleaching event in the Northwestern Hawaiian Islands. *Atoll Research Bulletin* 543: 489-503.

Holling, C. S. 1996. Surprise for Science, Resilience for Ecosystems, and Incentives for People. *Ecological Applications*, 6 (3): 733-735.

- Hope, B., S. Scantolini, E. Titus, and J. Cotter. 1997. Distribution patterns of polychlorinated biphenyl congeners in water, sediment and biota from Midway Atoll (North Pacific Ocean). *Mar. Poll. Bull.* 34(7): 548-563.
- Howe, K. R., ed. 2006. *Vaka Moana, Voyages of the Ancestors: the Discovery and Settlement of the Pacific*. University of Hawai'i Press, Honolulu.
- Hoyt, E. 2005. *Marine Protected Areas for Whales, Dolphins and Porpoises*. Earthscan, UK, and U.S.
- Hui, C.A. & W.N. Beyer, 1998. Sediment ingestion of two sympatric shorebird species. *Sci. Tot Env.* 224 (1998): 227-233.
- Ilett, A., R. Aiello, M. Power, C. Recchia, and L. Saunders. 2000. The Great Barrier Reef World Heritage Area - Ecotourism in the world's largest marine protected area. In: T. Charters and K. Law, eds., pp. 65-80. *Best Practice Ecotourism in Queensland*. Brisbane, Queensland.
- Ingraham, W.J. Jr. and C.C. Ebbesmeyer. 2001. Surface current concentration of floating marine debris in the North Pacific Ocean: 12-year OSCURS model experiments. In: *Proceedings of the International Conference on Derelict Fishing Gear and the Ocean Environment, 2001*, Hawaiian Islands Humpback Whale National Marine Sanctuary publication.
- International Maritime Organization (IMO). 1997. Guidelines for the control and management of ships' ballast water to minimize the transfer of harmful aquatic organisms and pathogens.
- . 2001. International Convention on the Control of Harmful Anti-fouling Systems on Ships (AFS): Adopted 5 October 2001. [www.imo.org/Conventions](http://www.imo.org/Conventions).
- IPPC (Intergovernmental Panel on Climate Change). 2007. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Solomon, S, D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor, and H.L. Miller (eds.). Cambridge University Press, Cambridge, United Kingdom and New York, NY, 996 pp.
- Irwin, G.J. 1992. *The Prehistoric Exploration and Colonisation of the Pacific*. United Kingdom: Cambridge University Press.
- Itano, D.G. 2001. The Reproductive biology of yellowfin tuna (*Thunnus albacares*) in Hawaiian waters and the Western Tropical Pacific Ocean: Project summary. SOEST Publication 00-01, JIMAR Contribution 00-328, University of Hawai'i, Honolulu, 69 pp.
- Itano, D.G. and K.N. Holland. 2000. Movement and vulnerability of bigeye (*Thunnus obesus*) and yellowfin tuna (*Thunnus albacares*) in relation to FADs and natural aggregation points. *Aquat. Living Resour.* 13: 213–223.
- Jaques, D.L., and C. Strong. 2002. Disturbance of brown pelicans at communal roosts in Southern and Central California. Prepared for the American Trader Trustee Council, California Department

of Fish and Game, U.S. Fish and Wildlife Service and National Oceanic and Atmospheric Administration.

Johannes, R.E. 1981. *Words of the Lagoon: Fishing and marine lore in the Palau District of Micronesia*. University of California Press, Berkeley.

Johns, G.M., V.R. Leeworthy, F.W. Bell, and M.A. Bonn. 2001. Socioeconomic Study of Reefs in Southeast Florida: Hazen & Sawyer Environmental Engineers and Scientists in association with Florida State University and the National Oceanic and Atmospheric Administration.

Johnson, K.T.M. 2004. Geology in N.L. Evenhuis and L.G. Eldredge, eds., *Natural History of Nihoa and Necker Islands*. Bishop Museum Press. Honolulu, Hawai'i.

Johnston, D.W., M. E. Chapla, L.E. Williams, D.K. Mattila. 2007. Identification of humpback whale *Megaptera novaeangliae* wintering habitat in the Northwestern Hawaiian Islands using spatial habitat modeling. *Endangered Species Research* 3: 249–257.

Kaho'olawe Island Reserve Commission (KIRK). 2004. Kaho'olawe Island Reserve Commission Strategic Plan 2004-2008, May.

Kaly, U.L., and G.P. Jones, 1994. Test of the effect of disturbance on ciguatera in Tuvalu. *Memoirs of the Queensland Museum Brisbane* 34: 523-532.

Kamakau, S. 1976. Na Hana o ka Po'e Kahiko [The works of the people of old]. *Bernice P. Bishop Museum Special Publication* 61. Bishop Museum Press. Honolulu.

Karczmarski, L., B. Würsig, G. Gailey, K.W. Larson, and C. Vanderlip.. 2005. Spinner dolphins in a remote Hawaiian atoll: social grouping and population structure *Behavioral Ecology* 16(4): 675-685.

Karr, J.R. and D.R. Dudley. 1981. Ecological perspective on water quality goals. *Journal of Environmental Management* 5:55-68.

Kaunamano. 1862. Ka Mo'olelo no Aukelenuiaiku. Hōkū o ka Pakipika, 6 Nov.-18 Dec.

Kawamoto, K. and S. Pooley. 2000. *Annual Report of the 1999 Western Pacific Lobster Fishery, Preliminary Draft*. Southwest Fisheries Science Center, Honolulu Laboratory, NMFS, NOAA.

Kay, J.J. 1991. A non-equilibrium thermodynamic framework for discussing ecosystem integrity. *Journal of Environmental Management* 15 (4): 483-495.

Keenan, E.E., R.E. Brainard, and L.V. Basch. 2006. Historical and present status of the pearl oyster, *Pinctada margaritifera*, at Pearl and Hermes Atoll, Northwestern Hawaiian Islands. *Atoll Research Bulletin* 543:333-344.

Kelley, C., R. Moffitt, and J.R. Smith. 2006. Mega- to macro-scale classification and description of bottomfish essential fish habitat on four banks in the Northwestern Hawaiian Islands. *Atoll Research Bulletin* 543:319-332.

Kelley, C. and W. Ikehara. 2006. The impacts of bottomfishing on Raita and West St. Rogatien Banks in the Northwestern Hawaiian Islands. *Atoll Research Bulletin* 543: 305-318.

Kelly, M. 1989. Dynamics of production intensification in pre-contact Hawai'i. *What's New? a closer look at process of innovation*. London.

Kenyon, J.C. and R.E. Brainard. 2006. Second recorded episode of mass coral bleaching in the Northwestern Hawaiian Islands. *Atoll Research Bulletin* 543: 505-523.

Kenyon, J.C., R.E. Brainard, G.S. Aeby, J.D. Chojnacki, M.J. Dunlap, and C.B. Wilkinson. In press. Mass coral bleaching on high latitude reefs in the Hawaiian Archipelago. In: *Proceedings of the 10th International Coral Reef Symposium*, Okinawa.

Kenyon, K.W. 1972. Man versus the monk seal. *Journal of Mammalogy* 58: 97-98.

Kerkvliet, J. and C. Nowell. 2000. Tools for recreation management in parks: the case of the Greater Yellowstone's blue-ribbon fishery. *Ecological Economics* 34 (1): 89-100.

Kikiloi, K. 2003. A new synthesis in oceanic domestication: the symbiotic development of loko i'a aquaculture in pre-contact Oceania. In *SPC Traditional Resource Management and Knowledge Information, Bulletin* 15. South Pacific Commission, Noumea.

———. In prep. Reconnecting with Ancestral Islands: Examining Historical Relationships between Kānaka Maoli and the Northwestern Hawaiian Islands. A Report by the University of Hawai'i Center for Hawaiian Studies to the National Oceanic Atmospheric Administration and the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve. Honolulu.

Kikuchi, W. 1976. Ancient Hawaiian Fishponds. *Science*, vol. 193. pp. 295-299.

King, W. B. 1970. The trade wind zone oceanography pilot study. Part VII: observations of seabirds March 1964 to June 1965. *U.S. Fish and Wildl. Ser. Spec. Sci. Rep. - Fish*. 586. 136p.

Kingdom of Hawaii. 1857. Resolution 1. Reaffirmation of Laysan and Lisianski Islands. Privy Council Minute Books, Series 421, vol. 10. Hawai'i State Archives. Honolulu.

Klavitter, John. 2005. Calculation of the amount of plastic "land filled" each year by albatross at Midway Atoll NWR. U.S. Fish and Wildlife Service, Honolulu, HI. June 9, 2005. 1 page handout.

Kleypas, J.A., R.A. Feely, V.J. Fabry, C. Langdon, C.L. Sabine, and L.L. Robbins. 2006. Impacts of Ocean Acidification on Coral Reefs and Other Marine Calcifiers: A Guide for Future Research, report of a workshop held 18-20 April 2005, St. Petersburg, FL, Sponsored by NSF, NOAA and the U.S. Geological Survey, 88pp.

Kuffner, I.B. and V. Paul. 2001. Effects of nitrate, phosphate and iron on the growth of macroalgae and benthic cyanobacteria from Cocos lagoon, Guam. *Mar. Ecol. Prog. Ser.* 222:63-72.



Kure Atoll, part of the State Seabird Sanctuary. Hawaii Revised Statutes Chapter 125, State of Hawai'i.

Kushlan, J.A., M.J. Steinkamp, K.C. Parsons, J. Capp, M. Acosta Cruz, M. Coulter, I. Davidson, L. Dickson, N. Edelson, R. Elliot, R.M. Erwin, S. Hatch, S. Kress, R. Milko, S. Miller, K. Mills, R. Paul, R. Phillips, J.E. Saliva, B. Sydeman, J. Trapp, J. Wheeler, and K. Wohl. 2002. Waterbird Conservation for the Americas: The North American Waterbird Conservation Plan, Version 1. Washington, D.C., 78 pp.

Lacey Act of 1900, as amended. 18 U.S.C. 42, 16 U.S.C. 3371.

Lammers, M.O., R.E. Brainard, and W.W.L. Lau. 2006. Diel trends in the mesopelagic biomass community of the Northwestern Hawaiian Islands observed acoustically. *Atoll Research Bulletin* 543: 391-408.

Lehane, L. and R.J. Lewis. 2000. Ciguatera: recent advances but the risk remains. *Int. J. Food Microbiol.* 61(2-3): 91-125.

Leslie, H. & K. L. McLeod. 2007. Confronting the challenges of implementing marine ecosystem-based management. *Frontiers in Ecology & Environment*, 5(10): 540-548.

Levington, J.S. 1995. *Marine biology. Function, biodiversity, ecology.* Oxford University Press, New York.

Liholiho, A. 16 March 1856. Reaffirmation of Nihoa Island. Circular of the Kingdom of Hawai'i.

Lili'uokalani, L. trans. 1978. *The Kumulipo: A Hawaiian Creation Myth.* 2nd ed. Pueo Press. California.

Liller, W., 2000. Necker Island, Hawai'i: Astronomical implications of an island located on the Tropic of Cancer. *Rapa Nui Journal*, vol. 14 (4).

Limburg, K.E., S.A. Levin, and C.C. Harwell. 1986. Ecology and estuarine impact assessment: lesson learned from the Hudson River (USA) and other estuarine experiences. *Journal of Environmental Management* 22: 255-280.

Longhurst, A.R. and D. Pauly. 1987. *Ecology of Tropical Oceans.* Academic Press, Inc. San Diego.

Lotze, H.K. 2004. Repetitive history of resource depletion and mismanagement: the need for a shift in perspective. *Marine Ecological Progress Series* 274: 282-285.

Lowe, C.G., B.M. Wetherbee, and C.G. Meyer . 2006. Using acoustic telemetry monitoring techniques to quantify movement patterns and site fidelity of sharks and giant trevally around French Frigate Shoals and Midway Atoll. *Atoll Research Bulletin* 543: 281-304.

Ludwig, J.P., C.L. Summer, H.J. Auman, V. Gauger, D. Bromley, J.P. Giesy, R. Rolland and T. Colborn. 1997. The roles of organochlorine contaminants and fisheries bycatch in recent population

changes of Black-footed and Laysan Albatrosses in the North Pacific Ocean. In: Robinson, G. and R. Gales, eds. *Albatross Biology and Conservation*. Surrey Beatty & Sons, Chipping Norton.

Mac, M.J., A. Opler, C.E.P. Haecker, and P.D. Doran 1998. Status and Trends of the Nation's Biological Resources. Volume 2. U.S. Department of Interior. U.S. Geological Survey, Reston, VA pp 437-964.

MacDonald, M.A. 2008. Nihoa Millerbird Pre-translocation and Nihoa Biological Monitoring Expedition, July 17-September 22, 2007. Nihoa Island, Northwest Hawaiian Islands, Hawaiian Islands National Wildlife Refuge, U.S. Fish and Wildlife Service, Honolulu.

Macintyre, I.G. ed., 2006. Northwestern Hawaiian Islands Third Scientific Symposium. November 2-4, 2004. *Atoll Research Bulletin* 543.

Mackenzie, M.K. and B. Kaiama. 2003. Native Hawaiian claims to the Lands and Natural Resources of the Northwestern Hawaiian Islands. Report to Office of Hawaiian Affairs.

Magnuson-Stevens Fishery Conservation and Management Act, 1976, as amended. Pub. L. 94-265. 16 U.S.C. § 1801 *et seq.*

Malo, D. 1951. Hawaiian Antiquities: Mo'olelo Hawai'i, translated by N. B. Emerson 1898. *Bernice Pauahi Bishop Museum Publication* 2. 2nd ed. Bishop Museum Press, Honolulu.

Maly, K. 2003. Ka Hana Lawai'a a me na ko'a o na kai 'ewalu: A history of fishing practices and marine fisheries of the Hawaiian Islands. Kumu Pono Associates LLC. Prepared for The Nature Conservancy.

Manning, R.E. and S.R. Lawson. 2002. Carrying capacity as "informed judgement": The values of science and the science values. *Environmental Management* 30 (2): 157-168.

Mantua, N.J., S.R. Hare, Y. Zhang, J.M. Wallace, and R.C. Francis. 1997. A Pacific interdecadal climate oscillation with impacts on salmon production. *Bulletin of the American Meteorological Society* 78: 1069-1079.

Manu, M. 1899. He moolelo kaa o Hawai'i no ke kaa nui weliweli mawaena o Pele-Keahialoa me Waka-Keakaikawai. He mau kupua wahine kaaeaa. *Ka Loea Kālai'āina*, May 13-December 30.

Maragos, J.E. and P.L. Jokiel. 1986. Reef corals of Johnston Atoll: One of the world's most isolated reefs. *Coral Reefs* 4:141-150.

Maragos, J., D. Potts, G. Aeby, D. Gulko, J. Kenyon, D. Siciliano and D. VanRavenswaay. 2004. 2000-2002 rapid ecological assessment of corals on the shallow reefs of the Northwestern Hawaiian Islands. Part 1: Species and distribution. *Pacific Science*, 58(2): 211-230.

Maragos, J., and D. Gulko, eds. 2002. Coral Reef Ecosystems of the Northwestern Hawaiian Islands: Interim Results Emphasizing the 2000 Surveys. U.S. Fish and Wildlife Service and the State of Hawaii Department of Land and Natural Resources. Honolulu.

- Marine Mammal Commission. 2005. *Annual Report to Congress 2004*. Bethesda, MD.
- Marion, J. L. and C.S. Rogers. 1994. The applicability of terrestrial visitor impact management strategies to the protection of coral reefs. *Ocean Coastal Management* 22: 153-163.
- MARPOL (Marine Pollution Convention), 1973/78
- Matsumura, S. and K. Nasu. 1997. Distribution of floating debris in the North Pacific Ocean: sighting surveys 1986–1991. In: J. Coe and D. Rogers, Editors, *Marine Debris: Sources, Impacts and Solutions*, Springer-Verlag, New York (1997), p. 15.
- Mathers, D. 2005. Personal communication with Joel Paschal, TetraTech, Inc.
- Maxfield, B. 2005. Personal communication with Joel Paschal, Tetra Tech, Inc.
- McArdle, D. 1997. California Marine Protected Areas. California Sea Grant College System. La Jolla, CA.
- McDermid, K. 2006. Personal communication with Kitty Courtney, Tetra Tech, Inc. Feb. 8.
- McDermid, K., and I.A. Abbott. 2006. Deepwater marine plants from the Northwestern Hawaiian Islands: New perspectives on biogeography. *Atoll Research Bulletin*. 543:525-532.
- McLeod, K.L., J. Lubchenco, S.R. Palumbi, and A.A. Rosenberg. 2005. Scientific Consensus Statement on Marine Ecosystem-Based Management. Signed by 219 academic scientists and policy experts with relevant expertise and published by the Communication Partnership for Science and the Sea. Available from the Internet. URL: <http://compassonline.org/?q=EBM>
- Meyer, C.M., K.N. Holland, and Y.P. Papastamatiou 2007. Site fidelity of giant trevally (*Caranx ignobilis*) to remote Hawaiian atolls: implications for the design of Marine Protected Areas. *Mar. Eco. Prog. Ser.* Vol. 333:13-25.
- Miao, X.S., L.A. Woodward, C. Swenson, and Q.X. Li. 2001. Comparative concentrations of metals in marine species from French Frigate Shoals, North Pacific Ocean, *Mar. Poll. Bull.* 42 (11): 1049-1054.
- Miao, X. S., C. Swenson, K. Yanagihara, and Q.X. Li. 2000a. Polychlorinated biphenyls and metals in marine species from French Frigate Shoals, North Pacific Ocean. *Arch. Environ. Contam. Toxicol.* 38: 464-471.
- Miao, X. S., C. Swenson, L.A. Woodward, and Q.X. Li. 2000b. Distribution of polychlorinated biphenyls in marine species from French Frigate Shoals, North Pacific Ocean. *Sci. Tot. Environ.* 257 (2000): 17-28.
- Michener, W.K., E.R. Blood, K.L. Bildstein, M.M. Brinson, and L.R. Gardner. 1997. Climate change, hurricanes and tropical storms and rising sea level in coastal wetlands. *Ecological Applications* 7: 770-801.

Midway Atoll National Wildlife Refuge. 1996. Executive Order No. 13022. October 31 (61 FR 56875).

Miller, J.E., R.K. Hoeke, T.B. Appelgate, P.J. Johnson, J.R. Smith, and S. Bevacqua. 2004. Bathymetric Atlas of the Northwestern Hawaiian Islands (Draft). National Oceanic and Atmospheric Administration. February.

Miller, J.E., S. Vogt, R. Hoeke, S. Ferguson, B. Applegate, J.R. Smith, and M. Parke 2006. Bathymetric atlas and website for the northwestern Hawaiian Islands. *Atoll Research Bulletin* 543: 409-422.

Mitchell, C., C. Ogura, D.W. Meadows, A. Kane, L. Strommer, S. Fretz, D. Leonard, and A. McClung. 2005. Northwestern Hawaiian Islands. Pages 93-104, in Hawaii's Comprehensive Wildlife Conservation Strategy. Honolulu: Department of Land and Natural Resources. 722 pp.

Moffitt, R.B., J. Johnson, and G. DiNardo. 2006. Spatiotemporal analysis of lobster trap catches: impacts of trap fishing on community structure. *Atoll Research Bulletin* 543: 217-236.

Mooney, H.A. and E.E. Cleland. 2001. The evolutionary impact of invasive species. *Proc. Natl. Acad. Sci. U S A.* 98 (10): 5446–5451.

Morin, M. and S. Conant. 2002. Laysan Finch (*Telespiza cantans*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; retrieved from the Birds of North America Only: <http://bna.birds.cornell.edu/species/639a>.

Morin, M. and S. Conant. 1998. Laysan Island Ecosystem Restoration Plan (draft). University of Hawaii at Manoa, Dept. of Zoology, Honolulu. 111pp.

Morin, M. and S. Conant. 2007. Summary of Scoping, Evaluation, and Recommendations for Northwestern Hawaiian Islands Passerines' Translocation Sites. Report to U.S. Fish and Wildlife Service, Honolulu, Hawaii. 129 pp.

Morishige, C., M.J. Donohue, E. Flint, C. Swenson, and C. Woolaway. 2007. Factors affecting marine debris deposition at French Frigate Shoals, Northwestern Hawaiian Islands Marine National Monument, 1990–2006. *Marine Pollution Bulletin* 54: 1162-1169.

Morison, S.E. 1950. History of United States Naval Operations in World War II. v4. Coral Sea, Midway, and Submarine Actions, May 1942-August 1942, University of Illinois Press.

Mullon, C., P. Curry, and L. Shannon. 2004. Viability model of trophic interactions in marine ecosystems. *Natural Resource Modeling* 17: 27-58.

Myers, R.A. and B. Worm. 2003. Rapid worldwide depletion of predatory fish communities. *Nature* 423:280-283.

NAS Barbers Point, 1962. U.S. Naval Air Station, Barbers Point: Base Guide.



National Environmental Policy Act. 1969, as amended. Pub. L. 91-190, 42 U.S.C. 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, 40 CFR Parts 1500-1508.

National Historic Preservation Act. 1966. 16 U.S.C. 470.

National Invasive Species Act of 1996. Public Law 104-332.

NMFS (National Marine Fisheries Service). 2002. Endangered Species Act Section 7 Consultation on the Fishery Management Plan for the Bottomfish and Seamount Groundfish Fisheries in the Western Pacific Region. Silver Spring, MD.

———. 2003. Stock Assessment Report, Hawaiian Monk Seal (*Monachus schauinslandi*). URL: [www.nmfs.noaa.gov/pr/PR2/Stock\\_Assessment\\_Program/individual\\_sars.html](http://www.nmfs.noaa.gov/pr/PR2/Stock_Assessment_Program/individual_sars.html)

———. 2004a. Stock Assessment Report: Hawaiian Monk Seal (*Monachus schauinslandi*). URL: [www.nmfs.noaa.gov/pr/PR2/Stock\\_Assessment\\_Program/individual\\_sars.html](http://www.nmfs.noaa.gov/pr/PR2/Stock_Assessment_Program/individual_sars.html)

———. 2004b. Assessment of the 2004 Marine Debris Field Season: Multi-Agency Marine Debris Program Synopsis. Presented by NMFS Coral Reef Ecosystem Division, Marine Debris Program, Honolulu Laboratory.

NMFS and FWS (U.S. Fish and Wildlife Service). 1998a. Recovery Plan for U.S. Pacific Populations of the Hawksbill Turtle (*Eretmochelys imbricata*). National Marine Fisheries Service, Silver Spring, MD.

———. 1998b. Recovery Plan for the U.S. Pacific Populations of the East Pacific Green Turtle (*Chelonia mydas*). National Marine Fisheries Service, Silver Spring, MD.

———. 1998c. Recovery Plan for U.S. Pacific Populations of the Loggerhead Turtle (*Caretta caretta*). National Marine Fisheries Service, Silver Spring, MD.

———. 1998d. Recovery Plan for U.S. Pacific Populations of the Leatherback Turtle (*Dermochelys coriacea*). National Marine Fisheries Service, Silver Spring, MD.

———. 1998e. Recovery Plan for U.S. Pacific Populations of the Olive Ridley Turtle (*Lepidochelys olivacea*). National Marine Fisheries Service, Silver Spring, MD.

———. 2007. 2007 ESA Reviews for Federally Listed Sea Turtles. <http://www.fws.gov/northflorida/SeaTurtles/2007-Reviews/2007-sea-turtle-ESA-reviews.htm>

NOAA (National Oceanic and Atmospheric Administration). 2001. Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Hawaii Atlas. 2 Volumes. National Ocean Service, Office of Response and Restoration. Seattle, Washington.

———. 2003a. A Strategic Plan for NOAA's National Ocean Service: FY 2003-2008 and Beyond. Silver Spring, MD.

———. 2003b. Atlas of the shallow-water Benthic Habitats of the NWHI (Draft). 160 pp. National Ocean Service. Silver Spring, MD.

———. 2003c. Northwestern Hawaiian Islands Explorers. Office of Explorations. URL: <http://oceanexplorer.noaa.gov/explorations/03nwhi/explorers/explorers.html>

———. 2004a. New Priorities for the 21st Century: NOAA Strategic Plan FY 2005 - FY 2010. National Oceanic and Atmospheric Administration. Silver Spring, MD.

———. 2004b. Proposed Northwestern Hawaiian Islands National Marine Sanctuary: Advice and recommendations on development of draft fishing regulations under National Marine Sanctuaries Act Section 304(a)(5). Honolulu, HI and Silver Spring, MD.

———. 2005a. *Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve Final Reserve Operations Plan*. Honolulu, HI and Silver Spring, MD.

———. 2005b. *Our National Marine Sanctuaries: Strategic Plan 2005-2015*. National Ocean Service. Silver Spring, MD.

———. 2006. *State of the Reserve 2000-2005*. Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve. National Marine Sanctuary Program. Honolulu, HI and Silver Spring, MD.

NOAA (National Oceanic and Atmospheric Administration) Fisheries, 1991. Humpback Whale Recovery Plan, Silver Spring, MD

———. 1998. Blue Whale Recovery Plan, Silver Spring, MD

———. 2006a. Fin Whale Recovery Plan, Silver Spring, MD

———. 2006b. Sperm Whale Recovery Plan, Silver Spring, MD

———. 2007. Monk Seal Recovery Plan, Silver Spring, MD.

National Oceanic and Atmospheric Administration and U.S. Fish and Wildlife Service. 19 August 2006. Northwestern Hawaiian Islands Marine National Monument Regulations. 50 CFR Part 404. (71 FR 51134).

National Marine Sanctuaries Amendments Act. 2000. Pub. L. 106-513 §6 (g) (2000).

National Wildlife Refuge Improvement Act of 1997. 1997. Pub. L. 105-57, amending 16 U.S.C. 668dd-ee.

National Wildlife Refuge System Administration Act of 1966, as amended, 16 U.S.C. §§ 668dd-ee.

Naughton, M. and E. Flint. 2004. Populations and conservation status of seabirds nesting in the Northwestern Hawaiian Islands. Paper read at Northwestern Hawaiian Islands Third Scientific Symposium, Honolulu.

- Navigating Change. 2006. Navigating Change Teacher's Guide. URL: [www.hawaiianatolls.org](http://www.hawaiianatolls.org).
- Newman, A.L. 1988. Mapping and Monitoring Vegetation Change on Laysan Island. Thesis, University of Hawai'i, Department of Geography, Honolulu.
- Nickerson, T. circa 1828. On the loss of the ship *Two Brothers* at French Frigate Shoals 1823. Nantucket Historical Association. MS 106 folder 3.5.
- Nishida, G. 1998. Midway Terrestrial Arthropod Survey, Final Report prepared for USFWS, by Hawaii Biological Survey, Bishop Museum, Honolulu.
- . 2001. NOWRAMP 2000 Terrestrial Arthropod Report.. Prepared for the USFWS, Honolulu.
- . 2002. *Hawaiian Terrestrial Arthropod Checklist, 4<sup>th</sup> Edition*. Bishop Museum Technical Report 22., Bishop Museum Press, Honolulu. pp i-iv, 1-313.
- Nolan, R.S. 1981. Shark Control and the Hawaiian Monk Seal. Marine Mammal Commission PB82-201808.
- Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4701).
- Noss, R. 1995. Maintaining ecological integrity in representative reserve networks. Discussion Paper. World Wildlife Fund Canada and World Wildlife United States.
- Northwestern Hawaiian Islands. Hawaii Revised Statutes, Title 12, Chapter 171, State of Hawai'i.
- Northwestern Hawaiian Islands Marine National Monument, 19 August 2006. 50 CFR Part 404.
- Northwestern Hawaiian Islands State Marine Refuge 2005, Hawaii Revised Statutes Chapters 187A-6, 188, and Hawaii Administrative Rules Title 13, Chapter 60.5. State of Hawai'i.
- NTSC Joint Subcommittee on Ocean Science and Technology. 2007. Charting the Course for Ocean Science in the United States for the Next Decade: An Ocean Research Priorities Plan and Implementation Strategy. Available online at: <http://ocean.ceq.gov/about/docs/orppfinal.pdf>.
- O'Connor, P.J. 1999. Poaceae In: Wagner, W.L., D.R. Herbst, and S.H. Sohmer (eds.), Manual of the Flowering Plants of Hawaii, Bishop Museum Special Publication 97.Pp. 1,481-1,604. University of Hawaii Press and Bishop Museum Press, Honolulu.
- Office of Hawaiian Affairs. Hawaii Revised Statutes Chapter 10-1(b), State of Hawai'i.
- Office of Hawaiian Affairs. Wahi Pana Database. [www.oha.org/index](http://www.oha.org/index).
- Ogden Environmental and Energy Services Co., Inc. January 1996. Naval Air Facility (NAF) Midway Island Site Inspection (SI) Report. As cited in U.S. Navy 2001.

Ogden Environmental and Energy Services Co., Inc. July 1997. Remedial Investigation (RI) Report for Naval Air Facility (NAF) Midway Island, Volume I: Technical Report.

Olsen, S.B., K. Lowry, and J. Tobey. 1999. *A manual for assessing progress in coastal management*. University of Rhode Island: Coastal Resources Center.

Overpeck, J.T., B.L. Otto-Bliesner, G.H. Miller, D.R. Muhs, R.B. Alley, and J.T. Kiehl. 2006. Paleoclimatic Evidence for Future Ice-Sheet Instability and Rapid Sea-Level Rise. *Science* 311: 1747-1750.

Pandolfi, J.M., J.B.C. Jackson, N. Baron, R.H. Bradbury, H.M. Guzman, T.P. Hughes, C.V. Kappel, F. Micheli, J.C. Ogden, H.P. Possingham, and E. Sala. 2005. Are U.S. Coral Reefs on the Slippery Slope to Slime? *Science* 307: 1725-1727.

*Paradise of the Pacific* 1936 <http://www.janeresture.com/midway/index.htm>

Parrish, F.A., A.R. Baco. 2007. State of Deep Coral Ecosystems in the Western Pacific Region: Hawaii and the United States Pacific Islands. Pages 155-194. In: Lumsden, S.E., T.F. Hourigan, A.W. Bruckner, and G. Dorr (eds.). *The State of Deep Coral Ecosystems of the United States*. NOAA Technical Memorandum CRCP-3, Silver Spring, Maryland.

Parrish, F. and K. Abernathy. 2006. Movements of monk seals relative to ecological depth zones in the lower Northwestern Hawaiian Islands. *Atoll Research Bulletin* 543: 115-130.

Parrish, F.A., K. Abernathy, G.J. Marshall, and B.M. Buhleiert. 2002 Hawaiian monk seals (*Monachus schauinslandi*) Foraging in deep-water coral beds. *Marine Mammal Science* 18 (1): 244-258.

Parrish, F.A. and J.J. Polovina. 1994. Habitat thresholds and bottlenecks in production of the spiny lobster (*Palinurus marginatus*) in the Northwestern Hawaiian Islands. *Bulletin of Marine Science* 53 (3): 151-163.

Pauly, D., J. Alder, E. Bennett, V. Christensen, P. Tyedmers, and R. Watson. 2003. The Future for Fisheries. *Science* 302: 5649, 1359-1361.

Pew Oceans Commission. 2003. *America's Living Oceans: Charting a Course for Sea Change*. A Report to the Nation: Recommendations for a New Ocean Policy.

Podolsky, R.H. and S.W. Kress. 1989. Factors affecting colony formation in Leach's Storm-petrel to uncolonized islands in Maine. *Auk* 106:332-336.

Podolsky, R. and S.W. Kress. 1992. Attraction of the Endangered Dark-Rumped Petrel to Recorded Vocalizations in the Galápagos Islands. *Condor* 94: 448-453.

Poepoe, K., P.K. Bartram, and A.M. Friedlander. 2003. The Use of Traditional Hawaiian Knowledge in the Contemporary Management of Marine Resources. *Putting Fishers' Knowledge to*



*Work Conference Proceedings*. Fisheries Centre, University of British Columbia, Vancouver, 27-30 August 2001. URL: [http://www.fisheries.ubc.ca/publications/reports/report11\\_1.php](http://www.fisheries.ubc.ca/publications/reports/report11_1.php).

Polovina, J. 1984. Model of a Coral Reef Ecosystem: The ECOPATH Model and its Application to French Frigate Shoals. *Coral Reefs* 3: 1-11.

Polovina, J.J., D.R. Kobayashi, D.M. Parker, M.P. Seki, G.H. Balazs. 2000. Turtles on the edge: movement of loggerhead turtles (*Caretta caretta*) along oceanic fronts, spanning longline fishing grounds in the central North Pacific, 1997-1998. *Fisheries Oceanography* 9 (1) : 71–82.

Polovina, J.J., E. Howell, D.R. Kobayashi, M.P. Seki. 2001. The transition zone chlorophyll front, a dynamic global feature defining migration and forage habitat for marine resources. *Progress in Oceanography* 49:469-483.

Polovina, J.J. and G.T. Mitchum. 1992. Variability in spiny lobster *Panulirus marginatus* recruitment and sea level in the Northwestern Hawaiian Islands. *Fish. Bull.* 90: 483-493.

Polovina, J.J., G.T. Mitchum, N.E. Graham, M.G. Craig, E.E. DeMartini, E.N. Flint. 1994. Physical and biological consequences of a climate event in the central North Pacific. *Fisheries Oceanography* 3: 15-21.

Polovina, J.J., W.R. Haight, R.B. Moffitt, and F.A. Parrish. 1995. The Role of benthic habitat, oceanography, and fishing on the population dynamics of the spiny lobster (*Panulirus marginatus*) in the Hawaiian Archipelago. *Crustaceana* 68 (2): 203-212.

Polynesian Voyaging Society, <http://pvs.kcc.hawaii.edu/migrationspart1.html>. December 3, 2007.

Pomeroy, R.S., J.E. Parks, and L.M. Watson. 2004. *How is your MPA doing? A Guidebook of Natural and Social Indicators for Evaluating Protected Area Management Effectiveness*. ICUN – World Conservation Union. Gland, Switzerland and Cambridge, U.K.

Prange, G.W. 1982. *Miracle at Midway*. New York: Penguin Books.

Pratt, H.D., P.L. Bruner, and D.G. Berrett. 1987. *A Field Guide to the Birds of Hawaii and the Tropical Pacific*. Princeton University Press, Princeton, New Jersey

Presidential Proclamation 8031. 15 June 2006. Establishment of the Northwestern Hawaiian Islands Marine National Monument (71 FR 36443).

Presidential Proclamation 8112. 28 February 2007. Establishment of the Papahānaumokuākea Marine National Monument (72 FR 10031).

Programmatic Agreement. 1996. Programmatic agreement among the Pacific Division, Naval Facilities Engineering Command; Advisory Council on Historic Preservation; and the U.S. Fish and Wildlife Service for management of historic structures on Midway Atoll National Wildlife Refuge. USFWS, Honolulu.

- Pukui, M.K. 1983. 'Ōlelo No'eau: Hawaiian Proverbs and Poetical Sayings. *Bishop Museum Special Publication No. 71*. Bishop Museum Press, Honolulu.
- Pukui, M.K. 1997. 'Ōlelo No'eau Hawaiian Proverbs & Poetical Sayings (Paperback). Bishop Museum Press, Honolulu.
- Pukui, M.K. and C. Handy. 1950. The Polynesian Family System in Ka'u Hawai'i. Polynesian Society, Wellington.
- Quackenbush, S.L., R.N. Casey, R.J. Murcek, T.A. Paul, T.M. Work, C.J. Limpus, A. Chaves, L. duToit, J. Vasconcelos, A.A. Aguirre, T.R. Spraker, J.A. Horrocks, L.A. Vermeer, G.H. Balazs, and J.W. Casey. 2001. Quantitative analysis of herpesvirus sequences from normal tissue and fibropapillomas of marine turtles with real-time PCR. *Virology* 287: 105-111.
- Ralston, S., S. Cox, M. Labelle, and C. Mees. 2004. Bottomfish Stock Assessment Workshop. Western Pacific Fishery Management Council, Honolulu.
- Randall, J.E. 1987. Introductions of marine fishes to the Hawaiian Islands. *Bulletin of Marine Science* 41: 490-502.
- Rauzon, M.J. 2001. *Isles of Refuge: Wildlife and History of the Northwestern Hawaiian Islands*. Honolulu: University of Hawai'i Press.
- Rehkemper, C. and E. Flint. 2005. Poster presentation at the Hawai'i Conservation Conference.
- Reynolds, M., M. Vekasy, L. Laniawe, J. Breeden, and J. Klavitter. 2006. Project and trip report: Laysan teal project report Laysan Island and Midway Atoll, U.S. Geological Survey Report for Project Cooperators, Hawai'i National Park, Hawai'i.
- Reynolds, M.H., J.H. Breeden, Jr., and J.L. Klavitter. 2007. Translocation of wild Laysan teal from Laysan Islands to Midway Atoll: Project Update. *Wildfowl* 57: 120-124.
- Reynolds, M.H. and J.J. Citta. 2007. Postfledging survival of Laysan ducks. *Journal of Wildlife Management* 71: 383-388.
- Roark, E.B., T.P. Guilderson, R.B. Dunbar, B.L. Ingram. 2006. Radiocarbon-based ages and growth rates of Hawaiian deep-sea corals *Mar. Ecol. Prog. Ser.* 327: 1-14.
- Royal Society, The. 2005. Ocean Acidification due to increasing atmospheric carbon dioxide; 60 pp.
- Rudd, M.A. and M.H. Tupper. 2002. The impact of the Nassua grouper size and abundance on scuba diver site selection and MPA economics. *Coastal Management* 30 (1): 17-23.
- Ruff, T.A. 1989. Ciguatera in the Pacific: a link with military activities. *Lancet. Jan.* 28:1 (8631): 201-5.

Schofield, David. Personal Communication. Marine Mammal Response Network Coordinator; NOAA Pacific Islands Regional Office, 1601 Kapiolani Blvd, Suite 1110, Honolulu, HI 96814; 20 October 2008.

See, Kevin. Undated. Report on the Marine Invasive Species in Papahānaumokuākea Marine National Monument. 27 pp.

Seibel, B. A., and P. J. Walsh. 2001. Potential impacts of CO<sub>2</sub> injection on deep-sea biota. *Science* 294: 319-320.

Selkoe, K.A., B.S. Halpern, and R.J. Toonen. 2008. Evaluating Anthropogenic Threats to the Northwestern Hawaiian Islands. *Aquatic Conserv: Mar. Freshw. Ecosyst.* Published online in Wiley InterScience (www.interscience.wiley.com) DOI: 10.1002/aqc.961.

Selkoe K.A., B.S. Halpern, C.M. Ebert, E.C. Franklin, E.L. Selig, K.C. Casey, J. Bruno, R.J. Toonen. In review. A map of human impacts to a “pristine” coral reef ecosystem, the Papahānaumokuākea Marine National Monument. *Coral Reefs*.

Shallenberger, R.J. 1984. *Hawai‘i’s Birds*. Hawaii Audubon Society, Honolulu.

———. 2006. History of Management in the Northwestern Hawaiian Islands. Status and Conservation Issues. *Atoll Research Bulletin*. 543:23-32.

Shea, E.L., G. Dolcemascolo, C.L. Anderson, A. Barnston, C.P. Guard, M.P. Hamnett, S.T. Kubota, N. Lewis, J. Loschnigg, and G. Meehl. 2001. Preparing for a Changing Climate: The potential Consequences of Climate Variability and Change. East-West Center, Honolulu, Hawaii. 100 pp.

Sheen, Raymond, 1998. Personal communication with Lou Ann Speulda, U.S. Fish and Wildlife Service.

Sievert, P.R. and L. Sileo. 1993. The effects of ingested plastic on growth and survival of albatross chicks. In: *The status, ecology, and conservation of marine birds of the North Pacific*, K. Vermeer, K. T. Briggs, K. H. Morgan, and D. Siegal-Causey eds., pp. 212-217. Canadian Wildlife Service Special Publication. Ottawa.

Sileo L., P.R. Sievert, and M.D. Samuel. 1990. Causes of mortality of albatross chicks at Midway Atoll. *Journal of Wildlife Diseases* 26: 329-338.

Sissenwine, M. and S. Murawski. 2004. Moving beyond ‘intelligent tinkering’: advancing an ecosystem approach to fisheries. In: *Perspectives on ecosystem-based approaches to the management of marine resources*. *Marine Ecology Progress Series* 274: 269-303.

Smith, J.R., A. Baco-Taylor, C. Kelley, and E.M. Yam. 2004. Northwestern Hawaiian Island Seamount Surveys of Deep-Sea Fauna in Relation to Geological Setting. *EOS Trans. AGU*, 85 (28), West Pac. Geophys. Meet. Suppl., Abstract OS12A-04.

- Smith, J.R., B. Evans, J. Miller, and J. Weirich. 2003. Volcanic Features in the Northwestern Hawaiian Islands revealed by SWATH mapping. *EOSTrans. AGU 84(46)*, Fall Meet. Suppl., Abstract V22C-0604.
- Smith, S.V. and R.M. Buddemeier. 1992. Global Change and coral reef ecosystems. *Annual Review of Ecology and Systematics* 23: 89-118.
- Speulda, L.A., A. Raymond, and V. Parks. 1999. *Midway Atoll National Wildlife Refuge Historic Preservation Plan*. Prepared for USDI Fish and Wildlife Service, Region 1, Sherwood, Oregon.
- Stambler, N. 1999. Coral reefs and eutrophication. *Mar. Poll.* July 1999: 360-361.
- Standen, R.S. 1967. An explanatory description of the sand islands of Kure, Midway, and Pearl Hermes Atolls, Hawaiian Islands. Master's Thesis, California State College at Los Angeles. 93pp. as cited in USCG 1994.
- Stannard, D.E. 1989. *Before the Horror: The Population of Hawaii on the Eve of Western Contact*. Honolulu: Social Science Research Institute, University of Hawai'i, Honolulu.
- Starr, F. and K. Martz. 1999. Botanical Survey of Midway Atoll. 1999 Update. Prepared for Midway Atoll National Wildlife Refuge, USFWS
- Starr, F., K. Martz, and L. Loope. 2001. Botanical Inventory of Kure Atoll. Prepared for Department of Land and Natural Resources, Division of Forestry and Wildlife, Honolulu, HI
- State of Hawai'i, U.S. Dept. of the Interior, and U.S. Dept of Commerce. 2006. Memorandum of Agreement among the State of Hawai'i Department of Land and Natural Resources, and the U.S. Department of Interior U.S. Fish and Wildlife Service, and the Department of Commerce National Oceanic and Atmospheric Administration, promoting the coordinated management of the Northwestern Hawaiian Islands Marine National Monument. signed 8 December 2006.
- Stewart, B.S. 2004a. Foraging biogeography of Hawaiian Monk Seals in the NWHI: Relevance to considerations of marine zones for conservation and management in the NWHI Coral Reef Ecosystem. Hubbs-SeaWorld Research Institute. Technical Report 2004-354. San Diego, California.
- . 2004b. Foraging ecology of Hawaiian Monk Seals at Pearl and Hermes Reef, Northwestern Hawaiian Islands: 1997-1998. Pacific Islands Fisheries Science Center, National Marine Fisheries Service, NOAA. Honolulu.
- . 2004c. Geographic patterns of foraging dispersion of Hawaiian Monk Seals at the Northwestern Hawaiian Islands. Pacific Islands Fisheries Science Center, National Marine Fisheries Service, NOAA. Honolulu.
- Stewart, B.S., and P.K. Yochem. 2004a. Use of marine habitats by Hawaiian Monk Seals from Kure Atoll: Satellite-linked monitoring in 2001-2002. Pacific Islands Fisheries Science Center, National Marine Fisheries Service, NOAA. Honolulu.



———. 2004b. Dispersion and foraging of Hawaiian Monk Seals near Lisianski and Midway Islands: 2000-2001. Pacific Islands Fisheries Science Center, National Marine Fisheries Service, NOAA. Honolulu.

———. 2004c. Use of marine habitats by Hawaiian Monk Seals from Laysan Island: Satellite-linked monitoring in 2001-2002. Pacific Islands Fisheries Science Center, National Marine Fisheries Service, NOAA. Honolulu.

Sustainable Resources Group International (SRG). 2004a. Fishing in the proposed Northwestern Hawaiian Islands National Marine Sanctuary. Prepared for the National Marine Sanctuary Program, National Oceanic and Atmospheric Administration. Honolulu.

———. 2004b. Results of the Fishing Discussion Group Process, Fall 2003: Fishing in the proposed Northwestern Hawaiian Islands National Marine Sanctuary. Prepared for the National Marine Sanctuary Program, National Oceanic Atmospheric Administration. Honolulu.

Tava, R. and M. Keale. 1989. Niihau: *The Traditions of a Hawaiian Island*. Mutual Publishing, Honolulu.

Tholke, M. 2003. Collaboration for a change: *A Practitioners Guide to Environmental Nonprofit-Industry Partnerships*. Michigan Business School and School of Natural Resources and Environment: Corporate Environmental Program.

Tibbetts, K.A. 2006. “Teach for America” and the quality of public education in target communities. Kamehameha Schools – Research & Evaluation, 05-06:30. Honolulu.

*Time Magazine*. January 30, 1939. Wart on the Pacific.

Titcomb, M., D.B. Fellows, M.K. Pukui, and D.M. Devaney. 1978. Native use of marine invertebrates in old Hawaii. *Pacific Science* 32 (4).

Titcomb, M. and M.K. Pukui. 1952. Native use of fish in Hawaii. *Polynesian Society Memoir* No.29. Avery Press, Ltd., New Plymouth, N.Z.

Tomich, P.Q. 1986. *Mammals in Hawai‘i: A synopsis and notational bibliography*. Bishop Museum Press, Honolulu. 375 pages

Tosatto, M. 2005. Personal communication with Joel Paschal, TetraTech, Inc.

Tripartite Agreement 1978. Survey and Assessment of the Living Resources of the Northwestern Hawaiian Islands. Acting Administrator, National Marine Fisheries Service; Director, U.S. Fish and Wildlife Service; Chairman, Board of Land and Natural Resources, State of Hawaii; and Member, Board of Land and Natural Resources, State of Hawaii, Approved 5/16/78, Honolulu.

UNESCO. 2005. Operational Guidelines for the Implementation of the World Heritage Convention. United Nations Educational, Scientific and Cultural Organization. Paris. World Heritage Center. Available on internet. URL: <http://whc.unesco.org/en/guidelines>

USCG (U.S. Coast Guard). 1994a. Kure Atoll Scrap Metal Dump Ecological Risk Assessment. Final Report. Woodward-Clyde Consultants Contract No. DTCG86-93-D-633005.

———. 1994b. Kure Atoll LORAN remediation report. Enclosure (1). Research Management Consultants, Inc. for US Coast Guard Civil Engineering Unit, Honolulu, Hawaii. RMCI Project Number F170-001. RMCI, Lakewood, Colorado.

———. 2002. Remediation verification report. Remediation of contaminated soil Former USCG Loran Station, Tern Island, Hawaii. Chase Environmental Group, Inc. for US Coast Guard Civil Engineering Unit Honolulu, Contract No. DTCG86-01-C-6XA453.

———. 2003. Tern Island ecological risk assessment addendum-Bulky Dump. Technical Memorandum. CH2MHill for US Coast Guard Civil Engineering Unit Honolulu.

U.S. Commission on Ocean Policy. 2005. *An Ocean Blueprint for the 21st Century*. Final Report, Washington D.C.

U.S. Fish and Wildlife Service. Biological Integrity, Diversity, and Environmental Health Policy. 601 FW 310.

———. Compatibility Determinations Policy. 603 FW 1 (U.S.C. 668dd-66ee and 603 FW 2).

———. in prep. Draft Pacific Islands Rat Spill Contingency Plan.

———. 1984. Northwestern Hawaiian Islands Passerine Recovery Plan. Region 1, Portland, OR, 66pp.

———. 1998. Final Recovery Plan for Three Plant Species on Nihoa Island. Region 1, Portland, Oregon, 81 pp.

———. 1999. Recovery Plan for Multi-Island Plants. U. S. Fish and Wildlife Service, Portland, Oregon, 206 pp + appendices.

———. 2002. Birds of Conservation Concern 2002. Division of Migratory Bird Management, Arlington, Virginia. 99 pp. <http://migratorybirds.fws.gov/reports/bcc2002.pdf>.

———. 2004. Draft Revised Recovery Plan for the Laysan Duck (*Anas laysanensis*). Portland, Oregon. vii + 94 pp.

———. 2005a. Regional Seabird Conservation Plan, Pacific Region. U.S. Fish and Wildlife Service, Migratory Birds and Habitat Programs, Pacific Region, Portland, Oregon.

———. 2005b. Short-tailed Albatross Draft Recovery Plan. Anchorage, AK, 62 pp., [http://ecos.fws.gov/tess\\_public/SpeciesRecovery.do?sort=1](http://ecos.fws.gov/tess_public/SpeciesRecovery.do?sort=1)

U.S. Fish and Wildlife Service, National Marine Fisheries Service, Department of Land and Natural Resources. 2000. Press release. 3 October.

U.S. Navy, Bureau of Yards and Docks. 1947. Building the Navy's Bases in World War II, 2 vols. Washington Government Printing Office.

U.S. Navy. 1995. Technical memorandum for evaluation of remedial alternatives Naval Air Force (NAF) Midway Island. Ogden Environmental and Energy Services Co., Inc Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract No. N62742-90-D-0019 Cto. No. 0136.

———. 1996. Site Inspection (SI) Report for Naval Air Force (NAF) Midway Island. Ogden Environmental and Energy Services Co., Inc Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract No. N62742-90-D-0019 Cto No. 0136.

———. 2001. Action memorandum for time-critical removal action of abandoned tug and barge, LCM, Boiler, and PCB-contaminated marine sediment Bulky Waste Landfill, Midway Atoll. October 2001.

Usinger, R.L. 1942. The Genus *Nysius* and Its Allies in the Hawaiian Islands (Hemiptera, Lygaeidae, Orsillini). *Bernice P. Bishop Museum Bulletin* 173. Bishop Museum Press, Honolulu. pp 1–167.

Valiela, I. 1995. *Marine Ecological Processes*. Springer-Verlag, New York.

Van Dolah, F.M. 2000. Marine algal toxins: Origins, health effects, and their increased occurrence. *Environ. Health. Perspect.* 108 (Supplement 1): 133-141.

Van Tilburg, H. 2002. Maritime cultural resources survey: Northwestern Hawaiian Islands. Report to the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve.

———. 2003a. Kure and Midway Atoll maritime heritage survey 2003. Report to the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve. December.

———. 2003b. U.S. Navy shipwrecks in Hawaiian waters: an inventory of submerged Naval property. Report to Naval Historical Center (UH Grant No. UH01495). December.

Van Tilburg, H. and K. Gleason. In prep. Maritime heritage survey NWHI 2005. Report for the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve.

Vatter, A. 2003. Bottom longline fishing for sharks in the Northwestern Hawaiian Islands. National Marine Fisheries Service Pacific Islands Region Administrative Report ARPIR-03-01.

Vitousek, P.M. 1994. Beyond global warming: ecology and global change. *Ecology* 75: 1861-1876.

Vroom, P.S. and K.N. Page. 2006. Relative abundance of macroalgae (RAM) on Northwestern Hawaiian Island reefs. *Atoll Research Bulletin* 543: 533-548.

Wagner, W.L., D. Herbst, and S.H. Sohmer. 1990. Manual of the Flowering Plants of Hawai'i, Revised Edition. University of Hawai'i Press, Bishop Museum Press, Special Publication. 83: 1-1853.

- Wagner, W.L., D. Herbst, and S.H. Sohmer. 1999. Manual of the Flowering Plants of Hawai'i, Revised Edition. University of Hawai'i Press, Bishop Museum Press, Special Publication. 97: 1-1918.
- Wallace, G. and S. Pierce. 1996. An Evaluation of Ecotourism in Amazonas, Brazil. *Annals of Tourism Research* 23 (4).
- Walters, C.J. 1986. *Adaptive Management of Renewable Resources*. McMillan New York.
- Wanless, R.M., A. Angel, R.J. Cuthbert, G.M. Hilton, and P.G. Ryan. 2007. Can predation by invasive mice drive seabird extinctions? *Biology Letters*  
[http://issg.org/database/species/reference\\_files/musmus/Wanless\\_etal\\_2007.pdf](http://issg.org/database/species/reference_files/musmus/Wanless_etal_2007.pdf) (Published Online)
- Ward Research. 2006. Tracking Attitudes Toward Protecting the Northwestern Hawaiian Islands. Prepared for: The National Marine Sanctuary Foundation, Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve.
- Weihe, P., P. Granjean, F. Debes, and R. White. 1996. Health implications for Faroe Islanders of heavy metals and PCBs from pilot whales. *Sci. Total. Environ.* 186: 141-148. as cited in Miao et al. 2000.
- Western Pacific Fisheries Management Council (WPFMC). 1982. Final combined Fishery Management Plan, Environmental Impact Statement, Regulatory Analysis, and Draft Regulations for the Spiny Lobster Fisheries of the Western Pacific Region, volumes I & II. Honolulu.
- . 2001. Final Fishery Management Plan for the Coral Reef Ecosystems of the Western Pacific Region, vol.1. Honolulu.
- . 2003a. Managing U.S. Fisheries of the U.S. Pacific Islands: Past, Present and Future. Honolulu.
- . 2003b. History of the Fisheries in the Northwestern Hawaiian Islands. Honolulu.
- . 2004a. Bottomfish and seamount groundfish fisheries of the Western Pacific Region. 2002 Annual Report. Honolulu.
- . 2004b. *Pelagic Fisheries of the Western Pacific Region*. 2002 Annual Report. Honolulu.
- Wilderness Act, 1964. 16 U.S.C. 1132-1136.
- Wise, J. 1924. Ka huakai i na mokupuni ma ka akau-komohana [A journey to the islands in the north-west]. *Ka Nūpepa Kū'okoa* 62 (29), July 19.
- Wood, Bill, 2001. Personal communication with L.A. Woodward
- Woodbury, D.O. 1946. *Builders for Battle. How the Pacific Naval Air Bases were Constructed*. E.P. Dutton and Company, NY, 415p.



Woodward, P.W. 1972. The Natural History of Kure Atoll, Northwestern Hawaiian Islands. *Atoll Research Bulletin* 164: 1-318.

Work, T., G. Balazs, R. Rameyer, and R. Morris. 2004. Retrospective pathology survey of green turtles (*Chelonia mydas*) with fibropapillomatosis from the Hawaiian Islands, 1993-2003. *Diseases of Aquatic Organisms* 62: 163-176.

Yoklavich, A. 1993. Cultural Resources Overview Survey at Naval Air Facility, Midway Island. Prepared by Spencer Mason Architects, Inc. Submitted to Department of the Navy, Pacific Division, Naval Facilities Engineering Command, Pearl Harbor, Hawaii.

Zabin, J.Z., J.T. Carlton, and L.S. Godwin. 2003. First report of the Asian sea anemone *Diadumene lineata* from the Hawaiian Islands. *Bishop Museum Occasional Papers*. Bishop Museum Press. Honolulu.

Ziegler, A. 1990. Search for Evidence of Early Hawaiian Presence on Lisianski Islands, NWHI, Summer 1990. A Report prepared for State of Hawaii and Office of Hawaiian Affairs.



# Papahānaumokuākea

MARINE NATIONAL MONUMENT



## Management Plan Environmental Assessment

U.S. FISH AND WILDLIFE SERVICE • NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION • STATE OF HAWAII



VOL. II



# Papahānaumokuākea Marine National Monument

## Final Environmental Assessment

December 2008

Prepared by:

Papahānaumokuākea Marine National Monument

United States Fish and Wildlife Service  
300 Ala Moana Boulevard., Room 5-231  
Honolulu, Hawai'i 96850



National Oceanic and Atmospheric  
Administration  
6600 Kalaniana'ole Highway, Suite 300  
Honolulu, Hawai'i 96825



Hawai'i Department of Land and  
Natural Resources  
1151 Punchbowl Street, Room 130  
Honolulu, Hawai'i 96813



## ***ENVIRONMENTAL ASSESSMENT ORGANIZATION***

This environmental assessment addresses the Proposed Action presented in the Papahānaumokuākea Marine National Monument (Monument) Management Plan and the No Action alternative of continuing existing management activities. The Proposed Action includes implementation of new and expanded activities described in the Monument Management Plan. The Monument Management Plan was developed to carry out Presidential Proclamation 8031 (Establishment of the Northwestern Hawaiian Islands Marine National Monument, June 15, 2006) to develop a joint management plan for the Monument. As required by the National Environmental Policy Act and Hawaii Revised Statutes Chapter 343 Environmental Impact Statement Law, this environmental assessment is a survey of the important environmental issues associated with the Proposed Action and alternative that are to be considered in the decision-making process including but not limited to actions the Co-Trustees will take to ameliorate or minimize the effect on the environment.

The ***NOTE TO READERS*** is a brief description of the cooperative and individual responsibilities of the Co-Trustees and provides a summary of their respective analysis represented in this EA.

### ***TABLE OF CONTENTS***

- CHAPTER 1.0:***    ***INTRODUCTION*** provides overview and background information, summarizes the purpose of and need for the Proposed Action, and describes the scope of the environmental effects analysis process. This section also includes a discussion of the Proposed Action and No Action alternative, comparison of alternatives, actions described requiring future NEPA/HRS Chapter 343 Analysis and regulatory framework.
- CHAPTER 2.0:***    ***AFFECTED ENVIRONMENT*** is a description of the existing environmental and socioeconomic setting in the Papahānaumokuākea Marine National Monument.
- CHAPTER 3.0:***    ***ENVIRONMENTAL CONSEQUENCES*** is a discussion of the potential effects of implementing the Proposed Action and No Action alternative and is a summary of the resulting environmental effects.
- CHAPTER 4.0:***    ***OTHER NEPA ANALYSES*** is an assessment of the potential effects of implementing the cumulative actions, with or without contribution of the Proposed Action, and summarizes the resulting environmental effects.
- CHAPTER 5.0:***    ***AGENCY AND PUBLIC PARTICIPATION*** is a discussion of the agency and public involvement efforts and list of public meeting dates and locations.
- CHAPTER 6.0:***    ***REFERENCES*** contains bibliographical information for cited sources.
- CHAPTER 7.0:***    ***LIST OF PREPARERS*** is a listing of persons who prepared this document.
- APPENDIX A:***    ***CULTURAL IMPACT ASSESSMENT***  
***APPENDIX B:***    ***CATEGORICAL EXCLUSIONS***  
***APPENDIX C:***    ***STATE AND FEDERAL FINDING OF NO SIGNIFICANT IMPACT***  
***APPENDIX D:***    ***SUMMARY OF SCOPING***



**Note to Readers:**

This Environmental Assessment (EA) represents the Co-Trustees' analyses in compliance with their individual agency policies and State and Federal environmental review law and statutes, including the National Environmental Policy Act of 1969 (NEPA) and Chapter 343, Hawaii Revised Statutes (HRS).

In keeping with the purpose of environmental review and to avoid unnecessary repetition, the EA incorporates by reference many of the descriptors and background from the Monument Management Plan and other documents accompanying the Monument Management Plan. Therefore, although the Monument Management Plan and EA are in different volumes, the two should be read together to obtain a clear understanding of the environmental consequences of the actions in the Monument Management Plan.

The Co-Trustees remind the reader that prior to its designation by Presidential Proclamation 8031 issued by President Bush on June 15, 2006, several Federal conservation areas existed within the Monument, namely the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, managed by the National Oceanic and Atmospheric Administration (NOAA) within the Department of Commerce, and the Hawaiian Islands and Midway Atoll National Wildlife Refuges, managed by the U.S. Fish and Wildlife Service (FWS) within Department of the Interior. Nothing in the establishment of the Monument, the Monument Management Plan, or the EA will diminish the responsibilities and requirements by the Federal agencies to continue to manage these areas.

Furthermore, the Proclamation establishing the Monument expressly stated it did not diminish or enlarge the jurisdiction of the State of Hawai'i, therefore, the State's responsibilities and requirements to manage its areas also remain intact. In 2005, the State designated all of its waters in the Northwestern Hawaiian Islands (NWHI) as a State Marine Refuge, and it has jurisdiction over the State Seabird Sanctuary at Kure Atoll, the northwesternmost emergent island in the NWHI. To provide for the most effective conservation and management of the natural, cultural, and historic resources of the NWHI, Governor Lingle on December 8, 2006, entered into an agreement with the two Secretaries to have State lands and waters in the NWHI managed as part of the Monument, with the three parties serving as Co-Trustees. The agreement also provided for the inclusion of the Office of Hawaiian Affairs into the monument management process to provide a voice for Native Hawaiians in the management of the Monument and its cultural resources.

The analysis in this EA focuses on the scope of actions proposed by the Co-Trustees in the context of 6 priority management needs with 22 separate action plans developed to address these needs. Activities outlined in each action plan have already been analyzed through project-specific environmental reviews for activities listed in the No Action Alternative. Any new or expanded activities listed in the Proposed Action are analyzed as appropriate under NEPA and HRS 343 in this EA. Many specific agency activities will be individually assessed, on a case-by-case basis, for future NEPA analysis (i.e. all

research and access that requires permits, any major construction, etc.). Activities that are beyond the scope of this assessment may require further analysis in order to comply with NEPA (e.g. preparation of a supplemental EA or an Environmental Impact Statement). These activities are identified as such and they are discussed on a programmatic level. All other activities have been analyzed in a more detailed, site specific manner and the environmental consequences of implementing these activities are described in this document.

In addition to NOAA and FWS NEPA policies, this Monument Management Plan satisfies FWS' requirements for National Wildlife Refuge System Comprehensive Conservation Planning and the State's statutory requirements under HRS 343.

---

---

## **TABLE OF CONTENTS**

**TABLE OF CONTENTS**

Section	Page
<b>1. INTRODUCTION.....</b>	<b>1</b>
1.1 Overview and Background .....	1
1.2 Purpose and Need for the Proposed Action .....	2
1.3 Scope of Analysis.....	6
1.4 Alternatives Considered But Not Analyzed.....	7
1.5 Description of No Action Alternative .....	7
1.5.1 Marine Conservation Science .....	8
1.5.2 Native Hawaiian Culture and History.....	9
1.5.3 Historic Resources .....	10
1.5.4 Maritime Heritage.....	11
1.5.5 Threatened and Endangered Species .....	11
1.5.6 Migratory Birds.....	13
1.5.7 Habitat Management and Conservation.....	15
1.5.8 Marine Debris .....	15
1.5.9 Alien Species .....	16
1.5.10 Maritime Transportation and Aviation.....	17
1.5.11 Emergency Response and Natural Resource Damage Assessment .....	18
1.5.12 Permitting.....	18
1.5.13 Enforcement.....	19
1.5.14 Midway Atoll Visitors Services .....	20
1.5.15 Agency Coordination.....	21
1.5.16 Constituency Building and Outreach.....	22
1.5.17 Native Hawaiian Community Involvement .....	23
1.5.18 Ocean Ecosystems Literacy .....	23
1.5.19 Central Operations .....	24
1.5.20 Information Management.....	25
1.5.21 Coordinated Field Operations.....	26
1.5.22 Evaluation .....	27
1.6 Description of Proposed Action Alternative .....	28
1.6.1 Marine Conservation Science .....	28
1.6.2 Native Hawaiian Culture and History.....	30
1.6.3 Historic Resources .....	33
1.6.4 Maritime Heritage.....	35
1.6.5 Threatened and Endangered Species .....	36
1.6.6 Migratory Birds.....	39
1.6.7 Habitat Management and Conservation.....	41
1.6.8 Marine Debris .....	44
1.6.9 Alien Species .....	45
1.6.10 Maritime Transportation and Aviation.....	49
1.6.11 Emergency Response and Natural Resource Damage Assessment .....	50
1.6.12 Permitting.....	51
1.6.13 Enforcement.....	53



**TABLE OF CONTENTS** *(continued)*

Section	Page
1.6.14 Midway Atoll NWR Visitor Services .....	55
1.6.15 Agency Coordination .....	56
1.6.16 Constituency Building and Outreach .....	57
1.6.17 Native Hawaiian Community Involvement .....	60
1.6.18 Ocean Ecosystems Literacy .....	61
1.6.19 Central Operations .....	63
1.6.20 Information Management.....	64
1.6.21 Coordinated Field Operations.....	65
1.6.22 Evaluation .....	69
1.7 Comparison of Alternatives .....	70
1.8 Actions Described Requiring Future NEPA/HRS Chapter 343 Analysis.....	79
1.9 Regulatory Framework .....	81
<b>2. AFFECTED ENVIRONMENT .....</b>	<b>83</b>
2.1 Introduction.....	83
2.2 Natural Resources .....	85
2.2.1 Introduction/Region of Influence.....	85
2.2.2 Regulatory Environment.....	85
2.2.3 Resource Overview .....	86
2.3 Cultural and Historic Resources .....	103
2.3.1 Introduction/Region of Influence.....	103
2.3.2 Regulatory Environment.....	103
2.3.3 Resource Overview.....	104
2.4 Socioeconomics .....	115
2.4.1 Human Uses .....	115
2.4.2 Human Health, Safety and Hazardous Materials.....	122
2.4.3 Land Use .....	128
2.4.4 Economics.....	132
2.5 Other Resources .....	137
2.5.1 Water Quality .....	137
2.5.2 Transportation and Communication Infrastructure.....	145
2.5.3 Utilities.....	152
<b>3. ENVIRONMENTAL EFFECTS.....</b>	<b>157</b>
3.1 Introduction.....	157
3.1.1 Terminology .....	157
3.1.2 Summary of Effects .....	158
3.2 Natural Resources .....	159
3.2.1 Effects Analysis Methodology.....	159
3.2.2 Effects Common to Human Interactions with Natural Resources of the Monument.....	159
3.2.3 No Action.....	162
3.2.4 Proposed Action.....	170

**TABLE OF CONTENTS** *(continued)*

Section	Page
3.2.5 Summary of Effects .....	185
3.3 Cultural and Historic Resources .....	189
3.3.1 Effects Analysis Methodology .....	189
3.3.2 Effects Common to Proposed Actions on Cultural and Historic Resources .....	189
3.3.3 No Action .....	192
3.3.4 Proposed Action .....	198
3.3.5 Summary of Effects .....	210
3.4 Socioeconomics .....	213
3.4.1 Effects Analysis Methodology .....	213
3.4.2 No Action .....	213
3.4.3 Proposed Action .....	214
3.4.4 Summary of Effects .....	228
3.5 Other Resources .....	231
3.5.1 Effects Analysis Methodology .....	231
3.5.2 Effects Common to Human Interactions on Water Quality, Transportation, and Communications and Utilities in the Monument .....	231
3.5.3 No Action .....	231
3.5.4 Proposed Action .....	234
3.5.5 Summary of Effects .....	245
<b>4. OTHER NEPA ANALYSES.....</b>	<b>249</b>
4.1 Introduction.....	249
4.2 Cumulative Effects Analysis.....	249
4.2.1 Cumulative Effects Evaluation Methodology.....	250
4.2.2 Past, Present, and Reasonably Foreseeable Future Projects .....	250
4.2.3 Cumulative Effects.....	255
4.3 Significant Unavoidable Negative Effects.....	258
4.4 Relationship Between Local Short-Term Uses of the Environment and Long-Term Productivity.....	258
4.5 Irreversible and Irretrievable Commitments of Resources .....	259
<b>5. AGENCY AND PUBLIC PARTICIPATION .....</b>	<b>261</b>
<b>6. REFERENCES.....</b>	<b>263</b>
<b>7. LIST OF PREPARERS .....</b>	<b>277</b>

**LIST OF FIGURES**

Figure	Page
Figure 1.1 Papahānaumokuākea Marine National Monument .....	3
Figure 2.1 Hawaiian Archipelago Including the Northwestern Hawaiian Islands (Nihoa to Kure Atoll) and Main Hawaiian Islands (Hawai‘i to Kaua‘i). Inset shows the Hawaiian Archipelago in the Pacific Ocean. ....	84
Figure 2.2-1 Comparison of Biomass in Major Trophic Guilds between NWHI and Main Hawaiian Islands .....	94
Figure 2.2-2 Trends in French Frigate Shoals Green Turtle Nester Abundance.....	101

**LIST OF TABLES**

Table	Page
Table 1.1 Comparison of Key Elements of No Action and Proposed Action Alternatives.....	70
Table 1.2 Activities That May Be Addressed in Future NEPA/HRS Chapter 343 Compliance .....	80
Table 2.2-1 Probable Mechanisms of Introduction of Marine Invertebrates to Hawai‘i.....	91
Table 2.2-2 Special Status Species in the NWHI .....	99
Table 2.4-1 Hawai‘i Population.....	132
Table 2.4-2 Hawai‘i Labor Market Information .....	133
Table 2.4-3 Hawai‘i Industry Employment and Growth Rates, 2003–2005 .....	133
Table 2.5-1 Number of Days Spent in the Monument from 2003 to 2007 .....	147
Table 3.2-1 Summary of Effects on Natural Resources of the Proposed Action Alternative .....	185
Table 3.3-1 Summary of Effects on Cultural and Historic Resources of the Proposed Action Alternative.....	210
Table 3.4-1 Summary of Effects on Socioeconomic Resources of the Proposed Action Alternative .....	228
Table 3.5-1 Summary of Effects on Other Resources (Water Quality, Transportation, and Communications Infrastructure and Utilities) of the Proposed Action Alternative .....	246
Table 4-1 Cumulative Projects .....	251
Table 4-2 Summary of Potential Contribution of the No Action and Proposed Action Alternatives to Cumulative Effects.....	255
Table 5-1 Public Meetings.....	262
Table 5-2 Agency/Organization Affiliation.....	263

---

## **APPENDICES**

---

- Appendix A: Cultural Impact Assessment
- Appendix B: Categorical Exclusions
- Appendix C: State and Federal Finding of No Significant Impact
- Appendix D: Scoping and Consultation Summary



---

---

## **LIST OF ACRONYMS/ABBREVIATIONS**

---

## ACRONYMS/ABBREVIATIONS

Acronym	Full Phrase
AC	Agency Coordination
AIRFA	American Indian Religious Freedom Act
APPS	Act to Prevent Pollution from Ships
ARPA	Archaeological Resources Protection Act
AS	Alien Species
ATBA	Areas to be Avoided
BMPs	Best Management Practices
CBO	Constituency Building and Outreach
CCP	Comprehensive Conservation Plan
CD	Compatibility Determination
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFO	Coordinated Field Operations
CFR	Code of Federal Regulations
CO	Central Operations
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
DLNR	Department of Land and Natural Resources (State of Hawai'i)
DOCARE	Division of Conservation and Resources Enforcement
DOD	Department of Defense
DOT	Department of Transportation (State of Hawai'i)
EA	Environmental Assessment
EEZ	Exclusive Economic Zone
EN	Enforcement
EPA	Environmental Protection Agency
ER	Ecological Reserve
ERAT	Emergency Response and Assessment Team
ESA	Endangered Species Act
ETOPS	Extended Twin Engine aircraft operations
EV	Evaluation
FAA	Federal Aviation Administration
FFS	French Frigate Shoals
FWS	U.S. Fish and Wildlife Services
GIS	Geographic Information Systems
HABS	Historic American Buildings Survey
HCZMP	Hawai'i Coastal Zone Management Program

**ACRONYMS/ABBREVIATIONS** *(continued)*

Acronym	Full Phrase
HMC	Habitat Management and Conservation
HR	Historic Resources
HRS	Hawai‘i Revised Statutes
ICC	International Code Council
ICOADS	International Comprehensive Ocean-Atmosphere Data Set
ICS	Incident Command System
IMaST	Information Management and Spatial Technology
IMO	International Maritime Organization
LME	Large Marine Ecosystem
LORAN	Long Range Aid to Navigation
LUCs	Land Use Controls
MARPOL	International Convention for the Prevention of Pollution from Ships 1973
MB	Migratory Bird
MCS	Marine and Conservation Science
MD	Marine Debris
MH	Maritime Heritage
MMB	Monument Management Board
MMPA	Marine Mammal Protection Act
MOA	Memorandum of Agreement
MPRSA	Marine Protection, Research and Sanctuaries Act
MSD	Marine Sanitation Device
MTA	Marine and Transportation Action Plan
MVSP	Midway Visitor Services Plan
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Protection Act
NHCH	Native Hawaiian Culture and History
NHCI	Native Hawaiian Community Involvement
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Services
NOAA	National Oceanic and Atmospheric Administration
NWHIRAMP	Northwestern Hawaiian Islands Reef Assessment and Monitoring Program
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places
NRSP	Natural Resources Science Plan
NWHI	Northwestern Hawaiian Islands

---

**ACRONYMS/ABBREVIATIONS** *(continued)*

Acronym	Full Phrase
NWR	National Wildlife Refuge
NWRSAA	National Wildlife Refuge System Administration Act
OEL	Ocean Ecosystems Literacy
OHA	Office of Hawaiian Affairs
ONMS	Office of National Marine Sanctuaries
OSHA	Occupational Health and Safety Administration
PAHs	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PDO	Pacific Decadal Oscillation
PHRI	Public Health Research Institute
PIMS	Papahānaumokuākea Information Management System
PSSA	Particularly Sensitive Sea Area
RCRA	Resource Conservation and Recovery Act
ROI	Region of Influence
ROV	Remotely Operated Vehicle
SAFE	Secure Around Flotation Equipped
SARA	Superfund Amendments and Reauthorization Act
SCUBA	Self-Contained Underwater Breathing Apparatus
SHIELDS	Sanctuaries Hazardous Incident Emergency Logistics Database System
SHPD	Hawai‘i State Historic Preservation Division
SHPO	State Historic Preservation Officer
SMA	Special Management Area
SPA	Special Preservation Area
TCP	Traditional Cultural Properties
TES	Threatened and Endangered Species
TSCA	Toxic Substances Control Act
UNESCO	United Nations Educational, Scientific, and Cultural Organization
USCG	United States Coast Guard
USDA	U.S. Department of Agriculture
VMS	Vessel Monitoring System
VOIP	Voice Over Internet Protocol
VOS	Volunteer Observing Ship
VS	Visitor Services



---

---

**CHAPTER 1:**  
**INTRODUCTION**

# CHAPTER 1

## INTRODUCTION

---

This environmental assessment (EA) evaluates the activities proposed in the Papahānaumokuākea Marine National Monument (Monument) Management Plan. The proposed Monument Management Plan is the Monument Co-Trustee agencies' overall guiding framework for their mission to carry out seamless integrated management to ensure ecological integrity and achieve strong, long-term protection and perpetuation of Northwestern Hawaiian Islands (NWHI) ecosystems, Native Hawaiian culture, and heritage resources for current and future generations. Management of the Monument is the responsibility of three Co-Trustees: the State of Hawai'i, through the Department of Land and Natural Resources (DLNR); the U.S. Department of the Interior, through the Fish and Wildlife Service (FWS), and the Department of Commerce, through the National Oceanic and Atmospheric Administration (NOAA). The Monument Management Plan was developed to carry out Presidential Proclamation 8031 (Establishment of the Northwestern Hawaiian Islands Marine National Monument, June 15, 2006) to develop a joint management plan for the Monument, an effort that the State of Hawai'i joined through a Memorandum of Agreement (MOA) signed by the Governor and the Secretary of Commerce and the Secretary of the Interior in December 2006. This EA has been developed in accordance with the National Environmental Policy Act (NEPA) of 1969 and Hawaii Revised Statutes (HRS) Chapter 343 Environmental Impact Statement Law. The purpose of the EA is to inform the relevant state and federal agencies and the public of the likely environmental consequences of the activities contained in the Monument Management Plan. It focuses on site-specific issues within the boundaries of the Monument and the socioeconomic effects on the State of Hawai'i. This EA is not intended to analyze the impacts of Presidential Proclamation 8031 or the requirements and findings that are contained within the Proclamation.

### 1.1 OVERVIEW AND BACKGROUND

The NWHI make up the northern three-quarters of the Hawaiian archipelago, beginning in the northwest at Kure atoll, the most northerly coral reef atoll in the world, and extending approximately 1,200 miles (1,043 nautical miles[nm], 1,931 kilometers [km]) southeast to Nihoa, 165 miles northwest of Kaua'i. The President issued Presidential Proclamation 8031, which created the Monument under the authority of the Antiquities Act of 1906, as amended (16 United States Code [USC] 431-433).

Presidential Proclamation 8031 and the December 2006 MOA between the Governor and the Secretaries of Commerce and the Interior (see Volume III, Appendix E) describes the principal entities responsible for managing the Monument, the U.S. Department of Commerce/NOAA, the U.S. Department of the Interior/FWS, and the State of Hawai‘i (collectively, the Co-Trustees), the primary responsibility of each, and the institutional arrangements for management among the Co-Trustees. The December 2006 MOA created a Monument Management Board (MMB) and described institutional arrangements and responsibilities to fulfill the vision, mission, and guiding principles of the Monument including representation of Native Hawaiian interests by the Office of Hawaiian Affairs (OHA) on the MMB. The MMB implements policy guidance from the Co-Trustees and is responsible for on-site planning and program implementation.

The federal managers—NOAA and FWS—promulgated joint implementing regulations on August 29, 2006 (Northwestern Hawaiian Islands Marine National Monument, 71 FR 51134, 50 CFR Part 404; see Appendix D). Specifically, these regulations codify the scope and purpose, boundary, definitions, prohibitions, and regulated activities of the Monument. Presidential Proclamation 8031 was amended on March 6, 2007, to declare the Native Hawaiian name for the Monument, Papahānaumokuākea, and to clarify some definitions (Presidential Proclamation 8112, Establishment of the Papahānaumokuākea Marine National Monument, March 6, 2007).

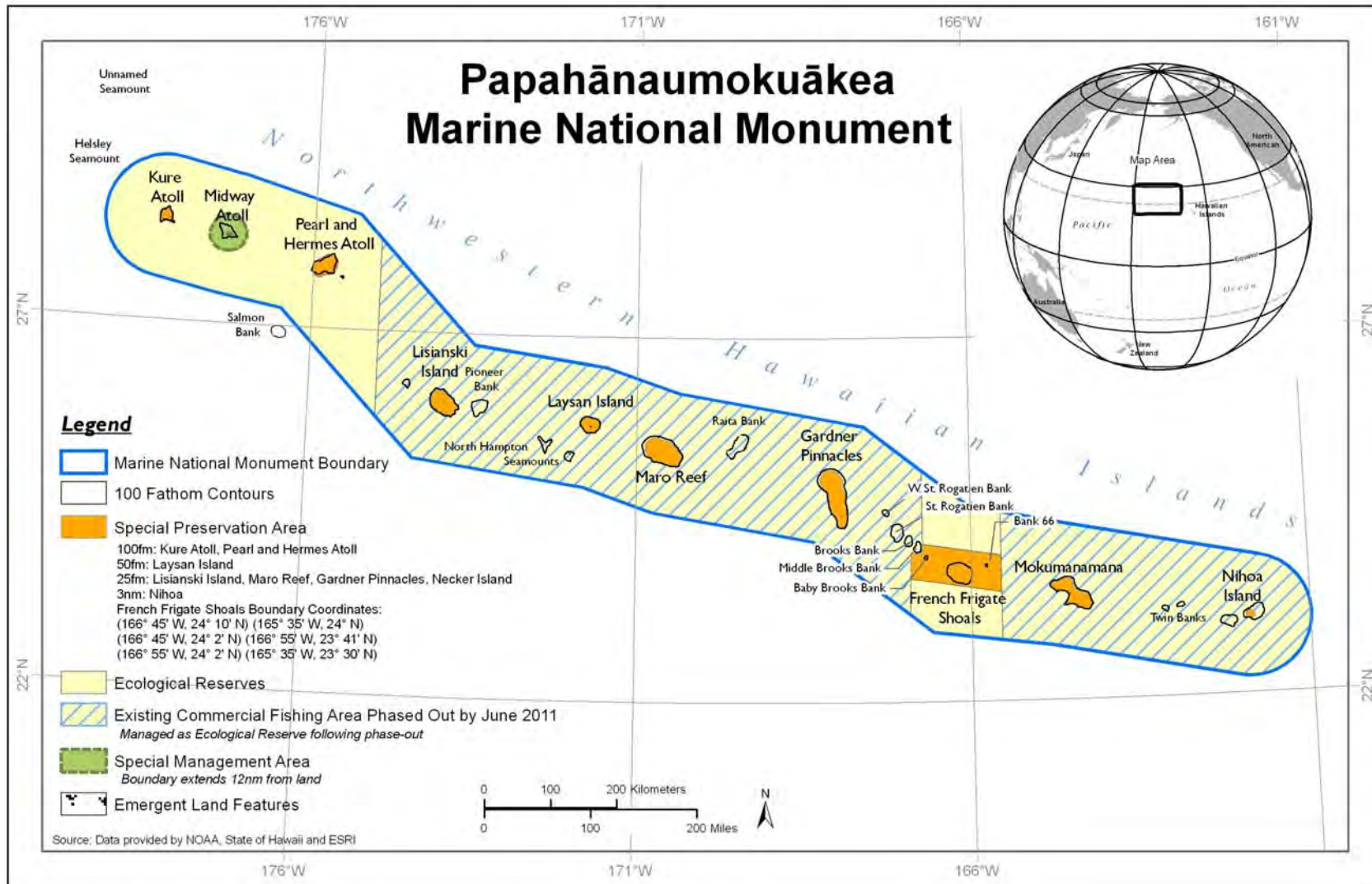
The Monument is one of the world’s largest marine protected areas (Figure 1.1). It encompasses 137,792 square miles (356,881 square kilometers) of the Pacific Ocean, an area larger than all U.S. National Parks combined. The Monument includes the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, State of Hawai‘i Northwestern Hawaiian Islands Marine Refuge, State Seabird Sanctuary at Kure Atoll, the Midway National Wildlife Refuge (NWR), the Hawaiian Islands NWR, and the Battle of Midway National Memorial. This region supports a dynamic reef ecosystem, with more than 7,000 marine species, half of which are unique to the Hawaiian Island chain. This diverse ecosystem is host to many species of coral, fish, birds, marine mammals, and other flora and fauna, including the endangered Hawaiian monk seal, the threatened green sea turtle, and the endangered leatherback and hawksbill sea turtles. In addition, this area has great cultural significance to Native Hawaiians and a connection to Polynesian culture worthy of protection and understanding, as noted in Presidential Proclamation 8031.

The boundaries of the Monument, Special Preservation Areas (SPAs), ecological reserves (ERs), and the Special Management Area (SMA) at Midway Atoll are illustrated in Figure 1.1 and Appendix A to 50 CFR Part 404. In addition to activities that are prohibited throughout the Monument, those prohibited within the SPAs are swimming, snorkeling, or scuba diving and discharging or depositing any material or other matter except vessel engine cooling water, weather deck runoff, and vessel engine exhaust. In addition to the overarching regulations that govern activities in the Monument, the regulations governing activities in the reserve and wildlife refuges and State of Hawai‘i jurisdiction also apply.

## **1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION**

The purpose of the Proposed Action is to protect and manage the Monument in a manner that satisfies legal mandates set forth in the designation of the Monument and priority management needs identified by the Co-Trustee agencies. The Monument is important both nationally and

Figure 1.1 Papahānaumokuākea Marine National Monument





globally because it contains one of the world's most significant marine and terrestrial ecosystems and areas of cultural significance. In accordance with Presidential Proclamation 8031, the Monument Management Plan is built on the foundation of the draft National Marine Sanctuary Management Plan, the Reserve Operations Plan, and input obtained through many hours of public consultation. In addition, the National Wildlife Refuge System Administration Act (NWRSA) of 1966, as amended (16 U.S.C. § 688dd-688ee) instructs FWS to develop Comprehensive Conservation Plans (CCPs) with NEPA compliance for all National Wildlife Refuges by October 2012. So that there would be a single management plan for the Monument, FWS moved its planning effort forward to have the Monument Management Plan also serve as, and meet the requirements of, the CCPs for the two refuges within the Monument. The proposed Monument Management Plan would serve as a collective guiding framework to enable the Co-Trustees to effectively and efficiently achieve the overall vision of the Monument to ensure the health, diversity, and resources of the NWHI – its unique wildlife and Native Hawaiian cultural significance - are protected forever. The ecosystems would be managed over the long term to achieve agency and Monument missions and purposes.

The need for the Monument Management Plan is defined both by legal mandates set forth in the designation of the Monument and priority management needs identified by the Co-Trustee agencies, with input from scientists, Native Hawaiian practitioners, and other stakeholders through numerous public scoping meetings and workshops. Priority management needs address multiple Monument goals and define areas for focused action, including improving our understanding of the NWHI, conserving wildlife and habitats, reducing threats to the ecosystem, managing human uses, coordinating conservation and management efforts, and achieving effective Monument operations. These priority management needs are described below and form the overall framework of action for the proposed Monument Management Plan.

**Understanding and Interpreting the Northwestern Hawaiian Islands.** The NWHI represent a unique opportunity to advance our understanding of ecosystem science through research, monitoring, and the incorporation of traditional knowledge. Coordinated research and continued development of long-term monitoring is needed to deepen our understanding of the composition, structure, and function of the NWHI ecosystems. The information from these activities would generate vital data necessary to document changes in ecosystem composition and function over time. This would provide the needed predictive tools to make informed decisions and to evaluate the effectiveness of management measures in protecting and restoring environmental integrity to the NWHI.

Incorporating traditional ecological knowledge into management practices would enrich and inform the MMB's approach to long-term planning. The further characterization of Native Hawaiian cultural relationships to the NWHI, through the study of oral histories, place names, and practices associated with the region, would enhance the physical record of activities in the NWHI. The unique aspects of island and Pacific maritime history, as well as historical and archaeological resources, collectively can provide a basis for developing effective management of resources.

**Conserving Wildlife and Habitats.** The preservation of the NWHI through active conservation and management of wildlife and their habitats is in the public interest. The NWHI constitute a large ecosystem home to many diverse terrestrial and marine flora and fauna, including many

endemic species and 23 federally listed threatened or endangered species. This priority management need is concerned with maintaining biological integrity, diversity, and environmental health of the Monument and with assisting in the recovery of threatened and endangered species, managing migratory bird populations, and conserving, managing, and where appropriate, restoring the habitats of the Monument's native flora and fauna.

**Reducing Threats to Monument Resources.** Despite their remote location, marine and terrestrial ecosystems of the NWHI are at risk from a range of threats from human activities within and outside the Monument. Natural and anthropogenic threats to the Monument include habitat alteration or damage from marine debris, the changing climate, including increased storm intensity and frequency, introduction of alien species, potential vessel and aircraft effects, release of hazardous materials from former landfills, vessel grounding, and past human effects. Developing and implementing threat reduction protocols and monitoring are needed to protect, preserve, maintain and, where appropriate, restore natural communities as a public trust for current and future generations. These communities included habitats, populations, native species, and ecological processes. In addition to threat reduction, emergency response in the Monument would be coordinated through building an internal and interagency capacity to contribute to emergency response efforts.

**Managing Human Uses.** The NWHI have experienced a long history of human use, with periods of overexploitation that have contributed to the current endangered status of some species, including land birds, several plants, sea turtles, and the Hawaiian monk seal. Although the extent of resource exploitation has been limited in recent years, human activities and the use of Monument resources must be carefully managed through permitting, enforcement, and managing uses, including Native Hawaiians engaging in cultural practices and people visiting Midway Atoll NWR.

**Coordinating Conservation and Management Activities.** The Monument can only be comprehensively conserved and monitored through effective interagency coordination and partnerships with a broad range of stakeholders. Coordination among the Co-Trustees, MMB members, and other stakeholders is needed to maintain existing resource protection measures, to increase the efficiency and effectiveness of management and enforcement, and to reduce conflicts and duplication of Monument management activities. Education and outreach require coordination among government agencies, nongovernmental organizations, and other stakeholder groups. Coordination with stakeholders and the public is needed to provide a forum for advice and input on Monument management and to improve awareness and understanding of the ecological significance, Native Hawaiian cultural significance, and historic significance of the NWHI. Coordination with international initiatives is needed to address Pacific regional and global management issues affecting the Monument.

**Achieving Effective Monument Operations.** Monument operations include central and field operations, information management, and overall program evaluation. Central and field operations are essential to support action plans to address all other priority management needs. Central operations are located in the main Hawaiian Islands and include support offices, interpretive facilities, and information management facilities. Field operations include, but are not limited to, shipboard and research diving operations, operation of power generation facilities, and maintenance of buildings and other infrastructures at field stations and camps. Operational

effectiveness must be evaluated and improved through an adaptive management process that captures lessons learned and transforms them into action.

### **1.3 SCOPE OF ANALYSIS**

This EA has been developed in accordance with NEPA and HRS Chapter 343. Its purpose is to inform decision makers and the public of the likely environmental consequences of the Proposed Action and No Action Alternatives. This EA identifies, documents, and evaluates the effects of the Proposed Action to implement new and expanded activities described in the Monument Management Plan and No Action, if no new activities were to be conducted beyond the current activities. This EA is not intended to analyze the impacts of Presidential Proclamation 8031 and requirements and findings that are contained within the Proclamation.

The Monument Management Plan is composed of 22 action plans, organized under six priority management needs. Each action plan describes strategies and activities to achieve a desired outcome under each priority management need. Many activities described in the Monument Management Plan are ongoing and are mandated by federal and state laws and existing agency policies and programs. These ongoing activities serve as the baseline for analyzing environmental and socioeconomic consequences. Current activities are described as the No Action alternative and would continue regardless of the development of the Monument Management Plan. Other activities in the Monument Management Plan represent expanded or new activities proposed to achieve the desired outcome for each action plan. Collectively, these activities are the Proposed Action alternative, and their environmental and socioeconomic effects are analyzed in comparison to the No Action alternative. Activities in the Monument Management Plan are also categorized as planning and administrative, field activity, or infrastructure and development. This is to distinguish between those activities that focus primarily on coordination among Co-Trustee agencies and those activities that occur primarily in the Monument.

An interdisciplinary team of environmental scientists and other specialists has analyzed the Proposed Action in light of existing conditions and has identified relevant effects associated with implementing the Proposed Action compared to the No Action alternative. The new or expanded activities listed in the Proposed Action are analyzed as appropriate under NEPA and HRS 343 in this EA. Many specific agency activities will be individually assessed, on a case-by-case basis, for future NEPA analysis (i.e. all research and access that requires permits, any major construction, etc.). Activities that are beyond the scope of this assessment may require further analysis in order to comply with NEPA (e.g., preparation of a supplemental EA or an Environmental Impact Statement). These activities are identified as such and they are discussed on a programmatic level. All other activities have been analyzed in a more detailed, site specific manner and the environmental consequences of implementing these activities are described in this document. This analysis covers the biological, cultural, and historic resources of the Monument, as well as the terrestrial and marine environments of the NWHI and the main Hawaiian Islands, as appropriate.

## **1.4 ALTERNATIVES CONSIDERED BUT NOT ANALYZED**

In the development of the Monument Management Plan, the MMB considered the following alternatives to the Proposed Action for managing the Monument:

### **Closing the Monument to the Public**

While a commenter suggested the Monument be closed entirely to the public, Presidential Proclamation 8031 establishes parameters and provides for certain access and activities in the Monument administration, and as such, this is not an option for the Co-Trustees. Providing public use opportunities, education, and interpretation at Midway Atoll NWR facilitates a broader understanding and appreciation of the unique NWHI ecosystem.

### **Enhanced Operations: Habitat Restoration and Historic Preservation**

The Enhanced Operations to support field activities and visitor services at Midway Atoll would focus on restoring Midway Atoll habitat and species, cleaning up contaminated sites, preserving historic resources, and limiting visitor services. This alternative would require additional staff and housing to support larger and more focused efforts. Short-term overnight visitation would be as much as 50 volunteer-visitors, while seasonal or long-term contractors, researchers, and habitat specialists would be up to 130 people, thus totaling approximately 180 people on any given night. The increased island population from the current regular capacity of 120 people would require increased utility systems infrastructure. Increased staffing for accelerated restoration and preservation would limit public visitation, and on-site interpretive and educational facilities would be minimal. Visitation would be restricted to those who would carry out approved refuge management activities, essentially closing the Monument to a large interested constituency, including many World War II veterans. Since, the existing infrastructure cannot accommodate the number of staff and contractors described; this alternative would require additional infrastructure and facility construction that is not consistent with its management for wildlife and habitat. In addition the restrictions that would be required for visitation are not consistent with the intent for Midway to serve as the only portion of the Monument open to the public. Based upon these associated issues, this alternative was not considered reasonable and was not appropriate for analysis.

## **1.5 DESCRIPTION OF NO ACTION ALTERNATIVE**

Under the No Action alternative, the Co-Trustees would continue to implement activities to address priority management needs of the Monument based on agency-specific plans. These current activities fall under 22 action areas, as summarized below and described in detail in the Monument Management Plan. Efforts that would result in direct actions are identified and described in the paragraphs below as planning and administrative, field, or infrastructure and development activities. Some of the current activities in the Monument described below would be expanded under the Proposed Action alternative and are described in section 1.6. The expanded activities as well as new activities described in section 1.6 may qualify as “categorical exclusions” while others may require additional compliance actions as additional plans are completed, including NEPA, section 7 of ESA, section 106 of the NHPA, and (Marine Mammal Protection Act (MMPA)).



### **1.5.1 Marine Conservation Science**

Current marine conservation science activities in the Monument are described in the Monument Management Plan and include planning and administrative and field activities (see Monument Management Plan, Sections 1.1, 1.2, and 1.4 and Section 3.1.1, Marine Conservation Science Action Plan). A summary of current activities in the Monument is provided below with references to specific activities in Marine Conservation Science (MCS) Action Plan.

#### **1.5.1.1 Current planning and administrative activities**

Current marine conservation science planning and administrative activities would continue to be focused on coordinating research efforts, managing data, and incorporating research results into school curricula. Monument research update meetings are coordinated among research partners (MCS-2.5). Regularly scheduled meetings are coordinated among managers, staff, and researchers to facilitate information exchange and to provide updates on research efforts in the Monument. These ongoing activities engage scientists conducting research in the NWHI to share their results with each other and with the MMB to assist in identifying research priorities to improve management decision making. Annual meetings are conducted to present research in the NWHI (MCS-3.1). These meetings provide a forum for the multidisciplinary research community, managers, and interested public to present current research initiatives and recent findings from research, including studies of the ecosystem, Native Hawaiians, maritime heritage, and economics.

Research, monitoring, and bathymetric data are being collected, analyzed, and entered into appropriate databases to better inform management decisions (MCS-1.6). Current protocols ensure consistency in data collection methods over time, which is of primary importance in any monitoring program in order to enable statistically valid comparisons among time periods (MCS-2.2).

Efforts are underway to translate NWHI research findings to the public and to incorporate them into the classroom curricula (MCS-3.2). Many of the materials developed during previous marine research expeditions have been incorporated into other outreach products, specifically displays at the Mokupāpapa Discovery Center, slideshows, and educational curricula. Similarly, educational materials have been associated with satellite tracking of albatross and migration of Golden Plovers (MCS-3.4).

#### **1.5.1.2 Current field activities**

Current marine conservation science field activities would continue to be focused on characterizing shallow- and deepwater marine habitats and on integrating education components on some research expeditions. The MMB and its partners would continue to conduct fieldwork to characterize shallow-water marine habitats and their spatial distributions in the NWHI, using a combination of methods, including remote sensing and underwater surveys (MCS-1.1). The shallow-water coral reef ecosystems would continue to be monitored, using sampling protocols developed through an interagency collaborative effort (MCS-1.2).

The MMB and its partners would continue to conduct deepwater mapping and characterization using submersibles, remotely operated vehicles, remote underwater cameras, and multibeam and

sidescan sonar (MCS-1.3). Some current scientific expeditions include educational components that have been highly successful for education and outreach. Components include live Web sites with updates from the research vessel, imagery, and video (MCS-3.3).

Current activities described above that would be expanded under the Proposed Action alternative include MCS-1.3, MCS-1.6, MCS-2.2, MCS-3.2, MCS-3.3, and MCS-3.4.

## **1.5.2 Native Hawaiian Culture and History**

Current Native Hawaiian culture and history activities in the Monument are described in the Monument Management Plan and include planning and administrative and field activities (see section 1.3 on resource condition and status and section 3.1.2, Native Hawaiian Culture and History Action Plan, which describes current status and background). A summary of activities in the Monument is provided below with references to specific activities in the Native Hawaiian Cultural and History (NHCH) Action Plan.

### **1.5.2.1 Current planning and administrative activities**

Current Native Hawaiian culture and history planning and administrative activities would continue to be focused on identifying research needs and priorities, assessing cultural resource capacity, and integrating Native Hawaiian traditional knowledge and management into Monument management. Scientific and Native Hawaiian cultural research needs would continue to be identified and prioritized through consultation with the Native Hawaiian Cultural Working Group and other Native Hawaiian institutions and organizations (NHCH-1.1). Ongoing efforts to develop cultural research priorities would continue alongside associated management challenges and opportunities (NHCH-1.2). Limited cultural and historical research about the NWHI has already been directly conducted by NOAA and FWS, in conjunction with partner organizations such as OHA and the Bishop Museum (NHCH-2.1). Supporting Native Hawaiian cultural research needs began prior to the Monument establishment and the MMB would continue to provide support for research efforts. Current agreements with the University of Hawai'i are limited to curriculum development (NHCH-2.7). The MMB would continue to assess capacity to support cultural resource management activities (NHCH-3.1). Monument resource managers have varying backgrounds in and experiences with Native Hawaiian cultural significance in the Monument, and efforts would continue to inform them about these issues (NHCH-3.3). Native Hawaiian traditional knowledge and management concepts would continue to inform management decisions in the Monument (NHCH-3.4). Native Hawaiian values and cultural information have been used in certain outreach and education programs targeted at both Native Hawaiians and the general public (NHCH-5.1). The development of a culturally based strategy for education and outreach makes information relevant, attractive, and accessible to Native Hawaiians (NHCH-5.2). Currently anyone granted a permit to access the Monument receives a cultural briefing to help foster a deeper respect for the NWHI through better understanding of, and respect for, Hawaiian values and cultural significance of the place (NHCH-5.3).

### **1.5.2.2 Current field activities**

Current Native Hawaiian culture and history field activities would continue to focus on cultural field research and education. Monument staff has facilitated limited cultural field research and education opportunities.(NHCH-2.3). Two cultural access trips have occurred since the Monument was established (NHCH-2.6). Native Hawaiian practitioners and cultural experts, along with the Native Hawaiian Cultural Working Group, have been advising OHA on Monument management activities; OHA provides information and recommendations based on this advice to the MMB (NHCH-3.2). Both Nihoa and Mokumanamana are recognized as culturally significant. They are listed on the National Register of Historic Places (NRHP) and protected in accordance with the NWRSA of 1966, as amended, and the National Historic Preservation Act (NHPA) of 1966 (NHCH-4.2).

Current activities described above that would be expanded under the Proposed Action alternative include NHCH-2.1, NHCH-2.2, NHCH-2.3, NHCH-2.6, NHCH-2.7, NHCH-3.2, NHCH-3.3, NHCH-4.2, NHCH-5.1, NHCH-5.2, and NHCH-5.3.

### **1.5.3 Historic Resources**

Current historic resources activities in the Monument are described in the Monument Management Plan and include planning and administrative and infrastructure and development activities (see Monument Management Plan, section 3.1.3, Historic Resources Action Plan). A summary of current activities in the Monument is provided below.

#### **1.5.3.1 Current planning and administrative activities**

Current historic resources planning and administrative activities would continue to be guided by the Midway Atoll NWR Historic Preservation Plan for long-term management and treatment for each of the 63 historic properties eligible for inclusion in the NRHP. The procedures in the plan would continue to be used for treating new discoveries. Updates to the Midway Atoll Historic Preservation Plan would continue by reconciling it with the Midway Visitor Service Plan, lead paint abatement plan, and other facilities maintenance and use plans (HR-1.1). Approval of the updated Historic Preservation Plan from Monument partners and the Advisory Council on Historic Preservation would be executed in an agreement document (HR-1.2). Historic preservation responsibilities and procedures would continue to be addressed in annual training of Monument staff and Midway contractors (HR-2.2). Planning and conducting a field survey and documentation of selected National Historic Landmark (NHL) sites and features would occur within 2 years (HR-3.2). Updating and maintaining the Battle of Midway NHL would continue, and interested parties would be included in this planning activity (HR-3.3).

FWS manages the historic properties at Midway Atoll according to a Programmatic Agreement and Historic Preservation Plan. This plan prescribes six different treatment categories for each of the 63 historic properties, based on qualitative measures recommended by interest groups, specialists, and the Advisory Council on Historic Preservation.

### **1.5.3.2 Current infrastructure and development activities**

Current historic resources infrastructure and development activities would continue to be guided by the Midway Atoll NWR Historic Preservation Plan for long-term management and treatment for each of the 63 historic properties eligible for inclusion in the NRHP. The procedures in the plan would continue to be used for treating new discoveries. Repair and maintenance treatments to NHL features would continue to be implemented, with volunteers and unskilled laborers performing maintenance activities and specially trained historic preservation architects and engineers performing repair work (HR-3.4).

Current activities described above that would be expanded under the Proposed Action alternative include HR-1.1, HR-1.2, HR-2.2, HR-3.2, HR-3.3, and HR-3.4.

### **1.5.4 Maritime Heritage**

Current maritime heritage activities in the Monument are described in the Monument Management Plan and include planning and administrative, and field activities (see Monument Management Plan, section 3.1.4, Maritime Heritage Action Plan). A summary of current activities in the Monument is provided below with references to specific activities in the Maritime Heritage (MH) Action Plan.

#### **1.5.4.1 Current planning and administrative activities**

Current maritime heritage planning and administrative activities would continue to be focused on basic documentary research. Current maritime heritage resource documentation and inventory plans and practices would continue to include annual collection and review of appropriate documentation (MH-1.1). Artifact recovery operation status reports would be developed (MH-1.4), along with an internal maritime heritage resource database (MH-1.5). Maritime heritage information would continue to be incorporated into public education and outreach (MH-2.1). Presentations on maritime heritage resources would continue to be developed and delivered at professional conferences and public events (MH-2.2).

Coordination of interagency maritime heritage resource management would continue to be conducted annually (MH-3.1). Protective measures would be enhanced for selected sites within the NWHI through the NRHP nomination process (MH-3.2). A Monument Maritime Heritage Research Plan is being developed for implementation within two years (MH-3.3).

#### **1.5.4.2 Current field activities**

Current maritime heritage field activities would continue to focus on coordinated field mapping surveys (MH-1.2). These field surveys include shoreline terrestrial surveys and inventory and marine remote sensing using a magnetometer and side-scan sonar.

### **1.5.5 Threatened and Endangered Species**

Current threatened and endangered species activities in the Monument are described in the Monument Management Plan and include planning and administrative and field activities (see Monument Management Plan sections 1.1, 1.2, and 1.4 (Monument setting, resource status and



conditions, and stressors) and 3.2.1 (Threatened and Endangered Species Action Plan, Current Status, and Background). A summary of current activities in the Monument is provided below with references to specific activities in the Threatened and Endangered Species (TES) Action Plan.

#### **1.5.5.1 Current planning and administrative activities**

Current threatened and endangered species planning and administrative activities would continue to focus on evaluating potential threats and management needs for threatened and endangered species and continued implementation of appropriate species recovery plans, such as that for the Hawaiian monk seal. NOAA's National Marine Fisheries Service (NMFS) has conducted initial habitat loss projections due to sea level rise to evaluate potential threats to Hawaiian monk seals (TES-1.3). Monument staff would continue to reduce any effects of human interactions with Hawaiian monk seals through a variety of methods, including consultations, permitting, and promoting watchable wildlife guidelines. Increased outreach and education activities focused on the Hawaiian monk seal are now being conducted (TES-1.5). Materials have been created for public outreach and attendance at domestic and international meetings to carry out government-to-government communication on fisheries measures that can reduce by-catch of birds that may nest in the Monument during commercial fishing operations that are taking place outside the Monument (TES-4.3).

Ongoing efforts to cooperate with the Japanese government continue to establish one or more breeding populations of short-tailed albatrosses on islands free from threats, such as active volcanoes and introduced mammals (TES-4.1). FWS would continue to evaluate the potential to establish one to three colonies of three endangered plants, *Amaranthus brownii*, *Schiedea verticillata*, and *Pritchardia remota* outside of their historic ranges (TES-7.5). In addition, the MMB would continue to conduct Endangered Species Act (ESA) consultations for all authorized actions (TES-8.1, TES-8.3).

#### **1.5.5.2 Current field activities**

Current threatened and endangered species field activities would continue to focus on conserving, protecting, and managing habitat specifically for the Hawaiian monk seal, green turtle, cetaceans, short-tailed albatross, Laysan duck, passerines (perching birds), and a variety of listed plant species. One aspect of habitat management is the ongoing efforts to reduce marine debris, particularly in key Hawaiian monk seal habitat; this action is intended to reduce the number of injuries and mortality due to entanglement (TES-1.1). Current emergency response efforts related to Hawaiian monk seals are handled on a case-by-case basis in Hawaiian monk seal camps (TES-1.2). Current efforts by Monument staff to monitor effects of shark predation on Hawaiian monk seals and develop and implement methods to deter predation as appropriate would continue (TES-1.6)

Cetacean (whales, dolphins, and porpoises) population census research is ongoing (TES-2.1). Spinner dolphin mark and recapture photo identification surveys would continue yearly (TES-2.2), and Monument staff would continue monitoring, characterizing, and addressing the effects of marine debris on cetaceans (TES-2.3). To date, no cases of a cetacean with an infectious disease have been documented in the NWHI, but the appropriate response to any suspected

infectious disease incidents would be completed in a timely manner, and contingency response plans would be developed, if required (TES-2.4). However, controls are being used to prevent negative human-cetacean interactions that may occur as a result of visitor programs or research activities (TES-2.5).

Research has been conducted on the green turtle nesting population in the NWHI since 1973 and is one of the longest series of nesting abundance data for any sea turtle population around the globe (TES-3.1). Green turtle nesting and basking habitat is protected by prohibiting undesirable habitat alteration and controlling access to nesting and basking beaches (TES-3.2). People are prevented from driving and in some cases walking on nesting beaches. Turtle best management practices (BMPs) are being implemented to avoid and to minimize any potential to disturb sea turtle foraging areas (TES-3.3).

Initial studies have been conducted to evaluate the correlation between reproductive success of albatross and contaminant body burdens (TES-4.2). The population of the Laysan duck would continue to be monitored (TES-5.2). The feasibility of translocating Laysan finch, Nihoa finch, and the Nihoa millerbird to other areas of the Monument is being evaluated to buffer against catastrophic declines of current natural populations (TES-6.2).

Efforts to protect all endangered plant species from extinction would continue by collecting their seeds from Nihoa and Laysan Island and sending them to seed banks, such as the Lyon Arboretum and National Tropical Botanical Garden (TES-7.1).

The Co-Trustees and partners action agencies do not stop at monitoring existing population but seeks to increase numbers and locations of *Amaranthus brownii* and *Schiedea verticillata* on Nihoa by 2018 (TES-7.2) and to establish a self-sustaining Nihoa fan palm (*Pritchardia remota*) population on Laysan Island by 2012 (TES-7.3). These efforts are supported through continued greenhouse operations on Laysan Island to propagate and outplant these and other rare plant species (TES-7.4).

The Co-Trustees and partners action agencies continue to monitor populations of threatened and endangered species by conducting annual spinner dolphin mark and recapture photo identification surveys (TES-2.2), population monitoring of Laysan ducks on Laysan Island and Midway Atoll (TES-5.1), and annual censuses of populations of each passerine species, along with monitoring their food and habitat requirements (TES-6.1). In addition, ecological baselines of listed species and critical habitat, description of sensitive areas, and other information currently and is being periodically updated (TES-8.2).

Current activities described above that would be expanded under the Proposed Action alternative include TES-1.2, TES-1.3, TES-1.5, TES-1.6, TES-2.1, TES-2.3, TES-2.4, TES-2.5, TES-3.1, TES-3.3, TES-4.1, TES-4.2, TES-4.3, TES-5.2, TES-6.2, TES-7.1, and TES-8.2.

### 1.5.6 Migratory Birds

Current migratory bird activities in the Monument are described in the Monument Management Plan and include planning and administrative and field activities (see Monument Management Plan, section 3.2.2). A summary of current activities in the Monument is provided below, with references to specific activities in the Migratory Bird (MB) Action Plan.

### **1.5.6.1 Current planning and administrative activities**

Current migratory bird planning and administrative activities would continue to focus on reducing the effect of fisheries outside the Monument on migratory bird populations and ensuring that spill response plans are aimed at minimizing mortality to migratory birds. The Monument staff work with partners to reduce the effect of commercial and sport fisheries on migratory bird populations (MB-2.5). They provide data on seabird population and status and biological expertise regarding migratory bird bycatch and other fishing effects on bird species, particularly the Laysan albatrosses and black-footed albatrosses. Monument staff's biological expertise is tapped to teach seabird identification skills to fishers and fisheries observers and assisting with the development of mitigation techniques should significant effects occur. The MMB would ensure that all spill response plans have adequate coverage of actions necessary to minimize mortality to migratory birds (MB-2.3).

### **1.5.6.2 Current field activities**

Current migratory bird field activities would continue to focus on controlling or eradicating nonnative species, conducting surveillance of avian diseases, monitoring contaminant levels in birds and the environment, monitoring populations of seabirds, and restoring seabird populations. Nonnative species would continue to be controlled at all sites where they have a negative effect on the survivorship or reproductive performance of migratory birds (MB-1.1). Native plant communities would continue to be restored that are important to seabird nesting (MB-1.2). In addition, species-specific social attraction techniques, such as automated playback of calls and providing nesting boxes to encourage recolonization of Bulwer's petrels and Tristram's storm-petrels are ongoing at Midway Atoll (MB-4.1).

The MMB and participating agencies would continue to conduct surveillance for evidence of avian disease outbreaks (including Asian H5N1 Avian Influenza), reporting all instances of unusual mortality, collecting samples, and following response plans if disease is detected (MB-2.1). Contaminant levels in birds and their habitats would continue to be evaluated to determine if the potential exists to cause lethal or slightly below lethal effects (MB-2.2). Furthermore, rigorous quarantine protocols would be maintained to prevent the introduction of alien species that may prove hazardous, specifically to migratory birds (MB-2.4).

Using standard methods devised for tropical seabirds, monitoring a suite of 15 focal seabird species would continue at specific sites in the Monument to track changes in population size and help researchers understand the underlying causes of that change (MB-3.1). Changes in habitat quality would continue to be monitored by measuring reproductive performance and diet composition in selected seabird species (MB-3.2). Standardized methods would continue to be used to accurately assess the population size and trends of overwintering and migrating Pacific golden plovers, bristle-thighed curlews, wandering tattlers, and ruddy turnstones (MB-3.3).

Current activities described above that would be expanded under the Proposed Action alternative include MB-1.1, MB-1.2, MB-2.2, MB-2.3, MB-3.1, MB-3.2, and MB-3.3.

### **1.5.7 Habitat Management and Conservation**

Current habitat management and conservation activities in the Monument are described in the Monument Management Plan and include field activities (see Monument Management Plan, sections 3.2.3). A summary of current activities in the Monument is provided below with references to specific activities in the Habitat Management and Conservation (HMC) Action Plan.

#### **1.5.7.1 Current field activities**

Current habitat management and conservation field activities would continue to focus on habitat restoration and monitoring to document contamination that is degrading habitats within the Monument. Locations of shoreline dumps and other discarded material are documented when found at Kure Atoll (HMC-2.1). Locations of documented landfills would continue to be sought (HMC-2.3). Monument staff would continue to collect and fingerprint washed up oil from mystery spills and its effect on wildlife (HMC-2.5). Oil fingerprinting is used to determine its origin and to build an oil sample archive for possible use as evidence in assigning liability. Studies also would continue on an area of Laysan Island that was contaminated by the insecticide carbofuran (HMC-2.6) to document contamination that degrades habitats within the Monument.

Propagation and outplanting of extant native species identified in the pollen record and historical documents from Laysan Island would continue to occur in 250 acres of vegetated area at Midway Atoll (HMC-4.1). Alien and invasive species would continue to be replaced with native species on Midway and Laysan Islands (HMC-4.3). Habitat restoration activities are part of the routine field season on Kure Atoll (HMC-4.6).

Currently, MMB is monitoring changes in species composition and structure of the coastal shrub and mixed grass communities on all the coralline islands and atolls of the Monument (HMC-4.7) and on basalt islands (HMC-5.2). Water levels, salinity, and other water quality parameters of Laysan Lake continue to be monitored (HMC-6.1). When needed, activities such as installing drift fences are undertaken to slow the movement of sand and the drift of dunes into the lake (HMC-6.2).

Activities described above that would be expanded under the Proposed Action alternative include HMC-2.1, HMC-2.3, and HMC-4.7.

### **1.5.8 Marine Debris**

Current marine debris activities in the Monument are described in the Monument Management Plan and include planning and administrative and field activities (see Monument Management Plan, section 1.4 and section 3.3.1, Marine Debris Action Plan). A summary of current activities in the Monument is provided below, with references to specific activities in the Marine Debris (MD) Action Plan.

### **1.5.8.1 Current planning and administrative activities**

Current marine debris planning and administrative activities are focused on collating marine debris data from various entities. Information and data are collected from these entities that use a variety of data collection methods (MD-2.2).

### **1.5.8.2 Current field activities**

Current marine debris field activities focus on multiagency marine debris cleanup. These efforts have been highly effective in removing marine debris from shallow water areas and beaches of the Monument (MD-1.1). They have also included documenting, securing, and removing hazardous materials that wash ashore (MD-1.2). The MMB also works with governmental, nongovernmental, and industry partners to support studies on marine debris issues. One study underway is to assess net scar recovery over time at Midway Atoll (MD-2.1).

Current activities described above that would be expanded under the Proposed Action alternative include MD-1.1, MD-1.2, MD-2.1, and MD-2.2.

## **1.5.9 Alien Species**

Current alien species management activities in the Monument are described in the Monument Management Plan and include planning and administrative and field activities (see Monument Management Plan section 3.3.2, Alien Species Action Plan). A summary of current activities in the Monument is provided below, with references to specific activities in the Alien Species (AS) Action Plan.

### **1.5.9.1 Current planning and administrative activities**

Current alien species management planning and administrative activities would continue to focus on developing outreach materials and working with various groups to address invasive species issues. As part of the outreach to all Monument permittees, Monument staff would continue to develop BMPs to prevent, control, and eradicate alien species (AS-1.2) and to develop outreach informational materials that include information on regulations, permit requirements, and BMPs related to alien species (AS-9.1). The spread of invasive species and the success of control measures would be tracked in a geographic information system (GIS) database of marine and terrestrial alien species (AS-2.2). Some alien species information has been integrated into general Monument outreach materials. For example, the “Navigating Change” curriculum and video series developed in 2004 contained information on the threat of invasive species to native ecosystems (AS-9.2). The MMB is currently working with a number of groups addressing invasive species in Hawai‘i, including the Hawai‘i Invasive Species Council, the Alien Aquatic Organism Task Force, and the Coordinating Group on Alien Pest Species, among several others. The Pacific Invasives Network is addressing invasive species issues in Pacific islands (AS-10.1).

### **1.5.9.2 Current field activities**

Current alien species management field activities would continue to focus on alien species prevention, detection, control, and eradication methods. The control of alien species would continue to be addressed through the continued strict enforcement of existing quarantine



protocols (AS-3.1), mandatory hull inspections of all permitted vessels entering the Monument (AS-3.2), and ensuring that state ballast water exchange regulations are complied with to keep the incidence of new invasive species in the NWHI low. Aggressive control of nonnative species is occurring at Tern, Laysan, and Midway Atoll (AS-6.1). For example the grass, sandbur, was eradicated at Laysan (AS-6.2), and work is occurring to control *Pluchea*, *Sporobolus*, and swine cress at Laysan (AS-6.3). Also, alien species have begun to be surveyed and mapped on Kure (AS-6.4).

Research is conducted on alien species detection and effects of invasive species on native ecosystems (AS-8.1). Terrestrial research is conducted on alien species prevention and control methods for native ecosystems (AS-8.2). Existing invasions of alien species are periodically monitored to determine rate of spread and distribution relative to sensitive species (AS-2.1).

Current activities described above that would be expanded under the Proposed Action alternative include AS-1.2, AS-2.1, AS-2.2, AS-6.1, AS-6.2, AS-6.3, AS-6.4, AS-8.1, AS-8.2, AS-9.1, AS-9.2, and AS-10.1.

### **1.5.10 Maritime Transportation and Aviation**

Current maritime transportation and aviation activities in the Monument are described in the Monument Management Plan and include planning and administrative, field, and infrastructure and development activities (see Monument Management Plan, section 3.3.3, Maritime Transportation and Aviation Action Plan). A summary of current activities in the Monument is provided below, with references to specific activities in the Marine Transportation and Aviation (MTA) Action Plan.

#### **1.5.10.1 Current planning and administrative activities**

Current maritime transportation and aviation planning and administrative activities conducted to manage maritime transportation within the NWHI include coordinating implementation of domestic and international shipping designations with appropriate entities (MTA-1.1). The International Maritime Organization (IMO) has designated the Monument as a Particularly Sensitive Sea Area (PSSA) (See Volume III, Appendix G). This augments protective measures by alerting international mariners to exercise extreme caution when navigating through the area. The IMO adopted associated protective measures for the area that include expanded areas to be avoided and a ship reporting system. Protocols exist for safe aircraft and vessel operations within the Monument (MTA-2.2). Information on alien species introductions, cultural protocols, anchoring, discharge, and Monument regulations are incorporated into training for Monument users and vessel operators before they can access the area (MTA-2.3).

#### **1.5.10.2 Current infrastructure and development activities**

Current maritime transportation and aviation infrastructure and development activities would continue to focus on encouraging energy and water conservation on all vessels operating within the Monument. Water and energy conservation measures would be continually improved on all vessels operating within the Monument, upgrading to new practices and technologies as they become available (MTA-2.4). The NOAA vessel *Hi'ialakai* is increasing shipboard conservation measures by recycling, installing water-saving devices, and testing alternative fuels

and hydraulic fluids. The MMB would continue to work with various ship managers to encourage similar practices for all vessels operating within the Monument.

Activities described above that would be expanded under the Proposed Action alternative include MTA-2.2 and MTA-2.3.

### **1.5.11 Emergency Response and Natural Resource Damage Assessment**

Current emergency response and natural resource damage assessment activities in the Monument are described in the Monument Management Plan and include planning and administrative activities (see Monument Management Plan, section 3.3.4, Emergency Response and Natural Resource Damage Assessment Action Plan). A summary of activities in the Monument is provided below, with references to specific activities in the Emergency Response and Natural Resource Damage Assessment (ERDA) Action Plan.

#### **1.5.11.1 Current planning and administrative activities**

Current emergency response and natural resource damage assessment planning and administrative activities include incident response and contingency planning. Emergency response in the NWHI is coordinated under a series of plans and systems, including the National Response Plan and the National Incident Management System. The National Response Plan establishes a comprehensive all-hazards approach to enhance the ability of the United States to manage domestic incidents, including oil and hazardous chemical spills. This plan incorporates the National Contingency Plan and its regulations governing how response is conducted by various parties. The NWHI is also covered by a more specific Area Contingency Plan for the Hawaiian Islands.

Appropriate Monument staff would receive training and certifications, including Incident Command System (ICS), hazardous waste operations and emergency response, boat safety, flight safety, first responder, and first aid, as needed (ERDA-1.2). Monument staff attend Regional Response Team meetings, as appropriate, to keep abreast of current communication and training and to build working relationships with agency staff that make up both the Regional Response Team and the United States Coast Guard (USCG) agency staff. Participation in emergency response drills and other events would help with preparedness and better integration into the response process (ERDA-1.3). Appropriate Monument staff have been trained and work closely with a variety of damage assessment programs, to ensure that appropriate response, injury assessment, and restoration activities take place for any given case (ERDA-1.4). There is an area contingency plan and environmental sensitivity indices for the Monument, which damage assessment personnel follow (ERDA-3.1). Monument staff respond to non-ICS events within the Monument (ERDA-3.2). The MMB uses technical experts to consult on permit applications.

Activities described above that would be expanded under the Proposed Action alternative include ERDA-1.2, ERDA-1.3, ERDA-1.4, ERDA-3.1, and ERDA-3.2.

### **1.5.12 Permitting**

Current permitting responsibilities and activities in the Monument are described in the Monument Management Plan and include planning and administrative activities (see Monument

Management Plan section 2, Management Framework and section 3.4.1, Permitting Action Plan). A summary of current activities in the Monument is provided below, with references to specific activities in the Permitting (P) Action Plan.

#### **1.5.12.1 Current planning and administrative activities**

Current permitting planning and administrative activities include reviewing and tracking permit applications and reports. The Monument staff serves as the central portal through which all permit inquiries and applications are received and processed (P-1.1). Each year, the permit application, instructions, and template are evaluated and updated based on lessons learned from the previous year (P-1.2). Monument staff regularly brings all permits and permit-related issues before the MMB for discussion or to recommend action to the Co-Trustees. In addition, individual permit applications are reviewed for environmental, cultural, and historic effects, and a case-by-case environmental analysis under NEPA may be conducted as necessary (P-1.3). The MMB uses technical experts to consult on permit applications (P-1.4). Monument staff have begun to develop a GIS-based permit tracking system, consisting of historical permit data (P-2.1).

Permits are issued based on regulatory requirements and proclamation findings and other criteria established by the MMB to assist with permit reviews. Currently, reports from permittees are received in an unstandardized format (P-2.4). Many of the action plans include educational or outreach activities related to permitting or regulations (P-3.1). Permit applicants are required to meet the findings detailed in Presidential Proclamation 8031 and receive a cultural briefing before they are allowed access to the Monument (P-3.2). Information on the permitting process has been placed on the Monument website, including application forms and instructions (P-3.3). Training in advance of a visit to the Monument is an important component of all permitted activities and is required for all those planning to enter the Monument for the first time. Several MMB agencies have formal and informal training mechanisms already in place (P-3.4).

Previously, the State of Hawai'i Land Board was the primary public forum for being notified of Monument permit applications under consideration by Co-Trustees in Hawaiian waters. To ensure that the general public has access to and is informed of all permit applications under review, a policy on public posting was developed and finalized in November 2007 to regularly update the public on proposed and permitted activities (P-3.5). In addition, the permit application, instructions, and template are evaluated and updated yearly based on lessons learned from the previous year. In addition, feedback from permittees and applicants are gathered yearly to maintain the most efficient and comprehensible permit program possible.

Activities described above that would be expanded under the Proposed Action alternative include P-1.4, P-2.1, P-2.4, P-3.1, P-3.2, P-3.3, and P-3.4.

#### **1.5.13 Enforcement**

Current enforcement responsibilities and activities in the Monument are described in the Monument Management Plan and include planning and administrative and field activities (see Monument Management Plan, section 2, and section 3.4.2, Enforcement Action Plan). A

summary of current activities in the Monument is provided below with references to specific activities in the Enforcement (EN) Action Plan.

#### **1.5.13.1 Current planning and administrative activities**

Current enforcement planning and administrative activities would continue to focus on enforcement of Monument and other applicable regulations, assessment of threats, and operation of a vessel monitoring system (VMS). Enforcement activities in the Monument are conducted by the individual Co-Trustee agencies, NOAA Office of Law Enforcement, FWS Law Enforcement, DLNR Division of Conservation and Resource Enforcement, and the USCG. At the national level, NOAA and FWS have agreements on enforcement (EN-1.2). Collaboration among agencies is conducted on an informal basis as needed to address enforcement issues. Enforcement training is conducted individually by each enforcement entity. A comprehensive threat assessment and enforcement plan is being developed to ensure surveillance resources can be effectively deployed Monument wide and law enforcement agencies can accurately assess threats (EN-2.1).

Currently the Monument relies on USCG platforms for enforcement operations (EN-2.4). A VMS is required by Monument regulations (50 CFR Part 404), and all permitted vessels must have this system to operate in the Monument (EN-2.2). Current briefings for permittees include information on Monument regulations, permit requirements, and BMPs (EN-3.1). No enforcement personnel are currently stationed in the Monument.

#### **1.5.13.2 Current field activities**

Current enforcement field activities would continue to focus on enforcement of Monument and other applicable regulations, assessment of threats, and operation of a VMS. Enforcement activities in the Monument are conducted by the individual Co-Trustee agencies, NOAA Office of Law Enforcement, FWS Law Enforcement, DLNR Division of Conservation and Resource Enforcement, and the USCG. Midway Atoll is predicted to be a hub of activities for the Monument, and a continued increase in law enforcement capacity is necessary to ensure visitor and staff safety, regulatory compliance, and enforcement (EN-1.5).

Current activities described above that would be expanded under the Proposed Action alternative are EN-1.2, EN-1.5, EN-2.4, and EN-3.1.

#### **1.5.14 Midway Atoll Visitors Services**

Current Midway Atoll visitor services are described in the Monument Management Plan and include field activities (see Monument Management Plan, 3.4.3, Midway Atoll Visitor Services Action Plan). A summary of current activities in the Monument is provided below with references to specific activities in the Midway Atoll Visitor Services (VS) Action Plan.

##### **1.5.14.1 Current field activities**

Current Midway Atoll visitor services field activities would continue to focus on tours and educational opportunities to visitors consistent with the May 2007 Interim Midway Atoll National Wildlife Refuge Visitor Services Plan. In January 2008, the new program began

offering limited opportunities for visitors to experience Midway and the Monument's natural, cultural, and historic resources. The interim visitor services plan, in accordance with the Refuge System Administration Act, has determined that certain recreational uses are compatible. Educational opportunities, which include diving, kayaking, and photography, are consistent with the interim visitors services plan (VS-1.1). Currently, walking tours and snorkeling are offered up to 40 people at a time, consistent with the interim visitors services plan (VS-1.2). Visitor effects and compatibility, as required by FWS policies, would continue to be monitored (VS-1.3). A voluntary visitor satisfaction survey is provided to each guest, with information provided to the refuge manager for appropriate action (VS-2.1).

Current activities described above that would be expanded under the Proposed Action alternative are VS-1.1, VS-1.2, VS-1.3, and VS-2.1.

### **1.5.15 Agency Coordination**

Current agency coordination activities in the Monument are described in the Monument Management Plan and include planning and administrative and field activities (see Monument Management Plan, section 2, Management Framework, and section 3.5.1, Agency Coordination Action Plan). A summary of current activities in the Monument is provided below, with references to specific activities in the Agency Coordination (AC) Action Plan.

#### **1.5.15.1 Current planning and administrative activities**

Current agency coordination planning and administrative activities are focused on agency coordination among government partners responsible for Monument management activities and other government entities. The MMB currently employs standard operating procedures for meetings and other events (AC-1.1). A Memorandum of Agreement among the Department of Commerce, the Department of the Interior, and the State of Hawai'i was signed in 2006 and outlines the coordinated management of the Monument (AC-2.2). Efforts exist to coordinate with agencies outside of the MMB through the Interagency Coordinating Committee (AC-2.3). The collaboration of agencies provides a means to improve management effectiveness in order to assess, prioritize, and plan activities at the Monument. An interagency strategic planning workshop is conducted with the Interagency Coordination Committee to discuss previous year activities, to plan and prioritize new activities, and to identify gaps or additional needs (AC-2.4).

The MMB maintains open communication with the Department of Defense (DoD) and the U.S. Navy on potential areas of cooperation (AC-3.1). The MMB collaborates with managers of marine protected areas and constituents in Hawai'i and the Pacific to share information on the management challenges common to coral reef ecosystems and the importance of those ecosystems to the world (AC-3.2). The State of Hawai'i would continue to take the lead within the MMB and collaborate with agencies to support the bid for obtaining World Heritage Site status from the United Nations Educational, Scientific, and Cultural Organization (UNESCO) World Heritage Center (AC-3.3).

Current activities described above that would be expanded under the Proposed Action alternative are AC-1.1, AC-2.2, AC-2.3, and AC-3.1.



### **1.5.16 Constituency Building and Outreach**

Current constituency building and outreach activities are described in the Monument Management Plan and include planning and administrative activities (see Monument Management Plan, section 3.5.2, Constituency Building and Outreach Action Plan). A summary of current activities in the Monument is provided below with references to specific activities in the Constituency Building and Outreach (CBO) Action Plan.

#### **1.5.16.1 Current planning and administrative activities**

Current constituency building and outreach planning and administrative activities would continue to focus on building a constituency of informed stakeholders. Monument staff would continue to refine and implement the Monument Media Communications Protocol to engage news media in informing the public about the Monument's resources and activities (CBO-1.2). The Monument serves as a powerful focal point for engaging a broad and diverse base of constituents and increasing ocean ecosystem literacy (CBO-1.4).

Monument staff will continue to produce a variety of materials to aid Monument constituencies in understanding key aspects of the Monument. The overall site brochure is the primary informational mechanism to help the public, and update letters have been provided to the public regularly during development of the Monument Management Plan (CBO-2.2).

Establishment of the Monument has created great interest from documentary filmmakers, writers, photographers, and others. The MMB supports those endeavors that provide significant benefit to Monument resources and management, and our constituents without affecting Monument resources (CBO-2.3).

Because most people are not able to visit the Monument due to its remoteness and fragility, it is important to bring the place to the people. Through discovery centers, Web sites, public outreach activities and materials, and the Monument media communications protocol, Monument information is dispersed in an accurate, consistent, and timely manner in order to reach a broader audience (CBO-3.1). Public forums have been held regarding specific aspects of the Monument (CBO-3.2). As the Hawaiian Archipelago is most closely related to other sites across Oceania, it is important for the MMB to continue to collaborate with a network of marine managed areas in this region (CBO-3.3). These partnerships would allow for a greater exchange of knowledge and expertise. They would also provide opportunities to build awareness about the important connection between cultural and conservation practices. A volunteer program would continue to be conducted in support of the Monument (Tern, Laysan, Midway, and Kure) (CBO-3.4). Guidance and support relative to Native Hawaiian cultural issues would continue to be provided to the Monument through OHA (CBO-3.6). Nonprofit friends groups would continue to be partners in contributing to the interpretation or recreation and educational programs of Midway (CBO-3.7). The NWHI Coral Reef Ecosystem Reserve Advisory Council, formed in 2001 for the Reserve, would continue to be convened until the Monument Alliance is established (CBO-3.8). The Reserve Advisory Council has served as a mechanism for public input and a venue for public comment on management activities.

Initial discussions of Monument-wide interpretive themes have been held among the Co-Trustee agencies (CBO-4.1). Two existing interpretive facilities at Hilo and on Midway Atoll NWR would continue to provide interpretive information (CBO-4.2). Monument staff would continue to be engaged in a variety of interpretive efforts to better inform Monument constituencies (CBO-4.4).

#### **1.5.16.2 Current field activities**

Because most people are not able to visit the Monument due to its remoteness, current constituency building and outreach field activities are focused on investigating new technologies to bring the place to the people. To accomplish this goal, Monument staff is investigating a variety of technologies, including underwater video cameras, real-time video transmission, virtual field trips, Web site interfaces, and exhibits in discovery centers (CBO-1.5).

#### **1.5.17 Native Hawaiian Community Involvement**

Current Native Hawaiian community involvement activities are described in the Monument Management Plan and include planning and administrative activities (Monument Management Plan, section 3.5.3, Native Hawaiian Community Involvement Action Plan). A summary of current activities in the Monument is provided below, with references to specific activities in the Native Hawaiian Community Involvement (NHCI) Action Plan.

##### **1.5.17.1 Current planning and administrative activities**

Current Native Hawaiian community involvement planning and administrative activities would continue to focus on partnerships with existing Native Hawaiian groups and identifying how traditional knowledge can be integrated into Monument management and research activities. A working group consisting of kūpuna, cultural practitioners, Native Hawaiian resource managers, and others established under the NWHI Coral Reef Ecosystem Reserve would continue through OHA to provide advice regarding management of the Monument and ensure the continuance of Native Hawaiian practices (NHCI-1.1). Cultural research and consultation related to the NWHI under the established partnership with the Kamakākūokalani Center for Hawaiian Studies would continue (NHCI-2.1). The Monument's cultural resources staff would work with the Native Hawaiian community and cultural experts to identify how traditional knowledge and associated practices may be woven into Monument management and research activities (NHCH-3.1).

Current activities described above that would be expanded under the Proposed Action alternative are NHCI-1.1 and NHCI-2.1.

#### **1.5.18 Ocean Ecosystems Literacy**

Current ocean ecosystems literacy activities in the Monument are described in the Monument Management Plan and include planning and administrative and field activities (see Monument Management Plan, section 3.5.4, Ocean Ecosystems Literacy Action Plan). A summary of activities in the Monument is provided below, with references to specific activities in the Ocean Ecosystems Literacy (OEL) Action Plan.

### **1.5.18.1 Current planning and administrative activities**

Current ocean ecosystems literacy planning and administrative activities focus on education in elementary, middle, and high school. “A Teacher’s Guide to Navigating Change” is an integral part of the NWHI-based curricula developed under the Navigating Change partnership and the new Hawai‘i Marine Curriculum (OEL-1.1). The Navigating Change partnership would continue to work closely with the Native Hawaiian community to ensure appropriate cultural information is included in curricula (OEL-1.2). Multi-agency educational partnerships would continue to conduct teacher workshops in the main Hawaiian Islands in support of middle/high school environmental education programs, including the “Navigating Change” curriculum (OEL-1.4). The Mokupāpapa Discovery Center for Hawai‘i’s Remote Coral Reefs hosts an average of six school groups per month (OEL-1.6). Education programs would continue to be evaluated to ensure desired goals are being met and target audiences are being reached (OEL-1.9). Monument staff have begun to identify new and innovative projects that could help to increase ocean ecosystems literacy (OEL-2.1).

### **1.5.18.2 Current field activities**

Current ocean ecosystems literacy field activities would continue to focus on teacher development both in the main Hawaiian Islands and NWHI and on exploring technologies to help those who cannot visit the NWHI experience it remotely. Over the past five years, more than 15 workshops have been conducted on the main Hawaiian Islands to introduce the standards-based Navigating Change curriculum to local teachers. Agency planning for Midway Atoll teacher workshops began in 2007, and a focus group of teachers, curriculum developers, educational leaders, and Navigating Change Educational Partnership members held a planning workshop on Midway Atoll in January 2008 (OEL-1.7). Each year, teachers active in learning about the NWHI and using Monument educational materials are provided with opportunities to participate in teacher and class-at-sea expeditions in conjunction with NOAA research cruises (OEL-1.5). Two opportunities per year are provided for educational groups, private/nonprofit environmental, or historical organizations to conduct wildlife-dependent or historical college-level courses or to administer informal educational camps (OEL-1.8). The MMB would continue to use new technologies for educational and outreach activities (OEL-2.2).

Activities described above that would be expanded under the Proposed Action alternative are OEL-1.1, OEL-1.2, OEL-1.6, OEL-1.7, OEL-1.9, OEL-2.1, and OEL-2.2.

### **1.5.19 Central Operations**

Current Central Operations activities in the Monument are described in the Monument Management Plan and include planning and administrative and infrastructure and development activities (see Monument Management Plan section 2 and section 3.6.1, Central Operations Action Plan). A summary of current activities in the Monument is provided below with references to specific activities in the Central Operations (CO) Action Plan.

#### **1.5.19.1 Current planning and administrative activities**

Current Central Operations planning and administrative activities would continue to focus on coordination among the MMB. The MMB has had varying levels of human resources and

facility infrastructure in place before the Monument was established. Although research and management activities are conducted in the Monument, most staff and administrative support is conducted in Honolulu and at other locations within the main Hawaiian Islands. To better coordinate among management agencies and to increase the effectiveness of site operations, annual operating plans would be developed and coordinated in accordance with the Monument management agencies' guiding policies and procedures (CO-1.1). Human resource and organizational capacity needs are regularly assessed to organize and better utilize staff, and identify technical and administrative human resource overlaps and gaps (CO-2.1). Human resource development, including staff recruitment, retention, recognition, training, communication, regular meetings, time and attendance, and staff safety, would continue (CO-2.2). Although some Monument staff are collocated, individual agencies primarily assess the status and future needs of their infrastructure independently (CO-3.1).

#### **1.5.19.2 Current infrastructure and development activities**

Current Central Operations infrastructure and development activities would continue to focus on maintaining physical assets. Maintaining and retaining current physical assets and procuring or leasing additional assets would continue to be driven by individual agency need and available funding (CO-3.2). Appropriate computer equipment would continue to be acquired, upgraded, and maintained to meet management needs (CO-3.3).

Current activities described above that would be expanded under the Proposed Action alternative are CO-2.1, CO-2.2, CO-3.1, CO-3.2, and CO-3.3.

#### **1.5.20 Information Management**

Current information management activities in the Monument are described in the Monument Management Plan and include planning and administrative activities (see Monument Management Plan, section 3.6.2, Current Status and Background). A summary of activities in the Monument is provided below.

##### **1.5.20.1 Current planning and administrative activities**

Current information management planning and administrative activities are focused on compiling a broad spectrum of information and data into an information management system. Multiagency Reef Assessment and Monitoring Program expeditions in the NWHI, which began in 2000, represent an initial attempt to establish a multiagency data clearinghouse for management purposes. This effort would continue because only a portion of the many years of NWHI data has been processed and made available. An annotated bibliography of cultural resources for the NWHI incorporates past cultural, geological, and biological studies in the NWHI and would continue to be updated. The MMB would continue to participate in the ONMS Information Management and Spatial Technology (IMaST) plan for all field sites. The IMaST plan organizes the many spatial resources within the National Marine Sanctuary System and makes them available to all sites and partner staff needing geospatial information, data, training, software, hardware, and hands-on experience.

Additionally, the MMB would continue developing a field-based tool to help collect research and vessel activity data from scientific expeditions conducted aboard research vessels active in

the NWHI. This system would help to meet permit criteria for data management and reporting and would assist in data entry, metadata recording, and data integrity. This system is one component of the larger Information Management System that would continue to be developed based on a set of priority management questions. A GIS spatial bibliography database for the NWHI is under development and will continue to be updated. This GIS incorporates geographical positions of past habitat characterization and field research into spatially referenced electronic documents.

### **1.5.21 Coordinated Field Operations**

Current coordinated field operations activities in the Monument are described in the Monument Management Plan and include planning and administrative, field activities, and infrastructure and development (see Monument Management Plan, section 3.6.3). A summary of current activities in the Monument is provided below with references to specific activities in the Coordinated Field Operations (CFO) Action Plan.

#### **1.5.21.1 Current planning and administrative activities**

Current coordinated field operations planning and administrative activities are focused on coordinating field operations and supporting dive operations. Continuing activities include implementing infrastructure rehabilitation, reconstructing and developing facilities on Midway Atoll (CFO-1.1), and applying “greening” methods and technologies for facilities and assets (CFO-1.4). An overarching MOA defines the working relationship among MMB agencies and provides a foundation for future specific field oriented agreements (CFO-2.1).

#### **1.5.21.2 Current field activities**

Current coordinated field operations field activities would continue to focus on interagency planning and coordination for field operations procedures. Field operations in the Monument rely on ships, aircraft, seasonal field camps, and field stations. Permitted activities are monitored through field activity reports to assess the threats they may pose to the resources. Reporting requirements are being developed with partners that would draw on existing databases when available (CFO-2.3). To enhance interagency planning and coordination for field operations, field operations are coordinated annually to efficiently deploy personnel and share resources among agency partners and ensure that priority management needs are met (CFO-2.4).

Individual MMB agencies inventory, maintain, and coordinate the use of their own small boats and related field resources (CFO-6.1). Interagency dive operations would continue to focus on maintaining reciprocity agreements, communication between dive masters and chief scientists, and ensuring certifications and training (CFO-8.4).

#### **1.5.21.3 Current infrastructure and development activities**

Current coordinated field operations infrastructure and development activities include routine maintenance activities at Tern and Laysan Islands and Kure and Midway Atolls. Houses would continue to be routinely maintained at Midway Atoll, and lead-based paint removal efforts would continue or be planned for all buildings (CFO-3.4). Routine maintenance of housing and facilities at Kure Atoll are part of the day-to-day operation during the field season (CFO-3.5).



Buildings and equipment would continue to receive routine maintenance and solar power and water would continue to be produced at French Frigate Shoals (CFO-3.6), along with seasonal tent camp operations at Pearl and Hermes Atoll (CFO-3.7) and routine maintenance of tent camps at Laysan Island (CFO-3.8).

Regular maintenance of a recently replaced fuel farm at Midway would continue to be conducted to meet fuel requirements for vessel, aircraft, and utility and equipment needs (CFO-4.1). The present water catchment area, storage tank, and distribution pipeline would be maintained (CFO-5.1). The recently rehabilitated septic and wastewater system would continue operation (CFO-5.2). Termites would be treated in all historic wooden structures at Midway Atoll if funding is available (CFO-5.3). The Clipper House would continue to have limited food service capacity for approximately 70 (CFO-5.4). The seaplane hangar is a historic structure that would be maintained as is, without needed repairs (CFO-5.5). The inner harbor seawall would continue to deteriorate creating safety issues (CFO-5.6).

FWS maintains several small boats at Midway for work in and around the atoll (CFO-6.1). FWS currently charters a twin engine aircraft (Gulf Stream 1 or G-1) to transport people and supplies to Midway. The G-1 would continue to provide service through fiscal year 2008 (CFO-7.1). Marine field research would be limited to Midway Atoll and its surrounding area with the existing small boats (CFO-6.2), and research/enforcement would continue to be limited by the availability of small research/enforcement vessels (CFO-6.3).

The Navy installed a dive recompression chamber at Midway, which was refurbished in the late 1990s in support of commercial dive tour operations and research (CFO-8.1). This diving chamber is no longer functional. Scientists would continue scuba-based research in the remote NWHI, but their research capacity would be limited by the availability of a portable dive recompression chamber (CFO-8.2). The current boathouse at Midway would continue to be in a state of disrepair; it is subject to flooding and limits dive operations' support capability (CFO-6.5 and CFO-8.3).

Limited transportation is arranged on a case-by-case basis to assist in moving threatened and endangered species as issues arise (CFO-9.3). Rehabilitation of the Midway Mall and commissary building would be minimal (CFO-9.4).

Current activities described above that would be expanded under the Proposed Action alternative are CFO-1.1, CFO-1.4, CFO-2.1, CFO-2.3, CFO-3.5, CFO-3.6, CFO-3.7, CFO-3.8, CFO-5.1, CFO-5.2, CFO-5.3, CFO-5.4, CFO-5.5, CFO-5.6, CFO-6.1, CFO-6.2, CFO-6.3, CFO-6.5, CFO-7.1, CFO-8.1, CFO-8.2, CFO-8.3, CFO-9.3, and CFO-9.4.

### **1.5.22 Evaluation**

Evaluation activities in the Monument are described in the Monument Management Plan and include planning and administrative activities (Monument Management Plan, section 3.6.4, Evaluation Action Plan). A summary of current activities in the Monument is provided below with references to specific activities in the Evaluation (EV) Action Plan.

**1.5.22.1 Current planning and administrative activities**

Current evaluation planning and administrative activities would focus on agency-specific annual program reviews (EV-1.2). Agency leads are responsible for describing the status of activity implementation and making recommendations for adjusting activities if considered necessary.

**1.6 DESCRIPTION OF PROPOSED ACTION ALTERNATIVE**

Under the Proposed Action alternative, the Co-Trustees would continue to implement activities described in the No Action alternative to address priority management needs of the Monument. These activities are described above and are not repeated here. In addition, some of the No Action alternative activities would be expanded. This section describes new and expanded activities proposed for the Monument. Some of the proposed activities may qualify as “categorical exclusions” while others may require additional compliance actions as additional plans are completed, including NEPA, section 7 of ESA, section 106 of the NHPA, and MMPA.

**1.6.1 Marine Conservation Science**

Proposed marine conservation science activities are described in the Monument Management Plan and include planning and administrative and field activities (see Monument Management Plan sections 1.1, 1.2, and 1.4 and section 3.1.1, Marine Conservation Science Action Plan, which describes current status and background and activities). All activities described in the No Action alternative would continue, and several of these activities would be expanded. New activities are proposed to increase understanding of the distributions, abundances, and functional links of marine organisms and their habitats in space and time to improve ecosystem-based management decisions in the Monument. These activities are listed in the table below and are summarized in this section.

<b>Proposed Action Alternative: Marine Conservation Science</b>	<b>Status</b>	<b>Activity Type</b>
Activity MCS-1.3: Map and characterize deepwater habitats.	Expanded	Field activity
Activity MCS-1.4: Establish and implement monitoring program for deep-water ecosystems, as appropriate.	New	Field activity
Activity MCS-1.5: Measure connectivity and genetic diversity of key species to enhance management decisions.	New	Field activity
Activity MCS-1.6: Collect, analyze and input research, monitoring, and bathymetric data into appropriate databases to inform management decisions.	Expanded	Planning/administrative
Activity MCS-2.1: Develop a prioritized Natural Resources Science Plan to support protection and management activities within 1 year.	New	Planning/administrative
Activity MCS-2.2: Assess monitoring program protocols.	Expanded	Planning/administrative
Activity MCS-2.3: Formalize collaborative regional monitoring programs for the NWHI.	New	Planning/administrative
Activity MCS-2.4: Implement management-driven research priorities identified in the Monument Natural Resources Science Plan.	New	field activity

<b>Proposed Action Alternative: Marine Conservation Science</b>	<b>Status</b>	<b>Activity Type</b>
Activity MCS-3.2: Identify and prioritize research, monitoring, and modeling projects for education and outreach.	Expanded	Planning/administrative
Activity MCS-3.3: Include an educational component in marine research expeditions.	Expanded	Field activity
Activity MCS-3.4: Use materials gathered and created during research expeditions to develop or enhance education and outreach products.	Expanded	Planning/administrative

Note: This table only includes proposed expanded and new activities; however, there are other activities in this action area, which are described under the No Action alternative.

**1.6.1.1 Expanded planning and administrative activities**

Expanded marine conservation science planning and administrative activities include efforts to regularly update information management systems, to evaluate the effectiveness of monitoring and sampling protocols, and to identify and disseminate research project results for education and outreach. While efforts to collect research and monitoring data would continue, the Monument Information Management System would be updated regularly to manage, analyze, summarize, and interpret research data collected in the NWHI (MCS-1.6). As management needs evolve and our understanding of ecosystem variability improves, monitoring protocols, sampling design, and sampling intervals would be evaluated for their effectiveness in meeting management needs and accurately reflecting change in the environment (MCS-2.2). These evaluations would be conducted on a cycle consistent with five-year management plan reviews with the interagency technical group on research. Working with partner agencies, research, monitoring, and modeling projects would be identified and prioritized for dissemination for education and outreach (MCS-3.2).

**1.6.1.2 New planning and administrative activities**

New marine conservation science planning and administrative activities include the development of a Natural Resources Science Plan (NRSP) and formalization of collaborative regional monitoring programs for the NWHI. The NRSP would identify and prioritize marine and terrestrial research and monitoring activities conducted in the NWHI and would serve as a more detailed implementation plan that supports the management and research strategies, as well as specific management-related surveys, research, and monitoring priorities found in other action plans (MCS-2.1). The NRSP would align management priorities among agencies to facilitate resource and information sharing and would address both baseline information needs and management-driven needs. Several independent monitoring initiatives are being conducted in the NWHI, and new initiatives are being planned, such as monitoring for invasive species, seabird colonies, Monument management zone’s effectiveness, and water quality (MCS-2.3). Regional monitoring programs would provide essential information to track long-term ecological integrity in the Monument.

**1.6.1.3 Expanded field activities**

Expanded marine conservation science field activities would include use of new technologies to map and characterize deepwater habitats and new ideas to integrate education and outreach components on all research expeditions. In addition to the current use of submersibles, ROVs, sidescan sonar, and other methods, technical diving would be used to collect data needed to continue mapping and characterizing deepwater habitats in the Monument (MCS-1.3). While education and outreach components have been previously integrated on research expeditions, innovative ideas would be explored to incorporate education and outreach components on all marine research and monitoring expeditions aboard NOAA research vessels (MCS-3.3).

**1.6.1.4 New field activities**

New marine conservation science field activities include establishing a monitoring program for deepwater ecosystems, measuring connectivity and genetic diversity of key species groups, and implementing research priorities identified in the NRSP. Monitoring deepwater ecosystems would provide essential information and data for ecosystem-based management of the Monument (MCS-1.4). Measuring connectivity and genetic diversity of key species would be helpful in forecasting, preparing and mediating potential threats to populations (MCS-1.5). The implementation of research priorities identified in the NRSP would ensure that research activities are focused on addressing critical questions of managing Monument resources, especially endangered and threatened species (MCS-2.4).

**1.6.2 Native Hawaiian Culture and History**

Proposed Native Hawaiian culture and history activities are described in the Monument Management Plan and include planning and administrative and field activities (see section 1.3 on resource condition and status and section 3.1.2, Native Hawaiian Culture and History Action Plan). All activities described in the No Action alternative would continue, several of which would be expanded. In addition, new activities are proposed to increase the understanding and appreciation of Native Hawaiian histories and cultural practices related to the Monument and to effectively manage cultural resources for their cultural, educational, and scientific values. New and expanded cultural activities are described in the Monument Management Plan (section 3.1.2, Native Hawaiian Culture and History AP). These activities are listed in the table below and are summarized in this section.

<b>Proposed Action Alternative: Native Hawaiian Culture and History</b>	<b>Status</b>	<b>Activity Type</b>
Activity NHCH-2.1: Continue to compile information and conduct new cultural and historical research about the NWHI.	Expanded	Planning/administrative
Activity NHCH-2.2: Support Native Hawaiian cultural research needs.	Expanded	Planning/administrative
Activity NHCH-2.3: Facilitate cultural field research and cultural education opportunities annually during the field season.	Expanded	Field activity

<b>Proposed Action Alternative: Native Hawaiian Culture and History</b>	<b>Status</b>	<b>Activity Type</b>
Activity NHCH-2.4: Convene a Native Hawaiian nomenclature working group.	New	Planning/administrative
Activity NHCH-2.5: Incorporate cultural resources information into the Monument Information Management System.	New	Planning/administrative
Activity NHCH-2.6: Continue to facilitate Native Hawaiian cultural access.	Expanded	Field activity
Activity NHCH-2.7: Establish agreements with local universities and museums to address possible curation, research, use, return, and repatriation of collections.	Expanded	Planning/administrative
Activity NHCH-3.2: Engage Native Hawaiian practitioners and cultural experts and the Native Hawaiian Cultural Working Group in the development and implementation of the Monument’s management activities.	Expanded	Field activity
Activity NHCH-3.3: Increase knowledge base of Native Hawaiian values and cultural information through “in reach” programs for resource managers.	Expanded	Planning/Administrative
Activity NHCH-4.1: Prepare a cultural resources program plan.	New	Planning/ administrative
Activity NHCH-4.2: Develop and implement specific preservation and access plans, as appropriate, to protect cultural sites and collections at Nihoa and Mokumanamana.	Expanded	Field activity
Activity NHCH-4.3: Implement the Monument Cultural Resources Program.	New	Field activity
Activity NHCH-5.1: Integrate Native Hawaiian values and cultural information into general outreach and education program.	Expanded	Planning/administrative
Activity NHCH-5.2: Develop a culturally based strategy for education and outreach within the Native Hawaiian community.	New	Planning/administrative
Activity NHCH-5.3: Integrate Native Hawaiian values and cultural information into Monument permittee education and outreach program.	Expanded	Planning/administrative

Note: This table includes only proposed expanded and new activities. Activities in this action area that are not included in this table are described under the No Action alternative.

**1.6.2.1 Expanded planning and administrative activities**

Expanded Native Hawaiian culture and history planning and administrative activities include efforts to increase knowledge and appreciation by MMB, resource managers, and the public of Native Hawaiian culture and history. Efforts would increase to compile existing information about the region and to initiate new research based on the priorities developed (NHCH-2.1). As management needs evolve and our understanding of ecosystem variability improves, monitoring protocols, sampling design, and sampling intervals would be evaluated for their effectiveness in meeting management needs and accurately reflecting change in the environment. These



evaluations would be conducted on a cycle consistent with five-year management plan reviews with the interagency technical group on research. Native Hawaiian cultural research needs would be supported by the MMB through grants, logistical support, berthing space aboard research vessels and other in-kind resources (NHCH-2.2). The scope of future agreements would be expanded to provide proper stewardship of cultural resources and artifacts. Agreements would be developed as the need arises and would be established in concert with the Cultural Resources Program Plan (NHCH-2.7). Efforts would be made to increase the knowledge base of Native Hawaiian cultural significance by Monument resource managers. This would be accomplished by having Monument resource managers and staff and MMB members, as appropriate, participate in informal and formal briefings, cultural workshops, and cultural exchanges in cooperation with other marine protected area sites that integrate traditional knowledge into their management (NHCH-3.3). Cultural information and traditional Native Hawaiian values would be infused into education and outreach materials aimed at the general public through the “Navigating Change” program, school curricula, promotion of Hawaiian place names in Monument materials, videos, articles, and the lecture series at Mokuāpāpapa Discovery Center (NHCH-5.1). Integration of Native Hawaiian values and cultural information into Monument permittee education and outreach programs would be increased to include numerous other approaches (NHCH-5.3).

#### **1.6.2.2 New planning and administrative activities**

New Native Hawaiian culture and history planning and administrative activities include efforts to convene a nomenclature working group, to incorporate research into the Monument Information Management System, and to develop a Cultural Resources Program and education and outreach programs. The MMB would convene a working group for nomenclature for yet-to-be discovered regions, islands, geographical and oceanic features, sites, and plant and animals species. Partnerships would be made through agreements with local universities and museums to facilitate research (NHCH-2.4). New knowledge learned through additional research would be incorporated into the Monument Information management System (NHCH-2.5). A Cultural Resources Program Plan would be developed to identify cultural resources, sites, and other locations and procedures for collections, curation, and disposition of archaeological materials, other artifacts, and human remains (NHCH-4.1). Native Hawaiian values and cultural information has been used in certain outreach and education programs targeted to both Native Hawaiians and the general public (NHCH-5.2).

#### **1.6.2.3 Expanded field activities**

Expanded Native Hawaiian culture and history field activities would provide additional opportunities to conduct cultural research and education activities in the Monument. Cultural research and education activities in the field would be expanded to provide logistical support and berthing space aboard research vessels and to put researchers and educators in touch with others doing similar work (NHCH-2.3). Increased cultural access would be facilitated and would include consistent access to Mokumanamana for Hawaiian religious practices and regular access for Polynesian voyaging canoes for wayfinding, navigational, and cultural protocol training (NHCH-2.6). The Native Hawaiian Cultural Working Group and other Native Hawaiian cultural practitioners and experts would be consistently consulted and integrated into the creation and implementation of programs. Examples of their participation may include providing cultural

briefings; where feasible, accompanying permittees accessing the Monument to experience, practice, and learn from the Monument resources while educating others; and including Native Hawaiians, particularly the younger generations, as part of cultural and scientific research teams, when feasible (NHCH-3.2). To further protect cultural sites and collections at Nihoa and Mokumanamana, preservation plans for both islands would be developed and implemented, as would plans for other cultural elements and yet-to-be discovered sites within the Monument. These preservation and access plans would address the monitoring and stabilization of cultural sites and curatorship or potential return/repatriation agreement with museums and institutions that house the artifact collections (NHCH-4.2).

**1.6.2.4 New field activities**

New field activities for Native Hawaiian culture and history would be based on the Cultural Resources Plan. The MMB would initiate strategies and activities contained in the Cultural Resources Plan (NHCH-4.3).

**1.6.3 Historic Resources**

Proposed historic resources activities are described in the Monument Management Plan and include planning and administrative, field, and infrastructure and development activities (see Monument Management Plan, section 3.1.3, Historic Resources Action Plan). All activities would continue as described in the No Action alternative, but several activities would be expanded. Recognizing their statutory responsibilities to inventory, evaluate, and interpret historic resources throughout the NWHI, the Co-Trustees propose new activities to identify, document, preserve, protect, stabilize, and, where appropriate, reuse, recover, and interpret historic resources associated with Midway Atoll and other historic resources within the Monument. These activities are listed in the table below and are summarized in this section.

Proposed Action Alternative: Historic Resources	Status	Activity Type
Activity HR-1.1: Reconcile the Historic Preservation Plan with the Midway Visitor Service Plan, lead paint abatement plan, and other facilities maintenance and use plans.	Expanded	Planning/administrative
Activity HR-1.2: Submit the updated Historic Preservation Plan for approval to the Advisory Council on Historic Preservation and Monument partners.	Expanded	Planning/administrative
Activity HR-2.1: Within 3 years, create dedicated capacity to implement the updated Historic Preservation Plan.	New	Planning/administrative
Activity HR-2.2: Annually train Monument staff and the Midway contractors on the content of the Historic Preservation Plan and implementation of appropriate treatments.	Expanded	Planning/administrative
Activity HR-2.3: Incorporate into the Midway Atoll visitor services program semiannual opportunities and events for visitors or volunteers to implement historic preservation treatments.	New	Field activity
Activity HR-3.1: Identify, collect, and review publications, data sets, and documents on the National Historic Landmark within 2 years of Monument Management Plan adoption.	New	Planning/administrative

<b>Proposed Action Alternative: Historic Resources</b>	<b>Status</b>	<b>Activity Type</b>
Activity HR-3.2: Plan and conduct a field survey and documentation of selected National Historic Landmark sites and features within 2 years.	Expanded	Field activity
Activity HR-3.3: Consult with interested parties and update the National Historic Landmark nomination within 4 years.	Expanded	Planning/administrative
Activity HR-3.4: Implement repair and maintenance treatments at National Historic Landmark features within 6 years.	Expanded	Infrastructure and development
Activity HR-4.1: Prepare a Scope of Collections Statement within 5 years.	New	Planning/Administrative
Activity HR-4.2: Remodel the Midway museum space within 7 years.	New	Infrastructure and development
Activity HR-4.3: Organize and curate collections within 8 years.	New	Planning/administrative
Activity HR-5.1: Identify, collect, and review publications, data sets, and documents within 12 years.	New	Planning/administrative
Activity HR-5.2: Plan, conduct, and report on field surveys and documentation of selected sites within 15 years.	New	Infrastructure and development
Activity HR-6.1: Begin a long-term annual program to compile, collect, curate, and publish oral histories of life on Midway Atoll within 3 years.	New	Planning/administrative
Activity HR-6.2: Conduct archaeological investigation of the Commercial Pacific Cable Station site within 10 years.	New	Field activity
Note: This table includes only proposed expanded and new activities. Activities in this action area that are not included in this table are described under the No Action alternative.		

### 1.6.3.1 Expanded planning and administrative activities

Expanded historic resources planning and administrative activities involve updating the Midway Historic Preservation Plan and National Historic Landmark nomination, training staff on plan contents and implementation, and consulting interested parties on updates. To better identify, interpret, and protect historic resources in the NWHI, the Historic Preservation Plan would be reconciled with the Midway Visitor Service Plan, lead paint abatement plan, and other facilities maintenance and use plans (HR-1.1). The updated plan would be submitted for approval to the Advisory Council on Historic Preservation and MMB (HR-1.2). Annual training programs for Monument staff and Midway contractors would be conducted to ensure that the content of the updated plan and implementation of appropriate treatments are communicated and understood by all (HR-2.2). Interested parties would be consulted to prepare an updated National Historic Landmark nomination within four years (HR-3.3).

### 1.6.3.2 New planning and administrative activities

New historic resources planning and administrative activities involve increasing capacity to implement the updated Historic Preservation Plan, organization collections, conducting archival research and recording oral histories. A dedicated capacity to implement the updated plan would be developed within three years (HR-2.1). Within two years of the Monument Management Plan adoption, data would be gathered on the National Historic Landmark (HR-3.1). For the purpose

of improving the function and capacity of the Midway museum, a Scope of Collections Statement would be prepared within five years (HR-4.1). Collections would be organized within eight years (HR-4.3). Additionally, archival research on historic resources would be conducted beyond Midway Atoll NWR within 12 years (HR-5.1). A long-term program to record oral histories of life on Midway Atoll would begin within three years (HR-6.1).

### **1.6.3.3 Expanded field activities**

Expanded historic resources field activities include field surveys on selected National Historic Landmark sites (HR-3.2). Standard historical archaeological practices would be exercised.

### **1.6.3.4 New field activities**

New historic resources field activities include semiannual opportunities and events for visitor participation in historic preservation treatments, which would be incorporated into the visitor services program as well (HR-2.3). The Refuge visitor services program would be refined to recruit volunteers to help maintain historic properties, including painting, window restoration, and landscape maintenance. An archaeological investigation of the Commercial Pacific Cable Station site would be conducted within 10 years (HR-6.2). Archaeological and historical research, including excavation, would be conducted to shed light on Midway's earliest permanent residents.

### **1.6.3.5 Expanded infrastructure and development activities**

Expanded historic resources infrastructure and development activities include the appropriate maintenance and repair treatments on the National landmark within six years (HR-3.4). Depending on the treatment, some repair and maintenance activities may be accomplished by volunteers.

### **1.6.3.6 New infrastructure and development activities**

New historic resources infrastructure and development activities include remodeling the Midway museum space (HR-4.2). The Scope of Collection Statement would help define the types of artifacts and other historic materials that Monument staff would acquire for proper curation. Archaeological field surveys would be conducted on selected sites in the Monument within 15 years (HR-5.2). Standard historical archaeological practices would be exercised.

## **1.6.4 Maritime Heritage**

Proposed maritime heritage activities are described in the Monument Management Plan and include planning and administrative activities (Monument Management Plan, section 3.1.4, Maritime Heritage Action Plan). All activities described in the No Action alternative would continue under the Proposed Action. One new activity is proposed to identify, interpret, and protect maritime heritage resources in the Monument. This activity is listed in the table below and summarized in this section.

<b>Proposed Action Alternative: Maritime Heritage Resources</b>	<b>Status</b>	<b>Activity Type</b>
Activity MH-1.3: Complete a status report on potential environmental hazards within 1 year, and update it annually.	New	Planning/administrative

Note: This table includes only proposed expanded and new activities. Activities in this action area that are not included in this table are described under the No Action alternative.

**1.6.4.1 New planning and administrative activities**

New maritime heritage planning and administrative activities would aim to document environmental hazards from maritime heritage resources to natural resources and water quality. A status report would be completed on potential environmental hazards posed by wreck sites and other debris. This report would be updated annually as new sites are identified (MH-1.3).

**1.6.5 Threatened and Endangered Species**

Proposed threatened and endangered species activities are described in the Monument Management Plan and include planning and administrative and field activities (see Monument Management Plan, section 3.2.1). All activities described in the No Action alternative would continue; however several activities would be expanded under the Proposed Action. In addition, new activities are proposed to protect marine mammals and aid in the recovery of threatened and endangered species populations within the Monument. These activities are listed in the table below and summarized in this section.

<b>Proposed Action Alternative: Threatened and Endangered Species</b>	<b>Status</b>	<b>Activity Type</b>
Activity TES-1.2: Support and facilitate emergency response for Hawaiian monk seals.	Expanded	Field activity
Activity TES-1.3: Conserve Hawaiian monk seal habitat.	Expanded	Planning/ administrative
Activity TES-1.4: Reduce the likelihood and impact of human interactions.	Expanded	Planning/administrative
Activity TES-1.5: Support outreach and education on Hawaiian monk seals.	Expanded	Planning/administrative
Activity TES-1.6: Reduce shark predation on monk seals.	Expanded	Field activity
Activity TES-2.1: Census cetacean populations.	Expanded	Field activity
Activity TES-2.3: Monitor, characterize, and address the effects of marine debris on cetaceans in the Monument.	Expanded	Field activity
Activity TES-2.4: Respond to any suspected disease and unusual mortality incidents affecting cetaceans.	Expanded	Field activity
Activity TES-2.5 Prevent human interactions with cetaceans.	Expanded	Field activity
Activity TES-3.1: Collect biological information on nesting turtle populations.	Expanded	Field activity
Activity TES-3.3: Protect and manage marine habitat, including foraging areas and migration routes.	Expanded	Field activity
Activity TES-4.1: Work cooperatively with the Japanese government to establish one or more breeding populations on islands free from threats, such as active volcanoes and introduced mammals.	Expanded	Planning/administrative



<b>Proposed Action Alternative: Threatened and Endangered Species</b>	<b>Status</b>	<b>Activity Type</b>
Activity TES-4.2: Conduct studies to examine the correlation between reproductive success and contaminant loads.	Expanded	Field activity
Activity TES-4.3: Create and disseminate information on fisheries bycatch and bycatch reduction to all fisheries occurring outside the Monument.	Expanded	Planning/administrative
Activity TES-5.2: Carry out translocations to other sites in the Monument.	Expanded	Field activity
Activity TES-6.2: Implement translocations of each species and site restoration as needed by developing appropriate techniques for capture, translocation, release and monitoring.	Expanded	Field activity
Activity TES-7.1: Ensure all endangered plant species from Nihoa and Laysan Island are fully represented in an ex situ collections, such as a nursery or arboretum.	Expanded	Field activity
Activity TES-8.2: Develop baseline assessments for listed species and critical habitat and streamline the Monument consultation process to facilitate ESA consultations.	Expanded	Field activity

Note: Activities TES-6.2 and TES-7.1 would require Hawai'i State Cultural Impact Assessment Evaluation. This table includes only proposed expanded and new activities. Activities in this action area that are not included in this table are described under the No Action alternative.

**1.6.5.1 Expanded planning and administrative activities**

Expanded threatened and endangered species planning and administrative activities include conducting feasibility studies for habitat restoration, scrutinizing permit applications for an expanded range of factors that may affect endangered and threatened species, and enhancing education and outreach for human effects on Hawaiian monk seals. The MMB would investigate the feasibility of restoring and enhancing habitat essential for endangered and threatened species. Restoring or rebuilding habitat may be essential for the reproduction of Hawaiian monk seals and other protected species, such as turtles and sea birds, at several alternative sites that could lead to rebuilding preferred, stable pupping habitat (for example, accessibility, long shoreline, and stable beach) (TES-1.3). To reduce the likelihood and effect of human interactions, Monument staff would scrutinize all permit applications that may involve increased nearshore ship traffic, beach use, noise, and unnecessary research, among others. The MMB would expand its support of outreach and education on Hawaiian monk seals to provide the public and interest groups with information to understand the critical status of the Hawaiian monk seal population and the urgent action that is needed to prevent extinction (TES-1.5).

The Monument staff would expand cooperation with the Japanese government by working directly with Japanese biologists on satellite tagging projects and other studies. These efforts are needed to identify sites for one or more breeding populations of short-tailed albatross on islands, free from threats in Japanese breeding colonies, such as active volcanoes and introduced mammals (TES-4.1).

Materials would be created for public outreach and attendance at domestic and international meetings for government-to-government communication on fisheries measures that can reduce

bycatch during commercial fishing operations that could affect Monument resources, such as albatross (TES-4.3).

### **1.6.5.2 Expanded field activities**

Expanded threatened and endangered species field activities include expanding efforts to conserve threatened and endangered species habitat and to protect individual plants and animals, including Hawaiian monk seal, green turtle, cetaceans, short-tailed albatross, Laysan duck, passerines, and a variety of listed plant species.

Agreed-on and standardized protocols would be put into place to ensure that a rapid and well-organized response, including assessment, proper collection of evidence, and continued monitoring, occurs during and after an emergency response. The Monument would facilitate these types of responses through coordination, permitting, transportation, and logistical support (TES-1.2). In effort to reduce predation of sharks on Hawaiian monk seals, Monument staff would continue to monitor predation and its effects and develop and implement methods to deter predation as appropriate (TES-1.6).

In order to best develop management strategies for cetaceans in the Monument, surveys and observations would be pursued to gain information on species presence and abundance estimates (TES-2.1). Annual population census monitoring activities, in addition to other ongoing monitoring would support characterizing and addressing the effects of marine debris on cetaceans in the Monument (TES-2.3). Planning and pre-stage equipment would be established, Should an affected cetacean be sighted, it would be examined and sampled for a spectrum of possible diseases, and it would be treated appropriately and monitored for recovery (TES-2.4). Cetacean conservation would be further enhanced by preventing human interactions. This would be accomplished by eliminating disturbances to resting cetaceans in Monument lagoons or nearshore and by preventing geological research using sound levels known to be dangerous to marine mammals (TES-2.5). (Note: Under the terms of Presidential Proclamation 8031, activities and exercises of the Armed Forces are exempt from Monument prohibitions or permitting requirements. However, activities that may impact cetaceans or other marine mammals remain subject to laws of general applicability, such as the MMPA and the ESA, which apply within the Monument to the same extent they do elsewhere.)

In addition to maintaining current green turtle nesting abundance monitoring at East Island, distribution of nesting activity throughout the Monument would be periodically reassessed. As the population increases, new sites may be used for nesting (TES-3.1).

Monument staff would identify turtle foraging habitat in the Monument to better manage these areas and minimize vessel hazards to turtles (TES-3.3).

The short-tailed albatross is endangered in the U.S. Most of the world's population breeds on two small Japanese islands (TES-4.1). MMB and partnering agencies would cooperate with the Japanese government to establish one or more breeding populations of short-tailed albatross on islands free of threats, such as active volcanoes and introduced mammals. These efforts include attracting birds to Midway Atoll using decoys and recorded colony sounds. Once a breeding colony is established, it would be monitored. Data collected from studies of contaminant levels

in black-footed albatrosses would be used as surrogate data to estimate contaminant body-burdens in short-tail albatrosses (TES-4.2). Finally, because of the hazards to seabirds, the MMB would create and disseminate information on fisheries bycatch and bycatch reduction techniques to all fisheries outside the Monument that may effect seabirds (TES-4.3).

To supplement conservation efforts targeting the Laysan duck, the MMB would restore and create habitat necessary to support Laysan duck populations, translocate juveniles, and implement post-release monitoring (TES-5.2). Further efforts to establish additional bird populations include implementing translocations of Laysan finch, Nihoa finch and Nihoa millerbird and site restoration by developing appropriate techniques for capture, translocation, and release (TES-6.2).

Lastly, all endangered plant species from Nihoa and Laysan would be fully represented in ex situ collections, such as nurseries or arboretums. This would ensure the endangered plants' genetic material would be preserved in perpetuity (TES-7.1).

Information regarding ecological baselines of listed species and critical habitat and description of sensitive areas would be made available to agencies to determine whether or not their activities may affect listed species and, if so, to improve their biological assessments for consultations. Also, ESA and other consultation procedures would be reviewed and streamlined to benefit from the preparation of current baseline descriptions (TES-8.2).

**1.6.6 Migratory Birds**

Proposed migratory bird conservation activities are described in the Monument Management Plan and include planning and administrative and field activities (see Monument Management Plan, section 3.2.2). All activities described in the No Action alternative would continue, but several activities would be expanded under the Proposed Action alternative. In addition, new activities are proposed to conserve migratory populations and habitats within the Monument. These activities are listed in the table below and are summarized in this section.

<b>Proposed Action Alternative: Migratory Birds</b>	<b>Status</b>	<b>Activity Type</b>
Activity MB-1.1: Control or eradicate nonnative species at all sites where they have a negative impact on the survivorship or reproductive performance of migratory birds.	Expanded	Field activity
Activity MB-1.2: Restore components of the native plant communities that are important to seabird nesting.	Expanded	Field activity
Activity MB-2.2: Monitor contaminant levels in birds and their habitats, and respond if the potential exists to cause immediately lethal or sublethal effects.	Expanded	Field activity
Activity MB-2.3: Ensure that all spill response plans have adequate coverage of actions necessary to minimize mortality to migratory birds.	Expanded	Planning/administrative
Activity MB-2.6: Research mite impacts on black-footed albatross chicks on Kure Atoll.	New	Field activity
Activity MB-3.1: Using standard methods devised for tropical seabirds, monitor a suite of 15 focal seabird species at specific sites in the Monument to track changes in population size and understand underlying causes of that change.	Expanded	Field activity

Proposed Action Alternative: Migratory Birds	Status	Activity Type
Activity MB-3.2: Monitor changes in habitat quality by measuring reproductive performance and diet composition in selected seabird species.	Expanded	Field activity
Activity MB-3.3: Develop and use standardized methods to accurately assess the population size and trends of overwintering and migrating Pacific golden plovers, bristle-thighed curlews, wandering tattlers, and ruddy turnstones.	Expanded	Field activity
Activity MB-4.1: Use social attraction techniques to encourage recolonization at Midway and Kure Atolls by Bulwer’s petrels and Tristram’s storm-petrels.	Expanded	Field activity

Note: This table includes only proposed expanded and new activities. Activities in this action area that are not included in this table are described under the No Action alternative.

**1.6.6.1 Expanded planning and administrative activities**

Expanded migratory bird conservation planning and administrative activities would expand existing oil spill response plans to include actual response plans and natural resource damage assessments through multiagency collaboration. These plans would be evaluated, revised, and followed to minimize mortality to migratory birds (MB-2.3).

**1.6.6.2 Expanded field activities**

Expanded migratory bird conservation field activities would expand habitat restoration efforts and establish standardized methods for monitoring the health and status of seabirds. To protect and enhance terrestrial and marine migratory birds’ habitats, Monument staff would control and eradicate nonnative species at all sites where they have a negative effect on the survivorship or reproductive performance of migratory birds (MB-1.1). Alien species eradication would be followed by restoring native coastal mixed grass and shrub communities (MB-1.2). Each of these activities minimizes the effect of alien species and habitat destruction on migratory birds. Monument staff, using standard methods devised for tropical seabirds, would monitor a suite of 15 focal seabird species at specific sites in the Monument to track changes in population size and to understand underlying causes of that change (MB-3.1). Specifically, they would monitor contaminant levels in birds and their habitats and would respond if the potential exists to cause immediately lethal or sublethal effects (MB-2.2). In addition, Monument staff would monitor changes in habitat quality by measuring reproductive performance and diet composition in selected focal species (MB-3.2). These efforts would not be limited to seabirds, but staff would develop and use standardized methods to accurately assess the population size and trends of overwintering and migrating Pacific golden plovers, bristle-thighed curlews, wandering tattlers, and ruddy turnstones (MB-3.3).

**1.6.6.3 New field activities**

New migratory bird conservation field activities would target the design and conduct of research on the effect of mites on black-footed albatross chicks on Kure Atoll (MB-2.6). In addition, species specific social attraction techniques, such as automated playback of calls and provision of nesting boxes to encourage recolonization of Bulwer’s petrels and Tristram’s storm-petrels, are proposed at Kure Atoll (MB-4.1).

### 1.6.7 Habitat Management and Conservation

Proposed habitat management and conservation activities are described in the Monument Management Plan and include planning and administrative and field activities (see Monument Management Plan, section 3.2.3). All activities described in the No Action alternative would continue, several activities would be expanded under the Proposed Action. In addition, new activities are proposed to protect and maintain the native ecosystems and biological diversity of resources in the Monument. These activities are listed in the table below and are summarized in this section.

<b>Proposed Action Alternative: Habitat Management and Conservation</b>	<b>Status</b>	<b>Activity Type</b>
Activity HMC-1.1: Identify and prioritize restoration needs in shallow-water reef habitats impacted by anthropogenic disturbances within 5 years.	New	Planning/administrative
Activity HMC-1.2: Analyze historic and present impacts on reef growth at Midway Atoll and determine factors limiting nearshore patch reef growth to facilitate restoration of natural reef building.	New	Field activity
Activity HMC-1.3: Where feasible, implement appropriate restoration activities.	New	Field activity
Activity HMC-2.1: Evaluate effects of contamination in terrestrial and nearshore areas from shoreline dumps at French Frigate Shoals and at Kure, Midway, and Pearl and Hermes atolls and prioritize cleanup action based on risk assessments.	Expanded	Field activity
Activity HMC-2.2: Work with partners and responsible parties to verify the integrity of known landfills and dumps and to conduct additional remediation if necessary.	Expanded	Field activity
Activity HMC-2.3: Locate historic disposal sites at French Frigate Shoals and at Kure, Midway, and Pearl and Hermes atolls, and investigate them for contamination.	Expanded	Field activity
Activity HMC-2.4: Evaluate costs to ecosystem function and benefits of removing anthropogenic iron sources such as metal from shipwrecks and discarded debris from reefs throughout the Monument.	New	Planning/administrative
Activity HMC-2.7: Conduct ecological risk assessment to determine allowable lead levels in soils at Midway and remove lead from buildings and soils to nonrisk levels.	New	Planning/administrative
Activity HMC-3.1: Evaluate loss of beach strand and crest due to erosion and sea level rise to aid in formulating a restoration plan that would stop as much net loss of beach strand and beach crest habitat as is possible.	New	Field activity
Activity HMC-3.2: Inventory and map manmade structures and changes in natural beach and reef state that may influence erosion and depositional processes at all of the beach strand units of the Monument.	Expanded	Field activity
Activity HMC-4.4: Formulate and implement a restoration plan for Lisianski Island using guidelines established for neighboring Laysan Island.	New	Planning/administrative
Activity HMC-4.5: Propagate and outplant native vegetation on 34-	New	Field activity



<b>Proposed Action Alternative: Habitat Management and Conservation</b>	<b>Status</b>	<b>Activity Type</b>
acre Southeast Island at Pearl and Hermes Atoll to replace native plant community extirpated by invasion of the alien plant golden crownbeard.		
Activity HMC- 4.6: Implement the coordinated ecosystem restoration activities on Kure Atoll.	Expanded	Field activity
Activity HMC-4.7: Monitor changes in the species composition and structure of mixed grass and shrub communities at each site.	Expanded	Field activity
Activity HMC-5.1: Inventory and document life histories of endemic terrestrial invertebrates at Nihoa and Mokumanamana.	Expanded	Field activity
Activity HMC-7.1: Monitor salinity, parasites, contaminants, and native arthropods associated with freshwater seeps, ponds, and streams.	Expanded	Field activity
Activity HMC-7.2: Evaluate potential for development, and create as needed, additional freshwater sources at potential translocation sites of the Laysan duck, Nihoa finch, and Nihoa millerbird.	Expanded	Planning/administrative
Activity HMC-8.1: Remove ironwood on Sand Island from 50 acres outside designated woodland and control young ironwood in areas managed for grass and shrubs.	Expanded	Field activity
Activity HMC-8.2: Devise and implement methods for monitoring population size and reproductive success in tree-nesting seabird species.	New	Field activity
Activity HMC-9.1: Educate other federal agencies about overflight rules and promote compliance regarding overflights and close approaches.	Expanded	Planning/administrative
Activity HMC-9.2: Develop and implement techniques for monitoring plant and animal populations on cliff habitats in the Monument within 10 years.	New	Planning/administrative
Activity HMC-10.1: Conduct a wilderness review of the Hawaiian Islands and Midway Atoll NWRs within 5 years.	New	Planning/administrative

Notes: This table includes only proposed expanded and new activities. Activities in this action area that are not included in this table are described under the No Action alternative.

**1.6.7.1 Expanded planning and administrative activities**

Expanded habitat management and conservation planning and administrative activities include evaluating potential translocation sites for endangered endemic birds and education activities regarding overflight to sensitive habitats in the Monument. The potential for developing additional freshwater sources would be evaluated at potential translocation sites of the Laysan duck, Nihoa finch, Laysan finch, and Nihoa millerbird (HMC-7.2). Personnel at other federal and state agencies would be educated about rules for overflights and close approaches to Nihoa and Mokumanamana cliff habitats to promote compliance with rules and regulations (HMC-9.1).

**1.6.7.2 New planning and administrative activities**

New habitat management and conservation planning and administrative activities include developing habitat- and species-specific restoration plans, risk-based approach for prioritizing

cleanup and remediation actions, and techniques to monitor cliff-dwelling plant and animal populations. Habitat- and species-specific restoration plans would also be developed and implemented. Restoration needs would be developed and implemented for shallow-water reef habitats modified by humans (HMC-1.1); a plan would include restoring original population levels of black-lipped pearl oysters at Pearl and Hermes Atolls. Ecological risk assessments would be conducted to determine allowable lead levels in soils at Midway and to remove lead from buildings and soils to nonrisk levels (HMC-2.7). The costs to ecosystem function and benefits of removing man-made iron sources, such as metal from shipwrecks and discarded debris from reefs throughout the Monument, would be evaluated (HMC-2.4). Cleanup and remediation actions would be prioritized, based on risk assessments. The MMB would also formulate restoration and management plans or would implement administrative plans for various islands including Kure Atoll and Lisianski Island (HMC-4.4). This activity would undergo additional NEPA analysis, as described in section 1.8. Techniques for monitoring plant and animal populations on cliff habitats in the Monument would be developed and implemented (HMC-9.2). A wilderness review of the Hawaiian Islands and Midway Atoll NWRs will be conducted within five years (HMC-10.1).

### **1.6.7.3 Expanded field activities**

Expanded habitat management and conservation field activities include increased investment in identifying, containing, and removing contaminated sites, in determining the feasibility of creating water sources or wetlands for translocating endangered species, in conducting comprehensive monitoring and inventorying all terrestrial habitats, and in restoring native terrestrial vegetation. The effects of contamination due to shoreline dumps on birds nesting on the dumps and marine organisms in adjacent waters would be investigated at Kure Atoll, French Frigate Shoals, Midway Atoll, and Pearl and Hermes Atolls (HMC-2.1). Efforts to ameliorate the effects of contamination would focus on locating, evaluating, monitoring, containing, and removing contamination from shoreline dumps and landfills (HMC-2.2). The USCG created a new unlined landfill on Green Island, Kure Atoll, during remediation of the LORAN (Long-Range Aid to Navigation) station. The landfill would be investigated to confirm that PCBs placed in it are not leaching to groundwater and that the documented surface hotspots have been removed. Cleanup levels of PCBs need to be evaluated to ensure that these levels protect wildlife (HMC-2.3).

Monument staff would inventory and map man-made structures and changes in natural beach and reef condition that may influence erosion and depositional processes at all the beach strand units of the Monument (HMC-3.2). Feasibility studies would determine if Kure is appropriate as a translocation site for Laysan ducks. If feasible, appropriate wetland habitats, such as a pond, would be developed for this purpose (HMC-4.6). Changes in the species composition and structure of mixed grass and shrub communities would be monitored on all coralline islands and atolls (HMC-4.7).

The MMB intends to implement, and if necessary, develop methods to inventory and monitor a range of habitats and a variety of organisms. Endemic terrestrial invertebrates at Nihoa and Mokumanamana would be inventoried and their life histories would be documented (HMC-5.1). The salinity, parasites, contaminants, and native arthropods associated with freshwater seeps, ponds, and streams would be monitored to evaluate the potential for development. Additional

freshwater sources would be created, with particular emphasis on potential translocation sites of the Laysan duck, Nihoa finch, and Nihoa millerbird (HMC-7.1). Examples of these restoration goals are to remove ironwood on Sand Island from 50 acres outside designated woodland and to control young ironwood in areas managed for grass and shrubs (HMC-8.1).

**1.6.7.4 New field activities**

New habitat management and conservation field activities would focus on evaluating historic and present effects on reef growth, evaluating the loss of beach habitats, outplanting new areas, and employing new methods to monitor tree-nesting seabird populations. New field research would be conducted to analyze historic and present effects on reef growth at Midway Atoll and to determine limiting factors of reef growth (HMC-1.2); then, if appropriate, using best available information about pre-disturbance conditions, restoration would be conducted to facilitate natural reef building (HMC-1.3). Research would be designed to evaluate loss of beach strand and crest due to erosion and sea level rise (HMC-3.1); this would help formulate a restoration plan that would stop as much net loss of beach strand and beach crest habitat as is possible. Propagating and outplanting native vegetation on 34-acre Southeast Island at Pearl and Hermes Atolls would be conducted to replace the native plant community extirpated by the invasive golden crownbeard (HMC-4.5). Methods for monitoring population size and reproductive success in tree-nesting seabird species would be devised and implemented (HMC-8.2).

**1.6.8 Marine Debris**

Marine debris cleanup activities would continue, as described in the Monument Management Plan, and include planning and administrative and field activities (see Monument Management Plan, section 3.3.1, Marine Debris Action Plan). All activities described in the No Action alternative would continue, but several activities would be expanded under the Proposed Action. In addition, new activities are proposed to reduce the negative effects of marine debris to Monument resources and to reduce the amount of debris entering the North Pacific Ocean. These activities are listed in the table below and are summarized in this section.

<b>Proposed Action Alternative: Marine Debris</b>	<b>Status</b>	<b>Activity Type</b>
Activity MD-1.1: Continue working with partners to remove marine debris in the Monument and reduce additional debris entering the Monument.	Expanded	Field activity
Activity MD-1.2: Catalog, secure, contain, and properly remove hazardous materials that wash ashore in the NWHI.	Expanded	Field activity
Activity MD-1.3: Develop and implement a 5-year marine debris removal and prevention strategy for the Monument.	Expanded	Planning/administrative
Activity MD-1.4: Work with the U.S. Department of State to gain international cooperation and involvement for marine debris issues.	New	Planning/administrative
Activity MD-1.5: Work with the fishery management councils to address marine debris prevention with U.S. fishing fleets.	Expanded	Field activity
Activity MD-2.1: Work with partners on marine debris studies.	Expanded	Field activity
Activity MD-2.2: Develop and standardize marine debris monitoring protocols for marine and terrestrial habitats.	Expanded	Planning/administrative
Activity MD-3.1: Work with partners to continue to develop and	New	Planning/administrative

Proposed Action Alternative: Marine Debris	Status	Activity Type
implement an outreach strategy for marine debris.		

Note: This table includes only proposed expanded and new activities. Activities in this action area that are not included in this table are described under the No Action alternative.

**1.6.8.1 Expanded planning and administrative activities**

Expanded marine debris planning and administrative activities include developing standardized protocols for marine debris removal and developing a multiagency outreach strategy for marine debris. The MMB would work with all federal and state partners to standardize marine debris protocols to maximize the use and utility of data collected by the various programs (MD-2.2). To better explain the scope and effects of marine debris in the NWHI, an outreach strategy would be developed with the multiagency partnership to reach a broad audience and specific fishing communities (MD-3.1).

**1.6.8.2 New planning and administrative activities**

New marine debris planning and administrative activities include highlighting marine debris prevention internationally. The MMB would work through the Interagency Marine Debris Coordinating Committee, the U.S. Department of State, and other appropriate U.S. agencies to call international attention to marine debris problems in the NWHI and to identify approaches to reducing foreign debris sources (MD-1.4).

**1.6.8.3 Expanded field activities**

Expanded marine debris field activities include increased efforts to intercept marine debris at sea before it enters the Monument. Efforts to remove marine debris in the Monument would be increased, and efforts to reduce additional debris entering the Monument would be undertaken. New technology, such as unmanned aerial vehicles, would be tested to detect marine debris at sea (MD-1.1). Efforts to document, secure, and remove hazardous materials that wash ashore would increase (MD-1.2). Marine debris removal in the Monument would be expanded through the efforts of multiagency partnerships and working with the fishery management councils to address marine debris prevention with U.S. fishing fleets (MD-1.5). The MMB would continue current research efforts with the Marine Debris Program and would expand them to determine marine debris accumulation rates, biological and habitat effects, efforts to track sources and types of debris, and documentation of the cost estimates of damage (MD-2.1).

**1.6.9 Alien Species**

Proposed alien species management activities are described in the Monument Management Plan and include planning and administrative and field activities (see Monument Management Plan, section 3.3.2, Alien Species Action Plan). All activities described in the No Action alternative would continue, but several activities would be expanded under the Proposed Action. In addition, new activities are proposed to detect, control, eradicate where possible, and prevent the introduction of alien species into the Monument. These activities are listed in the table below and are summarized in this section.

<b>Proposed Action Alternative: Alien Species</b>	<b>Status</b>	<b>Activity Type</b>
Activity AS-1.1: Complete an Integrated Alien Species Management Plan.	New	Planning/administrative
Activity AS-1.2: Develop best management practices to prevent, control, and eradicate alien species.	Expanded	Planning/administrative
Activity AS-2.1: Survey distributions and populations of known alien species at regular intervals.	Expanded	Field activity
Activity AS-2.2: Maintain a GIS database of marine and terrestrial alien species.	New	Planning/administrative
Activity AS-2.3: Develop and implement monitoring protocols for early detection and characterization of new infestations.	New	Field activity
Activity AS-4.1: Produce a house mouse eradication plan within 5 years and procure appropriate permits for chosen eradication techniques.	New	Planning/administrative
Activity AS-4.2: Implement and complete house mouse eradication.	New	Field activity
Activity AS-5.1: Within 5 years, formulate a priority list of locations and species and a treatment plan to control and eventually eradicate all social Hymenopterans, such as ants and wasps, at all islands in the Monument.	New	Planning/administrative
Activity AS-5.2: Conduct toxicant trials to evaluate their efficacy and document ecological effects at selected islands on highest-priority invasive species of ants and wasps.	New	Field activity
Activity AS-5.3: Control and if possible eradicate the two introduced mosquito species at Midway Atoll within 10 years using methods prescribed in the Integrated Pest Management Plan.	New	Field activity
Activity AS-5.4: Develop and implement a plan to control and if possible eradicate the invasive gray bird locust wherever it occurs.	New	Field activity
Activity AS-5.5: Protect endangered plants threatened by gray bird locust outbreaks at Nihoa by developing appropriate baits for localized application of toxicants to protect specific high-priority plant sites.	New	Field activity
Activity AS-6.1: Control and eventually eradicate golden crownbeard and co-occurring weedy shrubs in all areas where they occur.	Expanded	Field activity
Activity AS 6.2: Control and eventually eradicate the invasive grass sandbur from all areas of the Monument where it currently occurs.	Expanded	Field activity
Activity AS-6.3: Control and eventually eradicate Indian pluchea, <i>Sporobolus pyramidatus</i> , and swine cress from Laysan Island.	Expanded	Field activity
Activity AS-6.4: Control and eventually eradicate prioritized alien plant species from Kure Atoll.	Expanded	Field activity
Activity AS-7.1: Map, control and eventually eradicate invasive red algae where it occurs.	New	Field activity
Activity AS-7.2: Conduct surveillance at appropriate sites for	New	Field activity



<b>Proposed Action Alternative: Alien Species</b>	<b>Status</b>	<b>Activity Type</b>
snowflake coral and other incipient marine invasives.		
Activity AS-8.1: Support and conduct research on alien species detection and the effects of invasive species on native ecosystems.	Expanded	Field activity
Activity AS-8.2: Support and conduct research on invasive species prevention, control methods, and eradication techniques.	Expanded	Field activity
Activity AS-9.1: Integrate alien species information into the overall outreach program for Monument permittees.	Expanded	Planning/administrative
Activity AS-9.2: Integrate alien species information into general Monument outreach materials.	Expanded	Planning/administrative
Activity AS-10.1: Build relationships with other resource managers and invasive species experts in the state, nation, and other countries based on shared challenges concerning invasive species.	Expanded	Planning/administrative

Note: This table includes only proposed expanded and new activities. Activities in this action area that are not included in this table are described under the No Action alternative.

### 1.6.9.1 Expanded planning and administrative activities

Expanded alien species management planning and administrative activities include developing enhanced outreach materials and working with new groups involved with alien species control. Specific protocols and requirements for preventing, controlling the spread of, and eradicating alien species, such as hull inspections and island quarantine protocols, a description of each partner’s role in alien species control, BMPs to prevent the spread of species within the NWHI, and priority areas would be expanded to address threats from alien species on Monument resources. Monument staff would expand activities for responding to alien species through further development of BMPs for preventing, controlling and eradicating alien species (AS-1.2). Outreach activities would be expanded through the integration of alien species information in outreach materials for both general education and to provide Monument permittees with information on regulations, permit requirements and BMPs for preventing alien species introductions. A guide to marine and terrestrial alien species with photographs, modes of transport, reporting protocols, and BMPs would be used as part of the outreach program. Outreach may consist of printed materials, as well as presentations that are part of the permit application process and as taxonomy training for staff and volunteers (AS-9.1). Monument staff would increase integration of messages on alien species into general education and outreach materials when appropriate opportunities arise (AS-9.2). Monument staff would participate in public and professional conferences, working group meetings, and activities focused on reducing the effects of alien species statewide and in the Pacific region. Increased information exchange would maximize the effectiveness of collective resources and keep the MMB current on invasive species research, management, and outreach efforts throughout Hawai‘i and the Pacific (AS-10.1).

### **1.6.9.2 New planning and administrative activities**

New alien species management planning and administrative activities include developing an integrated plan to control and eradicate alien species, implementing new monitoring protocols for early detection, and prioritizing control efforts for ants and wasps.

An Integrated Alien Species Management Plan would be developed to prioritize alien species management actions for the Monument (AS-1.1). Data collected during alien species monitoring would be added to the Monument's GIS database for tracking and analysis (AS-2.2). This data would help track the spread of invasive species and the success of control measures instituted by Monument managers. Through the development and implementation of monitoring protocols, new infestations of alien species can be detected and characterized early. An eradication plan would be developed for the house mouse at Midway Atoll (AS-4.1). A priority list of locations and species would be formulated and a treatment plan would be developed to control and eventually eradicate all social Hymenopterans, such as ants and wasps, at all islands in the Monument (AS-5.1).

### **1.6.9.3 Expanded field activities**

Expanded alien species management field activities include additional monitoring and standardization of data collection protocols. Monitoring would be expanded and standardized and new data collection would be incorporated into existing annual monitoring (AS-2.1). The distributions and populations of known alien species would be surveyed annually to facilitate early detection. The highest priority terrestrial alien plant species would be controlled using hand pull, mowing where appropriate, and treatment with glyphosate at 1,098 acres at Midway, 75 acres at Kure, and 34 acres at Pearl and Hermes (AS-6.1). Sandbur would be controlled and eradicated at all other locations in the Monument. A year-round program of hand-pulling and limited glyphosate spraying would be used (AS-6.2). Further removal efforts of invasive species would treat and prevent seed set to eventually eradicate at Laysan (AS-6.3). The eradication of alien species would be prioritized according to the management plan (AS-6.4).

Research would be expanded beyond terrestrial areas to include the marine ecosystem. Monument staff, working with experts, would determine which methods for alien species detection and control would be appropriate for use in the NWHI (AS-8.1). Successful invasive species control and eradication programs require systematic investigations into the efficacy of techniques chosen and the ecological effects of any methods used. Terrestrial and marine research to document the effectiveness of these measures would aid those managing other wildlands in choosing quarantine methods (AS-8.2).

### **1.6.9.4 New field activities**

New alien species management field activities would include controlling and if possible eradicating the house mouse, ants and wasps, two introduced species of mosquitoes, and the gray bird locust and mapping of and conducting surveillance on two marine invasive species. The house mouse eradication plan would be implemented using the methods proven successful for eradicating black rats (AS-4.2). Toxicant trials would be conducted on highest-priority invasive species of ants and wasps to evaluate their efficacy and document the ecological effects (AS-

5.2). Monument staff would control and if possible eradicate two introduced mosquito species at Midway Atoll through using the methods prescribed in the Integrated Pest Management Plan (AS-5.3). Monument staff would continue efforts to address the gray bird locust invasion by developing and implementing a plan to control and possibly eradicate the gray bird locust (AS-5.4). Gray bird locust outbreaks that threatened endangered plants at Nihoa would be controlled by developing appropriate baits for localized application (AS-5.5). Early detection and characterization of new infestations of alien species would be possible through monitoring (AS-2.3). The Monument staff would map the extent of red algae infestation through the use of scuba or remotely operated vehicles to control and eventually eradicate invasive red algae (AS-7.1). The MMB would devise a plan to conduct surveillance activities at appropriate sites where snowflake coral and other incipient marine invasive species have been identified (AS-7.2).

**1.6.10 Maritime Transportation and Aviation**

Proposed maritime transportation and aviation activities are described in the Monument Management Plan and include planning and administrative and field activities (see Monument Management Plan, section 3.3.3, Maritime Transportation and Aviation Action Plan). All activities described in the No Action alternative would continue, but several activities would be expanded under the Proposed Action. In addition, new activities are proposed to investigate, identify, and reduce potential threats to the Monument from maritime and aviation traffic. These activities are listed in the table below and are summarized in this section.

<b>Proposed Action Alternative: Maritime Transportation and Aviation</b>	<b>Status</b>	<b>Activity Type</b>
Activity MTA-1.2: Develop boundary and zoning informational tools.	New	Planning/administrative
Activity MTA-1.3: Provide necessary updates to nautical charts and Notice to Mariners.	New	Planning/administrative
Activity MTA-2.1: Conduct studies on potential aircraft and vessel hazards and impacts.	New	Field activity
Activity MTA-2.2: Develop protocols and practices as needed and integrate with existing protocols for safe aircraft and vessel operations.	Expanded	Planning/administrative
Activity MTA-2.3: Improve existing pre-access information for inclusion on the Monument website and in permit application instructions.	Expanded	Planning/administrative

Note: This table includes only proposed expanded and new activities. Activities in this action area that are not included in this table are described under the No Action alternative.

**1.6.10.1 Expanded planning and administrative activities**

Expanded maritime transportation and aviation planning and administrative activities include developing new protocols and practices to reduce risk from maritime transportation and aviation. Existing protocols would be evaluated and other recommendations sought to reduce risks to personnel and the environment through pre-access training and standard procedures. New protocols and practices would be developed as needed (MTA-2.2). Existing and additional pre-access information would be incorporated into the Monument website and in permit application instructions. Additional information may include navigational hazards, zoning designations, including waste discharge location and types, and preventing the introduction of alien species (MTA-2.3).

**1.6.10.2 New planning and administrative activities**

New maritime transportation and aviation planning and administrative activities include the development of boundary and zoning information tools (MTA-1.2). In addition, existing nautical charts and mariner notices would be updated with boundary and zoning information (MTA-1.3). Overall, protocols and practices would be expanded to ensure safe aircraft and vessel operations, and improvements would be made to make pre-access information available on the Monument website and in permit application instructions.

**1.6.10.3 New field activities**

New maritime transportation and aviation field activities include various studies on potential aircraft and vessel hazards, which would be conducted based on priority threats identified in a comprehensive threat assessment conducted by the MMB (MTA-2.1). A range of studies may be conducted, such as feasibility studies on anchoring and mooring locations, effects of discharge, long-term study of hull inspections, alien species introductions via aircraft and other studies that would aid the MMB in making informed management decisions to protect Monument resources.

**1.6.11 Emergency Response and Natural Resource Damage Assessment**

Proposed emergency response and natural resource damage assessment activities are described in the Monument Management Plan and include planning and administrative activities (see Monument Management Plan, section 3.3.4, Emergency Response and Natural Resource Damage Assessment). All activities described in the No Action alternative would continue, but several activities would be expanded. In addition, new activities are proposed to minimize damage to Monument resources through coordinated emergency response and assessment. These activities are listed in the table below and are summarized in this section.

<b>Proposed Action Alternative: Emergency Response and Damage Assessment</b>	<b>Status</b>	<b>Activity Type</b>
Activity ERDA-1.1: Create a Monument Emergency Response and Assessment Team for ICS responses.	New	Planning/administrative
Activity ERDA-1.2: Acquire and maintain training and certification to complement and support the Regional Response Team.	Expanded	Planning/administrative
Activity ERDA-1.3: Participate in emergency response and preparedness drills and meetings throughout the life of the plan.	Expanded	Planning/administrative
Activity ERDA-1.4: Participate in damage assessment programs and training throughout the life of the plan.	Expanded	Planning/administrative
Activity ERDA-2.1: In the second year, determine the non-ICS emergencies and the necessary type and scope of responses.	New	Planning/administrative
Activity ERDA-2.2: Designate appropriate Monument personnel for each non-ICS response team.	New	Planning/administrative
Activity ERDA-2.3: Throughout the life of this plan, ensure that appointed personnel acquire and maintain training and certifications.	New	Planning/administrative
Activity ERDA-3.1: Update and improve upon the Area	Expanded	Planning/administrative

<b>Proposed Action Alternative: Emergency Response and Damage Assessment</b>	<b>Status</b>	<b>Activity Type</b>
Contingency Plan and the Environmental Sensitivity Indices.		
Activity ERDA-3.2: Within 3 years, create damage assessment criteria and protocols.	Expanded	Planning/administrative

Note: This table includes only proposed expanded and new activities. Activities in this action area that are not included in this table are described under the No Action alternative.

**1.6.11.1 Expanded planning and administrative activities**

Expanded emergency response and natural resource damage assessment planning and administrative activities include additional training, drills, and contingency plan updates and protocols development. Additional Monument staff receives training and certifications, such as ICS, hazardous waste operations and emergency response, boat safety, flight safety, first responder, and first aid, as needed (ERDA-1.2). Additional Monument staff would be added to the emergency response and assessment team and would participate in team meetings and drills, along with current staff (ERDA-1.3). Additional staff would be trained to work closely with a variety of damage assessment programs to ensure that appropriate response, injury assessment, and restoration activities take place for any given case (ERDA-1.4). Monument staff would update and improve on the area contingency plan and environmental sensitivity indices for the Monument (ERDA-3.1) Monument staff would develop non-ICS damage assessment criteria and protocols for the natural, cultural, and historic resources in the Monument (ERDA-3.2). The MMB would formalize the permit review process further by identifying and engaging a pool of experts trained in Monument-related subject matter, including policy, purpose, and proclamation findings.

**1.6.11.2 New planning and administrative activities**

New emergency response and natural resource damage assessment planning and administrative activities include creating a Monument Emergency Response and Assessment Team (ERAT) for ICS responses (ERDA-1.1)

With the creation of an ERAT, the regional response team’s training and certification would be enhanced and continual emergency response and preparedness drills would be conducted to increase emergency preparedness. This team would also continually participate in damage assessment programs and training to improve response capabilities. The MMB would also determine the type and scope of non-ICS emergencies likely to occur within the Monument (ERDA-2.1) and would designate appropriate Monument personnel for each non-ICS response team (ERDA-2.2).

All personnel involved in the emergency response and natural resource damage assessment activities would be required to acquire and maintain the necessary training and certifications throughout the life of the plan (ERDA-2.3).

**1.6.12 Permitting**

Permitting activities would continue, as described in the No Action alternative, but several activities would be expanded. In addition, new activities are proposed to implement an effective



and integrated permit program for the Monument. This program would manage, minimize, or prevent negative human effects by allowing access only for those activities consistent with Presidential Proclamation 8031 and the implementing regulations of the Monument. In addition, individual permit applications would continue to be reviewed for environmental effects. Also, the MMB would develop a case-by-case environmental analysis under NEPA or HRS Chapter 343 for each permit issued. New and expanded permitting activities are described in the Monument Management Plan (section 3.4.1, Permitting Action Plan). These activities are listed in the table below and are summarized in this section.

<b>Proposed Action Alternative: Permitting</b>	<b>Status</b>	<b>Activity Type</b>
Activity P-1.4: Engage outside experts in review of permit applications.	Expanded	Planning/administrative
Activity P-1.5: Investigate individual and vessel insurance and other avenues to fund mitigation of any damages associated with permitted activities.	New	Planning/administrative
Activity P-2.1: Develop a Geographic Information System (GIS)-based permit tracking system.	Expanded	Planning/administrative
Activity P-2.2: Analyze permit data to inform management decision making.	New	Planning/administrative
Activity P-2.3: Analyze permit data for patterns of compliance.	New	Planning/administrative
Activity P-2.4: Develop and implement a Monument reporting process.	Expanded	Planning/administrative
Activity P-3.1: Develop and implement a permit and regulatory education program.	Expanded	Planning/administrative
Activity P-3.2: Develop and implement a Native Hawaiian cultural education program for all permit applicants.	Expanded	Planning/administrative
Activity P-3.3: Coordinate permitting outreach.	Expanded	Planning/administrative
Activity P-3.4: Develop a pre-access training and briefing program.	Expanded	Planning/administrative

Note: This table includes only proposed expanded and new activities. Activities in this action area that are not included in this table are described under the No Action alternative.

**1.6.12.1 Expanded planning and administrative activities**

Expanded permitting planning and administrative activities include enhancing the permit review and tracking process and information outreach to permittees and the public. Expanded permitting activities also include emphasizing the cultural significance of the Monument to Native Hawaiians and the environmental and cultural conduct necessary for access to the Monument. An integrated MMB review of reports generated from the vast array of permit data collected would be established to ensure that reports are completed and submitted on time. One aspect of the report review process would ensure that data is logged and research results were made available. The MMB would formalize the permit review process further by identifying and engaging a pool of experts trained in Monument-related subject matter, including policy, purpose, and proclamation findings (P-1.4). Current and future permit data would be integrated into the GIS-based permit tracking system to ensure a comprehensive portrayal of activities in the region (P-2.1). The permit reporting process as a follow-up to field activities would be standardized (P-2.4).

Monument staff would work together to ensure that the educational activities proposed in these action plans are integrated to provide a consistent and effective message (P-3.1).

The MMB would develop and implement an educational program that could be provided online from the Monument Web site, which would educate prospective applicants about the Native Hawaiian culture (P-3.2).

Multiple information, outreach, and education programs would be developed to communicate permitting processes and regulatory information to the public, with particular attention given to interagency permitting efforts. Additional information and outreach, including presentations, publications, and DVDs, would aid interagency permitting efforts and better inform the public about Monument permitting (P-3.3). The MMB would develop and maintain a single Web site address committed to keeping the public engaged and regularly informed on all proposed and permitted activities that would be conducted in the Monument. This Web site would be the location for the public to access information regarding the Monument, including information on the Monument permit program (3.5).

In addition to the current pre-access training, new information on the proclamation regulations, permit terms and conditions, reporting requirements, the significance of the NWHI to Native Hawaiians, and ways to best conduct activities to reduce human effects on the natural environment and cultural resources would be incorporated into the training (P-3.4).

#### **1.6.12.2 New planning and administrative activities**

New permitting planning and administrative activities include defining insurance requirements for permittees and developing a data analysis system to identify potential environmental effects and patterns of compliance. The MMB would develop joint criteria for insurance that may be required before a permit authorizes activities in the Monument. Insurance requirements are intended to mitigate the potential risks of medical evacuations, vessel groundings, alien species introductions, and hazardous materials spills (P-1.5).

To assist in ecosystem-based management decision making, permit data generated from each permit application and report would be analyzed to provide the insight needed to make informed management choices about appropriate levels and locations of permitted activities (P-2.2). Data generated from permit applications and reports would be analyzed to modify reporting requirements and make them more relevant. In addition, this data would be used to evaluate patterns of compliance and to aid in enforcement and other program area planning efforts (P-2.3).

#### **1.6.13 Enforcement**

Enforcement activities would continue, as described in the No Action alternative, but several activities would be expanded. In addition, new activities are proposed to achieve compliance with all regulations within the Monument. New and expanded enforcement activities are described in detail in the Monument Management Plan (section 3.4.2, Enforcement Action Plan). These activities are listed in the table below and are summarized in this section.

<b>Proposed Action Alternative: Enforcement</b>	<b>Status</b>	<b>Activity Type</b>
Activity EN-1.1: Charter a Monument law enforcement working group.	New	Planning/administrative
Activity EN-1.2: Develop necessary interagency agreements.	Expanded	Planning/administrative
Activity EN-1.3: Develop an integrated law enforcement training program.	New	Planning/administrative
Activity EN-1.4: Assess Monument law enforcement capacity and program effectiveness.	New	Planning/administrative
Activity EN-1.5: Increase law enforcement capacity on Midway Atoll within 2 years.	Expanded	Field activity
Activity EN-2.3: Integrate additional automated monitoring systems and ship reporting systems for all vessels transiting the Monument.	New	Planning/administrative
Activity EN-2.4: Increase available platforms to support law enforcement.	Expanded	Infrastructure and development
Activity EN-3.1: Integrate regulations briefings into pre-access training required for all Monument users.	Expanded	Planning/administrative

Note: This table includes only proposed expanded and new activities. Activities in this action area that are not included in this table are described under the No Action alternative.

**1.6.13.1 Expanded planning and administrative activities**

Expanded enforcement planning and administrative activities would include efforts to enhance interagency agreements, increase law enforcement capacity and assets, and refine pre-access briefings. Additional cooperative agreements at a regional level would allow law enforcement officers of partner agencies to enforce the variety of federal and state statutes that apply within the entire Monument, as well as future collaborations (EN-1.2). Current pre-access briefings would be standardized using videos, printed materials, and presentations (EN-3.1).

**1.6.13.2 New planning and administrative activities**

New enforcement planning and administrative activities include developing a Monument law enforcement working group, which would enhance communication and collaboration on law enforcement issues and needs (EN-1.1). The working group would also regularly assess the effectiveness of law enforcement activities and would identify hot spots that require additional focus (EN-1.4). New training programs would be developed to provide officers with the most current information, including environmental education and Native Hawaiian cultural practices (EN-1.3).

**1.6.13.3 Expanded field activities**

Expanded enforcement field activities include on-site enforcement presence at Midway Atoll NWR. Credentialed officers would be stationed there to ensure visitor and staff safety and regulatory compliance (EN-1.5) providing on-site enforcement capacity at the refuge and Monument-wide to respond to increased operations and recreational activities. Additional automated monitoring systems and ship reporting systems would be integrated in the Vessel Monitoring System to track vessels transiting the Monument (EN-2.3).

**1.6.13.4 Expanded infrastructure and development activities**

Expanded enforcement infrastructure and development activities would be used to evaluate aerial and ship-based surveillance systems. Due to the remoteness of this area, increased aerial and ship-based resources would be evaluated both for surveillance and for response and would be added as needed (EN-2.4).

**1.6.14 Midway Atoll NWR Visitor Services**

Proposed Midway Atoll visitor services activities are described in the Monument Management Plan. They include planning and administrative, field, and infrastructure and development activities (see Monument Management Plan, section 3.4.3, Midway Atoll Visitor Services Action Plan and Volume III, Appendix B). All activities described in the No Action alternative would continue, but several activities would be expanded. In addition, new activities are proposed to offer visitors opportunities to discover, enjoy, appreciate, protect, and honor the unique natural, cultural, and historic resources of the Monument. These activities are listed in the table below and are summarized in this section.

<b>Proposed Action Alternative: Midway Atoll Visitor Services</b>	<b>Status</b>	<b>Activity Type</b>
Activity VS-1.1: Provide visitors with opportunities for wildlife-dependent recreation to enhance their knowledge and appreciation of the Monument’s natural resources.	Expanded	Field activity
Activity VS-1.2: Provide visitors with opportunities to learn about and appreciate the Monument’s cultural and historic resources.	Expanded	Field activity
Activity VS-1.3: Continuously monitor the impacts of visitors and other users on wildlife and historic resources to ensure their protection.	Expanded	Field activity
Activity VS-2.1: Monitor visitor satisfaction surveys completed by outgoing visitors, adjusting activities, facilities, and maintenance schedules as appropriate on a monthly basis.	Expanded	Field activity
Activity VS-2.2: Convene a team of visitor services specialists and Midway Atoll staff to review the visitor program on a biennial basis.	New	Planning/administrative
Activity VS-2.3: Based on the assessment above, seek funding, authority, or other needs to implement the recommendations for improvement.	New	Planning/administrative

Note: This table includes only proposed expanded and new activities. Activities in this action area that are not included in this table are described under the No Action alternative.

**1.6.14.1 New planning and administrative activities**

New Midway Atoll visitor services planning and administrative activities would include engaging specialists to review the visitor services program every two years. A team of visitor services specialists and Midway Atoll staff would assess whether the visitor program is meeting the standards outlined in the Visitor Services Plan (VS-2.2). The team would also evaluate the need to adjust visitor fees and make recommendations on the program’s financial stability, including staffing and facility needs (VS-2.2). FWS would seek funding authority or other needs to implement any recommendations to improve the visitor program (VS-2.3).

**1.6.14.2 Expanded field activities**

Expanded Midway Atoll visitor services field activities include efforts to provide visitors with opportunities to come to Midway Atoll and to improve visitor services, based on monitoring effects and visitor satisfaction. As outlined in the Midway Atoll Visitor Services Plan (Volume III, Appendix B), up to 50 visitors would be offered educational opportunities through tours, diving, kayaking, and photography (VS-1.1). In addition, tours and exhibits would be offered focusing on Midway’s and the Monument’s cultural and historic resources. One of the historic buildings on Sand Island would be restored to a visitor center and educational facility, offices and a permanent museum/library, which would include Monument-wide information.

An expanded snorkel and new dive program would be developed (VS-1.2). The Midway Atoll Visitor Services Plan would extend the interim plan and would include most of the same restrictions that would be carried over into a longer-term plan. To ensure resource protection, visitor effects and compatibility with conservation management would be monitored, as required by FWS policies (VS-1.3). A higher level of evaluation would be conducted with formal recommendations for improvements (VS-2.1).

**1.6.15 Agency Coordination**

Proposed agency coordination activities are described in the Monument Management Plan and include planning and administrative activities (see Monument Management Plan, section 2.0; Management Framework; and section 3.5.1, Agency Coordination Action Plan). All activities described in the No Action alternative would continue, but several activities would be expanded under the Proposed Action. In addition, new activities are proposed to continue the successful collaboration with government partners to achieve publicly supported, coordinated management in the Monument. These activities are listed in the table below and are summarized in this section.

<b>Proposed Action Alternative: Agency Coordination</b>	<b>Status</b>	<b>Activity Type</b>
Activity AC-1.1: Establish standard operating procedures, as needed, to provide direction and improve communication within the MMB.	Expanded	Planning/administrative
Activity AC-2.1: Explore the potential of developing new agreements, including the possibility of amending the 2006 MOA to increase Native Hawaiian involvement in the management of the Monument.	New	Planning/administrative
Activity AC-2.2: Establish agreements for coordinated management and conduct cooperative management operations.	Expanded	Planning/administrative
Activity AC-2.3: Develop interagency agreements, grants, and memoranda of agreement as needed to carry out specific program priorities.	Expanded	Planning/administrative
Activity AC-3.1: Enhance communication and cooperation with the Department of Defense and the U.S. Navy Pacific Fleet.	Expanded	Planning/administrative

Note: This table includes only proposed expanded and new activities. Activities in this action area that are not included in this table are described under the No Action alternative.



**1.6.15.1 New planning and administrative activities**

New agency coordination planning and administrative activities to establish and support cooperative management agreements with agency partners would explore the potential of developing new agreements, including the possibility of amending the 2006 MOA to increase Native Hawaiian involvement in the management of the Monument. (AC-2.1).

**1.6.15.2 Expanded planning and administrative activities**

Expanded agency coordination planning and administrative activities include enhanced coordination among Co-Trustee agencies and expanded collaborative agreements with other agencies, as appropriate. In order to ensure that unwritten knowledge and skills do not disappear when positions are filled with new staff, standard operating procedures for the MMB would be recorded, updated as necessary, and properly maintained (AC-1.1).

Building on the MOA signed December 8, 2006, new agreements would be developed among the MMB to help coordinate management. Such agreements would specify roles, responsibilities, and periodic reviews (AC-2.2). Cooperative projects that may benefit from formal and other informal agreements would be pursued with agencies outside of the MMB. This would allow for ease in sharing resources and in-kind assistance and support, as appropriate (AC-2.3).

Formal and informal agreements may be developed for specific program priorities that require cooperative assistance from agencies outside the MMB. Through the ICC (International Code Council) and other forums, the MMB would enhance communications with the DoD and the U.S. Navy on potential areas of cooperation, including enforcement; minimizing the effects of military activities in the Monument; supporting zoning, permitting, and tracking programs; and restoring and protecting regional and local wildlife (AC-3.1).

**1.6.16 Constituency Building and Outreach**

Constituency building and outreach activities would continue, as described in the No Action alternative, but several activities would be expanded. In addition, new activities are proposed to cultivate an informed, involved constituency that supports and enhances conservation of the natural, cultural, and historical resources of the Monument. New and expanded constituency building and outreach activities are described in the Monument Management Plan (section 3.5.2, Constituency Building and Outreach Action Plan). These activities are listed in the table below and are summarized in this section.

<b>Proposed Action Alternative: Constituency Building and Outreach</b>	<b>Status</b>	<b>Activity Type</b>
Activity CBO-1.1: Develop an integrated communications strategy based on an assessment of ongoing activities and future needs.	New	Planning/administrative
Activity CBO-1.3: Develop a consistent Monument identity to be used in all communications strategies that reflects its co-management within 1 year.	New	Planning/administrative
Activity CBO-1.4: Incorporate new perspectives for understanding the value of NWHI ecosystems, including socioeconomic studies, to increase ocean ecosystem literacy and conservation in the Monument	Expanded	Planning/administrative

<b>Proposed Action Alternative: Constituency Building and Outreach</b>	<b>Status</b>	<b>Activity Type</b>
within 5 years.		
Activity CBO-1.5: Research and implement new technologies and tools to increase public understanding of the NWHI ecosystems within 5 years.	Expanded	Field activity
Activity CBO-2.1: Establish a new Monument website that would allow constituents to visit a single site for all Monument-related information within 1 year.	New	Planning/administrative
Activity CBO-3.2: As needed, hold focused forums on various Monument-related issues or topics to inform and engage a broader range of constituents.	Expanded	Planning/administrative
Activity CBO-3.4: Continue to build and nurture volunteer programs that develop knowledge of, involvement in, and support for Monument programs and resources.	Expanded	Planning/administrative
Activity CBO-3.5: Establish and support a Papahānaumokuākea Marine National Monument Alliance to engage a broad range of constituents, who would provide us with recommendations and information on specific management issues on a regular basis, within 1 year.	New	Planning/administrative
Activity CBO-3.6: Continue to support the Native Hawaiian Cultural Working Group through the Office of Hawaiian Affairs.	Expanded	Planning/administrative
Activity CBO-3.7: Continue working with the Friends of Midway Atoll National Wildlife Refuge through FWS and support the establishment of a Monument-related “friends” group.	Expanded	Planning/administrative
Activity CBO-4.1: Develop interagency Monument interpretive themes to guide all interpretive products and activities.	Expanded	Planning/administrative
Activity CBO-4.2: Review existing interpretive sites and activities to determine their current relevance to the Monument and how they could better represent Monument themes.	Expanded	Planning/administrative
Activity CBO-4.3: Develop a Monument interpretive plan to guide future interpretive projects and activities.	New	Planning/administrative
Activity CBO-4.4: Seek additional opportunities to expand Monument interpretive efforts to new sites and through new technologies, creating a network of coordinated interpretive sites.	Expanded	Planning/administrative
Activity CBO-4.5: Working with the National Park Service, U.S. Navy, and other key entities, develop off-site exhibits on the Battle of Midway and the associated National Memorial to be integrated into World War II memorial sites of the Pearl Harbor Historic District.	New	Infrastructure and development

Note: This table includes only proposed expanded and new activities. Activities in this action area that are not included in this table are described under the No Action alternative.

**1.6.16.1 Expanded planning and administrative activities**

Expanded constituency building and outreach planning and administrative activities include new products, messages, and modes of communication. The MMB would support and seek out traditional knowledge, as well as new perspectives that contribute different ways of valuing the ecosystems of the NWHI. New and novel ways to look at the value of marine ecosystems, such

as socioeconomic analysis of the nonmarket value of coral reefs, would also be supported (CBO-1.4). Additional materials would be developed to aid in the understanding of more specific aspects of the entire region and on the ways in which the public can participate. These printed materials may also include multimedia components or may be developed as a suite of materials (CBO-2.2).

The MMB would offer public forums on specific topics or issues, both to exchange information with our constituencies and to build awareness and support. These forums would be offered at various locations to facilitate participation by a broad range of constituents (CBO-3.2). The volunteer program would continue to be nurtured and grown in support of the Monument (CBO-3.4). Guidance and support provided to the Monument by the Native Hawaiian Cultural Working Group through OHA would be further considered (CBO-3.6). In addition to continuing to work with the Friends of Midway Atoll National Wildlife Refuge, the MMB would evaluate the possibility of establishing a Monument-wide friends group to provide similar support (CBO-3.7).

A more focused study would be conducted to develop Monument-wide interpretive themes to guide the development and presentation of interpretive sites and products (CBO-4.1); existing interpretive facilities would be reviewed and updated. The Midway Atoll visitor center would be upgraded to include Monument-wide information (CBO-4.2). In addition, the inclusion of an interpretive facility at the proposed NOAA facility on Ford Island would be reviewed. The MMB would identify new sites and technologies to better reach our audiences and to include Monument messages in broader arenas (CBO-4.4).

#### **1.6.16.2 New planning and administrative activities**

New constituency building and outreach planning and administrative activities include a unified approach and identity for constituency building and outreach. To better reflect the shared management of the Monument, the MMB would work toward a unified strategy for constituency building and outreach (CBO-1.1). A consistent identity incorporating aspects of all Co-Trustee agencies would be developed for the Monument, and a consolidated website for information would be created (CBO-1.3 and CBO-2.1). A range of constituent participation would be encouraged through holding public forums, expanding volunteer activities, and establishing a Monument Friends Group and a Monument Alliance group (CBO-3.5). The development of site specific planning documents would include developing a Monument interpretive plan to guide future interpretive projects and activities (CBO-4.3).

#### **1.6.16.3 Expanded field activities**

Expanded constituency building and outreach field activities would incorporate new technologies to increase public understanding of the Monument and its resources. The MMB would increase support for projects such as documentaries, photography, and writing, which would bring the place to the people (CBO 2.3). Telepresence technologies would play an important role in educating the public about the NWHI. Significant obstacles to implementing these technologies do exist, such as cost, feasibility, and ecological sensitivities, but Monument staff would continue to use and expand these new technologies for providing this virtual experience (CBO-1.5).

**1.6.16.4 New infrastructure and development activities**

New constituency building and outreach infrastructure and development activities include possible additional interpretative centers. Additional opportunities to expand interpretive sites would be examined through working with the National Park Service, the U.S. Navy, and other key entities to develop off-site exhibits (CBO-4.5).

**1.6.17 Native Hawaiian Community Involvement**

Proposed Native Hawaiian community involvement activities are described in the Monument Management Plan and include planning and administrative activities (Monument Management Plan, section 3.5.3 Native Hawaiian Community Involvement Action Plan). All activities described in the No Action alternative would continue, but several activities would be expanded under the Proposed Action. In addition, new activities are proposed to engage the Native Hawaiian community in active and meaningful involvement in the Monument. These activities are listed in the table below and are summarized in this section.

<b>Proposed Action Alternative: Native Hawaiian Community Involvement</b>	<b>Status</b>	<b>Activity Type</b>
Activity NHCI-1.1: Formalize, expand, and convene the Native Hawaiian Cultural Working Group.	Expanded	Planning/administrative
Activity NHCI-1.2: Engage the Native Hawaiian Cultural Working Group in the development of a Monument Cultural Resources Program.	New	Planning/administrative
Activity NHCI-1.3: Establish an annual cultural resources exchange.	New	Planning/administrative
Activity NHCI-2.1: Continue to expand and explore opportunities to partner with institutions serving Native Hawaiians.	Expanded	Planning/administrative
Activity NHCI-3.2: Use and integrate Native Hawaiian traditional ecological knowledge in Monument management activities.	New	Planning/administrative

Note: This table includes only proposed expanded and new activities. Activities in this action area that are not included in this table are described under the No Action alternative.

**1.6.17.1 Expanded planning and administrative activities**

Expanded Native Hawaiian community involvement planning and administrative activities include formally establishing the Native Hawaiian Cultural Working Group and establishing additional partnerships with other Native Hawaiian groups. The MMB, through OHA, would formally establish the Native Hawaiian Cultural Working Group, expanding the previously established working group, to ensure regular involvement of the Native Hawaiian community and a strong cultural link in planning and managing the Monument (NHCI-1.1). In addition to the partnership with the Kamakakūokalani Center for Hawaiian Studies, the MMB would also seek other opportunities to formally consult with and engage other Native Hawaiian groups and would develop outreach programs for the Native Hawaiian community (NHCI-2.1). Additional partnerships, contracts, grants, or formal agreements with Native Hawaiian organizations would be considered and established as opportunities arise.

**1.6.17.2 New planning and administrative activities**

New Native Hawaiian community involvement planning and administrative activities include developing a Monument Cultural Resource Program and integrating Native Hawaiian traditional knowledge into Monument management activities. A Monument Cultural Resource Program and corresponding cultural resource management activities would be established and based on the recommendations of the Native Hawaiian Cultural Working Group and other Native Hawaiian organizations (NHCI-1.2). The MMB would annually convene groups of Native Hawaiians to discuss the knowledge, experiences, and new questions gained during the past research season (NHCI-1.3). This conference would update the Native Hawaiian community and would engage that community in determining the priorities and proposed methods of forthcoming research queries, theories, and needs. Based on traditional Hawaiian resource management strategies and traditional ecological knowledge, the MMB would integrate traditional perspectives, knowledge, and approaches in the management of Monument resources (NHCI-3.2).

**1.6.18 Ocean Ecosystems Literacy**

Ocean ecosystem literacy activities would continue, as described in the No Action alternative, but several activities would be expanded. In addition, new activities are proposed that would cultivate an ocean ecosystems stewardship ethic, strengthen the Nation’s science and cultural literacy, and create a new generation of conservation leaders through formal environmental education. New and expanded enforcement activities are described in the Monument Management Plan (section 3.5.4 Ocean Ecosystems Literacy Action Plan). These activities are listed in the table below and are summarized in this section.

<b>Proposed Action Alternative: Ocean Ecosystem Literacy</b>	<b>Status</b>	<b>Activity Type</b>
Activity OEL-1.1: Expand and improve the NWHI educational partnership’s Navigating Change curriculum for elementary and middle school students, with increased focus on ocean ecosystems literacy within 3 years.	Expanded	Planning/administrative
Activity OEL-1.2: As curricula are developed, work with Hawaiian-language immersion schools to ensure the curricula meet their needs, including translation into the Hawaiian language.	Expanded	Planning/administrative
Activity OEL-1.3: Develop an ocean stewardship program for middle school and high school students within 5 years.	New	Planning/administrative
Activity OEL-1.6: Expand educational programs for school groups at Mokupāpapa: Discovery Center for Hawai’i’s Remote Coral Reefs to host at least 10 groups per month.	Expanded	Planning/administrative
Activity OEL-1.7: Provide annual wildlife-dependent educator and conservation leader workshops at Midway Atoll, targeting a mix of formal and informal educators and community and conservation leaders and building upon Navigating Change curricula and vision.	Expanded	Field activity
Activity OEL-1.9: Build formal evaluations into education programs within 2 years.	Expanded	Planning/administrative



<b>Proposed Action Alternative: Ocean Ecosystem Literacy</b>	<b>Status</b>	<b>Activity Type</b>
Activity OEL-2.1: Identify and prioritize research and development projects to increase ocean ecosystems literacy and conservation in NWHI.	Expanded	Planning/administrative
Activity OEL-2.2: Use telepresence technology for educational and outreach activities within 5 years.	Expanded	Field activity

Note: This table includes only proposed expanded and new activities. Activities in this action area that are not included in this table are described under the No Action alternative.

**1.6.18.1 Expanded planning and administrative activities**

Expanded ocean ecosystem literacy planning and administrative activities include developing new curricula, ensuring appropriate cultural information is included, increasing the capacity of the Discovery Center for education and outreach, evaluating the outcomes of educational programs developed for the Monument, and identifying priority research needs on new educational technologies. Additional study units would be added for the current guide targeted at fourth and fifth grade students, and units focusing on other grade levels would be developed. Education partners would work with the Department of Education and private and charter schools as curricula are being developed to ensure that the Department’s and schools’ needs are incorporated into the work and to help incorporate the new curricula into educational programming (OEL-1.1). The Navigating Change partnership would work closely with the Native Hawaiian community to ensure appropriate cultural information is included within all curricula and that the units meet the needs of Hawaiian-language immersion and culture-based charter schools (OEL-1.2). Educational programming at the Monument’s education and outreach venue, Mokupāpapa: Discovery Center for Hawai‘i’s Remote Coral Reefs, would be expanded. Discovery Center staff would create educational partnerships to promote Mokupāpapa as an educational facility and field trip venue. Volunteer docent capacity would be developed to meet the increasing needs of school and community groups (OEL-1.6) Evaluating education and outreach programs and activities is critical to ensuring that the MMB is achieving its desired goals and reaching target audiences. Formal evaluations would be integrated into Monument education programs (OEL-1.9). The MMB, working together with educational partnerships and other relevant groups, including the private sector, would identify and prioritize research and development projects for new products and innovative technologies that could be used to increase ocean ecosystem literacy and support for conservation of the NWHI (OEL-2.1).

**1.6.18.2 New planning and administrative activities**

New ocean ecosystem literacy planning and administrative activities include working with educational partners to develop an ocean stewardship program for middle and high school students that provides real-world, hands-on experiences with issues of ocean management (OEL-1.3).

**1.6.18.3 Expanded field activities**

Expanded ocean ecosystem literacy field activities include providing additional opportunities to engage teachers in experiencing Midway Atoll and use telepresence technologies to support broader public education. The teacher workshop program would be expanded to include annual

workshops on Midway Atoll. Offering more educators the opportunity to experience Midway Atoll and bring the Monument back to their students would be an important role for Midway in the coming years (OEL-1.7). Because most people are not able to visit the NWHI, the Monument staff would use such technologies as underwater video cameras, real-time video transmission, virtual field trips, formal distance learning programs, websites, and exhibits in discovery centers to educate the public about the NWHI. Significant obstacles to implementing these technologies do exist, such as cost, feasibility, and ecological sensitivities, but Monument staff would continue to use and expand these new technologies to provide this virtual experience, as appropriate (OEL-2.2).

**1.6.19 Central Operations**

Proposed central operations are described in the Monument Management Plan and include planning and administrative and infrastructure and development (see Monument Management Plan, section 2.0 and 3.6.1, Central Operations Action Plan). All activities described in the No Action alternative would continue, but several activities would be expanded under the Proposed Action. In addition, new activities are proposed to conduct effective and well-planned operations with appropriate human resources and adequate physical infrastructure in the main Hawaiian Islands to support management of the Monument. These activities are listed in the table below and are summarized in this section.

<b>Proposed Action Alternative: Central Operations</b>	<b>Status</b>	<b>Activity Type</b>
Activity CO-2.1: Regularly assess current status and future needs for human resources.	Expanded	Planning/administrative
Activity CO-2.2: Improve human resources and organizational capacity.	Expanded	Planning/administrative
Activity CO-3.1: Regularly assess current status and future needs for infrastructure and facilities.	Expanded	Planning/administrative
Activity CO-3.2: Maintain and improve infrastructure and facilities.	Expanded	Infrastructure and development
Activity CO-3.3: Improve information technology infrastructure.	Expanded	Infrastructure and development

Note: This table includes only proposed expanded and new activities. Activities in this action area that are not included in this table are described under the No Action alternative.

**1.6.19.1 Expanded planning and administrative activities**

Expanded central operations planning and administrative activities include human resource and infrastructure needs assessments and capacity building. Monument staff would continue to regularly assess human resource needs for individual agencies. They would continue to identify and prioritize capacity building opportunities and regional capacities and opportunities to coordinate and share resources with partners (CO-2.1). As Monument staff grows, so would the human resource development capacity, including staff recruitment, retention, recognition, training, communication, regular meetings, time and attendance, and staff safety (CO-2.2). In conjunction with assessments of human resource needs, infrastructure and facilities needs would also be reviewed to optimize facilities utilization. These assessments would aim to organize and

better use existing facilities and infrastructure, to identify physical resource overlaps and gaps, and to identify needs to support projected future growth and collocation (CO-3.1).

**1.6.19.2 Expanded infrastructure and development activities**

Expanded central operations infrastructure and development activities include resource sharing among the MMB agencies and acquiring new computer technology to support Monument activities. Use of assets among MMB agencies would be assessed to determine more efficient use of available resources and to plan for cooperative growth (CO-3.2). Appropriate computer equipment would be acquired, upgraded, and maintained to meet management needs, and new technologies would be integrated as warranted (CO-3.3).

**1.6.20 Information Management**

Proposed information management activities are described in the Monument Management Plan and include planning and administrative activities (see Monument Management Plan, section 3.6.2, Information Management Action Plan). All activities described in the No Action alternative would continue, but several activities would be expanded. In addition, new activities are proposed to consolidate and make accessible relevant information to meet educational, management, and research needs for the Monument. These activities are listed in the table below and are summarized in this section.

<b>Proposed Action: Information Management</b>	<b>Status</b>	<b>Activity Type</b>
Activity IM-1.1: Develop and implement a data discovery, inventory, and acquisition strategy.	New	Planning/administrative
Activity IM-1.2: Develop appropriate data management protocols, procedures, and agreements with partner agencies.	New	Planning/administrative
Activity IM-1.3: Continue to design, build, and maintain the Papahānaumokuākea Information Management System (PIMS).	Expanded	Planning/administrative
Activity IM-1.4: Begin incorporating information into PIMS.	New	Planning/administrative
Activity IM-2.1: Design tools for accessing the PIMS.	New	Planning/administrative
Activity IM-2.2: Assess data access needs and provide training for PIMS users.	New	Planning/administrative
Activity IM-2.3: Develop interfaces to feed data to repositories, such as National Biological Information Infrastructure, Pacific Basin Information Node, Coral Reef Information System, and Integrated Ocean Observing System.	New	Planning/administrative

Note: This table includes only proposed expanded and new activities. Activities in this action area that are not included in this table are described under the No Action alternative.

**1.6.20.1 Expanded planning and administrative activities**

Expanded information management planning and administrative activities include the continued development of the Papahānaumokuākea Information Management System (PIMS), which would be refined, configured, and maintained to meet a spectrum of needs of the MMB (IM-1.3).

**1.6.20.2 New planning and administrative activities**

New information management planning and administrative activities include the development of a data acquisition strategy, data management protocols, tools and training on accessing PIMS, and interfaces to major data repositories. A data discovery, inventory, and acquisition strategy would be developed and implemented to identify the types, format, and sources of new and existing information and data sets (IM-1.1). Once the data sources have been identified, protocols for how data would be collected, documented, stored, and shared would be developed and implemented (IM-1.2). A shipboard data collection tool, under development, would facilitate data capture, standardization, and chain-of-custody.

While PIMS stores some data that is not already maintained by other partner agencies, it is primarily intended to be a portal to a decentralized data storage and management system. Data entry, formatting, and review would be formulated in conjunction with data providers as data and information is incorporated into PIMS (IM-1.4). The MMB would develop tools and training for accessing, updating, analyzing and receiving PIMS data (IM-2.1 and IM-2.2). Interfaces would be developed to feed data to other data repositories, such as the National Biological Information Infrastructure and the Integrated Ocean Observing Systems (IM-2.3).

**1.6.21 Coordinated Field Operations**

Proposed coordinated field operations activities are described in the Monument Management Plan and include planning and administrative, field, and infrastructure and development activities (see Monument Management Plan, section 3.6.3). All activities described in the No Action alternative would continue, but several activities would be expanded. In addition, new activities are proposed to coordinate field activities and to provide adequate infrastructure to ensure safe and efficient operations while avoiding effects on the ecosystems in the Monument. These activities are listed in the table below and are summarized in this section.

<b>Proposed Action Alternative: Coordinated Field Operations</b>	<b>Status</b>	<b>Activity Type</b>
Activity CFO-1.1: Initiate and complete necessary planning to implement the Midway Atoll Conceptual Site Plan.	Expanded	Planning/administrative
Activity CFO-1.2: Develop conceptual site plans for Hawaiian Islands National Wildlife Refuge and State Seabird Sanctuary at Kure Atoll to enhance management and restoration capabilities.	New	Planning/administrative
Activity CFO-1.3: Develop alternative energy systems and waste reduction strategies for the Monument within 2 years.	Expanded	Planning/administrative
Activity CFO-1.4: Plan for use of sustainable engineering, technology, and landscape architecture for facilities and assets throughout the Monument.	Expanded	Planning/administrative
Activity CFO-2.1: Develop interagency agreements to facilitate effective field coordination throughout the Monument.	Expanded	Planning/administrative
Activity CFO-2.2: Develop and implement standardized field operation protocols.	New	Planning/administrative
Activity CFO-2.3: Assess threats that field activities pose to Monument resources.	Expanded	Planning/administrative

<b>Proposed Action Alternative: Coordinated Field Operations</b>	<b>Status</b>	<b>Activity Type</b>
Activity CFO-2.5: Develop a staff coordination agreement between Midway Atoll NWR and the State Seabird Sanctuary at Kure Atoll.	New	Planning/administrative
Activity CFO-3.1: Design and construct a pilot low-impact shelter.	New	Infrastructure and development
Activity CFO-3.2: Use the existing footprint of Bravo Barracks for replacement housing at Midway Atoll.	New	Infrastructure and development
Activity CFO-3.3: Use the existing footprint of Charlie Barracks for replacement housing at Midway Atoll.	New	Infrastructure and development
Activity CFO-3.4: Rehabilitate “Officers Row” Housing at Midway Atoll.	Expanded	Infrastructure and development
Activity CFO-3.5: Maintain and enhance, where appropriate, the infrastructure at Kure Atoll.	Expanded	Infrastructure and development
Activity CFO-3.6: Maintain and enhance, where appropriate, the infrastructure at French Frigate Shoals.	Expanded	Infrastructure and development
Activity CFO-3.7: Evaluate, maintain, and enhance the small tent field camp at Pearl and Hermes Atolls on Southeast Island.	Expanded	Infrastructure and development
Activity CFO-3.8: Maintain and enhance the existing tent field camp at Laysan Island to support operations to protect and management Monument resources.	Expanded	Infrastructure and development
Activity CFO-4.2: Develop biodiesel fuel capacity or other sustainable fuel types at Midway Atoll within 2 years.	New	Infrastructure and development
Activity CFO-5.1: Rehabilitate water catchment and distribution systems.	Expanded	Infrastructure and development
Activity CFO-5.2: Rehabilitate septic and wastewater systems.	Expanded	Infrastructure and development
Activity CFO-5.3: Treat all wooden historic structures at Midway Atoll for termites.	Expanded	Infrastructure and development
Activity CFO-5.4: Evaluate and optimize food services as necessary.	Expanded	Infrastructure and development
Activity CFO-5.5: Rehabilitate seaplane hangar.	Expanded	Infrastructure and development
Activity CFO-5.6: Repair inner harbor seawall.	Expanded	Infrastructure and development
Activity CFO-6.1: Inventory, maintain, and coordinate the use of small boats and related field resources.	Expanded	Planning/administrative
Activity CFO-6.2: Within 2 years, station additional vessels at Midway for use during the summer marine research field season.	Expanded	Infrastructure and development
Activity CFO-6.3: Within 5-10 years, station a small research/enforcement vessel at Midway Atoll.	New	Infrastructure and development
Activity CFO-6.4: Construct new finger piers inside of Midway’s inner harbor.	New	Infrastructure and development
Activity CFO-6.5: Redevelop existing boathouse at Midway into a multi-use facility.	New	Infrastructure and development
Activity CFO-6.6: Evaluate needed improvements to Pier No. 1 in the ship basin and the Tug Pier at Midway Atoll.	New	Planning/administrative



<b>Proposed Action Alternative: Coordinated Field Operations</b>	<b>Status</b>	<b>Activity Type</b>
Activity CFO-6.7: Make needed improvements to or replace the pier at Eastern Island.	New	Infrastructure and development
Activity CFO-7.1: Identify a reliable, efficient, cost-effective aircraft service to improve the delivery capacity of personnel and cargo between Honolulu and Midway.	Expanded	Planning/administrative
Activity CFO-7.2: Within 5-10 years, evaluate the need for a dedicated aircraft for transportation, research, evacuation, education, surveillance, management, and enforcement in the Pacific region.	New	Planning/administrative
Activity CFO-7.3: Within 15 years, acquire appropriate aircraft to service the Monument and the Pacific region.	New	Infrastructure and development
Activity CFO-8.1: Refurbish or replace the dive recompression chamber at Midway.	Expanded	Infrastructure and development
Activity CFO-8.2: Investigate acquisition of portable dive recompression chamber for use on a small research vessel.	Expanded	Infrastructure and development
Activity CFO-8.3: Incorporate a dive operations center into refurbished boathouse facility at Midway.	Expanded	Infrastructure and development
Activity CFO-9.1: Design a marine laboratory at Midway and develop in phases.	New	Infrastructure and development
Activity CFO-9.2: Complete planning for and construct a captive care monk seal facility on Sand Island.	New	Infrastructure and development
Activity CFO-9.3: Provide logistical, infrastructure, and transportation support for threatened and endangered species recovery actions.	Expanded	Infrastructure and development
Activity CFO-9.4: Complete Phase I rehabilitation of Midway Mall and the commissary building.	Expanded	Infrastructure and development
Activity CFO-9.5: Construct airport welcome center on Sand Island within 2 years.	New	Infrastructure and development

Note: This table includes only proposed expanded and new activities. Activities in this action area that are not included in this table are described under the No Action alternative.

**1.6.21.1 Expanded planning and administrative activities**

Expanded coordinated field operations planning and administrative activities include necessary site planning to ensure coordinated field operations to achieve the purpose of the Monument, the Midway and Hawaiian Islands National Wildlife Refuges, NWHI Coral Reef Ecosystem Reserve, the State Seabird Sanctuary at Kure Atoll, and the State of Hawai‘i Marine Refuge. Other activities are to incorporate “green” methods and technologies into future Monument operations and infrastructure. The completion and implementation of conceptual site plans for the Midway Atoll National Wildlife Refuge, the State Seabird Sanctuary at Kure Atoll, and the Hawaiian Islands National Wildlife Refuge is fundamental to fulfilling the purpose and needs of these various needs. Co-Trustees would coordinate on Midway Site Plan priorities, conduct detailed planning, initiate budget requests, and implement actions as planning and compliance is completed and funding is available (CFO-1.1). Co-Trustees also would work together to develop alternative energy systems and waste reduction strategies including evaluating biodiesel fuel capacity or sustainable fuel types to meet future fuel requirements for aircraft, vessel, utility,

and equipment needs at Midway (CFO-1.3) and to develop programs using sustainable engineering, technology and landscape architecture for future operations and infrastructure improvement projects (CFO-1.4).

Interagency agreements to coordinate field operations, share resources, and commit to joint implementation of field priorities would be developed, as appropriate (CFO-2.1). Permitted activities would continue to be monitored through field activity reports. In addition, data from these reports would be managed in a geographic information system to provide adaptive management for the MMB in conducting or authorizing future field activities (CFO-2.3). Small boats and support equipment would be inventoried Monument-wide to determine whether the Co-Trustees could use these resources more effectively and reduce duplicative efforts (CFO-6.1). New planning and administrative activities

New coordinated field operations planning and administrative activities include conceptual site plan development for other parts of the Monument and evaluation of transportation needs. Similar to Midway, conceptual site plans need to be developed for the Seabird Sanctuary at Kure Atoll and at various locations within the Hawaiian Islands National Wildlife Refuge to identify long-term infrastructure requirements and priorities (CFO-1.2). Standardized environmental, safety, and preparedness protocols for field operations would be developed consistent with partner agency standards to provide resource protection and safe field operations. A Field Operations Manual would be drafted and distributed to principal investigators and managers working in the NWHI (CFO-2.2). A staff coordination agreement would be developed between Midway Atoll National Wildlife Refuge and the State Seabird Sanctuary at Kure Atoll to ensure coordination of habitat restoration and management activities and wildlife monitoring activities between the state and FWS (CFO-2.5).

Pier 1 in the ship basin and the tug pier in the inner harbor at Midway would both be evaluated for needed improvements (CFO-6.6). Within five to ten years, the need for a dedicated aircraft for transportation, research, evaluation, education, surveillance, management, and enforcement in the Pacific region would be evaluated (CFO-7.2).

#### **1.6.21.2 Expanded infrastructure and development activities**

Expanded coordinated field operations infrastructure and development activities include maintaining or rehabilitating additional facilities. Housing and facilities would be replaced as needed on a case-by-case basis, with any construction occurring within the existing development footprint, so there would be no loss of wildlife habitat. The ten houses in Officers Row would be rehabilitated at Midway Atoll (CFO-3.4). Infrastructure at French Frigate Shoals, Kure Atoll, Pearl and Hermes Atoll, and Laysan Island would be maintained and enhanced, where appropriate (CFO-3.5, CFO-3.6, CFO-3.7, CFO-3.8).

At Midway, critical utility systems and ailing structures and facilities would be rehabilitated within five to fifteen years. Specific projects include rehabilitating the water catchment and distribution system (CFO-5.1), septic and wastewater systems (CFO-5.2), food services (CFO-5.4), the seaplane hangar (CFO-5.5), and the inner harbor seawall (CFO-5.6). Wooden historic structures at Midway would be treated for termites (CFO-5.3). Food service facilities would be evaluated and expanded, as necessary (CFO-5.4).

NOAA would add additional small boats as needed to facilitate research, management, and education conducted by the MMB (CFO-6.2). Within five years, inter-island aircraft transportation options would be identified (CFO-7.1).

The dive chamber at Midway Atoll has not been serviced in over five years and needs to be assessed and refurbished or replaced. This chamber would be maintained by an on-site chamber operator/dive technician (CFO-8.1). Advanced recovery efforts, particularly efforts to address juvenile survival, would be met by developing logistical, infrastructure, and transportation capability to transport threatened and endangered species, equipment, and personnel among the various atolls more reliably (CFO-9.3). Phase 1 Rehabilitation of Midway Mall and the Commissary building would be completed as well (CFO-9.4).

### **1.6.21.3 New infrastructure and development activities**

New coordinated field operations infrastructure and development would increase housing, field camp, and transportation capacity. Housing and field camp capacity would be maintained and enhanced through various infrastructure projects, such as at Midway, the construction a low-impact pilot project for housing, replacement of Bravo Barracks (CFO-3.2), replacement of Charlie Barracks (CFO-3.3).

A small research/enforcement vessel would expand research, enforcement, education, response, and restoration capabilities from French Frigate Shoals to Kure Atoll. Repair and maintenance facilities would be established at Midway, and full-time support personnel would be identified to properly manage this asset (CFO-6.3). The boathouse, dive center, seaplane ramp and pier, and storage facility would be redeveloped. The facility would have maintenance bays for servicing small boats and a dive locker, including a compressor, recompression chamber, appropriate storage, and work area. The building would be resited and potentially raised to address concerns over flooding on the seaplane pad (CFO-6.5). Improving or replacing the pier at Eastern Island is proposed to ensure continued access for researchers and field workers (CFO-6.7). Aircraft to serve the Monument and the Pacific region would be acquired within 15 years (CFO-7.3).

A small, portable recompression chamber would be evaluated for use aboard the small research vessel referenced in CFO-6.3 to extend research capacity (CFO-8.2). A dive center would be incorporated into a newly refurbished boathouse, complete with storage, maintenance facility, compressor, recompression chamber, dive locker, and tool shed (CFO-8.3).

A marine laboratory at Midway would be designed and developed in phases to serve as a hub for coordinated research (CFO-9.1). A captive care Hawaiian monk seal facility is planned for Sand Island (CFO-9.2), and an airport welcome center would be constructed to handle visitor arrival and departures from Midway (CFO-9.5). This facility would provide a welcome and briefing area for visitors and would contain restrooms, baggage handling, and a waiting area out of the weather.

### **1.6.22 Evaluation**

Proposed evaluation would continue, as described in the Monument Management Plan, and include planning and administrative activities. All activities described in the No Action alternative would continue, but several new activities are proposed to determine the degree to

which management actions are achieving the goals of the Monument. These activities are listed in the table below and are summarized in this section.

<b>Proposed Action Alternative: Evaluation</b>	<b>Status</b>	<b>Activity Type</b>
Activity EV-1.1: Prepare a comprehensive Monument evaluation strategy.	New	Planning/administrative
Activity EV-1.3: Conduct comprehensive evaluation and prepare a State of the Monument Report.	New	Planning/administrative
Activity EV-1.4: Conduct a management plan review.	New	Planning/administrative

Note: This table includes only proposed expanded and new activities. Activities in this action area that are not included in this table are described under the No Action alternative.

**1.6.22.1 New planning and administrative activities**

New evaluation planning and administrative activities include conducting a comprehensive evaluation. The successful management of the Monument by multi-agency partners is measured by implementing a comprehensive evaluation process. New evaluation activities include preparing the Monument evaluation strategy (EV-1.1), conducting a comprehensive evaluation in the fifth year of plan implementation and preparing a State of the Monument Report (EV-1.3), and conducting a review of the Monument Management Plan (EV-1.4). The review of recommended changes identified during the comprehensive evaluation would be reflected in a revised Monument Management Plan and revised Monument regulations (if needed).

**1.7 COMPARISON OF ALTERNATIVES**

The Monument Management Plan includes a range of activities to achieve the vision of the Monument. This section highlights new and expanded field and infrastructure and development activities described in the Proposed Action alternative; activities are highlighted in tables by action area (see section 1.6). This section also includes a comparison of these activities to current activities described in the No Action alternative (see section 1.8). Overall, new and expanded activities described in the Proposed Action alternative are designed to address priority management needs in all action areas. A comparison of key features of the No Action and Proposed Action alternatives is provided in Table 1.1.

<b>Table 1.1 Comparison of Key Elements of No Action and Proposed Action Alternatives</b>		
	<b>No Action</b>	<b>Proposed Action</b>
<b>PMN 1 - Understanding and Interpreting the Northwestern Hawaiian Islands</b>		
<b>Marine Conservation Science</b>		
Planning	Continue to conduct research according to agency-specific priorities.	Develop and implement a Monument natural resources science plan to prioritize marine and terrestrial research needed for Monument management.
Research	Continue to characterize shallow-water and deepwater marine habitats using scuba diving, submersibles, remotely operated vehicles, underwater cameras,	Same as No Action plus use technical diving in mapping and monitoring deepwater habitats.

**Table 1.1  
Comparison of Key Elements of No Action and Proposed Action Alternatives**

	<b>No Action</b>	<b>Proposed Action</b>
	and multibeam and side scan sonar.	
Information Management	Continue to integrate data and information in the Monument information management system.	Same as No Action plus regular update of information management systems and protocols.
Education and Outreach	Coordinate research update and annual meetings to present current research.	Same as No Action plus integrate education component in research expeditions.
<b>Native Hawaiian Culture and History</b>		
Research	Continue to identify cultural research priorities.	Same as No Action plus provide berthing space on research vessels and logistical support.
Cultural access	Continue to support Native Hawaiian cultural access.	Same as No Action plus provide Native Hawaiian cultural access to ensure cultural lessons can be learned at specific sites.
Monument management	Continue OHA support informational meetings of the Native Hawaiian Cultural Working Group and cultural experts.	Same as No Action plus integrate consultations and traditional knowledge and practices into Monument management and Native Hawaiian cultural information into education and outreach for Monument permittees.
Cultural resource management for Nihoa and Mokumanamana	National Register of Historic Places listing for Nihoa and Mokumanamana.	Same as No Action plus implement preservation plans for Nihoa and Mokumanamana.
Monument Cultural Resources Program	No Monument cultural resources program.	Develop and implement a Monument cultural resources program.
<b>Historic Resources</b>		
Historic Preservation Plan for Midway	Continue to implement Midway Preservation Plan and maintain volunteer program at current levels.	Same as No Action plus reconcile Midway Preservation Plan with Midway Visitor Services Plan, lead paint abatement plan, and other facilities maintenance; recruit additional volunteers for work at Midway Atoll, seek private funding to restore and preserve a representative number of historic items at Midway Atoll. Complete surveys and restoration efforts within 15 years.
Field survey and documentation	Plan and conduct field survey and documentation as funding permits.	Midway Atoll Historic Preservation Plan, survey and documentation completed within two years.
Repair and maintenance treatments	Promote through volunteer programs and trained specialists at present levels and funding.	Repair and maintenance treatments complete within six years.
Remodel museum	Remodeling dependent on sufficient funding.	Complete remodel within seven years.



**Table 1.1  
Comparison of Key Elements of No Action and Proposed Action Alternatives**

	<b>No Action</b>	<b>Proposed Action</b>
Archaeological site surveys	Complete surveys at existing levels, as budgets permit.	Complete archaeological surveys within 15 years.
Commercial Pacific Cable Station Survey and Restoration	Complete surveys and restoration at existing levels, as budgets permit.	Complete surveys and restoration within 10 years.
<b>Maritime Heritage</b>		
Field mapping and surveys	Continue field work and complete progress reports annually.	Same as No Action.
<b>PMN 2- Conserving Wildlife and Habitats</b>		
<b>Threatened and Endangered Species</b>		
General	Continue threatened and endangered species research and management with current funding levels.	Dedicate more resources to threatened and endangered species management and subsequently increase the numbers and locations of threatened and endangered species throughout Monument.
Marine debris	Continue to support marine debris removal activities.	Same as No Action plus target marine debris prevention, characterize and address the effects of marine debris; develop proactive methods to remove marine debris at sea in areas where it is concentrated; and expand educational and outreach programs domestically and internationally to prevent debris from entering the ocean.
Endangered species consultations	Conduct adequate endangered species consultations.	Add additional Monument staff as needed to more efficiently conduct endangered species consultations.
Hawaiian monk seal	Maintain current level of protection for seals and their pupping and habitat.	Evaluate the loss of habitat from erosion and other factors; restore nesting, breeding, and pupping habitat for seals; develop standardized interagency protocols for emergency response for Hawaiian monk seal; increase juvenile survivorship through appropriate management tools, such as supplemental feeding through NOAA monk seal captive care programs.
Cetaceans	Continue to monitor spinner dolphin populations by photo-identification surveys and DNA sampling.	Same as No Action plus conduct annual censuses of cetacean populations and minimize human interactions with cetaceans; respond to any suspected infectious disease incidents affecting cetaceans; and explore the use of remote sensing to survey cetaceans.
Green turtles	Protect and manage green turtle nesting and basking habitat; monitor nest nesting	Same as No Action plus identify areas of high turtle foraging activity in benthic

**Table 1.1  
Comparison of Key Elements of No Action and Proposed Action Alternatives**

	<b>No Action</b>	<b>Proposed Action</b>
	<p>or breeding female abundance using standardized and consistent protocols; and maintain current level of protection for turtles and their nesting habitat.</p>	<p>habitats; map high use corridors used by turtles migrating between their breeding and foraging sites outside the Monument; ensure that nesting populations of green turtles at source beaches are stable or increasing; assess distribution of nesting activity throughout the Monument; and take action to reduce night lighting effects on nesting turtles.</p>
Birds	<p>Mark and recapture surveys of Laysan duck; monitor Laysan duck reproductive success and survival for population modeling, disease screening, and prevention; avoid translocating unhealthy individuals and genetic research to prevent loss of genetic diversity; and conduct annual censuses of populations of Laysan finch, Nihoa finch, and Nihoa millerbird and monitor their food and habitat.</p> <p>Maintain quarantine protocols and standard operating procedures for those permitted entry onto the islands and for the supplies shipped into islands within the Monument.</p> <p>Conduct annual censuses of passerine species and monitor their food and habitat requirements; continue monitoring reproductive success and productivity of albatrosses, tropicbirds, boobies, frigates, and other breeding seabird species, as funding permits, at French Frigate Shoals, Laysan Island, and Midway Atoll and continue to monitor all other species of nonbreeding migratory birds through surveys as funding permits.</p>	<p>Same as No Action plus restore breeding populations of short-tailed albatross; restore or create habitat for the Laysan duck; transport juvenile Laysan ducks from established populations to additional islands, and conduct post-release monitoring; maintain stable or increasing populations of Laysan finch on Laysan Island.</p> <p>Maintain stable populations of Nihoa finch and Nihoa millerbird.</p> <p>Conduct annual censuses of passerine species and monitor their food and habitat requirements; identify habitat suitability, prioritize sites for establishing new populations, and restore habitat if necessary; develop techniques for capture, translocation, and release; continue monitoring reproductive success and productivity of albatrosses, tropicbirds, boobies, frigates, and other breeding seabird species, as funding permits, at French Frigate Shoals, Laysan Island, and Midway Atoll and continue to monitor all other species of nonbreeding migratory birds through resite surveys, as funding permits.</p> <p>Encapsulate lead-based paint on structures to reduce likelihood of ingestion by birds.</p>
Plants	<p>Continue efforts to increase the numbers and locations of <i>Amaranthus brownie</i> and <i>Schiedea verticillata</i> on Nihoa and establish a self-sustaining <i>Pritchardia remota</i> population on Laysan Island.</p>	<p>Same as No Action plus establish populations of each listed plant species on one to three additional Monument islands and ensure the genetic material of all endangered plant species from Nihoa and Laysan Island are preserved in perpetuity. Hire additional two to four additional biological technicians to eradicate 90 percent of <i>Verbesina enceliodes</i> and other invasive plants at Midway Atoll in the next 15 years.</p>

**Table 1.1  
Comparison of Key Elements of No Action and Proposed Action Alternatives**

	<b>No Action</b>	<b>Proposed Action</b>
<b>Migratory Birds</b>		
Alien species	Maintain rigorous quarantine protocols to prevent the introduction of alien species	Same as No Action plus eradicate nonnative species at all sites where they have a negative effect on the survivorship or reproductive performance of migratory birds.
Avian diseases	Conduct surveillance for evidence of avian disease outbreaks.	Same as No Action.
Effects from commercial and sport fisheries	Continue efforts to reduce the effect of commercial and sport fisheries occurring outside Monument on migratory bird populations; teach seabird identification skills to fishers and fisheries observers; and assist with the development of techniques to minimize bycatch.	Same as No Action.
Conservation	Continue efforts to monitor migratory bird populations.	Same as No Action plus assess the population size and trends of overwintering and migrating Pacific golden plovers, bristle-thighed curlews, wandering tattlers, and ruddy turnstones; monitor a suite of 15 focal seabird species; and restore native coastal mixed grass and shrub communities.
<b>Habitat Management and Conservation</b>		
General	Continue to monitor and restore habitats of the Monument	Same as No Action plus expand restoration efforts to shallow-water marine areas, cleanup of contaminated sites, and feasibility studies for restoring beach and crest habitats.
Contamination	Monitor oil and other anthropogenic contamination.	Same as No Action plus within 10 years, investigate and inventory sources of known contamination from post-contact historic human use of the NWHI; and coordinate with responsible parties to develop plans and complete cleanup actions, conduct risk assessment to determine acceptable levels of lead (from lead-based paint) in soils; conduct risk assessment to determine acceptable levels of contaminants, such as PCBs and dioxin, for Laysan ducks; investigate contamination levels in both terrestrial and marine species, especially threatened and endangered species; investigate contaminant effects on wildlife.
Alien species	Continue to remove alien and invasive species.	Same as No Action plus within 10 years investigate and inventory sources of known contamination from post contact

**Table 1.1  
Comparison of Key Elements of No Action and Proposed Action Alternatives**

	<b>No Action</b>	<b>Proposed Action</b>
		historic human use of the NWHI; coordinate with responsible parties to develop plans and complete cleanup actions; conduct risk assessment to determine acceptable levels of lead (from lead-based paint) in soils; conduct risk assessment to determine acceptable levels of contaminants, such as PCBs and dioxin, for Laysan ducks; investigate contamination levels in both terrestrial and marine species, especially threatened and endangered species; investigate contaminant effects on wildlife.
Restoration	Propagate and out-plant extant native species.	Same as No Action plus within 10 years, develop and implement a plan for restoring shallow reefs and shoals; protect and restore beach and crest habitats at French Frigate Shoals, Laysan Island, Lisianski Island, and Pearl, Hermes, Midway, and Kure Atolls for 15 years; and within 10 years restore and maintain coastal mixed grasses and shrublands on basalt islands in the Monument (Nihoa, Mokumanamana, La Perouse and Gardner Pinnacles).
Conservation	Monitor changes in species composition and habitat structure.	Same as No Action plus inventory and monitor all Monument habitats, evaluate potential for development of additional freshwater sources for translocation sites for Laysan duck, Nihoa finch, and Nihoa millerbird; remove ironwood on Sand Island and Midway Atoll to provide nesting and roosting habitat for migratory birds; and protect and maintain areas of vertical rocky cliff face habitat at Nihoa and Mokumanamana for nesting terns, black noddies, brown boobies, and white-tailed and red-tailed tropicbirds.
<b>PMN 3- Reducing Threats to Monument Resources</b>		
<b>Marine Debris</b>		
Research activities	Research marine debris sources, types and accumulation rates.	Same as No Action plus complete within five years.
Debris removal activities	Continue to remove hazardous materials on beaches and marine debris onshore and in shallow waters.	Same as No Action plus catalog and remove hazardous materials on beaches and expand marine debris removal activities to offshore waters.
<b>Alien Species</b>		

**Table 1.1  
Comparison of Key Elements of No Action and Proposed Action Alternatives**

	<b>No Action</b>	<b>Proposed Action</b>
Monitoring and surveillance	Continue to monitor alien species annually, using existing protocols; identify existing snowflake coral infestation.	Same as No Action plus refine or develop new protocols for monitoring alien species and survey new infestations of snowflake coral and incipient marine invasive species.
Species prevention, control and eradication	Continue programs to prevent and control alien species introductions into the Monument; collect climate data and measure gray bird locust abundance on Nihoa, Mokumanamana, French Frigate Shoals, and Lisianski Island.	Same as No Action plus implement eradication plans for the house mouse on all of Sand Island, Midway, within 15 years; two species of mosquitoes at Midway Atoll within 10 years; gray bird locust on Nihoa, Mokumanamana, French Frigate Shoals, and Lisianski Island; and invasive red algae from waters near Mokumanamana.
Research	Continue research on alien species.	Conduct toxicant trials on high priority invasive species within five years and develop appropriate baits for gray bird locust.
<b>Maritime Transportation and Aviation</b>		
Aircraft and vessel hazards studies	Continue studies on aircraft hazards.	Same as No Action plus conduct comprehensive assessment of threats posed by aircraft and vessels on Monument resources.
Boundaries and zoning	Continue to work with the IMO on designations and protocols for domestic and international shipping.	Develop boundary and zoning information materials and updates to nautical charts to enhance notice to mariners of Monument boundaries and zoning.
Aircraft and vessel conservation measures	Continue recycling and energy saving activities and investigating the use of nonpetroleum-based hydraulic fluids on NOAA ships.	Same as No Action.
<b>Emergency Response and Natural Resource Damage Assessment</b>		
Contingency planning	Continue implementing contingency plan and protocols.	Update and improve the Area Contingency Plan.
Incident command systems (ICS)	Continue incident response.	Establish Monument Emergency Response Team for ICS responses and a non-ICS response team.
Certification, training and drills	Continue training.	Provide additional training for incident Command System and Hazards Waste Operations and Emergency Response, boat safety, first responder, and drills for emergency response in the Monument and ensure Emergency Response Team maintains appropriate certifications.



<b>Table 1.1 Comparison of Key Elements of No Action and Proposed Action Alternatives</b>		
	<b>No Action</b>	<b>Proposed Action</b>
<b>PMN 4 - Managing Human Uses</b>		
<b>Permitting</b>		
Permit review and tracking	Continue to review and track permit applications and reports.	Same as No Action plus engage additional outside experts in permit application review; develop GIS-based permit tracking systems.
Pre-access training and briefing	Continue multiple agency-specific pre-access training and briefing programs.	Develop and conduct a unified pre-access training and briefing programs that incorporates a Native Hawaiian cultural education program.
<b>Enforcement</b>		
Midway Atoll	No on-site enforcement presence.	Establish on-site enforcement presence at Midway Atoll to address increase in operational and recreational activities.
Monument	Continue informal collaboration among enforcement entities and operation of Vessel Monitoring System for vessels conducting permitted activities.	Establish a chartered Monument law enforcement working group to enhance communication and collaboration among law enforcement entities; integrate additional automated monitoring systems for vessels transiting the Monument.
Enforcement platforms	Continue enforcement using nondedicated platforms.	Increase number of platforms dedicated to enforcement; and research and development of remote surveillance technologies and deployment in 10 years.
<b>Midway Atoll Visitors Services</b>		
Wildlife-dependant recreation opportunities	Continue to offer limited visitor opportunities.	Expanded educational opportunities through tours and other recreational activities.
Opportunity for cultural and historic resources information and interpretation	Continue focus on the human history in Midway and the Monument.	Expand focus to include information on the importance of the NWHI in the Native Hawaiian culture.
Monitoring visitor effects and satisfaction	Continue limited monitoring of the effects of visitors and surveys on visitor experience.	Expand monitoring visitor effects and visitor satisfaction surveys.
Visitor satisfaction surveys	Survey information is compiled on a monthly basis.	Activities would be adjusted on a monthly basis based on feedback received in surveys.
<b>PMN 5 - Coordinating Conservation and Management Activities</b>		
<b>Agency Coordination</b>	No field activities anticipated.	Same as No Action.
<b>Constituency Building and Outreach</b>		
Materials and exhibits	Continue to use multiple agency-specific	Establish a unified Monument Web site,

**Table 1.1**  
**Comparison of Key Elements of No Action and Proposed Action Alternatives**

	<b>No Action</b>	<b>Proposed Action</b>
	Web sites and prepare informational materials to provide the public with information on the Monument.	identity, integrated communications strategy, and education and outreach themes; develop new exhibits on the Battle of Midway and other historic events and a network of interpretative sites in partnership with existing and new sites.
Volunteer programs	Continue to support limited volunteer opportunities.	Enhance support for volunteer programs and Monument Alliance to engage a broad range of constituents in Monument activities
<b>Native Hawaiian Community Involvement</b>	Continue to foster partnerships with existing Native Hawaiian groups.	Same as No Action plus formalize and expand the Native Hawaiian Working Group, and use and integrate Native Hawaiian traditional knowledge in Monument management.
<b>Ocean Ecosystems Literacy</b>		
Formal education	Continue to conduct teacher workshops on main Hawaiian Islands on Navigating Change curriculum four times a year.	Same as No Action plus develop new curriculum and conduct educator workshops at Midway Atoll biennially.
Interpretative facilities	Continue educational opportunities for school groups at the Mokupāpapa Discovery Center.	Same as No Action plus expand educational opportunities for school groups to 10 groups per month.
Research and Technology	Continue education and outreach through video and teleconferencing.	Same as No Action plus identify and prioritize research and development projects to increase ocean literacy and expand education with innovative technologies, such as telepresence, to bring the place to the people.
<b>PMN 6 - Achieving Effective Monument Operations</b>		
<b>Central Operations</b>	Continue to coordinate annual site operations planning and implementation.	Same as No Action plus assessment and enhancement of human resource and organizational capacity and physical infrastructure and facilities.
<b>Information Management</b>	Continue to update and maintain a Monument Information Management System; GIS-based database of past habitat characterization and field research; participate in National Marine Sanctuary's IMAST program; and develop a field-based data collection tool.	Same as No Action plus conduct workshops to facilitate data sharing, access, security, and use; develop protocols for data collection, documented, stored and shared; and develop educational materials that interpret data and make the information accessible and understandable.
<b>Coordinated Field Operations</b>		
Planning	Continue to conduct multiple agency-specific field operations planning, field	Same as No Action plus develop interagency agreements to facilitate

**Table 1.1  
Comparison of Key Elements of No Action and Proposed Action Alternatives**

	<b>No Action</b>	<b>Proposed Action</b>
	activities, and infrastructure and development.	effective field coordination throughout the Monument and develop a comprehensive dive operations program and research, education, visitor, and administrative facilities Monument-wide.
Midway Atoll	Continue to maintain infrastructure in suboptimal operating condition.	Same as No Action plus transform Midway into the operational hub for the Monument; implement Midway Conceptual Site Plan; replace and maintain rehabilitating critical utility systems and ailing structures and facilities at Midway Atoll; strategy for long-term sustainability using alternative energy, waste reduction, and low impact construction; meet fuel requirements for aircraft, vessel, utility and equipment needs at Midway Atoll; improve the small boat operational capacity; develop a monk seal captive care facility.
Other field camps	Continue to maintain field camps in suboptimal condition.	Enhance and maintain field camps at Kure Atolls, French Frigate Shoals, Pearl and Hermes Atolls, and Laysan Island.
<b>Evaluation</b>	Continue to evaluate program activities by conducting agency-specific annual program review.	Develop and implement a comprehensive Monument evaluation strategy and Monument Management Plan review.

**1.8 ACTIONS DESCRIBED REQUIRING FUTURE NEPA/HRS CHAPTER 343 ANALYSIS**

The Monument Management Plan includes a description of strategies and activities that the MMB agencies propose to implement over the next 15 years. These are grouped into the following categories for evaluating their potential environmental impacts: planning and administrative, field-based, and infrastructure and development. Although this EA describes these activities and their potential effects in general terms, it cannot for the most part be a full analysis of the effects of each action that will be taken or authorized over the next 15 years because some activities are still being developed. As such, each agency activity will be assessed individually for future NEPA analysis. If these activities are developed beyond the conceptual stage, they may require additional assessment under NEPA (such as a supplemental EA or an Environmental Impact Statement), as well as HRS Chapter 343 compliance. These activities (see Table 1.2) include some of the proposed infrastructure projects to make Midway a safe, efficient, and environmentally friendly operational hub for the Monument. Proposed infrastructure needs include increasing boat storage, constructing new piers, and building a marine laboratory at Midway Atoll. Infrastructure improvements are also proposed to support visitors, volunteers, researchers, and managers at Midway. Proposed habitat restoration, such as that for Hawaiian

monk seal haul-out areas at FFS, and to species, such as the black-lipped oyster, would require assessment and feasibility studies before specific activities could be defined.

Activity	Activity Type	
Activity MCS-2.1: Develop a prioritized Natural Resources Science Plan within 1 year.	New	Planning/administrative
Activity MCS-2.4: Implement research priorities identified in the Monument Natural Resource Science Plan.	New	Field activity
Activity HMC-1.3: Where feasible, implement appropriate restoration activities.	New	Field activity
Activity HMC-4.4: Formulate and implement a restoration plan for Lisianski Island using guidelines established for neighboring Laysan Island.	New	Field Activity
Activity HMC-4.6: Implement coordinated ecosystem restoration on Kure Atoll	New	Field Activity
Activity P-1.3: Coordinate appropriate environmental review for all permitted activities.	New	Field Activity
Activity EN-2.4: Increase available platforms to support law enforcement.	Expanded	Infrastructure and development
Activity CFO-3.1: Design and construct a pilot low-impact shelter.	New	Infrastructure and development
Activity CFO-3.2: Use the existing footprint of Bravo Barracks for replacement housing at Midway Atoll.	New	Infrastructure and development
Activity CFO-3.3: Use the existing footprint of Charlie Barracks for replacement housing at Midway Atoll.	New	Infrastructure and development
Activity CFO-3.5: Maintain and enhance, where appropriate, the infrastructure at Kure Atoll.	Expanded	Infrastructure and development
Activity CFO-3.6: Maintain and enhance, where appropriate, the infrastructure at FFS.	Expanded	Infrastructure and development
Activity CFO-3.7: Evaluate, maintain, and enhance the small tent field camp at Pearl and Hermes Atolls on Southeast Island.	Expanded	Infrastructure and development
Activity CFO-3.8: Maintain and enhance the tent field camp at Laysan Island to support on the ground management and restoration capacity.	Expanded	Infrastructure and development
Activity CFO-4.2: Develop biodiesel fuel capacity or other sustainable fuel types at Midway Atoll within two years.	New	Infrastructure and development
Activity CFO-5.1: Rehabilitate water catchment and distribution system.	Expanded	Infrastructure and development

Table 1.2  
Activities That May Be Addressed in Future NEPA/HRS Chapter 343 Compliance

Activity	Activity Type	
Activity CFO-5.2: Rehabilitate septic and wastewater systems.	Expanded	Infrastructure and development
Activity CFO-5.4: Evaluate and optimize food services, as necessary.	Expanded	Infrastructure and development
Activity CFO-5.5: Rehabilitate seaplane hangar.	Expanded	Infrastructure and development
Activity CFO-5.6: Repair inner harbor seawall.	Expanded	Infrastructure and development
Activity CFO-6.4: Construct new finger piers inside of Midway’s inner harbor.	New	Infrastructure and development
Activity CFO-6.5: Redevelop boathouse at Midway into a multiuse facility.	New	Infrastructure and development
Activity CFO-6.7: Make needed improvements to or replace the pier at Eastern Island.	New	Infrastructure and development
Activity CFO-9.1: Design a marine laboratory at Midway and develop it in phases.	New	Infrastructure and development
Activity CFO-9.2: Complete planning for and construct a captive care monk seal facility on Sand Island.	New	Infrastructure and development
Activity CFO-9.5: Construct airport welcome center on Sand Island within two years.	New	Infrastructure and development

**1.9 REGULATORY FRAMEWORK**

The following federal laws, proclamations, and state constitutional provisions and statutes or regulations are the most relevant to coordinated management of the Monument:

- Antiquities Act of 1906, 16 USC § 431, et seq., provides statutory authority for the establishment of national monuments;
- Presidential Proclamations 8031, June 15, 2006 (71 FR 36443) and 8112, February 28, 2007 (72 FR 10031), establishing the NWHI as a marine national Monument;
- Papahānaumokuākea Marine National Monument, codifying regulations, 50 CFR Part 404;
- State of Hawaii Organic Act of April 30, 1900, c339, 31 Stat.141 § 2, and Hawaii Admission Act of March 18, 1959, Pub. L. 86-3, 73 Stat. 4 § 2;
- Constitution of the State of Hawai‘i, Article XI, §§ 1,2,6,9 and Article XII § 7, including Hawaii Administrative Rules Title 13, Chapter 60.5 Northwestern Hawaiian Islands Marine Refuge. Hawaii Administrative Rules Title 13 Rules Regulating Wildlife Sanctuaries;
- Hawaii Revised Statutes, Title 1, Chapter 6E; Title 10, Ch. 128D; Title 12, Chs. 171, 183C, 183D, 187A, 188, 190195D, 200; Title 13, Ch. 205A; Title 19, Chs. 339, 342D,



343; and Hawaii Administrative Rules, Title 11, Chs. 54, 55, 60.1, 200; Title 13, Chs. 5, 60.5, 75, 76, 124, 125, 221, 275, 277, 280, and 300;

- National Marine Sanctuaries Amendments Act of 2000, Pub. L. 106-513 § 6(g) (2000);
- Endangered Species Act of 1973, as amended, 16 USC § 1531 et seq.;
- Marine Mammal Protection Act of 1972, 16 USC § 1361 et seq.;
- National Historic Preservation Act of 1966, as amended through 2000, 16 USC § 470 et seq.;
- Magnuson-Stevens Fishery Conservation and Management Act of 1976, 16 USC § 1801 et seq.;
- National Wildlife Refuge System Administration Act of 1966, as amended, 16 USC §§ 668dd-ee;
- Refuge Recreation Act of 1962, 16 USC § 460k-3;
- Fish and Wildlife Act of 1956, 16 USC § 742f; and
- Fish and Wildlife Improvement Act of 1978, 16 USC § 742l.

---

---

**CHAPTER 2:**  
**AFFECTED ENVIRONMENT**

# CHAPTER 2

## AFFECTED ENVIRONMENT

---

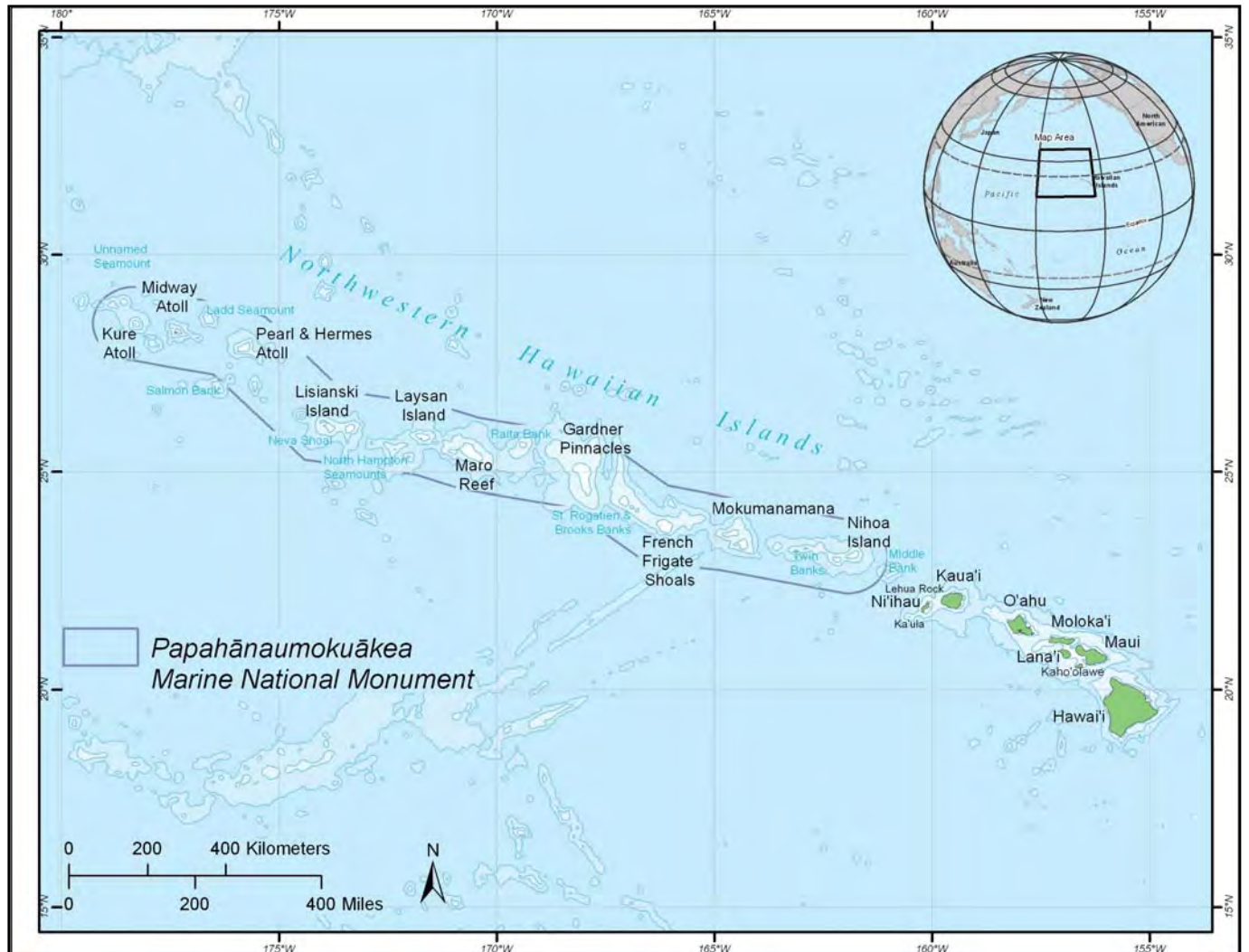
### 2.1 INTRODUCTION

This chapter describes the physical, biological, social, and economic conditions that occur within the region of influence (ROI) of the Proposed Action alternative. Only those conditions relevant to the Proposed Action alternative are presented. Resource areas discussed include natural resources, cultural and historic resources, human uses and activities, human health, safety, and hazardous materials, land use economic and social conditions, water quality, transportation and communications infrastructure, and utilities.

Chapter 2 is organized by resource area. Each resource area discussion includes an overview of the resource area with background on how the resource is related to the Proposed Action alternative, a general overview of relevant legislative requirements governing the resource, where applicable, and a discussion of the conditions of the resource within the ROI.

The ROI discussed in this report varies for each resource evaluated. For example, the ROI for water resources primarily includes those islands where specific actions take place, whereas the ROI for socioeconomics includes the entire state of Hawai‘i; therefore, the regions of influence are not the same for all potentially affected resource areas. Figure 2.1 includes the Northwestern Hawaiian Islands, the boundaries of the Monument, and the main Hawaiian Islands, all of which may be included in the ROIs for each resource area.

Figure 2.1 Hawaiian Archipelago Including the Northwestern Hawaiian Islands (Nihoa to Kure Atoll) and Main Hawaiian Islands (Hawai'i to Kaua'i). Inset shows the Hawaiian Archipelago in the Pacific Ocean.



## 2.2 NATURAL RESOURCES

### 2.2.1 Introduction/Region of Influence

The NWHI, together with the main Hawaiian Islands, are classified as the Insular-Pacific Hawaiian Large Marine Ecosystem (LME), one of 64 LMEs in the world (NOAA 2003a). Due to the interconnectivity between land and sea throughout the Hawaiian archipelago, the ROI for natural resources is the Insular-Pacific Hawaiian LME, which includes the Monument. The waters surrounding the NWHI support a diversity of marine life inhabiting a complex array of shallow and deepwater marine environments. Emergent lands include the many small islands and islets of the NWHI; these lands, the surrounding shallow reef, deepwater benthic, and pelagic habitats, form an integrated ecosystem that supports abundant endemic, threatened, and endangered wildlife.

### 2.2.2 Regulatory Environment

The natural resources within the Monument are protected under numerous federal and state laws and regulations, the most pertinent of which are as follows:

- Antiquities Act (16 USC 431-433);
- Presidential Proclamations 8031, June 15, 2006 (71 FR 36443) and 8112, February 28, 2007 (72 FR 10031);
- Papahānaumokuākea Marine National Monument codifying regulations (50 CFR Part 404);
- National Marine Sanctuaries Act of 1972, as amended (16 USC 1431-1445c);
- Endangered Species Act of 1973, as amended (16 USC 1531-1544);
- Marine Mammal Protection Act of 1972, as amended (16 USC 1361-1421h);
- Migratory Bird Treaty Act of 1918, as amended (16 USC 703-712);
- Magnuson-Stevens Fishery Conservation and Management Act of 1976, as amended (16 USC 1801-1882);
- National Wildlife Refuge System Administration Act of 1966, as amended (16 USC 668dd-668ee);
- Refuge Recreation Act of 1966, as amended (16 USC 460k-460k-4);
- Fish and Wildlife Act of 1956, as amended (16 USC 742a-742m);
- Fish and Wildlife Improvement Act of 1978, as amended (16 USC 742l);
- Coastal Zone Management Act of 1972, as amended (16 USC 1451-1465);
- Executive Order 13022—Administration of the Midway Islands, November 1, 1996 (61 FR 56875);
- Executive Order 13112—Invasive Species, February 3, 1999 (64 FR 6183);
- Executive Order 13089—Coral Reef Protection, June 11, 1998 (63 FR 32701);



- Executive Order 13158—Marine Protected Areas, May 26, 2000 (65 FR 34909);
- Executive Order 1019—Hawaiian Islands Reservation, February 3, 1909;
- Executive Orders 13178 and 13196—Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, December 4, 2000 (65 FR 76903) and January 18, 2001 (66 FR 7395);
- State of Hawaii Organic Act of April 30, 1900 (c339, 31 Stat.141 § 2) and Hawaii Admission Act of March 18, 1959 (Pub. L. 86-3, 73 Stat. 4 § 2);
- Constitution of the State of Hawai‘i, Article XI, §§ 1, 2, 6, and 9 and Article XII § 7;
- Hawaii Revised Statutes, Title 1, Ch. 6E; Title 10, Ch. 128D; Title 12, Chs. 171, 183C, 183D, 187A, 188, 190, 195D, 200; Title 13, Ch. 205A, and Title 19, Chs. 339, 342D, 343;
- Hawaii Administrative Rules, Title 11, Chs. 54, 55, 60.1, 200; Title 13, Chs. 5, 60.5, 75, 76, 124, 125, 221, 275, 277, 280, and 300;
- Hawaii Revised Statutes Title 1, Ch. 6E, Sections 1,7,11,12, 43, 43.5, & 46.5 - Hawaii Historic Preservation Program; and
- Hawaii Administrative Rules, Title 13, Ch. 275 - 284, & 300—Hawaii Historic Preservation Assessment Guidelines.

### 2.2.3 Resource Overview

Natural resources of the Monument are described in detail in the Monument Management Plan. This section provides an overview of the terrestrial and marine resources and special status species in the ROI.

#### 2.2.3.1 Terrestrial Resources

There are ten main islands and atolls in the NWHI. The two southernmost islands, Nihoa and Mokumanamana, are basaltic islands. Four of the five middle landmasses are open atolls (French Frigate Shoals [FFS] and Maro Reef) and sandy islands (Laysan and Lisianski). La Perouse Pinnacle (at FFS) and Gardner Pinnacles are small basaltic outcrops, remnants of islands similar to Nihoa and Mokumanamana. The three northernmost landmasses, Pearl and Hermes, Midway, and Kure, are classical atolls. This emergent land is vital habitat to the 14 million resident and migratory seabirds, which rely on these islands for roosting and breeding habitat and on the surrounding waters for food and which are protected under the Migratory Bird Treaty Act. Included in the 5.5 million seabirds that nest on these islands annually are more than 95 percent of the world’s Laysan (*Phoebastria immutabilis*) and black-footed (*Phoebastria nigripes*) albatross (Naughton and Flint 2004). Four endangered endemic bird species that are not seabirds (Laysan duck [*Anas laysanensis*], Laysan finch [*Telespiza cantans*], Nihoa finch [*Telespiza ultima*], and Nihoa millerbird [*Acrocephalus familiaris kingi*]) also breed on the islands (Table 2.2-2).

Nihoa’s seabird colony boasts one of the largest populations of Tristram’s storm-petrel (*Oceanodroma tristrami*), Bulwer’s petrel (*Bulweria bulwerii*), and blue noddies (*Procelsterna*

*cerulea*) in the Hawaiian Islands and very possibly the world. The island is a unique example of a lowland native community, resembling those lowland communities that once occurred on the main Hawaiian Islands but are now almost completely gone (Wagner et al. 1999). The island's vegetation can be classified as part coastal mixed community (*Sida* mixed shrub and grassland) and coastal dry shrubland dominated by 'ilima (*Sida fallax*), 'aweoweo (*Chenopodium oahuense*), and 'ohai (*Sesbania tomentosa*). The island supports 21 native plant species, including 3 endemics: a palm or loulou (*Pritchardia remota*), an amaranth (*Amaranthus brownii*), and an herb (*Scheidea verticillata*) (Wagner et al. 1999). The avifauna of the island includes two endemic passerine birds, the Nihoa finch and the Nihoa millerbird, both listed as endangered under the federal ESA and HRS 195D. The arthropod fauna of the island includes 33 species of mites, 3 species of spiders, and 182 species of insects, 17 of which are endemic, including a katydid (*Banza nihoa*), a giant tree cricket (*Thaumtogryllus conantae*), 2 species of endemic seed bugs (*Nysius nihoae* and *Nysius suffusus*), and an endemic trapdoor spider (*Nihoa mahina*) (Evenhuis and Eldredge 2004). Nihoa also has a rich cultural heritage, with at least 88 known wahi kupuna (ancestral sites), constructed by pre-contact Hawaiians, who inhabited the island for 700 years until 1700 AD, and listed on the NRHP. In Nihoa's Loulu Coastal Forest Community, *Pritchardia remota* assumes complete dominance with a closed canopy and thick layers of fallen fronds in the understory. Native plants growing nearby include *Chenopodium oahuense*, *Sesbania tomentosa*, *Solanum nelsonii*, and *Sida fallax*. Lichens grow on the trunks of the trees (U.S. Fish and Wildlife Service 1998). In this system, *P. remota* provides nesting habitat for red-footed boobies (*Sula sula*) and perching space for brown noddies (*Anous stolidus*), which are two resident seabirds at Nihoa (U.S. Fish and Wildlife Service 1998).

Because of its limited size, Mokumanamana supports only 5 indigenous plant species and no land birds but does harbor 3 species of mites, 2 species of spiders, and 70 species of insects, 11 of which are endemic, including a large weevil (*Rhycogonus biformis*), 2 species of seed bugs (*Nysius neckerensis* and *N. chenopodii*), and a trapdoor spider (*Nihoa hawaiiensis*) (Evenhuis and Eldredge 2004). Sixteen species of seabirds breed here, including the black noddy (*Anous minutus*), which historically was called the Necker Island tern.

Hawaiian monk seals utilize most of the Monument, including the atolls, islands, and waters of the Monument, with varying population (numbers and age structure) and some exchange within the NWHI and the main Hawaiian Islands. The sandy islets of FFS provide nesting sites for 90 percent of the threatened green turtle (*Chelonia mydas*) population breeding in the Hawaiian Archipelago. In addition, 19 of Hawai'i's 22 seabird species are found on the island, giving it the highest species richness of breeding seabirds within the Monument. The dry coastal shrublands of the larger islets within the atoll also support an endemic seed bug (*Nysius frigateensis*), moth (*Agrotis kerri*), and mite (*Phauloppia bryani*) (Usinger 1942; Nishida 2002).

Due to the limited size of the Gardner Pinnacles, they support only a single species of land plant (*Portulaca lutea*) and a few terrestrial arthropod species, but they are by contrast excellent habitat for seabirds (Clapp 1972). Guano from such seabirds gives the peaks a "frosted" appearance, indicating their importance as roosting and breeding sites for at least 12 subtropical species. Landings and terrestrial surveys rarely take place due to the difficulty of getting ashore under all but the calmest ocean conditions.

Maro Reef is a largely submerged open atoll (Clague 1996), with less than 1-acre (4,046.8 square meters) of periodically emergent land. At very low tide, only a small coral rubble outcrop of a former island is believed to break above the surface; as a result, Maro supports no terrestrial biota.

Laysan Island's ring of sandy dunes surrounds a 173-acre (0.7square kilometers) hypersaline interior lake, a feature unique within the Hawaiian Archipelago and rare within the Pacific as a whole. Because of its elevation of about 40 feet (12 meters), Laysan is well vegetated, supporting at least 30 species of flowering plants, including 5 subspecies that were endemic prior to human contact (Athens et al. 2007), many of which were driven to extinction by the misguided introduction of rabbits (*Oryctolagus cuniculus*) in 1902 during the guano mining era (Ely and Clapp 1973). The plant community is divided into five different associations arrayed in concentric rings around the interior hypersaline lake: coastal shrubs, interior bunchgrass, vines, interior shrubs, and wetland vegetation (Newman 1988). The island also previously harbored five endemic birds, two of which, the Laysan finch and the Laysan duck still survive (Pratt et al. 1987). In addition, approximately two million seabirds nest here, including boobies, frigatebirds, terns, shearwaters, noddies, and the world's second-largest black-footed and Laysan albatross colonies. The island also supports a relatively rich collection of arthropods, including a large endemic weevil (*Rhyncogonus bryani*), four endemic moths, an endemic wasp, and three endemic mites. A successful 12-year eradication project to remove the sandbur (*Cenchrus echinatus*), a plant that had displaced native vegetation over 30 percent of the island, has been completed, and an active ecological restoration project is under way to bring back a number of other plants and animals that were lost after the introduction of rabbits (Morin and Conant 1998).

Lisianski supports no endemic land plant or bird species, although it does harbor an endemic seed bug (*Nysius fullawayi flavus*) and an endemic moth (*Helicoverpa minuta*) (Usinger 1942; Nishida 2002). The island also hosts large Bonin petrel (*Pterodroma hypoleuca*) and sooty tern (*Onychoprion fuscata*) colonies, as well as a variety of other seabirds. Lisianski has the only grove of *Pisonia grandis* trees in the entire Hawaiian Archipelago; this tree is dispersed by seabirds and is favored as a nesting site for many tree-nesting seabird species.

Pearl and Hermes Atoll is a true atoll, fringed with shoals, permanent emergent islands, and ephemeral sandy islets. These features provide vital dry land for Hawaiian monk seals, the Hawaiian population of green sea turtles, and a multitude of seabirds, with 16 seabird species breeding here. The permanent islands with higher dunes support an endemic subspecies of native seed bug (*Nysius fullawayi infuscatus*) (Usinger 1942). Pearl and Hermes also hosts a small population of endangered Laysan finches that were translocated here in the 1960s.

Although Midway's native vegetation and insects have been greatly altered by more than a century of human occupation, the island boasts the largest nesting colonies of Laysan and black-footed albatrosses in the world, forming the largest colony of albatrosses in the world. The Navy, FWS, and U.S. Department of Agriculture-Wildlife Services (USDA Wildlife Services) successfully eradicated black rats (*Rattus rattus*), accidentally introduced during World War II, from Midway, removed a small forest of mature ironwood trees (an alien invasive species) from Eastern Island and new ironwood seedling from the remaining seedbank are removed as they are detected. Currently the cover on all of the islands at Midway is approximately 30 percent paved

or with structures, 23 percent grass and forbs, 18 percent woodland, 7 percent sand and bare ground, 22 percent shrublands, and less than 0.23 percent wetland. Midway Atoll also supports the first successful reintroduced population of endangered Laysan ducks, translocated from Laysan Island in 2004-2005. Laysan ducks utilize both the largely introduced vegetation of Midway Atoll and restored patches of native vegetation. This reintroduction is significant because Island ducks are globally threatened taxa, and because the Laysan duck is the most endangered waterfowl in the Northern Hemisphere and the U.S. Introduced canaries (*Serinus canaria*) breed among historic buildings that mark the beginning of cable communication across the Pacific near the beginning of the 20<sup>th</sup> century

Kure Atoll is an important breeding habitat for Christmas shearwaters (*Puffinus nativitatis*), Laysan and black-footed albatross. Kure has at least 11 terrestrial arthropods endemic to Hawai'i and one that is apparently endemic to Kure.

### 2.2.3.2 Current Status of the Resources

A number of these islands have been significantly altered from their natural state. Tern Island, part of FFS, was transformed from an 11-acre (.04-square-kilometer) sandy island into a 42-acre (.17-square-kilometer) naval airstrip by building a steel retaining wall, blasting and dredging a channel around the island, and using the blasted coral to fill in the wall (Amerson 1971). Barracks, a fuel depot, and a LORAN station were constructed over the years, with the barracks still housing five to ten people, including FWS managers, volunteers, researchers, and Hawaiian monk seal field teams. Laysan Island, at 1,015 acres (4.1 square-kilometers), is the second largest landmass in the NWHI. In the middle of the island lies a 173-acre (0.7 square-kilometers) hypersaline lake. During the late 1800s, Laysan experienced great ecological changes from guano miners and feather harvesters. Introduced rabbits and guinea pigs (*Cavia porcellus*) quickly devastated the island's vegetation. FWS has undertaken an ecological restoration project that includes eradicating invasive plants and insects and returning native plant, insect, and bird species extirpated previously (Flint and Rehkemper 2002). A short-lived black-lipped pearl oyster (*Pinctada margaritifera*) industry at Pearl and Hermes Atoll led to the construction of several buildings and the harvest of at least 150,000 oysters (Keenan et al. 2006). Today, 70 years after cessation of commercial harvest, only about a thousand individual pearl oysters have been documented in the lagoon. Midway Atoll, the largest landmass in the NWHI, at 1,535 acres (6.2 square-kilometers), has been significantly altered from its natural state. In 1871, efforts were begun to clear a channel into the lagoon. In 1903, workers for the Commercial Pacific Cable Company added 9,000 tons of soil from Honolulu and Guam and introduced hundreds of new species of flora and fauna. Infrastructure was built, including fuel depots, an airstrip, and housing for as many as 5,000 military personnel. The base was closed in 1993, and the atoll was put under Department of the Interior jurisdiction in 1996 (U.S. Fish and Wildlife Service 2005a). Today, approximately 60 people are stationed at Midway. Kure Atoll, a state wildlife refuge with no permanent population, is the northernmost coral atoll in the world. The USCG built a runway and LORAN station on Green Island in 1960 and 1961. The USCG controlled the runway until 1993 and had a peak of 24 personnel. After 1993, the runway began deteriorating and is no longer useable. Biologists conduct wildlife surveys, restore habitat, and remove marine debris.

At Midway and Tern, aircraft pose a risk to wildlife from collisions. At Midway, the greatest risk of bird/aircraft collision is from the two resident albatross species. Nearly two million migratory seabirds, representing 18 species, nest on Midway's three islands each year. The most abundant species is the Laysan albatross, with a population in excess of one million. Because of its size, its distribution on Sand Island, and its flight activity over the 7,900-foot ETOPS runway, the Laysan albatross represents the greatest bird/aircraft collision hazard. Other species that are involved in bird/aircraft strikes, albeit less frequently, are the black-footed albatross, Bonin petrel, black noddy, brown noddy (*Anous stolidus*), and white tern (*Gygis alba*). Very few seals have ever been observed on the runway, so the frequency of this hazard is low. A barrier of the native vegetation *Scaevola* and *Aerograstis* helps to prevent seals from reaching the runway.

For more than 50 years, the Navy attempted to mitigate the bird/aircraft collision problem by discouraging nesting and bird flight activity near the Sand Island runways. Since Midway became a National Wildlife Refuge in 1988, other steps have been taken to mitigate the collision hazard. Reducing the number of landings and takeoffs during the most hazardous times of day and year has proven to be the most successful mitigation strategy. Albatross are found at Midway in large numbers from November through July, but the peak of activity appears to be in February through May, when both juvenile and adult birds are in abundance.

In March of 2004, the FWS completed a wildlife assessment for the airport operations (American Airports Corporation 2003; Klavitter 2004), as an FAA certification requirement. The objectives of the assessment were as follows:

- Analyze past bird strike data at Midway Atoll;
- Identify the species, numbers, locations, local movements, and daily and seasonal occurrences of wildlife;
- Identify and locate features on and near the airport that attract wildlife;
- Describe the wildlife hazard to air carrier operations; and
- Discuss additional wildlife concerns associated with the airfield.

The primary management implications from this assessment were as follows:

- Runway sweeps are conducted before aircraft departures and arrivals to ensure that all birds are carefully removed from the active runway;
- Flights occur during nighttime from late November to mid-July each year;
- All unnecessary lights are turned off at the airport operations building at night immediately following flight operations; and
- All unnecessary poles, signs, and antennas over three feet (one meter) tall around the airfield are removed.

At Tern Island, FFS, the species most commonly killed during aircraft operations is the sooty tern, but occasionally wedge-tailed shearwater (*Puffinus pacificus*), great frigatebird (*Fregata minor*), and albatrosses of both species are also hit. Tern Island does not have runway lights, so all operations are done during daylight. Just before landings and takeoffs, all the staff on the



island make a sweep to drive the birds from the runway. Flight activities have a slight negative effect on migratory birds, but they have a beneficial effect on all natural resources by facilitating management actions that benefit wildlife and habitats.

Because these island ecosystems have evolved with little contact with the rest of the world, they are particularly vulnerable to the introduction of invasive species. Invasive plants and introduced mammals are a primary threat to nesting seabirds, indirectly by altering the ecosystem and directly by eating eggs and chicks. The number of alien land plants in the NWHI varies from only 3 introduced at Nihoa to 249 introduced at Midway Atoll. The level of threat from introduced plants also varies between species. For example, the invasive plant golden crownbeard (*Verbesina encelioides*) displaces almost all native vegetation in some nesting areas at Kure, Midway, and Pearl and Hermes Atolls. This plant causes entanglement of albatross adults and chicks and increases chick mortality due to heat stress by reducing the birds' ability to use convective cooling for thermoregulation.

A variety of alien plants, animals, and most likely fungi and bacteria have made it to the Northwestern Hawaiian Islands. Some of them have proven to be particularly invasive and dangerous to native species. These include such plants as Sandbur, *Verbesina*, and ironwood (*Casuarina equisetifolia*), and such animals as the black rat, rabbit, gray bird locust (*Schistocerca nitens*), house mouse (*Mus musculus*), and several ant species. Much of the routine management of this area revolves around eradicating or controlling existing invasives and preventing the introduction of new ones.

Marine alien species can be defined as nonnative aquatic organisms that have been intentionally or unintentionally introduced into new ecosystems, resulting in negative ecological, economic, or human health effects. Twelve marine alien invertebrate, fish, and algal species have been recorded in the NWHI. Alien species may be introduced unintentionally by vessels, marine debris, or aquaculture, or intentionally, as in the case of some species of groupers and snappers and algal species (Table 2.2-1). Eleven species of shallow-water snappers (Family *Lutjanidae*) and groupers (Family *Serranidae*) were purposely introduced to one or more of the main islands of the Hawaiian Archipelago in the late 1950s and early 1960s. Two snappers, the bluestripe snapper (taape, *Lutjanus kasmira*) and the blacktail snapper (*L. fulvus*), and one grouper, the peacock grouper (*Cephalopholis argus*), are well established and have histories of colonization along the island chain that are reasonably well documented (Randall 1987). Bluestripe snappers have been by far the most successful fish introduction to the Hawaiian coral reef ecosystem. Approximately 3,200 individuals were introduced on the island of O'ahu in the 1950s. The population has expanded its range by 1,491 miles (2,400 kilometers), until it has now been reported as far north as Midway in the NWHI. These records suggest an annual dispersal rate of about 18 to 70 nautical miles (33 to 130 kilometers). The other two species have been recorded only as far north as FFS and are present in much lower numbers than bluestripe snappers.

**Table 2.2-1  
Probable Mechanisms of Introduction of Marine Invertebrates to Hawai'i**

Mechanism	Species	Percent Established
Hull fouling	212	90%

Solid ballast	21	90%
Ballast water	18	89%
Intentional release	18	28%
Parasites on nonindigenous species	8	88%
Associated with commercial oysters: unintentional	7	100%
Aquarium release	3	67%

Source: Eldredge and Carlton 2002

It is often difficult to determine the specific vector of accidental introduction in the marine environment because there is generally a pronounced lag time between introduction and first observation as an invasive species.

According to the Bishop Museum Hawai'i Biological Survey, the total observed alien marine species in Hawai'i is 343, including 287 invertebrates, 24 algae, 12 flowering marine plants, and 20 fish. The presence of any of these or other potentially invasive species, even in their current benign state, illustrates the fact that these pristine reefs can be invaded.

A 2002 survey documented the first example of an invasive species attached to marine debris in the NWHI. The Asian anemone *Diadumene lineata* was identified from a derelict fishing net at the reefs of Pearl and Hermes Atoll (Zabin et al. 2003). To date, only a few of the 582 metric tons of debris collected have been analyzed for attached species. In addition, an estimated 1,000 tons (907 metric tons) of debris have accumulated in the NWHI over the past 20 years, with an estimated annual accumulation rate of 40 to 60 tons (36 to 54 metric tons) (Asher 2006).

In addition to the current threats posed by alien plant and animal species, several historic buildings on Sand Island contain hazardous materials, such as lead-based paint or asbestos. These toxic materials pose health and safety concerns for humans and wildlife. Lead paint flakes are ingested by albatross chicks, causing growth deformities and mortality. Currently, the Old Bulky Waste Landfill on the south shore of Sand Island, Midway Atoll National Wildlife Refuge (NWR) is eroding, and the soil placed on top is sifting into the debris, causing large holes to open up around the edge and in the center of the landfill. As a result, burrowing birds are bringing up buried and potentially contaminated soil and are nesting in that contaminated soil. Over 500 bird burrows have been counted in the landfill.

Marine debris, especially derelict fishing nets and gear, plastics, and hazardous materials, is a severe chronic threat to shallow ecosystems, such as Midway Atoll, and negatively affects albatrosses, Hawaiian monk seals, marine turtles, and other species that become entangled in or ingest these materials.

Recent decades have brought increased awareness of the changing global environment and the implications this change may have on ecological processes. The increase in average global temperatures, sea level rise, and change in chemical concentrations in the world's oceans are typically cited as the results of global climate change. Changes in the global climate are being brought about by three factors: increasing concentrations of carbon dioxide and other gases in the atmosphere, commonly referred to as the greenhouse effect; alterations in the biogeochemistry of the global nitrogen cycle; and ongoing land use and land cover change. Change in the land use is considered the single most important component of global change affecting ecological systems (Vitousek 1994). While there is some debate about the extent of the

effect these changes will have on Earth's environment, several trends have been well documented. The four areas of impact linked to global climate change that may have the greatest potential effect on the Monument are weather changes, coral bleaching, sea level rise, and oceanic chemical composition change.

### **2.2.3.3 Marine Resources**

#### **Shallow Reef**

As with the definition of ecosystem, the depth to which the shallow reef is defined is subjective. For this EA, this ecosystem is defined as all waters to a depth of 98 feet (30 meters). Because reef-building corals have a symbiotic relationship with microalgae that allows them to grow and thrive in the nutrient-poor waters of the tropics, these reefs have a depth limit based on the penetration of sunlight into the water column. Generally, coral reefs grow in water less than 98 feet (30 meters) (Grigg and Epp 1989), although non-reef-building corals are able to grow in much deeper waters (Maragos and Jokiel 1986; Veron 1986). In addition, there is a much better understanding of the shallow reef, as most coral reef assessment and monitoring is done in waters shallower than 98 feet (30 meters) (Maragos et al. 2004).

Coral reef ecosystems consist of much more than the reef-building corals for which they are named, including sand and unconsolidated sediments, colonized hardbottom, non-reef-building corals, and macroalgae. Reefs make up approximately 50 percent of the biomass, providing habitat structure, refuge, and food to the diverse group of organisms (Garrison 1999). Even in this relatively pristine coral reef habitat, the percentage of coral cover varies widely. A recent assessment of this habitat determined that coral cover for individual islands ranges from 4.4 percent to 64.1 percent across the chain, and less than 1 percent to close to 100 percent within the various habitats of the islands (Friedlander et al. 2005). The highest diversity and highest percent coral cover occurs in the middle of the Monument, at the large open atolls of FFS and Maro Reef. Reef, hardbottom, and sediment habitat are interspersed to create a variety of environmental niches and resources for the diverse array of species.

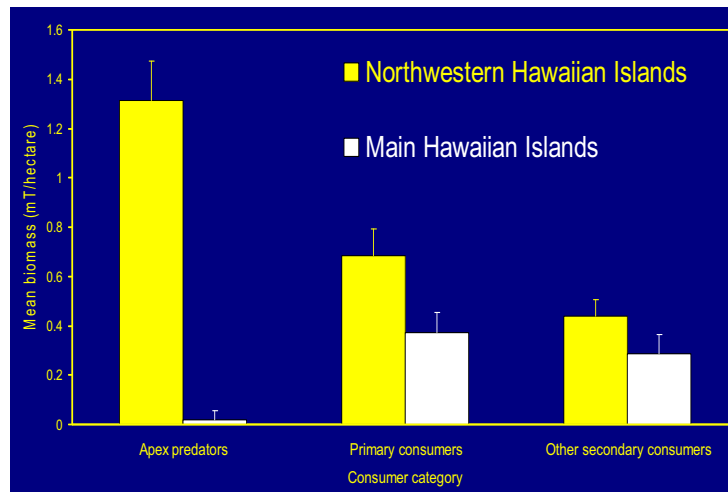
The shallow reef is a dynamic environment, experiencing constant wave surges and powerful winter storms. Tropical storms and hurricanes can generate extreme wave energy that can damage shallow coral reef habitat. These events are the primary natural force in altering and shaping coral reef community structure (Dollar 1982; Dollar and Grigg 2004). They represent potential but infrequent threats to the shallow coral reef ecosystems of the NWHI. There is a growing concern that global warming and the concurrent acidification of the ocean may cause drastic changes to corals in the coming century (Hoegh-Guldberg 1999). While the northern extent of the NWHI, from Kure to Pearl and Hermes Atolls, experiences sea surface temperatures from less than 64° Fahrenheit (18° Celsius) in winter to summer highs exceeding 82° F (28° C), a temperature anomaly of only 1.8° F (1°C) in the summer of 2002 resulted in widespread mass coral bleaching (Hoeke et al. 2006). Acidification, caused by increased levels of CO<sub>2</sub> in the ocean, inhibits the deposition of calcium carbonate, the primary component of the coral skeleton (Kleypas et al. 2006). Events such as these may be more devastating in the NWHI because these reefs grow more slowly than most other reefs (Friedlander et al. 2005).

Fifty-seven species of coral have been identified in the NWHI, with 30 percent of them being endemic. To date, 355 species of algae and 838 species of invertebrates have been documented in a thorough assessment of the Monument’s living resources (Friedlander et al. 2005).

Characteristics of the shallow water coral reef habitat change with both island geology and reef orientation to the island. Due to strong wave action and currents, the basalt islands in the southern portion of the Monument have no fringing reef. The underwater habitat is composed primarily of vertical walls and wave-cut benches (Friedlander et al. 2005). Caves, overhangs, and trenches provide small-scale habitat for corals, although basalt blocks, boulders, and pavement are the principal bottom cover. Species diversity is low, relative to the middle and northern atolls. The shallow reef habitat in the middle of the Monument (FFS, Maro Reef, and Lisianski Island) is a series of open atolls that exhibit the highest levels of coral abundance and diversity (Friedlander et al. 2005). The largest pod found in the NWHI of spinner dolphins (*Stenella longirostris*) occurs at FFS (Andrews et al. 2006). The northernmost atolls (Pearl and Hermes, Midway, and Kure) are formed by a continuous barrier reef, where the lagoon is connected to the outside ocean through a series of channels and grooves.

Structurally, apex predators, such as sharks and jacks, dominate fish communities on the reefs in the NWHI. In addition, abundance and biomass estimates indicate that the reef community is characterized by a smaller proportion of herbivores, such as surgeonfish (Family *Acanthuridae*), and more carnivores, such as damselfish (Family *Pomacentridae*), goatfish (Family *Mullidae*), and scorpionfish (Family *Scorpaenidae*). A comparison of both biomass and trophic structure between reef fish communities in the NWHI and main Hawaiian Islands (Figure 2.2-1) was conducted in 2000. Across similar habitats, biomass was 260 percent greater in the NWHI (Friedlander and DeMartini 2002). Additionally, 54 percent of the biomass in the NWHI was composed of apex predators, compared to 3 percent in the main Hawaiian Islands.

**Figure 2.2-1 Comparison of Biomass in Major Trophic Guilds between NWHI and Main Hawaiian Islands**



Source: Friedlander and DeMartini 2002

## Deep Reef—Banks, Shoals and Slopes

Approximately 30 submerged banks are within the Monument (Miller et al. 2004). Deepwater banks, seamounts and the abyssal plain are among the least studied environments of the NWHI.

Submersible surveys on South Pioneer Ridge (Pioneer Bank) and two unnamed seamounts, one east of Laysan Island and the other east of Mokumanamana, have revealed the presence of various substrate types, deposited when these geologic features were at sea level (Smith et al. 2004). In some areas, dense communities of corals (ahermatypic [non reef building]) and sponges at depths approaching 1,000 fathoms (6,000 feet, or 1.8 kilometers) obscured the underlying substratum. The deepwater marine plants of the area are a mixture of tropical species, species with cold-temperature affinities, and species with disjunctive distributions, suggesting alternative biogeographical patterns and dispersal routes from the main Hawaiian Islands (McDermid and Abbott 2004).

Mega- to macro-scale descriptions of bottomfish habitats made on Raita Bank, West St. Rogatien Bank, Brooks Bank, and Bank 66 indicate the distribution and abundance of bottomfish are patchy and appear to be associated with high relief and topographic features, including crevices and caves (Kelley et al. 2004). Telemetry studies of Hawaiian monk seals unexpectedly have revealed that these animals spend considerable foraging time at depths on these banks where light does not penetrate, particularly in areas that have high levels of relief, such as pinnacles and walls (Parrish and Abernathy 2006).

Hawaiian monk seals are foragers that eat a broad range of prey items, including bottomfish and associated fish species, as well as other types of fish and animals. Such banks also support populations of spiny (family *Palinuridae*) and slipper (Family *Scyllaridae*) lobsters and colonies of precious gold (*Gerardia* spp.), pink (*Corallium* spp.), and black (Family *Antipathidae*) corals. These deep-living corals, below the depth where enough light penetrates for photosynthesis, rely on the capture of plankton from the water column with their tentacles rather than deriving energy from symbiotic dinoflagellate algae, known as zooxanthellae, that virtually all shallow-water reef-building corals harbor in their cells. Submersible surveys conducted at depths of 656 to 1,148 feet (199.9 to 349.9 meters) on Raita, West St. Rogatien, and Brooks Banks found little evidence of physical disturbances by bottomfishing from anchors and fishing gear (Kelly, Moffit, and Ikehara 2006).

## Pelagic and Deep Water Habitats

Most of the Monument's area can be considered pelagic (open sea) habitat. The estimated area of all parts of the Monument with depths greater than 1,000 fathoms (6,000 feet, or 1.8 kilometers) is 117,375 square miles (304,000 square kilometers) or about 84 percent of the entire monument (Miller et al. 2006).

The Final EIS for the Fishery Management Plan: Pelagic Fisheries of the Western Pacific Region states:

Pelagic species are closely associated with their physical and chemical environments. Suitable physical environment for these species depends on



gradients in temperature, oxygen, or salinity, all of which are influenced by oceanic conditions on various scales. In the pelagic environment, physical conditions, such as isotherm and isohaline boundaries, often determine whether the surrounding water mass is suitable for pelagic fish, and many of the species are associated with specific isothermic regions. Additionally, fronts and eddies, which become areas of congregation for different trophic levels, are important habitat for foraging, migration, and reproduction for many species (Bakun 1996). Oceanic pelagic fish, including skipjack (*Katsuwonus pelamis*), yellowfin tuna (*Thunnus albacares*), and blue marlin (*Makaira nigricans*) or black marlin (*M. indica*), prefer warm surface layers, where the water is well mixed by surface winds and is relatively uniform in temperature and salinity. Other pelagic species—albacore, bigeye tuna (Ahi; *Thunnus obesus*), striped marlin (*Tetrapturus audax*), and broadbilled swordfish (*Xiphias gladius*) — prefer cooler, more temperate waters, often meaning higher latitudes or greater depths.

The oceanic Scombroid fish (billfish, tuna, wahoo) have zoogeographies much more like that of plankton than benthic fish. Most are cosmopolitan and occur in all oceans within the tropical and subtropical zones but may have very specific water temperature preferences (Longhurst and Pauly 1987). The yellowfin tuna, for instance, prefers water no cooler than 64° to 70° F (18° to 21° C), which coincides with the northern boundary of the Monument. All species undertake seasonal and age-related migrations, traveling between spawning grounds and feeding grounds appropriate for their sizes. They prey on medium-sized pelagic fish, crustaceans, and cephalopods. Tagging studies of yellowfin tuna and bigeye tuna have demonstrated that while these species have enormous capacity to travel huge distances, they show very specific attraction to fish-aggregating devices, island reef ledges, seamounts, and other elements of structure (Itano and Holland 2000). Lowe et al. (2006) similarly found that while two species of large sharks, tiger sharks (*Galeocerdo cuvier*) and Galapagos sharks (*Carcharhinus galapagensis*), are capable of long-distance travel, they showed more site fidelity than expected throughout the year, with 70 percent of tiger sharks exhibiting year-round residence at FFS. Some of the study subjects did make long-distance movements, with sharks marked at FFS showing up at Midway and on the Kona coast of the island of Hawai‘i. The tremendous economic value of these fishes has resulted in serious declines of most populations due to industrialized fishing.

The estimated 5.5 million seabirds breeding in the Monument are primarily pelagic feeders that obtain the fish and squid they consume by associating with schools of large predatory fish, such as tuna and billfish (Fefer et al. 1984; Au and Pitman 1986). These fish—yellowfin tuna, skipjack tuna, mahimahi (*Coryphaena hippurus*), wahoo (*Acanthocybium solandri*), rainbow runner (*Elagatis bipinnulatus*), broadbilled swordfish, and blue or black marlin—are apex predators of a food web existing primarily in the epipelagic zone. While both the predatory fish and the birds are capable of foraging throughout their pelagic ranges (which encompass the entire Monument and tropical Pacific Ocean), the birds are most successful at feeding their young when they can find schools of predatory fish within easy commuting range of the breeding colonies (Ashmole 1963; Feare 1976; Flint 1990).

The five species of sea turtles that occur in the NWHI are loggerhead (*Caretta caretta*), green, olive ridley (*Lepidochelys olivacea*), leatherback (*Dermochelys coriacea*), and hawksbill (*Eretmochelys imbricata*). All of these species are protected by the ESA. The Hawaiian population of green turtles has been monitored for 30 years, following the cessation of harvesting in the 1970s, and has shown a steady recovery from its depleted state (Balazs and Chaloupka 2004). The transition zone chlorophyll front, located north of Monument waters most years, occasionally moves southward, along with one of the species tightly associated with it, the loggerhead turtle. These turtles breed in Japan but feed on buoyant organisms concentrated at the convergent front in these high-chlorophyll waters, which support a complex food web, including cephalopods, fishes, and crustaceans, which albacore tuna and a variety of billfish also feed on (Polovina et al. 2001).

The waters of the Monument are also home to 20 cetacean species, 6 of them federally recognized as endangered under the ESA and recognized as depleted under the Marine Mammal Protection Act (MMPA).

#### **2.2.3.4 Connections Among Ecosystems**

The most obvious connection between the above ecosystem classifications is that many primarily marine species need emergent land for reproduction. Many of the emergent lands within the NWHI have been designated critical habitats. Designated critical habitat is a specific geographic area(s) that is essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery.

FFS is the primary nesting site for the Hawaiian stock of the threatened green turtle. Females lay an average of two nests per season, with a mean time between laying nests of 13 days. The mean incubation period is approximately 65 days (Balazs 1980).

These islands are also vital as the primary haul-out, pupping, and weaning habitat for the endangered Hawaiian monk seal. Hawaiian monk seals give birth on land and begin to teach their pups to swim after about three weeks (NOAA 2003b). Hawaiian monk seals that haul out to rest regularly spend two weeks every year on land to molt.

A total of approximately 5.5 million seabirds nest annually on nearly every island in the NWHI. For seabirds, a parent's proximity to a reliable food source when raising chicks is directly related to their survival (Polovina et al. 1994). Global atmospheric events (such as El Niño and the

Pacific Decadal Oscillation) appear to lower the productivity of the waters around the NWHI and have been correlated to low chick survival rates and the decline in the Hawaiian monk seal population (Polovina et al. 1994). While albatross come to the NWHI to breed, departing for the open ocean after their chicks have fledged, resident seabirds (e.g., boobies, frigates) spend a good percentage of their time on land.

Even the coral claim the islands, as they subside under the sea, creating the atolls that support the abundant and unique ecosystems found within the Monument. The connections between the shallow reef, where light penetration and coral growth dominate the environment, and the deep reef, where algal meadows and bottomfish prevail, are an important area of study. Some species of juvenile bottomfish inhabit much shallower waters than adults (Parrish 1989). The depth range of both spiny and slipper lobsters spans the deep and shallow reef (DiNardo and Marshall 2001). These lobster species are important links between the shallow and deep reef, as they are among the largest mobile invertebrates in the coral reef ecosystem. As such, they may represent a vital link in the trophic food web. Hawaiian monk seals are known to forage in both shallow and deep reef environments and have been documented at 1,640 feet (500 meters) deep, presumably foraging, for a significant duration (Parrish et al. 2000). These are only a few of the known connections that exist between the habitats defined as deep and shallow reef; many more may exist and are yet to be discovered.

The pelagic habitat is the realm of the highly migratory species, including tunas, sharks, billfish, and hatchling green sea turtles. The deep waters are also important insofar as they support an offshore mesopelagic boundary community (Benoit-Bird et al. 2002), a thick layer of pelagic organisms that rest in the deep ocean (1,300 to 2,300 feet [400 to 700 meters]) during the day, then migrate up to shallower depths (from near zero to 1,300 feet [400 meters]) at night, providing a critical source of nutrition for open-ocean fishes, seabirds, and marine mammals. This community is composed of small fishes, shrimps, and squids, which serve as an important food resource for many animals, including spinner dolphins, bottomfish, tunas, and billfish. Future research will provide more details and interconnections between pelagic and shallow water ecosystems.

### 2.2.3.5 Special Status Species

Table 2.2-2 is a list of selected endangered plant species and resident and/or occasional (transient) bird and/or marine mammal species which can be found at the Monument and which are protected under either the ESA or MMPA. Only species protected under the ESA that are considered to be regularly occurring at the Monument are listed below. Some species protected under the MMPA that are known to occur in the western Pacific and could occur within the Monument are not listed for brevity's sake and because no management action would specifically affect these species.

#### Plants

Six endangered plant species found in the Hawaiian Islands have populations in the NWHI (Table 2.2-2), and three of these are endemic species on Nihoa. *Amaranthus brownii*, *Pritchardia remota*, and *Schiedea verticillata* were listed as endangered under the ESA in 1996. Critical habitat was designated for five plant species in the Monument in 2003.

**Table 2.2-2**  
**Special Status Species in the NWHI**

Common Name	Taxonomic Name	Protection	Occurrence
<b>Land plants</b>			
Loulu/fan palm	<i>Pritchardia remota</i>	ESA	Resident
Kamanomano	<i>Cenchrus agrimoniodes</i>	ESA	Resident
‘Ohai	<i>Sesbania tomentosa</i>	ESA	Resident
	<i>Amaranthus brownii</i>	ESA	Resident
	<i>Mariscus pennatiformis</i>	ESA	Resident
	<i>Schiedea verticillata</i>	ESA	Resident
<b>Land Birds</b>			
Laysan duck	<i>Anas laysanensis</i>	ESA	Resident
Laysan finch	<i>Telespyza cantans</i>	ESA	Resident
Nihoa finch	<i>T. ultima</i>	ESA	Resident
Nihoa millerbird	<i>Acrocephalus familiaris kingi</i>	ESA	Resident
<b>Seabirds</b>			
Short-tailed albatross	<i>Phoebastria albatrus</i>	ESA/MBTA	Rare
<b>Sea Turtles</b>			
Olive Ridley	<i>Lepidochelys olivacea</i>	ESA	Occasional
Leatherback	<i>Dermochelys coriacea</i>	ESA	Occasional
Loggerhead	<i>Caretta caretta</i>	ESA	Occasional
Hawksbill	<i>Eretmochelys imbricata</i>	ESA	Rare
Green	<i>Chelonia mydas</i>	ESA	Resident
<b>Marine mammals</b>			
Hawaiian monk seal	<i>Monachus schauinslandi</i>	ESA/MMPA	Resident
Humpback whale	<i>Megaptera novaeangliae</i>	ESA/MMPA	Seasonal
Sperm whale	<i>Physeter macrocephalus</i>	ESA/MMPA	Occasional
Blue whale	<i>Balaenoptera musculus</i>	ESA/MMPA	Rare
Fin whale	<i>B. physalus</i>	ESA/MMPA	Rare
Sei whale	<i>B. borealis</i>	ESA/MMPA	Rare
North Pacific right whale	<i>Eubalaena japonica</i>	ESA/MMPA	Rare
Spinner dolphin	<i>Stenella longirostris</i>	MMPA	Resident
Bottlenose dolphin	<i>Tursiops truncatus</i>	MMPA	Resident

Source: NOAA 2004b

*A. brownii* is the rarest native plant on Nihoa (FWS 1998); its populations are scattered in two valleys, and a few individuals grow at the bases of basaltic cliffs on the steep outer slopes of the two valleys. *P. remota* grows on valley floors and at the bases of basaltic cliffs, areas that are subject to flash floods. *P. remota* is known from approximately 680 plants scattered in four colonies in each of two valleys that are on opposite sides of Nihoa (FWS 1998). *S. verticillata* typically grows in soil pockets and cracks on coastal cliff faces between 100 and 800 feet (30 and 242 meters). All historically known colonies of *S. verticillata* are known to be extant and have remained relatively stable.

Threats to *A. brownii* on Nihoa include competition with the nonnative plant *Portulaca oleracea* (pigweed), herbivory by introduced grasshoppers (*Schistocerca nitens*), alteration of substrate, fire, potential introduction of rats and mice, human disturbances, a risk of extinction from naturally occurring events (such as hurricanes), and reduced reproductive vigor due to the small number of extant individuals (U.S. Fish and Wildlife Service 1998). Although the current

population of *P. remota* appears to be stable, this species may have experienced declines resulting from Polynesian settlement of Nihoa. Contemporary threats may include alien plant, insect, and mammal species. Flash floods, fire, and human disturbances may also pose potential threats. As a consequence of small population sizes, many of these species are at risk to random events and face reduced reproductive vigor (U.S. Fish and Wildlife Service 1998).

Three additional endangered plants that are found in the main Hawaiian Islands are also found in the NWHI—*Cenchrus agrimonioides* var. *laysensis*, *Mariscus pennatiformis* ssp. *bryannii*, and *Sesbania tomentosa* (U.S. Fish and Wildlife Service 1999). *C. agrimonioides* var. *laysensis* was historically known from Laysan, Kure, and Midway but has not been seen since 1973 (U.S. Fish and Wildlife Service 1999). *M. pennatiformis* ssp. *bryannii* is known only from Laysan Island where the population has fluctuated between 1 and 200 since 1980. *S. tomentosa*, the only endemic Hawaiian species in this genus, occurs on Nihoa and Mokumanamana; the largest population occurs on Nihoa and consists of several thousand individuals (U.S. Fish and Wildlife Service 1999). Threats to these species include competition with alien plants, herbivory by introduced grasshoppers (*Schistocerca nitens*) and other invasive animals, risk of extinction from natural events, and reduced reproductive vigor due to the small number of individuals.

## Birds

Both the Nihoa finch and the Nihoa millerbird reside year-round on the steep-sided, rocky, and shrub-covered island of Nihoa. Laysan finches are restricted to the low-elevation vegetated area of Laysan Island, although translocated populations have occupied the vegetated areas of Southeast Island and Grass Island at Pearl and Hermes Atoll. The Nihoa millerbird is the least abundant of the endangered passerines, numbering between approximately 150-350 birds (Mitchell et al. 2005). The Laysan and Nihoa finch populations have been surveyed most years since 1966, and their mean populations vary from over 11,000 to over 3,000 respectively (Mitchell et al. 2005). No clear population trends have been observed (Mitchell et al. 2005). Factors limiting Nihoa finch and millerbird populations are primarily weather, variations in food supply, and availability of appropriate nest sites. Additional threats include invasive alien arthropod and plant species, a sudden increase in arthropod population, introduced mammals, small population size, and associated demographic, random, and genetic risks. Landmass loss accompanying sea-level rise also poses a potential risk to the Laysan finch population.

The total Laysan duck population on Laysan Island has fluctuated from seven to more than 600 adult birds in the last century. The most recent (2005) population estimate of adult birds is approximately 600 birds (Reynolds et al. 2006). The population at Midway was founded with a total of 42 wild birds translocated from Laysan in 2004 and 2005. Of this original total, 25 or 26 birds are believed to have bred. After successful breeding seasons in 2005 through 2007, the number of ducks at Midway had increased to nearly 200 animals (Reynolds et al. 2007). Another successful breeding season at Midway in 2008 added significantly to the population, but an outbreak of avian botulism in August 2008 caused the death of more than 130 ducks and a temporary set-back to this new population.

The short-tailed albatross is listed as endangered under the ESA and is the smallest population of any albatross species in the North Pacific. Short-tailed albatrosses once ranged throughout most of the North Pacific Ocean and Bering Sea but were harvested to near extinction at their breeding



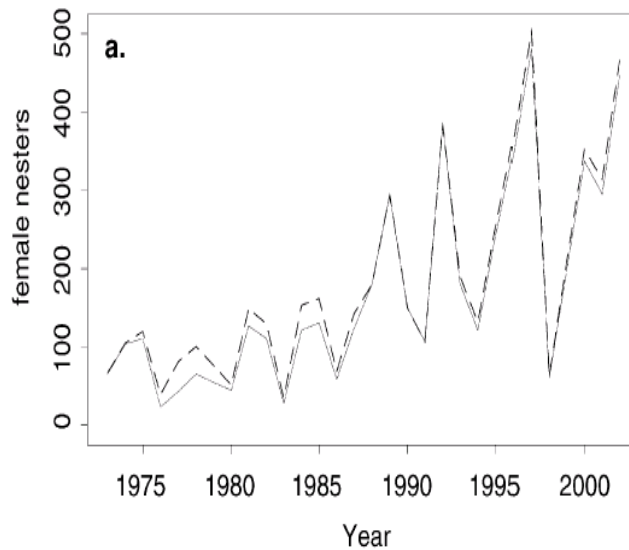
colonies in Japan. The current worldwide population is approximately 1,700 individuals, and due to habitat management and stringent protection, the population has increased by approximately six percent per year (U.S. Fish and Wildlife Service 2000). The primary range of this species is along the coasts, traveling between its breeding colonies in Japan, along Russia, the Aleutian Islands, and down the coast of North America. Land-based sighting records indicate that at least 15 short-tailed albatrosses have visited the NWHI over the past 60 years. Most of these sightings have been at Midway Atoll (U.S. Fish and Wildlife Service 2000), where two individuals are present every breeding season.

**Sea Turtles**

There are five listed sea turtles that could occur in the waters of the Monument. The Hawaiian population of the green turtle, loggerhead, and olive ridley are listed as threatened under the ESA. The leatherback and hawksbill turtles are listed as endangered under the ESA. The green turtle is common in the NWHI; the other turtles are rarely sighted in the Monument and therefore are not listed in Table 2.2-2 or considered in this analysis.

The NWHI are the primary nesting grounds for the Hawaiian population of the green turtle, while the main Hawaiian Islands are the primary foraging grounds. Although scattered low-level nesting occurs throughout the Hawaiian archipelago, over 90 percent of the nesting is at a few sandy islets within FFS (NMFS and U.S. Fish and Wildlife Service 1998). Nearshore waters contain adults that migrate to breed at these key sites. Mating occurs in the water, yet both males and females arrive on land to bask. Approximately 200 to 700 adult green turtle females nest on FFS annually. Since protection by state law in 1974 and by the ESA in 1978, the nesting population of the Hawaiian population of the green turtle has increased dramatically, as shown in Figure 2.2-2.

**Figure 2.2-2 Trends in French Frigate Shoals Green Turtle Nester Abundance**



Source: Balazs and Chaloupka 2004

## Hawaiian Monk Seal

The Hawaiian monk seal is listed as endangered under the ESA and as depleted under the MMPA. It is the most endangered pinniped in U.S. waters and the second most endangered marine mammal after the northern right whale. The Hawaiian monk seal is so named for its solitary nature, with the closest social bond being between mother and pup (Reeves et al. 1992).

Little is known about the Hawaiian monk seal population before the 1950s, although the species is thought never to have numbered more than a few thousand (Ragen and Lavigne 1999). Reduction of the seals' range may have begun with the arrival of the first Polynesians to Hawai'i. Two activities in historic times are believed to have caused major declines in population: a short-lived sealing venture of the 1800s and military activities on Kure, Midway, and FFS in the second half of the twentieth century. Population surveys conducted since 1959 indicate that non-pup populations have declined by 60 percent (NOAA 2003d). Today, the total population is estimated at 1,200 individuals (NOAA 2004g). A variety of management actions have been implemented to improve the population trends, including removing aggressive males, relocating males to equalize the sex ratio, and rehabilitating undersized pups to improve survival.

## Other Marine Mammals

The great whales occur throughout the Pacific. Five baleen whales—blue whale, fin whale, humpback whale, sei whale, and Pacific right whale—and one toothed whale, the sperm whale, are listed under the ESA. Four of the five baleen whales are known to occur in this area of the north Pacific, but with the exception of the humpback whale, they are all considered relatively rare in Hawaiian waters. Humpback whales occur consistently in the winter but are found mainly in waters surrounding the seven main Hawaiian Islands. Recent research by Johnston et al. (2007) reveals that the Monument hosts many more humpback whales than originally thought. Sperm whales have been sighted around several of the Northwest Hawaiian Islands, and their sounds have been recorded throughout the year in Hawaiian waters. A summer/fall 2002 shipboard survey of waters within the U.S. Exclusive Economic Zone of the Hawaiian Islands resulted in 43 sperm whale sightings throughout the study area (NOAA 2004).

Spinner and bottlenose (*Tursiops truncatus*) dolphins are year-round residents of the Hawaiian Islands. They are not considered threatened or endangered under the ESA or depleted under the MMPA though they are protected under the MMPA. While both species are widely distributed throughout the world in tropical and warm temperate waters, they are considered separate stocks from other populations due to their isolation in the Hawaiian archipelago (NOAA 2000). Both species occur from the island of Hawai'i to Kure Atoll. There are an estimated 743 bottlenose dolphins and 3,184 spinner dolphins within 28.7 miles (25 nautical miles, 46.3 kilometers) of the main Hawaiian Islands. Because waters beyond 28.7 miles (25 nautical miles, 46.3 kilometers) of the coast or the waters of the NWHI were not surveyed, this number is considered an underestimate of the population size (NOAA 2000). The largest pod of spinner dolphins within the Monument occurs at FFS, with approximately 500 individuals (Andrews et al. 2006). Smaller pods occur at Pearl and Hermes Atoll, Midway Atoll, and Kure Atoll. While spinner dolphins have a capacity for high mobility, it appears that movements between islands are relatively infrequent, with each pod having a high affinity to a specific atoll (Karczmarski et al. 2005).

## 2.3 CULTURAL AND HISTORIC RESOURCES

### 2.3.1 Introduction/Region of Influence

The ROI or area of potential effect for cultural and historic resources includes all lands and waters within and adjacent to the Monument. Historic and current maps, cultural resources reports, public meetings, and archival records were reviewed to identify cultural resources. The NRHP and state and local inventories of historic places were reviewed for prehistoric and historic resources. Native Hawaiian groups were consulted, and public meetings were held to identify and locate traditional Hawaiian resources. In addition to the cultural properties formally evaluated within the Monument, the NWHI contains resources that, from a broad cultural perspective, have added meaning and significance to Native Hawaiian groups and other members of the public.

### 2.3.2 Regulatory Environment

Cultural resources are defined as historic properties, landscapes, cultural items, archaeological resources, sacred sites, or collections subject to protection under the NHPA, the Archaeological Resources Protection Act (ARPA), and the guidelines on Curation of Federally Owned and Administered Collections (36 CFR Part 79).

Cultural and historic resources are regulated through a number of laws, beginning with the NHPA, which is the basis for a process that considers the effects of federal undertakings on cultural and historic resources. The procedure an agency takes to comply with this legislation is commonly called the Section 106 process. Although the NHPA was created primarily in response to numerous federally funded urban renewal projects in which old neighborhoods and historic homes were demolished, it also applies to any actions an agency may take that would affect historic or cultural resources, as they are defined in the law. The intent of the process is to require the federal agency, in consultation with other affected parties, to make an informed decision as to the effect its actions would have on something that may be important to our heritage. In addition to the federal regulations, there are also state regulations protecting cultural resources. These regulations, administered under the DLNR's Historic Preservation Division, not only protect the cultural resources but more importantly also provide a process for reintering *iwi*, or bones of Native Hawaiians. Included in this process is consultation with the islands' burial councils and affected parties. Depending on the resources identified, the following legislation could apply within the Monument:

- Abandoned Shipwreck Act of 1987 (PL 100-298; 43 USC 2101-2106);
- Sunken Military Craft Act (HR 4200, Title XIV, Sec. 1401-1408);
- Preserve America Executive Order (2003);
- National Marine Sanctuary Act (16 USC 1431 et seq.);
- American Antiquities Act of 1906 (16 USC 431-433);
- Archaeological and Historic Preservation Act of 1974 (16 USC 469-469c);
- Archaeological Resources Protection Act of 1979, as amended (16 USC 470aa-mm);

- Historic Sites, Buildings, Objects, and Antiquities Act of 1935 (16 USC 461-467);
- Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001-3013);
- Department of the Interior Secretary’s Order 3217 – Battle of Midway National Memorial, September 13, 2000;
- Protection and Enhancement of the Cultural Environment Executive Order 11593;
- National Wildlife Refuge System Administration Act of 1966, as amended (16 USC 668dd-ee);
- Hawai‘i Historic Preservation Program (HRS Title 1, Ch. 6E, Sections 1, 7, 11, 12, 43, 43.5, and 46.5);
- Hawai‘i Historic Preservation Assessment Guidelines (HAR, Title 13, Ch. 275-284, and 300);
- Executive Order 13022 – Administration of the Midways Islands, November 1, 1996 (61 FR 56875);
- National Historic Preservation Act of 1966 (16 USC 470 et seq.); and
- American Indian Religious Freedom Act, as amended (42 USC 1996 and 1996a).

Monument regulations define Native Hawaiian practices as cultural activities conducted for the purposes of perpetuating traditional knowledge, caring for and protecting the environment, and strengthening cultural and spiritual connections to the NWHI that have demonstrable benefits to the Native Hawaiian community. In addition to the findings that must be made for any category of Monument permit (see 404.11[d]), permits for conducting Native Hawaiian cultural practices may be issued (50 CFR 404.11 [c][4] and [e]; Presidential Proclamation 8112), provided that activities are noncommercial and do not involve the sale of any organism or material collected. The purpose and intent of a Native Hawaiian practice or activity must be appropriate and deemed necessary by traditional standards in the Native Hawaiian culture, must benefit the resources of the NWHI and Native Hawaiian community, and must support traditional knowledge and ancestral connections of Native Hawaiians to the NWHI. Any Monument resource harvested from the Monument must be consumed in the Monument.

### **2.3.3 Resource Overview**

Cultural and historic resources of the Monument are described in detail in the Monument Management Plan. This section is an overview of these resources in the ROI.

#### **2.3.3.1 Native Hawaiian History in the Northwestern Hawaiian Islands**

Native Hawaiians’ ancestors were the first discoverers of the Hawaiian archipelago. They inhabited these islands for thousands of years before Western contact. The NWHI are considered a sacred place, a region of primordial darkness from which life springs and spirits return after death (Kikiloa 2006). Much of the information about the NWHI has been passed down from generation to generation through oral and written histories, genealogies, songs, dance, and archaeological resources.

In the past, Nihoa played an important role in a larger subsistence network between Ni‘ihau and Kaua‘i. The traditions of Ni‘ihau tell of how the people would frequent Nihoa to collect loulu palm wood for spears and mākiuki grass, which could be used for cordage and stuffing (Tava and Keale 1989). A reciprocal and interdependent relationship developed between these three islands (Tava and Keale 1989; Maly 2003). Annual visits from Ni‘ihau and Kaua‘i to Nihoa were made during the spring and summer trade wind season. Ni‘ihau traditions suggest that “the Ni‘ihauans sailed to Nihoa in the spring, returning to Ni‘ihau in the fall on the Kona winds” (Tava and Keale 1989; Maly 2003). Other documented accounts tell of how fishermen in the late 1800s from O‘ahu and Hawai‘i island would make special trips to the NWHI for four months at a time, from May to August, which was the special sailing season. They fished for ‘ōpelu (mackerel scad, *Decapterus macarellus*) and aku (skipjack tuna, *Katsuwonus pelamis*) (Johnson and Mahelona 1975). These accounts highlight the importance of the NWHI in the lives of pre-contact Native Hawaiians who regularly sailed to and from this region.

During the post-contact historical period of Hawai‘i, the Kingdom of Hawai‘i exhibited strong interest in the NWHI, as title to the islands and waters were acquired throughout the 1800s through the Doctrine of Discovery (Mackenzie and Kaiama 2003). During this time, there were a number of written records of visits to the NWHI made by monarchs of the Hawaiian Kingdom. In 1822, Queen Ka‘ahumanu organized and participated in an expedition to locate and claim Nihoa under the Kamehameha Monarchy. On March 16, 1856, Nihoa was reaffirmed as part of the territory of the Kingdom of Hawai‘i in a circular by authority of Alexander Liholiho, Kamehameha IV (March 16, 1856, Circular of the Kingdom of Hawai‘i). In April of 1857, Kamehameha IV traveled to Nihoa and instructed Captain John Paty on the Manuokawai to explore the rest of the northwest region to verify the existence of land. Kamehameha IV instructed him to annex any lands he discovered on his expedition. Captain Paty traveled to Nihoa, Mokumanamana, Gardner, Laysan, Lisianski, and Pearl and Hermes. Later that year, the Privy Council passed a resolution declaring the islands of Laysan and Lisianski as new lands to be included into the domain of the Kingdom (Kingdom of Hawai‘i 1857). By authority of Kamehameha IV, a notification of annexation ran for a period of three months announcing possession of the islands. In 1885, the most famous visit by any Hawaiian royalty was made by Lydia Lili‘uokalani (princess at the time) and her two-hundred-person party that visited Nihoa on the ship Iwalani. Finally in 1886, King David Kalākaua, through Special Commissioner Colonel James Harbottel, annexed Kure Atoll (Ocean Island) and announced formal possession of the island (Boyd 1886). While Nihoa and Mokumanamana are thought to have been frequented until about 700 years ago, voyages to these islands and others in the NWHI for gathering turtles, fish, bird feathers, and eggs continued into the 20<sup>th</sup> century, particularly from Kaua‘i and Ni‘ihau (Tava and Keale 1989; Maly 2003).

Today, Native Hawaiians maintain their strong cultural and spiritual ties to the NWHI. In recent years, Native Hawaiian cultural practitioners traveled there to honor their ancestors and to perpetuate traditional practices. In 1997, Hui Mālama I Nā Kūpuna O Hawai‘i Nei repatriated sets of human remains to Nihoa and Mokumanana that were collected by archaeologists in the 1924-1925 Bishop Museum Tanager Expeditions (Ayau and Tengan 2002). In 2003, a cultural protocol group, Nā Kupu‘eu Paemoku, traveled to Nihoa on the voyaging canoe *Hōkūle‘a* to conduct traditional ceremonies. In 2004, *Hōkūle‘a* sailed over 1,200 miles (1,043 nautical miles, 1,931 kilometers) to the most distant end of the island chain to visit Kure Atoll as part of a



statewide educational initiative called Navigating Change. In 2005, *Nā Kupu 'eu Paemoku* sailed to Mokumanamana to conduct protocol ceremonies on the longest day of the year, June 21, the summer solstice. Cultural practitioners from the Kamakakūokalani Center for Hawaiian Studies and the Edith Kanaka'ole Foundation continued this in 2006 and in 2007.

### **2.3.3.2 Recent History**

In more recent history, the NWHI were used for their natural resources, and commercial fishing began in the 1800s. Whaling ships and sampans had fishing ranges that included the NWHI. Westerners recorded their discovery of Midway Atoll in 1859 and claimed the atoll for the U.S. based on the Guano Act of 1856, which authorized Americans to temporarily occupy uninhabited islands to obtain guano. The U.S. took formal possession of the atoll in 1867. Transformation began almost immediately, with projects to blast the reef and create a port on Sand Island. Other islands and atolls were discovered and rediscovered by crews of various sailing ships.

Due to a lack of quality charts for the area, the NWHI and its low-lying reefs and atolls were a navigational hazard for ships and navigators, and shipwrecks were common. Maritime activities by the American, British, French, and Japanese during the nineteenth and twentieth centuries are marked by submerged historic resources and wreck sites found throughout the archipelago (VanTilburg 2002). There are 52 known shipwreck sites throughout the NWHI, the earliest dating back to 1822 (NOAA 2005).

In 1867 the U.S. took possession of Midway and in 1940 constructed a naval air facility there. From 1939 to 1943, Midway functioned as a naval air base, but by 1943 it had been converted to a major submarine base. During World War II, the NWHI played an important role as a strategic location. Following the Battle of Midway, the U.S. Navy established a Naval Air Facility at FFS and created a 3,300-foot landing strip at Tern Island. The facility operated until 1946. Between 1952 and 1979, the USCG operated a LORAN station on Tern Island, FFS.

The naval air facility at Midway was closed in 1992 under the Base Realignment and Closure Act of 1990. As part of the base closure process, the Navy was obligated to consider the effects of the closure on historic sites and structures. The Navy determined that 78 structures, buildings, or objects were eligible for inclusion on the NRHP, including the structures associated with the Battle of Midway NHL, which were designated in 1986 under the World War II in the Pacific theme (U.S. Fish and Wildlife Service 2005a). In 2000, the entire National Wildlife Refuge was designated as the Battle of Midway National Memorial.

### **2.3.3.3 Other Areas of Importance**

There are areas within the Monument that are of cultural importance to native, aboriginal, or local groups that might not otherwise be recognized as significant under the NHPA. These areas have been identified through initial research or are associated with other cultural or natural sites and features. These areas are not historic or cultural properties, which are defined as sites that have undergone formal analysis, evaluation, and consultation in accordance with Sections 106 and 110 of the NHPA, but may be of cultural significance and they may or may not qualify as historic or cultural properties once they undergo formal evaluation and consultation.

Other areas of importance in the Monument may include the following:

- Cultural landscapes (defined below);
- Areas of traditional religious, spiritual, or ceremonial importance to a Native Hawaiian group that are used for maintaining connections to ancestors, nature, cosmology, and creation;
- Areas meant to be kapu (prohibited), which are often wild areas that are meant to be off limits through consecration and are valued for their restrictions;
- Areas of cultural importance for the perpetuation of traditional practices and use or for reviving old practices that are used for subsistence, access for gathering resources, taking care of resources for arts, crafts, and ho‘okupu (offerings), ceremonies, inspiration, meditation, and ‘ike (insight and traditional knowledge); and
- Areas of archaeological importance and prehistoric and historic sites, which may include dwellings and burials, that contribute to western knowledge about the indigenous peoples of the past.

Some natural features and resources may have cultural significance, although they can be difficult to specify and to describe in terms of location and physical place; thus, they may be specific landforms and places that cannot be physically identified, yet clearly have significance in oral traditions. Some areas can derive traditional importance from oral histories that describe ancestral or mythical events, many of which explain how places or landscapes were named or created. These affiliations also illustrate how Native Hawaiian spirituality and worldview intertwines Hawaiian ancestry with life history of islands, landforms, plants, waters, oceans, skies, mountains, and all things natural and supernatural. Many of these intangible elements or connections may not be readily apparent by people unfamiliar with the native worldview or traditional cultural practices.

These areas also may be associated with flora and fauna. For example, Native Hawaiians recognize a spiritual and even genealogical connection to natural resources, specifically kalo (*Colocasia esculata*), or taro, because it plays a large role in some of their creation stories (concerning the sky and earth). One version of this story describes how Wākea, the sky father, coupled with his daughter, resulting in a stillborn and misshapen male fetus named Hāloanakalaukapalili (the quivering leaf of Hāloa) that was buried in the earth on the east side of their house (Enos 1998). From out of the ground where the baby was buried the kalo grew, nourished by the tears of his mother. When Wākea’s daughter became pregnant again, she bore another child that was human and was named Hāloa in honor of his older brother. All future Hawaiians descended from Hāloa, highlighting Native Hawaiians’ familial relationship with the kalo as their older brother, and also teaching the responsibility of mālama ‘āina (Enos 1998; Kameeleihiwa 1992).

More appropriately, in regard to the NWHI, the Kumulipō also highlights man’s relationship and responsibility to nature (Beckwith 1951). This creation chant begins in a time of darkness, and born first is the coral polyp, which became the eldest sibling in a long line of evolution of biological species. While the Kumulipō chant has largely been interpreted as a lineal account for the evolution of biological species through time, this chant also highlights biogeographically the

migration and distribution of these species spatially throughout the Hawaiian archipelago, moving eastward. The western half of the archipelago holds a position of prominence in Hawaiian traditions because it represents the ancestral beginnings of Native Hawaiians and the source of origin for all life (Kikiloi 2006).

Native Hawaiian oral traditions often refer to the islands beyond the main Hawaiian Islands and recall the travels of seafaring ancestors on their way to and from the Hawaiian archipelago. In one significant journey, Pele, the Hawaiian goddess of fire and volcanoes, migrates with her family from their distant homeland to Ni‘ihau in the main Hawaiian Islands. They travel by way of Mokumanamana (Emerson 1915). Other oral traditions recall migrations of Native Hawaiians passing through the Northwestern shoals. Therefore, these areas may include more than specific areas where identifiable activities occurred. Because of the interconnected nature of Native Hawaiian beliefs, they may represent links in a chain of places, such as the entire NWHI.

#### **2.3.3.4 Native Hawaiian Cultural Landscapes**

Federal guidelines recognize four cultural landscape categories; the following three are most relevant to this discussion (Stoffle et al. 1997):

- Historic vernacular landscapes that illustrate peoples’ values and attitudes toward the land and that reflect patterns of settlement, use, and development over time;
- Historic sites that are significant for their association with important events; and
- Ethnographic landscapes associated with contemporary groups that are typically used or valued in traditional ways.

National Park Service (NPS) Cultural Resource Management Guidelines describe cultural landscapes as complex resources that range from rural tracts to formal gardens, further defined by the way the land is organized and divided, settled, and used, including the types of structures that are built on it (Stoffle et al. 1997). Natural features, such as landforms, soils, and vegetation, provide the framework within which the cultural landscape evolves. In its broadest sense, a cultural landscape is a reflection of human adaptation to and use of natural resources (Stoffle et al. 1997).

In Western cultures, it is difficult to define what cultural landscapes mean to Native Hawaiians; labeling and evaluating geographic units that are usually loosely defined and based on interdependent and intermingled cultural traditions present only a part of the overall picture. Although a number of different terms may be used to describe these cultural areas, the term cultural landscape is used here because it is widely understood and has official standing in federal cultural resources law and regulation.

Applying federal guidelines to Native Hawaiian cultural landscapes, a culturally specific set of components reflecting Native Hawaiian spiritual, religious, and cultural values has been identified. In *Kalo Kanu o Ka ‘Āina*, a report on the cultural landscape for Ke‘anae and Wailua Nui, five somewhat overlapping types of sites were identified (McGregor 1998). These categories necessarily reflect the importance of culturally significant natural resources, in addition to human-made archaeological sites (McGregor 1998), and include the following:

- Areas of naturally occurring or cultivated resources used for food, shelter, or medicine;
- Areas that contain resources used for expression and perpetuation of Hawaiian culture, religion, and language;
- Places where known historical and contemporary religious beliefs or customs are practiced;
- Areas where natural or cultivated endangered terrestrial or marine flora and fauna used in Native Hawaiian ceremonies are located or where materials for ceremonial art and crafts are found; and
- Areas that provide natural and cultural community resources for the perpetuation of language and culture, including place names and natural, cultural, and community resources for art, crafts, music, and dance.

Before Western contact, Native Hawaiians developed a complex system of resource management and a specialized set of skills to survive on remote islands. Resource management revolved around a native worldview that guided the actions and practices of the people. Lands were divided vertically from mountain to ocean into resource management parcels known as ahupua‘a, primarily on the main Hawaiian Islands. These divisions typically included the ridges on both sides of a valley and the offshore area to hundreds of miles from shore. The inclusion of both mountain and ocean lands in a typical ahupua‘a ensured residents access to resources from the mountains and the sea and provided a balance between the two regimes (Abbott 1992). Certain areas were designated to be left alone and wild in their naturally occurring state and were called wao akua (realm of the gods), a pristine region of the mountains, which contained a greater variety of trees and biodiversity. The wao akua regions were seldom accessed by people because of the priority of promoting new growth by not disturbing seed-producing forest areas (Kanahele 2003). On a larger scale of resource management, the NWHI may have functioned in much the same way traditionally, because it too was designated as wao akua, or divine islands (or realm of gods). In essence, this remote region was left wild and pristine because it was viewed as having an important role in the continual cycle of life (creation) and death (afterlife) (Kikiloi 2006).

#### **2.3.3.5 Traditional Cultural Properties**

The NPS defines Traditional Cultural Properties (TCPs) as those of traditional religious and cultural significance that, at a minimum, are “eligible for their inclusion in the [NRHP] because of [their] association with cultural practices or beliefs of a living community that (a) are rooted in the community’s history and (b) are important in maintaining the continuing cultural identity of the community” (Parker and King 1990).

Remnants of human presence can be found on the islands of Nihoa and Mokumanamana, all of which are listed on the NRHP. Nihoa has at least 88 archaeological sites and Mokumanamana has at least 52, which include residential features, ceremonial sites, shelters, agricultural terraces, and cairns.

Cultural research involving archival searches, ethnographic interviews, cultural practices, and archaeological studies are ongoing and have identified a number of areas of importance, as discussed above, that may be eligible as TCPs. The process for determining this includes

consultation among FWS, NOAA, the Hawai‘i State Historic Preservation Officer (SHPO), and other interested groups. Special consideration is given to those properties designated as having national significance.

### 2.3.3.6 Archaeological Sites

The Monument contains a significant number of archaeological sites. Nihoa and Mokumanamana are recognized as culturally and historically significant and are listed on the National Register of Historic Places and are protected by the U.S. Fish and Wildlife Service in accordance with the NWRSA of 1966, as amended. Archaeological surveys on Nihoa and Mokumanamana have documented numerous archaeological sites and cultural material (Emory 1928; Cleghorn 1988; Ziegler 1990; Graves and Kikiloi, in prep.).

Nihoa, the closest of the islands from the main Hawaiian chain, contains over 88 archaeological sites (including residential features, shelters, ceremonial features, agricultural terraces, and cairns) (Emory 1928; Cleghorn 1988; Kawaharada 2001; Kikiloi and Graves 2005). The island has significant soil development, and the number of constructed terraces suggests some expenditure for agricultural production. The diversity in site types has led archaeologists to conclude that a wide range of cultural activities took place on Nihoa. Previous surveys also uncovered two burials containing the remains of adults and children (Emory 1928). This has led to the conclusion that Nihoa once had a resident population that was either permanent or semipermanent, spanning a period from AD 1000 to 1700 (Emory 1928; Cleghorn 1988).

Mokumanamana (Necker Island), the second closest island to the main Hawaiian chain, has very limited soil development. There are 52 archaeological sites (33 of which are ceremonial structures) that have been recorded; there are no substantial habitation sites or agricultural sites on the island. Mokumanamana has the highest concentration of ceremonial sites anywhere in the Hawaiian archipelago. Researchers have hypothesized that this island plays a significant role in the Native Hawaiian tradition regarding the process of creation and afterlife, as it lies directly on the Tropic of Cancer and on an axis between two Hawaiian spiritual realms (Liller 2000; Kikiloi 2006).

A number of artifacts have been collected from both islands, including fishhooks, sinkers, cowry shell lures, hammerstones, grindstones, adzes, coral rubbing stone, and unique stone images (Emory 1928; Cleghorn 1988; Kikiloi and Graves 2005). These artifact collections are stored at the Bernice Pauahi Bishop Museum and at the University of Hawai‘i Archaeology Laboratory. More recent paleo-botanical research by Athens (2007) on Laysan Island has revealed the possibility that coconuts (*Cocos nucifera*) may have been brought to the island by Native Hawaiians who ventured up the archipelago. The presence of coconut pollen from deep within a salt lake in the middle of the island has led to two possible alternatives: This plant was brought purposefully by humans or it arrived on Laysan by itself accidentally. This would be the first and earliest documented case of either accidental or purposeful introduction of the coconut in the Hawaiian Islands (TenBruggencate 2005b).

At present, evaluations are continuing for archaeological sites throughout the Monument. According to NPS regulations (36 CFR § 60.4), a property could be eligible for listing on the NRHP if it meets the following criteria:



The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:

- A. that are associated with events that have made a significant contribution to the broad patterns of our history;
- B. that are associated with the lives of persons significant in our past;
- C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. that have yielded, or may be likely to yield, information important in prehistory or history.

Identified archaeological sites can have additional cultural importance as locations where Hawaiian ancestors lived, worked, worshipped, or engaged in other activities. It has been clearly documented through archival research and ethnographic studies that Native Hawaiians were consistently going to the Northwestern Hawaiian Islands in pre-contact times and into the post-contact historic period (NOAA 2004b; Tava and Keale 1989; Maly 2003; Kikiloi 2006). Archaeological features on the landscape, as well as the numerous artifacts collected, are also indications of maritime seafaring and resource gathering throughout the region. Furthermore, historic western-made anchors and fishing implements can be found throughout the ROI (Van Tilburg 2002). Lisianski, Nihoa, and Mokumanamana have been formally surveyed for pre-contact Hawaiian archaeological sites (Emory 1928; Cleghorn 1988; Zeigler 1990; Graves and Kikiloi, in prep.), and paleo-botanical studies were conducted on Laysan Island (Athens 2007).

Cultural resources in the Monument are being studied through a historical landscape study, in contrast to site-specific individual and unrelated projects, in which a high priority is placed on the interaction between these resources and the immediate environment. Wrecks can provide artificial reef environments but can also leach metals, cargo, and fuel into the ecosystem. A broader historical approach is more compatible with an ecosystem approach to management that examines human impacts on the ecosystem rather than just the individual events. Ongoing work emphasizes a low-impact approach.

### **2.3.3.7 Paleontological Resources**

Paleontological resources in the form of flora remnants can be expected to be present in the Monument. In paleo-botanical studies conducted at Laysan Lake, coconut pollen was found in sediment cores. Evidence of pollen could be interpreted as proof that early Hawaiians extended their explorations of the Hawaiian chain beyond Nihoa and Mokumanamana.

### 2.3.3.8 Submerged Cultural and Historic Resources

Hawai‘i has approximately 1,500 years of continuous and intensive maritime activities, and hundreds of wreck sites from the nineteenth and twentieth century are scattered throughout the whole Hawaiian archipelago (NOAA 2004b).

For the purposes of this document, submerged cultural resources is defined as submerged archaeological or culturally significant sites over fifty years old. These sites may include shipwrecks, downed airplanes, or submerged structures within the more recent historic period, or may include harder to identify prehistoric sites, consisting of campsites with stone tools or stones used for grinding. Because of their low and uncharted nature, the NWHI have numerous historic shipwrecks (Van Tilburg 2002). Field surveys and management for historic shipwreck and aircraft sites are ongoing. Because of the vast expanse of the NWHI, plans for the maritime heritage survey and management are projected to five and ten years. Shipwrecks are treated as potentially eligible for the NRHP (Van Tilburg 2002).

### 2.3.3.9 Buildings and Historic Sites

Midway Atoll NWR’s lands and water were designated as a National Memorial in 2000 because of their significance in American history. The NPS began studying Midway’s heritage resources in 1986 when it conducted a survey of World War II-era properties eligible for designation as a NHL. Nine structures, all defensive positions, were identified on Midway that convey a close association with the pivotal Battle of Midway (June 4-6, 1942), including ammunition magazines (ARMCO huts), a pillbox, and gun emplacements (Thompson 1986). All of the resources are on the west side of Sand Island, on relatively undisturbed terrain. A buffer zone around the individual structures was included in the NHL. No resources were identified on Eastern Island for inclusion in the NHL.

Between 1992 and 1994, the U.S. Navy sponsored studies of the Naval Air Facility on Midway carried out in conjunction with the Department of Defense Legacy Resources Management Program. These investigations, which consisted of archival research, interviews, and field surveys, are presented in several documents, including *Cultural Resources Overview Survey at Naval Air Facility, Midway Island* (Yoklavich 1993), a *Supplemental Cultural Resources Overview Survey* (Yoklavich et al. 1994), and the *Cultural Resources Management Plan* (Helber, Hastert, & Fee 1995). The following is a synopsis of the results as reported in these documents.

#### Architectural Studies

The initial field effort consisted of an architectural history survey of the structures, buildings, and objects located on Sand and Eastern Islands. A military historian specializing in Cold War history performed archival research and surveyed resources on Eastern and Sand Islands that were constructed after 1945. The historian concluded that none of the Cold War facilities at Midway were eligible for the NRHP because they lacked the exceptional importance necessary for resources less than 50 years old (Yoklavich et al. 1994). Severe weather conditions prohibited the study of Eastern Island during the fieldwork phase in 1992. Therefore, a supplemental survey was conducted in 1994 to complete work on Eastern Island. The 1994 fieldwork included large-format photography of historic properties following standards of the

Historic American Buildings Survey (HABS). In addition to the nine NHL structures, the NRHP determined as eligible under its criteria 69 buildings, structures, and objects from the 1903-1945 period on Sand and Eastern Islands. The properties evaluated as significant are associated with three major themes—colonization, initial years of base construction and the Battle of Midway, and 1942-1945 base construction.

*Colonization:* The first evidence of habitation on Midway is the buildings associated with the Commercial Pacific Cable Company, constructed in 1903-1904. San Francisco-based architect Henry H. Meyers designed these unique two-story buildings. The innovative design advanced the use of concrete with an embedded steel frame and steel posts. The main four buildings are arranged around a courtyard and are reminders of technological innovations in communication, colonial expansion, and early steel and concrete architecture.

*Initial Years of Base Construction and Battle of Midway:* Defensive construction before World War II includes more than just the NHL structures. An example is the Power Station building that was hit during the December 7, 1941, attack, which stands as a reminder of that pivotal moment when the United States entered World War II. Approximately half of the historic properties inventoried on Midway are related to this period between 1940 and 1942. Eastern Island sustained heavy damage during the Battle of Midway; historic resources from this period are limited to the runways, a couple of defensive positions, and revetments. Construction of Midway Naval Air Base began in earnest in 1940, with construction battalions and civilian contract workers. Detroit architect Albert Kahn developed plans for many of the buildings, including barracks, Senior Officers Quarters, shops, the motor pool, the seaplane hangar, and the theater. Kahn was well known for his steel and concrete factories. His use of natural light to create buildings with comfortable interior spaces is reflected in the shop buildings on Midway. The Officers Quarters reflects Kahn's design versatility; the houses are functional and stylish, with covered patios, fireplaces, large sliding doors and windows, servant's quarters, and portal window porch details. Most of the buildings designed by Kahn are still in use.

*1942-1945 Base Construction:* Between 1942 and 1945, after the Battle of Midway, emphasis shifted to creating a Naval Air Station on Sand Island. Eastern Island was heavily damaged during the battle and was left in rather rough condition, although it continued to be the base of operation for marine air squadrons. Only a few buildings remain on Sand Island that were constructed during this period; these include an electric switch station, public works storehouse, radar buildings and radar tower base, diesel power plant, brackish water reservoirs, and command post. Properties that transcend a particular theme or period include the three Japanese grave markers, the cemetery, and the Midway Mall Memorial. The Japanese markers date from about 1911 to 1916. Translations of the markers indicate that they are memorials to fishermen who died and were buried at sea. The location of the markers is not original; they were moved in the early 1970s. The small cemetery is an anomaly because all U.S. military personnel killed in battle or during duty were either buried at sea or transported back to Pearl Harbor. The dates on the gravestones range from 1906 to 1950. Four of the five individuals buried there were medical doctors. The Midway Memorial Mall encompasses several plaques, a large gooney bird statue, and two five-inch guns. One of the plaques was erected in 1941, just a few months after the battle. The guns were probably used during the battle and later were moved to this location.

## Archaeological Studies

Dr. Fred Reinman conducted an archaeological survey of Sand Island in 1992 as part of the *Cultural Resources Overview Survey* (Yoklavich 1993). The field investigations consisted of a pedestrian survey of Sand Island, augmented by 20 subsurface core samples. The surface inspections and core samples produced no indication of prehistoric settlement on Sand Island. A literature review of Hawaiian legends was conducted to determine if Midway was included in any travel accounts. While references to distant low-lying islands with abundant birds and turtles were found, no clear tie to Midway was detected (Maly 1994, in Yoklavich et al. 1994:A-1 to A-4). The poor field conditions that hindered study of Eastern Island in 1992 prompted an additional study in 1994 by Paul H. Rosendahl, PhD, Inc., on both Sand and Eastern Islands for the *Supplemental Cultural Resources Overview Survey* (Yoklavich et al. 1994). The intent of this supplemental survey was to achieve uniform coverage of Eastern Island. The sample included 45 auger cores and two contiguous 1.0-meter by 1.0-meter shovel-test units excavated on Eastern Island and three auger cores and three 1.0-meter by 2.0-meter shovel-test units excavated on Sand Island (Yoklavich et al. 1994:7). No evidence of Polynesian/Hawaiian or pre-AD 1900 historic period cultural remains was found.

The conclusion of the studies was that there is no evidence of prehistoric Polynesian/Hawaiian occupations or historic period occupations on either island. The subsurface archaeological investigations observed very disturbed deposits, with as much as two meters of fill or redeposited sediment over a thin layer of undisturbed sand.

Polynesians/Hawaiians may have used Midway in their extended travels, but the atoll has experienced such pervasive ground-disturbing activities that finding evidence of prehistoric use is problematic. Even before the mid-twentieth century construction, the low-profile islands were periodically scoured by storms and high winds that may have removed or buried evidence of use.

Tern Island of the FFS was developed as a naval air facility, and the USCG operated LORAN stations there between 1949 and 1970. Many of these structures remain in use for refuge and partner operations.

Past activities at many sites in the Monument, combined with known shipwrecks and sunken naval aircraft, can be defined by state and federal preservation law as historically and nationally significant (NOAA 2004b).

## **2.4 SOCIOECONOMICS**

### **2.4.1 Human Uses**

#### **2.4.1.1 Introduction/Region of Influence**

This section describes human uses and activities in the Monument. The ROI for human uses and activities includes all lands and waters within and adjacent to the Monument. This section of the DEA also fulfills the resource assessment requirements of 16 USC 1434 (a)(2)(B) by documenting present and potential uses of the area.

The waters of the NWHI are used for a variety of activities, such as research and management, Navy and DoD training and testing activities, cultural practices, fishing, recreation, ecotourism, and education.

#### **2.4.1.2 Regulatory Environment**

While the following description of the regulatory environment describes the separate and often overlapping responsibilities of the Co-Trustees, the No Action alternative includes the December 2006 MOA, which has a primary purpose of facilitating coordinated management. This coordination includes developing a single overarching set of regulations for the Monument, a single permitting system for Monument users, and sharing resources to enforce regulations and carry out management activities. The Co-Trustees are currently addressing these issues. This coordinated management is considered part of the No Action alternative.

### **Federal Regulations**

Monument regulations promulgated in 50 CFR Part 404 primarily relate to prohibiting or regulating human uses within the Monument to ensure the protection of Monument resources. Section 404.4 addresses how access will be granted into the Monument and requires notification prior to entering and after departing. All U.S. vessels passing through the Monument without interruption will be required to provide notification at least 72 hours before entering and within 12 hours of leaving the Monument and must include intended and actual route through the Monument and general categories of any hazardous cargo on board. Section 404.5 describes the VMS requirements for all vessels operating in or transiting through the Monument. Section 404.6 lists all prohibited activities within the Monument. Prohibited activities include exploring for oil, gas, or minerals or using poison or explosives. Section 404.7 describes all regulated activities that are prohibited unless specifically allowed by one of the Monument-issued permits. Sections 404.8 and 404.9 provide exemptions from prohibited activities for emergency response and law enforcement activities (404.8) and armed forces actions (404.9). Section 404.10 describes Monument-specific regulations for commercial fishing activities, essentially prohibiting all commercial fishing immediately, except for bottomfishing, which will be prohibited as of June 15, 2011. Section 404.11 describes the six permit types issued to access and conduct activities otherwise prohibited by Monument regulations. These permit types are 1) research, 2) education, 3) conservation, 4) Native Hawaiian practices, 5) special ocean uses, and 6) recreational activities. Specific requirements for issuance of Native Hawaiian practices,



special ocean uses, and recreational activities are included in the regulations. Section 404.12 ensures that these regulations will be carried out in accordance with international law.

In addition to Monument-specific regulations, FWS has regulations specific to Midway Atoll NWR (50 CFR Part 38), special conditions for cruise ship visits to Midway, and permitting requirements for both Midway Atoll and Hawaiian Islands NWRs under 50 CFR Parts 13, 18, and 25 (general permitting procedures, marine mammal permitting, and administrative provisions, respectively).

NOAA, in association with the Western Pacific Fisheries Management Council, has jurisdiction over the ongoing bottomfish fishery through 50 CFR Part 665. As this permitted activity will be prohibited as of June 15, 2011, as discussed above, prohibition of bottomfishing is considered part of the No Action alternative and effects from fishing will not be analyzed.

On April 3, 2008, the IMO designated the Monument as a PSSA. The PSSA and associated protective measures were adopted to provide additional protection to the exceptional natural, cultural and historic resources in the Monument. Requiring vessels to notify NOAA upon entering the reporting area will help make the operators of these vessels aware that they are traveling through a fragile area with potential navigational hazards such as the extensive coral reefs found in many shallow areas of the Monument. Sovereign immune vessels are not subject to the reporting requirements but all vessels are encouraged to participate.

### **State Regulations, Policies, and Programs**

The DLNR has stewardship responsibility for managing, administering, and exercising control over the coastal and submerged lands, ocean waters, and marine resources under state jurisdiction around each of the NWHI, except Midway Atoll, under Title 12, Chapter 171 Hawaii Revised Statutes. The State is the lead agency for management of the emergent lands at Kure Atoll, a State Wildlife Sanctuary. DLNR's Division of Conservation and Resources Enforcement (DOCARE) maintains full police powers, including the power of arrest, within all lands and waters within the state's jurisdiction. In 2005, the DLNR's Division of Aquatic Resources established the Northwestern Hawaiian Islands Marine Refuge (0-3 nm [3.5 mi, 5.5 km] around all emergent lands, except Midway Atoll) through Hawaii Administrative Rules, Chapter 13-60.5. Unless otherwise authorized by law, it is unlawful for any person to enter the refuge without a permit except for freedom of navigation, passage without interruption, interstate commerce, and activities related to national defense, enforcement, or foreign affairs and in response to emergencies.

The state currently holds the submerged and ceded lands of the NWHI in trust. Established by a 1978 amendment of the Constitution of the State of Hawai'i, OHA serves as the principal agency working for Native Hawaiians. OHA was created for various purposes including bettering the conditions of Native Hawaiians. OHA manages a property and monetary trust, creating its fiduciary duty to Native Hawaiians. The OHA trust is funded in part by a pro rata share of income derived from the ceded lands portion of the public land trust.

### 2.4.1.3 Resources Overview

The area the Monument encompasses has a long history of use. Native Hawaiians explored these waters, established settlements, and conducted religious ceremonies for hundreds of years prior to the arrival of the first Europeans. Most extractive uses, including guano mining, egg and feather collection, rabbit farming, whaling, and a variety of fishing ventures, ended by the early 1900s. The U.S. military used FFS and Midway Atoll, which are equipped with runways, as permanent bases during and after World War II. The USCG built a LORAN station with a 4,000-foot runway at Kure Atoll in 1960. The Navy conducts training and testing within the Hawai‘i Operating Area, which includes a portion of the Monument. In addition, the DoD conducts missile defense testing, including missile intercepts, in and around the Monument. The earliest intensive scientific expedition in the Northwestern Hawaiian Islands was the Rothschild Expedition in 1891 (Ely and Clapp 1973). Research continues to be one of the primary activities occurring within the Monument. Management activities conducted by the State of Hawai‘i, FWS, and NOAA have been ongoing for decades. Human activities and use of the Monument resources are carefully managed, considering historical uses and new threats through permitting, enforcement, and managing specific human uses, including Native Hawaiian cultural practices and visitors at Midway Atoll.

#### Historical Uses

The waters and islands of the Monument have been visited and inhabited by Native Hawaiians since at least 1000 AD. Other documented accounts tell of how fishermen in the late 1800s from the main Hawaiian Islands would make special trips to the NWHI for four months at a time – from May to August, which was the special sailing season. These accounts highlight the importance that the waters of the NWHI played in the lives of pre-contact Native Hawaiians who regularly sailed to, through and from this region. Further details on Native Hawaiian uses of the Monument are available in section 2.3, Cultural and Historic Resources.

The impacts of guano mining, egg and feather collection, rabbit farming, dredge and fill, importation of soil to Midway, and invasive species that occurred in a few of the islands in the late 1800s and 1900s caused serious environmental damage to these fragile places (NOAA 2005). In the 1800s and 1900s, western sailing ships exploited the area for seals, whales, reef fish, turtles, sharks, birds, pearl oysters, and sea cucumbers (WPFMC undated). The pearl oyster population (*Pinctada margaritifera*) on Pearl and Hermes Atoll was nearly extirpated in a few short years and has yet to recover to pre-exploitation levels (Keenan et al. 2006). Japanese vessels harvested bird skins, eggs, and feathers until 1909, when the area was designated the Hawaiian Island Reservation by President Theodore Roosevelt. Fishing continued largely unregulated until the late 1970s, when the Magnuson-Stevens Act established U.S. sovereignty over fishery resources in the Exclusive Economic Zone, out to 200 nm, leading to the development of four federally administered fishery management plans for precious corals, crustaceans, pelagic species, and bottomfish. Today, only eight bottomfish vessels are grandfathered in and allowed to continue fishing until June 15, 2011, after which all commercial extraction of Monument resources will be prohibited. Additional regulations limiting the total allowable catch, areas open to the fishery, and general vessel conditions are aspects of the baseline conditions.

The first military presence occurred at Midway Atoll, which President Theodore Roosevelt put under the control of the U.S. Navy in 1903. Midway was subsequently managed by the Commercial Pacific Cable Company, which laid the first trans-Pacific communications cable. Prior to World War II, Pan American World Airways flew weekly Clipper plane flights to Midway. On August 1, 1941, U.S. Naval Air Station Midway was commissioned. Midway was the site of two major battles, the attack on December 7, 1941, and the Battle of Midway on June 4 to 7, 1942. On July 15, 1942, the submarine base at Midway was commissioned, providing a strategic outpost in the Pacific during World War II and the Cold War. After World War II, Midway was an active navy base supporting a population of up to 4,000 people. The naval air facility was closed in 1992, and in 1997 the last U.S. Navy personnel departed, following the completion of environmental cleanup and mitigation measures (NOAA 2003a).

In 1942, the Navy transformed the 11-acre (4.5-hectare) Tern Island in FFS into a 42-acre (17-hectare) airstrip and fuel depot, housing 118 servicemen. It served as an emergency landing strip and refueling stop and provided surveillance of the surrounding area. The atoll was swept clean by a tidal wave in 1946, after which the Navy closed its base there. In 1952, the USCG built a LORAN beacon tower on Tern, along with a 20-person support facility. Several cold war operations were conducted at FFS such as the recently declassified ‘Corona Project,’ the first operational space photo reconnaissance satellite system. FFS served as a tracking and recovery station for this project in the early 1960s. An additional 100 people were stationed at FFS to monitor the aboveground nuclear testing at Johnston Atoll. During the Cold War, FFS housed up to 300 personnel at a time in support of the different classified and unclassified missions (Wood 2001). The USCG continued to operate the installation until 1979, when it was turned over to FWS (Amerson 1971). In 1960, the USCG built a LORAN C station with a single 625-foot-high (190.5-meter-high) transmitter tower. In addition to the transmitter tower, the USCG built a 4,000-foot runway, a pump house, a pier, seven aboveground storage tanks, and living and working quarters for 24 personnel. The station was decommissioned in 1992 and was abandoned in 1993. Today, all but two buildings and a cistern have been demolished and buried on the island.

### **Current Human Uses and Activities**

Compared to the past, there is little human activity in the Monument today. With the departure of the military and the phasing out of all commercial fishing by 2011, the main marine-related activities are research, wildlife management, and transiting ships (for a discussion of transiting ships please refer to section 2.8). Regulations in 50 CFR Part 404 provide access to the Monument under six types of permitted activities: 1) research, 2) education, 3) conservation, 4) Native Hawaiian practices, 5) special ocean uses, and 6) recreational activities. In addition, access by the armed forces for emergency response, enforcement, and passage without interruption are allowed without permit by regulation. Commercial bottomfishing by eight federally permitted vessels will be allowed to continue through June 15, 2011, after which it will be prohibited.

### ***Understanding and Interpreting the Northwestern Hawaiian Islands***

In order to best protect the NWHI, the need for understanding and documenting the historical significance of the area has been growing. Research efforts in ethnographic studies, archaeology,

and archived information have provided a wealth of cultural information pertaining to the practices and traditions of Native Hawaiians in the NWHI. In order to allow access to this historical information, steps have been taken by NOAA, FWS, the State of Hawai‘i, and other partnerships through the program “Navigating Change” to provide students with engaging materials that convey the importance of these traditions and cultural values. In addition to the cultural research conducted on the NWHI, research has been done on historic resources (nonmarine sites, structures, artifacts, culture, and places) within the Monument associated with the period after 1778 when Western contact was made with Native Hawaiians. The Midway Atoll Historic Preservation Plan, implemented in 1999, focuses on long-term management and treatment of historic sites and identifies procedures for new historic finds. This plan also offers ways of interpreting historic data and releasing it through public outreach. With the exception of Midway Atoll, the current historical record of the NWHI is minimal because limited historical research has been conducted in this area.

### ***Reducing Threats to Monument Resources***

A variety of management practices to reduce threats to Monument resources have been implemented. This includes alien species control conducted by FWS and a multi-agency effort to remove marine debris led by NOAA. Between 1996 and 2006, 563 tons of marine debris was removed from the NWHI. Areas considered “High Entanglement Risk Zones” for Hawaiian monk seals are cleaned and have been designated accumulation rate zones. The Marine Debris Program, established in 2005 under NOAA’s Office of Response and Restoration, was made permanent in 2006 by the Marine Debris Research, Prevention, and Reduction Act. NOAA is to work in conjunction with other agencies such as the EPA and the USCG to find sources of marine debris pollution and act in removing this debris. Awareness of this threat to the NWHI, in particular to the coral reef ecosystem, is fostered through publications and public outreach displays in NOAA’s Mokuapāpapa Discovery Center, as well as in the “Navigating Change” program Teacher’s Guide.

FWS has an ongoing program to eradicate invasive terrestrial species and restore native ecosystems. This effort focuses on the most invasive and harmful pest species of plants such as sandbur, golden crownbeard, and ironwood; insects such as various ant species and the gray bird locust; and introduced mammals such as black rats.

Research and monitoring conducted by federal and state agencies, academic institutions, and other organizations over the last 30 years have increased our understanding of the structure and function of ecosystems of the NWHI and the interconnectedness between the NWHI and the main Hawaiian Islands. Early research efforts include the Tanager expedition in 1923, the Smithsonian’s Atoll Research Bulletin publications of the mid 1960s, and the Tripartite expeditions of the late 1970s and early 1980s. The integrated research by the Tripartite Cooperative Program, led by NMFS, FWS, Hawai‘i Division of Fish and Game (now Division of Aquatic Resources), and the University of Hawai‘i Sea Grant College Program, encompassed all resources on land, in the air, and in the sea. The research that resulted from this multi-agency effort provided a seminal understanding of the NWHI ecosystem and continues to inform research efforts.

Monitoring select stocks of commercially fished species, such as bottomfish and lobsters, and of protected species, such as Hawaiian monk seals and the Hawaiian population of green sea turtles, has been conducted by NMFS Pacific Islands Fishery Science Center for several decades. Ecosystem-level characterization and monitoring has been a more recent endeavor. The Northwestern Hawaiian Islands Reef Assessment and Monitoring Program (NOWRAMP, now known as NWHIRAMP) was a multi-agency program initiated in 2000 to characterize and monitor the coral reefs of the NWHI using a consistent set of sampling protocols and to establish a baseline for future data gathering and for monitoring change over time. Similar annual multi-agency efforts have been supported by a variety of agencies and institutions in the ensuing years. Mapping efforts, led by NOAA, have provided detailed maps of the NWHI seafloor and are consolidated into two documents, *The Draft Atlas of the Shallow-Water Benthic Habitats of the NWHI* and *The Bathymetric Atlas of the NWHI*. These documents begin to describe the marine habitats and bathymetry of the NWHI and establish important baseline information for resource managers. This high interest in research and mapping activities in the NWHI, concurrent with the availability of more funds for coral reef ecosystem research, has increased the activity level in the Monument.

In May 2003, a multi-agency partnership workshop was convened to identify information and science needs and resources for effective conservation and management of the NWHI. The results were analyzed and summarized in the report *Information Needs for Conservation Science and Management of the Northwestern Hawaiian Islands* (Gittings et al. 2004). In November 2004, the *Third Scientific Symposium on Resource Investigations in the NWHI* was convened to provide a forum for the review and synthesis of recent research and to identify knowledge gaps and delineate future research needs. This symposium highlighted the need for agencies to develop more cooperative research programs. Most participants recognized the need to develop a more coordinated research plan in the NWHI that will address the management needs of the Monument Co-Trustees. These efforts have provided a foundation for the development of a coordinated Monument Natural Resources Science Plan, which is being drafted.

### ***Managing Human Uses***

NOAA, FWS, and the State of Hawai‘i have played a major role in organizing research expeditions that serve dual purposes of collecting necessary baseline data and information for management combined with media coverage to introduce the region’s resources to the general public. Multi-agency educational programs include outreach for the 2002 and 2004 NOWRAMPs, the “Navigating Change” program, and “Hawai‘i’s Living Reef” program. A five-part video, educational curriculum, and teleconferences with the traditional Polynesian voyaging canoe Hōkūle‘a during its 2004 expedition to the NWHI were completed in partnership with several agencies and organizations. Teacher workshops on the “Navigating Change” program have been held since 2003 across Hawai‘i, and an outreach coordinator has been hired to launch the curriculum in schools statewide. The Co-Trustees and other partners also created and facilitated a number of education-at-sea initiatives and developed new standard-based curriculum on the NWHI now being introduced to Hawai‘i’s fourth and fifth grade teachers. In addition to educational programs, the MMB currently develops informational materials such as fact sheets and brochures for educational purposes that are able to reach those that are not participating in these programs.



NOAA also built a visitor center collocated with its Hilo office to spur greater public awareness of the region and ocean conservation issues. Mokuāpāpapa: Discovery Center for Hawaii's Remote Coral Reefs was conceived and built in 2003 to interpret the natural science, culture, and history of the NWHI and surrounding marine environment. The 4,000-square-foot (372-square-meter) center brings the region to people by proxy, since most will never have the opportunity to visit it. The center has served as a physical hub of learning, regularly hosting well attended educational talks and activities, while drawing a constant stream of field trips co-organized by Monument staff and by school and community groups from around the state and beyond. To date, nearly 100,000 visitors have been exposed to the wonders of the NWHI and have developed an informed appreciation of the region's resources and the Monument's ongoing effort to restore and preserve them.

In conjunction with a private contractor, FWS operated Midway Atoll NWR as a combined refuge and ecotourism/historical destination between 1996 and 2002. The contractor provided the infrastructure and visitor services to operate ecological and historic preservation service projects, guided tours, diving and snorkeling trips, and sport fishing operations. In all, 12,262 people visited Midway between 1997 and 2001, with an average visitation of around 200 people per month. In 2002, FWS and the contractor ended their cooperative agreement. In May 2007, FWS approved an interim visitor services program to guide a small-scale visitor program. A regularly scheduled visitor program was established in January 2008 that allows limited visitor opportunities for people to experience the wildlife and history of Midway and the Monument. Recreational activities in this interim visitor service plan include wildlife observation, photography, environmental education, and interpretation.

Remote location and hazardous environmental conditions in the NWHI have discouraged recreational activities in the past. Since the departure of the USCG from FFS, ocean recreation has been limited to offshore snorkeling by resident staff and researchers. Anecdotal reports indicate that trans-Pacific yachts may occasionally traverse the NWHI, possibly lingering at various reefs and atolls along the way.

The size, remote location, and hazardous navigational conditions of the Monument present significant enforcement challenges. The USCG has long been the primary enforcement agency conducting surface and aerial patrols in the NWHI. However, with their broad mandates and large enforcement area, the USCG has few resources to allocate to NWHI patrols. In addition to frequent aerial patrols, each year the USCG sends a buoy tender to the NWHI (Havlik 2005). USCG operations in this region cover a broad range, including search and rescue, servicing aids to navigation, response to oil and hazardous chemical spills, inspecting commercial vessels for safety and environmental regulations compliance, interdiction of illegal narcotics and migrants, and enforcement of fisheries management laws (Mathers 2005). In addition to the USCG, NOAA, the State of Hawai'i, and FWS all have authority to enforce regulations within the Monument. These entities are expected to share resources to fulfill the common goals discussed in the December 2006 MOA.

## **2.4.2 Human Health, Safety and Hazardous Materials**

### **2.4.2.1 Introduction/Region of Influence**

This section addresses issues related to the Proposed Action alternative that are associated with human health and safety, hazardous material management, hazardous waste management, and environmental contamination. The ROI is the marine waters within the Monument, adjacent open-ocean areas outside of the Monument, and islands within the Monument as they may affect the marine environment.

### **2.4.2.2 Regulatory Environment**

Human safety in the work place and the management of hazardous materials and waste are already highly regulated under a number of federal and state laws. These laws are administered by various federal agencies, including the U.S. Department of Labor Occupational Health and Safety Administration (OSHA), the U.S. Department of Transportation (DOT), the U.S. Environmental Protection Agency (EPA), the State Department of Labor and Industrial Relations, and the State Department of Health.

Hazardous and toxic substances are defined as those workplace chemicals that are capable of causing harm. In this definition, the term “chemicals” includes dusts, mixtures, and common materials, such as paints, fuels, and solvents. A hazardous chemical, as defined by the Hazard Communication Standard, is any chemical that can cause a health hazard. This determination is made by the chemical manufacturer, as described in 29 CFR Section 1910.1200(d).

Hazardous material is defined by the DOT as a substance or material that is capable of posing an unreasonable risk to health and safety or property when transported in commerce and has been designated as hazardous under the federal Hazardous Materials Transportation Law (49 USC 5103). The term includes hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table, 49 CFR, Section 172.101, and materials that meet the defining criteria for hazard classes and divisions in 49 CFR Part 173. The Resource Conservation and Recovery Act (RCRA) specifically defines a hazardous waste as a solid waste (or combination of wastes) that, due to its quantity, concentration, physical, chemical, or infectious characteristics, can cause or significantly contribute to an increase in mortality. RCRA further defines a hazardous waste as one that can increase serious, irreversible, or incapacitating reversible illness or pose a hazard to human health or the environment when improperly treated, stored, disposed of, or otherwise managed. A solid waste is a hazardous waste if it is listed in 40 CFR Part 261 as a hazardous waste or if it exhibits any ignitable, corrosive, reactive, or toxic characteristics, as defined in 40 CFR Part 261.

Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, on December 11, 1980, and the Superfund Amendments and Reauthorization Act (SARA) amended CERCLA on October 17, 1986. Superfund is the federal government’s program to clean up the nation’s uncontrolled hazardous waste sites.

In addition, Monument regulations specifically prohibit some activities, such as exploration for oil, gas, or minerals and use of poisons or explosives to collect or harvest Monument resources, that could affect human safety or result in the release hazardous materials or wastes into the environment (50 CFR Section 404.6). Monument regulations require a permit for all access to and activities conducted in the Monument. All vessels operating in the Monument must possess VMS. VMS enables law enforcement to monitor and identify unauthorized entry of vessels to the Monument and to respond quickly to emergencies involving human safety or hazardous material release.

Emergency response in the NWHI is coordinated under a series of plans and systems, including the National Response Plan and the National Incident Management System. The National Response Plan establishes a comprehensive all-hazards approach to enhance the ability of the United States to manage domestic incidents, including oil and hazardous chemical spills. This plan incorporates the National Contingency Plan and its regulations governing how pollution response is conducted by the USCG, EPA, the affected state, and resource trustees, including NOAA and FWS. The NWHI are also covered by a more specific Area Contingency Plan for the Hawaiian Islands.

FWS and NOAA have designated representatives who are federal members of the Regional Response Team, which makes response recommendations to the Federal On-Scene Coordinator. DLNR and the Hawai'i Department of Health are the designated state representatives for all marine injury events. The Department of Health is the State On-Scene Coordinator. These representatives work closely with all parts of FWS, NOAA, the state, and the MMB in making recommendations on the use of alternative response technologies, such as dispersants. Unlike the state, NOAA and the Department of the Interior can only make consultative recommendations; they do not have a formal vote in that process.

While the Monument and state regulations regulate access, they also provide a general exemption for activities necessary to respond to emergencies. The general exemption for emergencies allows for individuals responding to emergencies threatening life, property, or the environment to conduct necessary activities without the need for a permit. The general exemption only applies to the emergency response activity itself and does not apply to ancillary activities such as training for emergency response, salvage operations, remediation, or restoration. These ancillary actions also require timely response and would be covered under the appropriate agency's conservation and management permit.

### **2.4.2.3 Resources Overview**

This section provides an overview of the human health and safety in marine and land areas within the region of influence.

#### **Activities within Marine Areas in and adjacent to the Monument**

##### ***Diving Safety***

Self-Contained Underwater Breathing Apparatus (SCUBA) diving for research and management activities is routinely conducted in the Monument. Co-Trustee agencies and other partner organizations have diving requirements specific to that agency; however, these requirements are

aligned through reciprocity agreements. The Monument supports coordinated dive operations through such agreements.

### ***Hazardous Material and Hazardous Waste Management***

All hazardous material and hazardous waste management activities within the marine areas of the Monument are on marine vessels. With the prohibition of commercial bottomfishing in the Monument, research vessels and vessels used in restoration activities, such as the removal of marine debris, make up the predominant vessel activity. In addition, no more than three cruise ships per year are permitted entry to the Midway Atoll Special Management Area. The controlled environment onboard these vessels allows for proper containment of chemical substances. In a shipboard environment there are numerous engineering and management controls that prevent hazardous chemicals or materials from contaminating crew, passengers, and the environment. Any hazardous waste generated aboard a marine vessel, such as mercury-containing light bulbs, waste paint, dry cleaning and photo-processing operations, batteries, or solvents, is required by RCRA to offload hazardous waste to land-based treatment or disposal facilities (NOAA 2004a). Monument regulations and permit conditions provide additional safeguards on hazardous material and waste management including requirement for VMS and reporting all incidents.

### ***Environmental Contamination***

Maritime accidents are the only known major source of environmental contamination within the waters of the Monument. The first known Western shipwrecks in the NWHI occurred in 1822. Since then, many more known and unidentified marine vessels have been lost in the NWHI. A maritime cultural survey conducted by NOAA in 2002 lists over 50 shipwreck sites (NOAA 2002). At least five of these ships were lost within the past 25 years.

The three most notable recent wrecks in the NWHI are the Swordman I, the Paradise Queen II, and the Casitas. The 85-foot-long (26-meter-long) line fishing vessel Swordman I, carrying more than 6,000 gallons (22,712 liters) of diesel fuel and hydraulic oil, ran aground at Pearl and Hermes Atoll in 2000. In October 1998, the Paradise Queen II ran aground off Kure Atoll after catching 3,000 pounds (1,360 kilograms) of lobster. The boat was carrying about 11,500 gallons (43,530 liters) of diesel fuel and oil, over a thousand plastic lobster traps with lead weights, 11 mi (9.5 nm; 18 km) of fishing line, and an assortment of boating equipment (Parks 2004). The 145-foot ship Casitas ran aground on the northern side of Pearl and Hermes Atoll on July 2, 2005 with more than 33,000 gallons (124,900 liters) of diesel fuel on board (TenBruggencate 2005a). Very little data are available on the extent or effects of contamination from shipwrecks in the NWHI. However, iron that erodes from ships acts as a nutrient in marine waters, causing localized growth of “blue-green algae” (cyanobacteria) and invasive soft corals that can smother reefs and surrounding wrecks.

### **Activities in Land Areas within the Monument**

#### ***Hazardous Material and Hazardous Waste Management***

Most of the hazardous materials and hazardous wastes in the Monument are at FWS facilities within the Midway Atoll Special Management Area. Facilities at Midway are maintained and operated by a FWS contractor, Chugach Industries. Facilities and infrastructure at Midway are similar to any small city or town. A variety of hazardous materials are used to maintain and

operate the facilities and infrastructure at Midway Atoll. Material safety data sheets and a hazardous material inventory are kept at each location where hazardous materials are stored, in compliance with OSHA hazardous communication requirements (Christenson 2005). All hazardous waste generated by Chugach Industries at Midway is shipped by an EPA-approved transporter to an EPA-approved disposal or treatment facility. Chugach Industries manages the airfield, wastewater treatment facility, electrical power plant, potable water storage and delivery system, harbor, housing areas, dining facilities, and the fuel farm, with a capacity of 450,000 gallons. Chugach Industries manages a spill prevention, control, and countermeasures plan and an aboveground storage tanks monitoring program for the fuel farm, as required by the EPA (Christenson 2005).

The maintenance of the smaller FWS facility at FFS and the DLNR facility at Kure Atoll requires some hazardous material and generates small amounts of hazardous waste. Both FWS and DLNR have an environmental compliance program and properly transport hazardous waste to the main Hawaiian Islands, in compliance with hazardous material and hazardous waste regulations (Horvath 2005; Smith 2005). The other islands have seasonal camps that require very little hazardous materials, and all wastes are shipped back to Honolulu at the end of each season.

### ***Environmental Contamination***

#### ***Building Materials***

Green Island at Kure Atoll and Tern and East Islands at FFS have former USCG stations and associated PCB contamination. Pearl and Hermes Atoll served as a refueling site for seaplanes. Midway Atoll bears the most contamination of any of the NWHI, most of which is associated with previous military activities. Several buildings on Sand Island contain hazardous materials such as lead-based paint, arsenic-treated wood, or asbestos. These toxic materials pose potential health and safety concerns for humans and wildlife. Lead-based paint flakes are ingested by albatross chicks, causing growth deformities and mortality. Some of the other islands had guano mining operations on them during the late 1800s, but no known contamination was left behind.

At Midway Atoll, the Navy excavated and treated 1,390 cubic yards of PCB-contaminated soils that was excavated from five sites (U.S. Navy 1998). Long-term monitoring revealed PCB contamination leaking from the landfill and around a beached tug and barge, which have been removed along with the surrounding soil (U.S. Navy 2001a, 2001b).

During Navy base closure, 111 buildings and other structures were demolished. Large amounts of metal debris were removed from shorelines and other wildlife habitats, and deteriorating asbestos materials and lead-based paint were removed from dozens of structures. Hundreds of batteries, compressed gas cylinders, and other metal debris were removed from nearshore waters (U.S. Fish and Wildlife Service 2005b).

A USCG LORAN station operated on East Island, FFS, from 1944 to 1952. LORAN is a terrestrial-based navigation system using low-frequency radio transmitters. Before the popularity of satellite-based global positioning system, LORAN was a widely used marine navigation system. Cleanup activities at the USCG station took place in 1965 and 1973. The USCG initiated a geophysical investigation of the island in 1998, looking for possible landfills. Based on the anomalies recorded, 23 five-foot-deep pits were dug. No contamination requiring cleanup was



found (Silberman 2005). A USCG LORAN station operated on Tern Island, FFS, from 1952 until 1979, when it was turned over to FWS. The USCG removed part of the landfill containing high levels of PCB-contaminated soil in October 2001 (Silberman 2005). The remaining portion of the dump contains PCB-contaminated soil that is tidally washed and visited by turtles, seals, and migratory birds.

### *Storage Tanks*

At Midway Atoll, the Navy removed 132 underground and aboveground storage tanks, some as large as 2.2 million gallons (8.327 million liters). Several miles of petroleum pipeline was drained and removed, and 10,657 cubic yards (8,438 cubic meters) of petroleum-contaminated soils were excavated and treated. Ninety thousand gallons (340,650 liters) of petroleum product were extracted from the groundwater (U.S. Fish and Wildlife Service 2005b). In addition, beach erosion exposed two underground storage tanks on Eastern Island, both of which have been removed (USDOD 2003).

In early February 2003, monitoring results from an aboveground storage tank indicated a release of approximately 100,000 gallons (378,500 liters) of JP-5 aviation fuel on Sand Island. This release did not come in contact with the marine environment and caused no effect to wildlife. The cause of the leak was identified as corrosion failure of fittings on a fuel delivery line. Dozens of test pits were dug to define the limits of the release. Recovery trenches and recovery and monitoring wells were then put in place. An automated product recovery system was installed to automate and enhance recovery. From January 20-27, 2005 the WS and its contractor deactivated the fuel recovery system following recovery of 80,000 gallons of fuel. A Remedial Investigation Report was submitted documenting that additional remediation was not necessary. All but eight wells were removed or abandoned in place. The remaining eight wells were cut off six inches below the surface and fitted with surface-mounted well boxes. These were then designated as monitoring wells. Based on the high costs of off-site disposal of both fuel and recovered product, soils were remediated by aerobic biodegradation in an aboveground soil farm, and recovered fuel was used for cogeneration to burn other wastes at the island in a customized incinerator. All recovered fuels were disposed of in this manner by early 2007 (Ragain 2004; Christenson 2008) (Jan. 25, 2005 Project Close-Out Activities Report, Geo Engineers).

### *Pesticides*

With the exception of an uncontrolled release of insecticide at Laysan Island, the other islands and atolls have not been significantly contaminated by insecticides. In 1988, biologists first detected unexplained mortality of carrion flies and ghost crabs at a beach crest site on Laysan Island. These scavengers were coming in to feed on dead albatross chicks, commonly seen in summer months at Laysan. Upon entering the area later referred to as the “Dead Zone,” they would abruptly die. The cause was finally identified by FWS as the pesticide Carbofuran, and the area was cleaned by removing and treating on-site contaminated sand. In 2001, insecticide-contaminated soil was removed from Laysan Island and transported to the mainland for disposal. FWS suspects that the release resulted from an abandoned container, which washed ashore and deteriorated, releasing its contents (Woodward 2005).

During Navy closure at Midway Atoll, 1,578 cubic yards of DDT-, DDE-, and DDD-contaminated soil were excavated from six sites (U.S. Navy 1998).

### *Landfills*

'No Dig' areas are Land Use Controls (LUCs) remaining from the closure of the Navy base. These areas had soil contamination removed to a depth of 4 feet and backfilled with clean soil. The remaining control is that no digging may occur below 4 feet, or the Service assumes all responsibility. Additionally, Midway has several landfills left behind by the Navy. Some of these landfills were created during base closure for the disposal of construction rubble and asbestos. Other landfills were created during Navy occupancy for disposal of materials associated with operations. Two active landfills at Midway Atoll were investigated, capped, and closed (U.S. Fish and Wildlife Service 2005b).

There are 'No Dig' areas on both Sand Island and Eastern Island. One area on Sand Island that needs continued monitoring and potentially further remediation is known as the Old Bulky Waste Landfill. This site is an uncharacterized landfill that was created by the disposal of scrap metal, used equipment, and unconsolidated waste off the south shore of Sand Island to create a peninsula approximately 1,200 feet long by 450 feet (average) wide by 9 feet high (Navy 1995). It is surrounded on the three seaward sides by an approximately 10-foot-thick band of concrete and stone rip-rap. Wastes known to have been deposited in the landfill are metals (lead, cadmium, chromium, and nickel), gasoline, battery acid, batteries, mercury, lead-based paint, solvents, waste oil (including burning of petroleum, oil, and lubricants), PCBs, dioxins, furans, transmission and brake fluids, vehicles, equipment, tires, and miscellaneous debris (BRAC SI 1996 Volume 1). The landfill was covered in approximately 2 to 2.5 feet of soil in an attempt to contain the waste. The Old Bulky Waste Landfill is eroding, and the soil placed on top is sifting into the debris, causing large holes to open up around the edge and in the center of the landfill. Additionally, burrowing birds are bringing up buried soil and nesting below the cover.

The USCG Kure Atoll LORAN station landfill, on Green Island, was used to dispose of old electrical components and scrap metal during the USCG's 33-year tenure, which ended in 1993. The landfill was cleaned out as part of the station closure process. The USCG remediated the landfill on Kure in 1994. The USCG excavated and put into containers soil from the landfill that exhibited a concentration equal to or greater than 25 mg/kg PCB. A total of 36 cubic yards of soil were removed from the landfill. This soil, along with six 95-gallon overpack drums of corroded capacitors, was transported off-island for disposal at the TSCA-permitted U.S. Ecology Facility at Beatty, Nevada. Scrap metal, cable, non-liquid-containing drums, and the remaining soil in the landfill that contained debris were removed from the landfill and reinterred in a reburial pit (USCG 1994b). The depth of the reburial pit was set 15 feet bgs, which was 2 feet above the groundwater. All metal debris and soils with concentrations below 25 mg/kg PCB were placed in the reburial pit, which was then graded to a minimum depth of 5 feet bgs, covered with a nonwoven puncture-resistant geotextile fabric, then covered with clean soil from 5 feet bgs to original grade (USCG 1994b). The clean up level at Tern Island was 2 mg/kg.

### *Emergency Medical and Aviation Infrastructure*

Monument staff have access to resources-at-risk information that is of interest during contingency planning and spill response through the Sanctuaries Hazardous Incident Emergency Logistics Database System, a web-based decision support tool commonly referred to as "SHIELDS." This tool includes regulatory information, contact lists, geographic information system (GIS) maps, environmental sensitivity indexes, information on resources at risk, and

significant terrestrial and submerged historic and cultural resource and hazards data. Environmental Sensitivity Indices were last produced by NOAA for this area in 2001. Environmental Sensitivity Indices identify resources at risk on a seasonal and location basis and facilitate decisions about response options given threats to specific resources at risk.

FWS facilities at Midway Atoll serve as an emergency stop for marine vessels in distress in the mid-Pacific Ocean. The deep draft harbor at Sand Island can handle large vessels, and Henderson Airfield at Midway has the only runway that can handle large aircraft within a large swath of the mid-Pacific Ocean. Marine vessels periodically bring fishers and researchers with medical emergencies to Midway. FWS maintains emergency medical supplies, and an on-island medic can treat patients with emergency problems before the USCG transports them to Honolulu for treatment (Honolulu Advertiser 2003; Associated Press 2004).

Henderson Airfield is an FAA Part139-certified airport and is an important emergency landing site for aircraft en route from the west coast of North America to East Asia. Extended twin-engine aircraft operations (ETOPS) over the mid-Pacific Ocean use routes that keep them close enough to an FAA Part139-certified airport to meet FAA requirements for alternate landing sites. According to the FAA Advisory Circular 120-42A on ETOPS, "These suitable en route alternates serve a different purpose than the destination alternate airport and would normally be used only in the event of an engine failure or loss of primary airplane systems."

Though the focus of en route alternate airports is primarily for twin-engine aircraft, these airports are important for the safety of all long-range operations regardless of the number of engines. Alternate airports support unscheduled landings from such emergencies as cargo fire, decompression, fuel leak, passenger illness, or severe turbulence. On several occasions, aircraft on non-ETOPS routes have diverted to various islands in the Pacific, namely Adak, Midway, Shemya, and Wake. Reasons for these diversions included passenger or crew medical emergency, an unanticipated headwind requiring additional fuel, and an engine fire warning (Boeing Company 1998). As recently as January 2004, a commercial passenger jet used Henderson Field for an emergency landing after suffering oil pressure drop in one engine (Honolulu Advertiser 2004).

### **2.4.3 Land Use**

#### **2.4.3.1 Introduction/Region of Influence**

This section addresses issues related to the Proposed Action alternative that are associated with land use. The ROI for land use includes all lands within the Monument. This section of the DEA also fulfills the resource assessment requirements of 16 USC 1434(a)(2)(B) by documenting present and potential uses of the area.

#### **2.4.3.2 Regulatory Environment**

##### **Federal Regulations**

Monument regulations promulgated in 50 CFR Part 404 primarily relate to prohibiting or regulating human uses within the Monument to ensure the protection of Monument resources.

Section 404.4 addresses how access will be granted into the Monument and requires notification prior to entering and after departing. All U.S. vessels passing through the Monument without interruption will be required to provide notification at least 72 hours before entering and within 12 hours of leaving the Monument and must include intended and actual routes through the Monument and general categories of any hazardous cargo on board. Section 404.5 describes the VMS requirements for all vessels operating in or transiting through the Monument. Section 404.6 lists all prohibited activities within the Monument. Prohibited activities include exploring for oil, gas, or minerals or using poison or explosives. Section 404.7 describes all regulated activities that are prohibited unless specifically allowed by one of the Monument-issued permits. Sections 404.8 and 404.9 provide exemptions from prohibited activities for emergency response and law enforcement activities (404.8) and armed forces actions (404.9). Section 404.11 describes the six permit types issued to access and conduct activities otherwise prohibited by Monument regulations. These permit types are 1) research, 2) education, 3) conservation, 4) Native Hawaiian practices, 5) special ocean uses, and 6) recreational activities. Specific requirements for issuance of Native Hawaiian practices, special ocean uses, and recreational activities are included in the regulations. Section 404.12 ensures that these regulations will be carried out in accordance with international law.

In addition to Monument-specific regulations, FWS has regulations specific to Midway Atoll NWR (50 CFR Part 38), special conditions for cruise ship visits to Midway, and permitting requirements for both Midway Atoll and Hawaiian Islands NWRs under 50 CFR Parts 13, 18, and 25.

### **State Regulations, Policies, and Programs**

The DLNR has stewardship responsibility for managing, administering, and exercising control over the coastal and submerged lands, ocean waters, and marine resources under state jurisdiction around each of the NWHI under Title 12, Chapter 171 Hawaii Revised Statutes. The State is the lead agency for managing the emergent lands at Kure Atoll, a state wildlife sanctuary. DLNR's Division of Conservation and Resources Enforcement (DOCARE) maintains full police powers, including power of arrest, within all lands and waters within the state's jurisdiction. In 2005, the DLNR's Division of Aquatic Resources established the NWHI State Marine Refuge (0-3 nm [3.5 mi, 5.5 km] around all emergent lands, except Midway Atoll) through Hawaii Administrative Rules, Chapter 13-60.5. Unless otherwise authorized by law, it is unlawful for any person to enter the refuge without a permit except for freedom of navigation, passage without interruption, interstate commerce, and activities related to national defense, enforcement, or foreign affairs and in response to emergencies.

The state currently holds the submerged and ceded lands of the NWHI in trust. Established by a 1978 amendment of the Constitution of the State of Hawai'i, OHA serves as the principal agency working for Native Hawaiians. OHA was created for various purposes including bettering the conditions of Native Hawaiians. OHA manages a property and monetary trust, creating its fiduciary duty to Native Hawaiians. The OHA trust is funded in part by a pro rata share of income derived from the ceded lands portion of the public land trust.

The Hawai'i Coastal Zone Management Program (HCZMP) was promulgated in 1977 in response to the federal CZMA. The coastal zone area encompasses the entire state, including all

marine waters seaward to the extent of the 14-mi (12-nm, 22-km) territorial sea and all archipelagic waters. The HCZMP is charged with protecting waters within the coastal zone and includes a permit system to control development within a coastal zone and a shoreline setback area, which serves as a buffer against coastal hazards and erosion and protects views. The CZMA requires direct federal activities and development projects to be consistent with approved state coastal programs to the maximum extent practicable.

In compliance with the federal Coastal Zone Act Reauthorization Amendments of 1990, the State of Hawai‘i prepared the Hawai‘i Coastal Nonpoint Pollution Control Program in 1996, the year that NOAA and EPA approved the program. In July 2000, the state completed an implementation plan for polluted runoff control, which established long-term and short-term goals and activities to control nonpoint source pollution, as required for implementing the Coastal Nonpoint Pollution Control Program. It also established five-year implementation plans to address polluted runoff in six categories: agriculture, forestry, urban, marinas and recreational boating, hydromodification, and wetlands and riparian areas. The nonpoint source pollution control programs are intended to be consistent with the Native Hawaiian approach to resource management.

The State Department of Health has regulatory oversight for maintaining high standards of water quality throughout the NWHI, which is classified as Class AA waters, via the Clean Water Branch. In addition, the Department of Health’s Hazard Evaluation and Emergency Response Office is the on-scene coordinator for all responses to hazardous material, chemical, and oil spill response.

### **2.4.3.3 Resources Overview**

#### **Current Land Use**

Land use in the Monument has been minimal throughout history, although some areas, such as Midway Atoll and the FFS, were used during World War II and after for military training and exercise grounds. Most of the islets and reef formations of the Monument have small land areas and do not offer much area for development or human use. Under the Proposed Action alternative, the ROI would require permits for visiting the islands and reefs.

#### ***Kure Atoll***

Kure Atoll is an oval-shaped atoll located at the farthest northwestern end of the NWHI chain. Green Island is the only permanent island within the atoll. In 1960, the USCG built a LORAN station with a 4,000-foot runway, a 625-foot transmitter tower, and working and living quarters for 24 personnel. The station was decommissioned in 1992 and was abandoned in 1993. Today all but two buildings and a cistern have been demolished and buried on the island.

#### ***Midway Atoll***

In 1996 the remaining Naval base on Midway Atoll was turned over to FWS to be managed as Midway Atoll National Wildlife Refuge. Today, full-time NWR staff administer a small visitors program, care for wildlife, restore native plant life, and protect historic resources. Those historic resources that remain on Midway Atoll are protected under the Midway Atoll Historic Preservation Plan, approved in 1999, that focuses on long-term management and treatment for



the 63 historic properties. The airstrip on Midway Atoll is still active and averages about 45 flights per year. The USCG also uses Midway as a refueling stop. Today approximately 65 people reside on Midway year round. The maximum capacity for all overnight people is 150 with no more than 50 visitors at any one time. The Midway Atoll Visitor Services Plan also allows 3 large group (50-800 people) day-use visits per year, with no more than 400 people on the island at a time unless refuge management has approved a higher number (e.g. for very limited and special circumstances such as to participate in a ceremony commemorating the anniversary of the Battle of Midway).

### ***Pearl and Hermes Atoll***

The low islets of Pearl and Hermes Atoll are exposed to occasional overwashing by high seas. Resource managers occupy a seasonal field camp at the atoll.

### ***Lisianski Island***

Lisianski is a small island; its highest point is a sand dune that rises 40 feet above sea level and is relatively undisturbed. Resource managers occupy a seasonal field camp on the island.

### ***Laysan Island***

Laysan Island was used by guano traders and feather harvesters in the late 1800s and early 1900s but these activities were stopped after President Theodore Roosevelt declared the Hawaiian Islands Reservation in 1909. A year-round field camp of three to six people supporting ecological restoration work has been maintained at Laysan Island since 1992.

### ***French Frigate Shoals***

The FFS is an open atoll with several small, sandy islets. One of the small islands, Tern Island, was formed into a 42-acre airstrip in 1942 to serve as a refueling stop for planes going to Midway Atoll during World War II. Today, the original seawall, runway, and some buildings remain. The FFS average about 27 charter flights per year on the existing runway. FWS maintains a field station that is staffed by two permanent year-round employees and some volunteers.

### ***Mokumanamana (Necker Island)***

The Tanager Expedition came to Mokumanamana, also known as Necker Island, in 1923 for biological and cultural research. There is significant evidence of human habitation on Mokumanamana, with 52 archaeological sites. Mokumanamana is visited occasionally on day trips for wildlife monitoring, Native Hawaiian practices, and cultural research.

### ***Nihoa***

Native Hawaiians are thought to have used Nihoa at least between AD 1000 and AD 1700, as over 88 archaeological sites have been found on the island. The Tanager Expedition stopped at Nihoa, in addition to Mokumanamana, for biological and cultural research. Occasionally, short-term field camps are established for wildlife monitoring and invasive species management.

**2.4.4 Economics**

**2.4.4.1 Introduction/Region of Influence**

The State of Hawai‘i forms the economic ROI and defines the geographic area in which the predominant economic and social effects from the Proposed Action alternative are likely to take place. The geographic area of the ROI was defined based on the home location of individuals directly affected by research, management, recreation, education, and cultural activities or other activities in the Monument.

The baseline year for the effects analysis is 2005, except for fishing, which is 2011; however, most of the economic and demographic data for the ROI are available only through 2003. Wherever possible, the most recent data available are presented so that the affected environment descriptions reflect current conditions in the ROI.

**2.4.4.2 Resources Overview**

***Population***

The population of Hawai‘i increased by almost nine percent between 1990 and 2000 and by another 5.4 percent between 2000 and 2005 (Table 2.4-1). Among the fifty states and the District of Columbia, Hawai‘i was ranked the forty-first most populous state, as of the 2000 Census (U.S. Census Bureau 2001). By 2030, Hawai‘i’s population is projected to increase to 1.63 million people, an average rate of growth of slightly less than 1.0 percent per year between 2000 and 2030. The natural population growth—the net increase from births over deaths—has previously

**Table 2.4-1  
Hawai‘i Population**

	<b>1990</b>	<b>2000</b>	<b>2005 (estimated)</b>	<b>% Change 1990-2000</b>	<b>% Change 2000-2005</b>
Hawai‘i	1,113,491	1,212,670	1,277,950	8.9	5.4

Sources: DBEDT 2004a

been the more important contributor to total population growth. However, Hawai‘i’s population is aging, and forecasts project that in-migration will provide the larger share of population growth over the next 25 years (DBEDT 2004a).

***Employment and Industry***

*State Overview.* Total earnings by industry for Hawai‘i was about \$30 billion (BEA 2005). The state has a civilian labor force of almost 626,000 people (Table 2.4-2). The state’s civilian labor force and number of persons employed has increased between 1990 and 2005. The unemployment rate is at a low 2.7 percent, compared to the national unemployment rate of 5.4 percent (BLS 2005). Total civilian employment in Hawai‘i is expected to increase to 725,850 by 2030, an annual growth rate of 0.8 percent (DBEDT 2004a).

**Table 2.4-2**  
**Hawai‘i Labor Market Information**

Year	Civilian Labor Force	Employment	Unemployment	Unemployment Rate
1990	550,300	534,300	16,000	2.9
2000	604,000	578,200	25,800	4.3
2005	625,950	608,900	17,050	2.7

Source: HIWI 2005

Note: 2005 data as of February 2005.

The State of Hawai‘i calculated employment and industry forecasts by major industry for 2005. Table 2.4-3 presents the distribution of employment among the various industry sectors and the changes projected in these sectors between 2003 and 2005. Education and health services, trade, leisure and hospitality, professional and business services, and the government sector will employ the greatest number of workers in 2005. Between 2003 and 2005, construction and mining, professional and business services, educational and health services, leisure and hospitality, and trade, transportation, and utilities will account for 92 percent of the job growth over the two-year period. Educational and health services and trade, transportation, and utilities will be the major contributors in job expansion, adding nearly half of the employment growth. Construction is projected to have the largest percentage of growth of all industries. Employment losses are expected in information and in agriculture, forestry, and fishing (HIWI 2004).

**Table 2.4-3**  
**Hawai‘i Industry Employment and Growth Rates, 2003–2005**

Industry	2003	2005	Change in Employment	Average Annual Growth Rate
Agriculture, forestry, and fishing	7,460	7,350	-110	-0.7%
Construction and mining	27,780	29,390	1,610	2.9%
Manufacturing	14,840	14,950	120	0.4%
Trade, transportation, and utilities	109,300	113,200	3,890	1.8%
Trade	79,940	82,830	2,890	1.8%
Wholesale	16,680	17,120	440	1.2%
Retail	63,260	65,710	2,450	1.9%
Transportation	26,660	27,650	990	1.9%
Utilities	2,700	2,720	20	0.4%
Information	11,070	10,630	-450	-2.0%
Financial activities	28,210	28,750	540	1.0%
Professional and business services	69,010	71,700	2,690	1.9%
Educational and health services	109,650	114,070	4,420	2.0%
Leisure and hospitality	98,870	101,250	2,380	1.2%
Other services	23,140	23,490	360	0.8%
Government	67,900	68,730	840	0.6%
Federal	28,700	29,090	390	0.7%
State	22,290	22,690	400	0.9%
Local	16,900	16,960	60	0.2%
Total employment	567,230	583,510	16,290	1.4%

Industry	2003	2005	Change in Employment	Average Annual Growth Rate
----------	------	------	----------------------	----------------------------

Source: HIWI 2004

Note: Data as of the end of second quarter 2003 and 2005. Totals are rounded to the nearest ten. Totals may not add up to 100 percent due to rounding.

Retail trade will account for nearly two-thirds of the boost in employment in the trade, transportation, and utilities industry sector, with several shopping centers undergoing renovations and upgrades and the opening of big-box retailers (HIWI 2004).

Increasing military presence in Hawai‘i, driven by national counterterrorism efforts, will add to the demand for jobs in the construction industry. In addition, the relocation of the Army’s Stryker Brigade to Hawai‘i has created a need for construction projects such as residential housing, which will bring further economic benefits to the industry (HIWI 2004).

Employment in the agriculture, forestry, and fishing industry is predicted to decline by 0.7 percent. This general trend is a result of the transition from large-scale plantation crops to smaller crops in diversified farming (HIWI 2004).

Hawai‘i industry employment and growth rate projections through 2012 predict that construction, professional and business services, and education and health services sectors will continue to expand and will have the largest percentage increases of the state’s total employment growth. The agriculture, forestry, and fishing industry sector is projected to decline by 0.2 percent between 2002 and 2012, losing 180 jobs (DLIR 2005). The agriculture, forestry, and fishing industry employs the smallest share of the state’s workforce at 1.3 percent.

*Research and Management in the Monument.* Research and management activities in the Monument include assessment and long-term monitoring of resources, genetic and ecological research, restoration activities such as marine debris removal, listed species recovery and protection, enforcement, and other conservation activities. An estimated \$7.5 million is spent annually in research and management of the Monument. All access to the Monument is regulated through permits issued by the Monument Management Board.

*Commercial Fishing in the Monument.* Commercial bottomfishing in the Monument is prohibited after June 15, 2011. Until that date, Monument regulations establish total landings for the eight permitted fishermen at 350,000 pounds of bottomfish and 180,000 pounds of pelagic species. The NWHI commercial bottomfishing industry has on average landed approximately 300,000 pounds of bottomfish each year, with an ex-vessel value of about \$1 million (WPFMC 2004a). Twenty people are directly employed in the NWHI commercial bottomfish fishery. Four of the bottomfish operations are on O‘ahu, two are on Kaua‘i, one is on Maui, and one is on the island of Hawai‘i. No other commercial fishing is allowed in the Monument. Commercial fishing is not considered in the socioeconomic baseline for the Monument, as it has already been prohibited by Monument regulations.

*Tourism Industry in Hawai‘i.* Ocean tourism and recreation in the Monument are regulated under special ocean use and recreational permits. Due to the remote location of the Monument, few ocean tourism and recreational activities have occurred in the NWHI. FWS permitted a

cooperator to operate an ecotourism operation based on Midway Atoll from 1996 to 2002, drawing approximately 250 sportfishers and divers to the refuge each year. FWS has completed a tourism feasibility study and a visitor's services plan for Midway, which will guide future decisions on these types of activities in the area. Tourist and recreational opportunities on the eight main Hawaiian islands, in particular on O'ahu, Maui, Hawai'i, and Kaua'i, are abundant and satisfy the demand for tourism and recreation activity. Almost 6.4 million people visited the main Hawaiian Islands in 2003, spending more than \$10 billion (DBEDT 2004b).

***Income***

Total personal income for the State was about \$37 billion in 2002. The average annual personal income growth rate was 7.5 percent from 1969 through 2002, just below the national average growth rate of 7.7 percent. The per capita personal income for Hawai'i was \$29,875 in 2002, slightly below the national per capita personal income of \$30,906 (BEA 2004).

Hawai'i's median annual family income was \$67,564 as of 2002, thirteenth among the fifty states and the District of Columbia. The cost of living in Hawai'i for a family of four has been estimated to be about 25 percent higher than the United States average for a comparable standard of living (DBEDT 2004b).



## **2.5 OTHER RESOURCES**

### **2.5.1 Water Quality**

#### **2.5.1.1 Introduction/Region of Influence**

This section addresses issues related to the Proposed Action alternative that are associated with the water quality of marine and terrestrial waters and water resources. Due to the continuous mixing of water masses within the marine environment, the ROI for water quality includes Monument waters. Additionally, the ROI for water quality includes the terrestrial waters and water resources of the NWHI. This section also identifies threats to water quality in the affected environment.

#### **2.5.1.2 Regulatory Environment**

##### **Federal Regulations**

The regulations promulgated in 50 CFR Part 404 during the establishment of the Monument include numerous specific regulations aimed at the protection of water quality. In addition to monitoring vessel traffic through the issuance of permits, all U.S. vessels passing through the Monument without interruption will be required to provide notification at least 72 hours before entering and within 12 hours of leaving the Monument and include intended and actual route through the Monument and general categories of any hazardous cargo on board. In addition, prohibited activities, including exploring for oil, gas, or minerals or using poison or explosives, specifically protect the water quality of the Monument. Regulated activities, including discharging or depositing material into Monument waters, are designed to minimize the effect of vessel activity on water quality.

In addition, general federal regulations relevant to marine water quality include the following:

- Federal Water Pollution Control Act, commonly known as the Clean Water Act (CWA), as amended (33 USC 1251-1382);
- Marine Protection, Research, and Sanctuaries Act (MPRSA), also known as the Ocean Dumping Act, as amended (33 USC 1401-1421, 1441-1445, and 2801-2805 and 16 USC 1447-1447f);
- Oil Pollution Control Act (OPA 90), as amended (33 USC 2701-2761);
- Act to Prevent Pollution from Ships (APPS) (33 USC 1901-1912);
- Coastal Zone Management Act of 1972 (CZMA), as amended (16 USC 1451-1465);
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended (42 USC 9601-9675);
- Resource Conservation and Recovery Act (RCRA), as amended (42 USC 6901-6992k);
- Non-indigenous Aquatic Nuisance Prevention and Control Act of 1990, as amended (16 USC 4701-4728);

- National Wildlife Refuge System Administration Act of 1966, as amended (16 USC 668dd-668ee); and
- Toxic Substances Control Act of 1976, as amended (15 USC 2601-2692).

Congress passed the Federal Water Pollution Control Act in 1972, and amended it with the Clean Water Act in 1977. Under CWA Section 402, anyone discharging a pollutant from a point source to the navigable waters of the U.S. must obtain a National Pollutant Discharge Elimination System permit, which requires compliance with technology- and water quality-based treatment standards. The State of Hawai‘i has been delegated authority over discharges to state waters (HAR Chapter 11-55).

Under CWA Section 403, any discharge to the territorial seas or beyond also must comply with the Ocean Discharge Criteria established under CWA Section 403. CWA Section 312 contains regulations protecting human health and the aquatic environment from disease-causing microorganisms that may be present in sewage discharged from vessels. A marine sanitation device (MSD) on board a vessel is designed to receive, retain, treat, control, or discharge sewage. Pursuant to Section 312 of the CWA, all recreational boats with installed toilet facilities must have an operable MSD on board (33 USC 1322). Vessels 65 feet (20 meters) and under may use a Type I, II, or III MSD. Operators of vessels over that length must install a Type II or III MSD. The USCG must certify all installed MSDs.

The MPRSA regulates the dumping of wastes into marine waters and is the primary federal environmental statute governing transportation of dredged material for disposal into ocean waters. CWA Section 404 governs the discharge of dredged or fill material into waters of the U.S. In 1983, a global ban on dumping radioactive wastes was implemented. The MPRSA and the CWA regulate materials that are disposed of in the marine environment, and only sediments determined to be nontoxic by U.S. Environmental Protection Agency (EPA) standards may be disposed of in the marine environment. The EPA and the U.S. Army Corps of Engineers share responsibility for managing the disposal of dredged materials.

The Oil Pollution Control Act of 1990 requires extensive planning for oil spills from tank vessels and onshore and offshore facilities and places strict liability on parties responsible for oil spills.

The discharge of solid wastes is regulated under the CWA and the APPS, as amended by the Marine Plastic Pollution Research and Control Act of 1987. The APPS regulates the disposal of plastics and garbage for the U.S. Annex V of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 (MARPOL 73/78). Under these regulations, disposing of plastics is prohibited in all waters.

The CZMA provides incentives for coastal states to develop and implement coastal area management programs. It is significant with regard to water pollution abatement, particularly concerning nonpoint source pollution. In 1990, Congress enacted the Coastal Zone Act Reauthorization Amendments by adding Section 6217, entitled Protecting Coastal Waters. It requires that states with coastal zone management programs develop and implement coastal nonpoint pollution control programs. Section 6217 requires states to submit a coastal nonpoint pollution control management plan and is intended to strengthen links among federal, state, and

county coastal zone management and water quality programs. The purpose of the plan is to describe the programs and actions taken to control polluted runoff and to maintain water quality standards.

CERCLA addresses cleanup of hazardous substances and mandates liability for environmental cleanup on those who release hazardous substances into the environment. In conjunction with the CWA, it requires preparation of a National Contingency Plan for responding to oil or hazardous substances release.

RCRA addresses hazardous waste management, establishing duties and responsibilities for hazardous waste generators, transporters, handlers, and disposers. The NWRSA and the regulations and policies developed to implement the act address the quality and quantity of water impacting management of fish and wildlife and their habitats on refuges. The TSCA was enacted by Congress to give EPA the ability to track industrial chemicals currently available, produced, or imported into the United States. EPA controls these chemicals for health and human safety.

### **State Regulations, Policies, and Programs**

In Hawai‘i, key state regulations relevant to marine water quality are as follows:

- Water Quality Standards (Hawaii Administrative Rules [HAR] Chapter 11-54);
- Water Pollution Control (HAR Chapter 11-55);
- Coastal Zone Management Program;
- Point-Source Discharge Requirements; and
- Ballast Water Management (HAR Chapter 13-76).

The regulations governing water quality in Hawai‘i are primarily contained in Title 11, Chapter 54 of the Hawaii Administrative Rules (HAR Chapter 11-54), Water Quality Standards. The Hawai‘i State Department of Health, Clean Water Branch administers and enforces state water pollution laws and regulations that are outlined in Hawaii Administrative Rules Chapter 11-55. The State of Hawai‘i also has delegated authority under the CWA for any discharges into state waters through the administration of the National Pollutant Discharge Elimination System (NPDES) permits.

All waters are subject to an anti-degradation policy, which states that “Waters whose quality [is] higher than established water quality standards shall not be lowered in quality unless it has been affirmatively demonstrated to the director [of the Department of Health] that the change is justifiable as a result of important economic or social development and will not interfere with or become injurious to any assigned uses made of, or presently in, those waters” (HAR Section 11-54-01.1).

In general, all waters must be free of substances resulting from domestic, industrial, or other controllable sources of pollution. This includes sediments resulting from erosion caused by construction or agricultural activities, floating or sinkable materials, thermal pollutants, pathogens, biocides, excessive nutrients, toxic compounds, and other pollutants. All discharges

to state waters are subject to laboratory testing to determine if the discharge meets standards for acute or chronic toxicity. These standards are published in HAR Title 11, Chapter 54.

Marine waters are classified as either Class AA or Class A, based on protection of water quality (HAR Chapter 11-54). The open coastal waters around the NWHI are classified as Class AA waters (HAR Section 11-54-6[b][2][A][ix] and [x] from the shoreline to a depth of 183 meters or 600 feet). The objective of Class AA waters is that they remain as nearly as possible in their natural pristine state, while Class A waters are maintained for multiple uses, with lower water quality standards applied to them.

The water quality standards regulations also contain special classifications and standards for marine bottom ecosystems, and these areas are designated as Class I or Class II areas. All beaches, marine pools and protected coves, and reef flats and reef communities (e.g., Kure Atoll Lagoon, Pearl and Hermes Lagoon, Lisianski Island, Maro Reef, Laysan Island, and French Frigate Shoals Lagoon) in the NWHI are considered Class I areas. The objective of Class I marine bottom ecosystems is to keep them in the most pristine and natural state possible, and only nonconsumptive uses are allowed in these areas. Class II marine bottom ecosystems allow for multiple uses.

The Hawai'i Coastal Zone Management Program (HCZMP) was promulgated in 1977 in response to the federal CZMA. The coastal zone area encompasses the entire state, including all marine waters seaward to the extent of the 14-mi (12-nm, 22-km) territorial sea and all archipelagic waters. The HCZMP is charged with protecting waters within the coastal zone and includes a permit system to control development within a coastal zone and a shoreline setback area, which serves as a buffer against coastal hazards and erosion and protects views. The CZMA requires direct federal activities and development projects to be consistent with approved state coastal programs to the maximum extent practicable.

In compliance with the federal Coastal Zone Act Reauthorization Amendments of 1990, the State of Hawai'i prepared the Hawai'i Coastal Nonpoint Pollution Control Program in 1996, the year that NOAA and EPA approved the program. In July 2000, the state completed an implementation plan for polluted runoff control, which established long-term and short-term goals and activities to control nonpoint source pollution, as required for implementing the Coastal Nonpoint Pollution Control Program. It also established five-year implementation plans to address polluted runoff in six categories: agriculture, forestry, urban, marinas and recreational boating, hydromodification, and wetlands and riparian areas. The nonpoint source pollution control programs are intended to be consistent with the Native Hawaiian approach to resource management (ahupua'a management).

In 2007, Chapter 76, Non-Indigenous Aquatic Species (Subchapter 2, Ballast Water Management) was added to Hawaii Administrative Rules. These rules are intended to work in coordination with and complement federal regulations to prevent the introduction and spread of invasive species in Hawai'i waters by regulating vessel ballast water. Regulations include the adoption of a ballast water management program, ballast water exchange program, reporting requirements, and compliance monitoring.

### 2.5.1.3 Resources Overview

#### Existing Water Quality Conditions

Water quality in the marine and terrestrial environments of the Monument is important to the survival of the various species of biota and the coral reef ecosystems.

##### *Marine*

The marine environment in the ROI is generally considered to be relatively pristine. This is due to the remoteness of the NWHI, the fact that most of the islets and shoals remain uninhabited, and the oceanographic conditions of the central Pacific Ocean. While there have been very few studies done on contamination in the ROI, the lack of major pollution sources and the health and productivity of the coral reef ecosystems in the area are strong evidence of the relatively unpolluted marine environment (Friedlander et al. 2005a). However, several localized areas of contamination exist along the shorelines and islands in the NWHI. This contamination includes PCBs, dioxin, PAHs, and metals. Some fish and other biota sampled in these areas have PCB levels that rivaled levels found in fish near major PCB manufacturers on the mainland.

A considerable amount of research has been done on the oceanographic conditions of the NWHI. Characteristics of the marine environment of the ROI include highly variable sea surface temperatures, both nutrient-rich and nutrient-poor waters, and seasonal high-energy waves (Friedlander et al. 2005a). Sea surface temperatures around the NWHI fluctuate greatly, particularly in the northwest end of the island chain, ranging from less than 64 °F (18 °C) in the winter to greater than 82 °F (28 °C) in the summer. Sea surface temperature also varies greatly from year to year over longer periods, including those characterized by ENSO (Friedlander et al. 2005a).

Satellite observations of the ROI indicate a significant chlorophyll front in the area, with seasonal and annual migrations (northward in the summer and southward during the winter). When these nutrient-rich waters cross through the NWHI, productivity in the coral reef ecosystems is expected to become elevated, and trophic changes in the ecosystem may occur (Friedlander et al. 2005a).

There is a pronounced annual cycle of ocean wave energy in the ROI, with over 10-foot (3.3-meter) waves occurring annually, resulting from extratropical winter storms. Most storms approach the NWHI from the northwest, shaping the assemblages of species that exist in the northwest-facing reef areas. There is also evidence of variability in cumulative wave energy and wave energy events between years and over longer periods, including Pacific Decadal Oscillation (PDO) events (Mantua et al. 1997).

However, despite the rare pristine conditions of the ROI, the area has not been completely untouched by human influences. Vessel discharges, spills, shipwrecks, marine debris, and land-based military activities have all contributed to contamination in the ROI. These sources and their effects on water quality are discussed in the Pollution Sources section below.



### ***Terrestrial***

The terrestrial environment in the ROI varies among the different islands in the Monument. The only permanent surface water in the NWHI is on Laysan Island. Laysan Island has a 173-acre (0.7square-kilometer) hypersaline interior lake. A small brackish groundwater lens exists below the surface of some of the islands (U.S. Fish and Wildlife Service 2007a [IVSP, Midway Atoll NWR]). Freshwater sources are found at Nihoa, Mokumanamana, and Laysan Island, and Midway and Kure Atolls. Rainwater percolates through the sand rapidly. Fresh water, being slightly lighter, tends to float on salt water below the ground or is trapped by cap rock of phosphatized coral. The coral cap rock overlays the basaltic volcanic base. Historic records reveal that potable brackish water could be found 5 to 10 feet below the ground surface on several of the sandy NWHI. On the rocky islands, rain water percolates though the porous basalt until it reaches layers of dike material. Groundwater flows along the upper surface of dense materials, and fresh water seeps are found where it reaches the ground surface (U.S. Fish and Wildlife Service 1986).

### ***Water Resources***

The potable water is supplied via rainwater catchment and treatment systems on Midway, Tern, and Laysan and is imported or made from sea water using reverse osmosis at camps on other islands. See the Utilities section for further information on potable water systems.

### **Marine Pollution Sources**

#### ***Marine Sources***

Cargo vessels and research vessels transit the ROI regularly, and cruise ships, USCG ships, and recreational boats pass through the ROI occasionally. Research vessels sometimes anchor in designated areas near the shore of various islands, while recreational boaters and cruise ships occasionally visit Midway. During the course of normal operations, seagoing vessels produce a multitude of wastes, which, when disposed of into the marine environment, can affect the water quality of the Monument. Potential discharges from vessels include sewage, gray water, bilge water, hazardous wastes, and solid materials and toxic compounds. These are discussed below.

#### *Sewage*

Sewage includes vessel sewage and other wastewater. Sewage discharge may contain bacteria or viruses that cause disease in humans and in other wildlife. Chemicals and deodorants often used in MSDs include chlorine, ammonia, or formaldehyde and may also affect water quality. The CWA requires the use of MSDs for all offshore vessels 3.5 mi (3 nm, 5.5 km) or closer. Monument regulations prohibit the discharge of MSD effluent within the Special Preservation Areas (SPA) or Midway Atoll Special Management Area (SMA) but allow discharge in the rest of the Monument; dumping of raw sewage is prohibited throughout the Monument and in waters outside the Monument if the sewage would subsequently drift into Monument waters.

Type I MSDs shred and disinfect the waste prior to its discharge into the water. Type II MSDs provide an advanced form of the same type of treatment used by Type I devices and discharge wastes with lower fecal coliform counts and reduced suspended solids. Type III MSDs, commonly called holding tanks, flush sewage into a tank containing deodorizers and other chemicals. The contents of the holding tank are stored until they can be properly disposed of at a shore-side pump-out facility. Type III MSDs can be equipped with a discharge option, usually

called a Y-valve, that allows the boater to direct the sewage either into the holding tank or directly overboard.

#### *Gray water*

Gray water from vessels includes wastewater from kitchens, showers, and laundries. Pollutants in gray water include suspended solids, oil, grease, ammonia, nitrogen, phosphates, copper, lead, mercury, nickel, silver and zinc, detergents, cleaners, oil and grease, metals, pesticides, and medical and dental wastes. Monument regulations prohibit the discharge of gray water in all SPAs and the SMA.

#### *Bilge Water*

Bilge water may contain fuel, oil, wastewater, other chemicals, and materials that collect at the bottom of the ship's hull with fresh water and sea water. Under the Oil Pollution Act and the CWA, vessels are prohibited from releasing any water with an oil content of greater than 15 parts per million (ppm) of oil to water within 14 mi (12 nm, 22 km) of the coastline. Beyond 14 mi, discharges with oil content greater than 100 ppm are prohibited.

#### *Hazardous Materials*

Various hazardous materials are generated during the course of vessel operations, including cleaning and photo processing chemicals, paints and solvents, batteries, and fluorescent light bulbs containing mercury. RCRA requires that vessels generating or transporting hazardous wastes offload these wastes at treatment or disposal facilities (NOAA 2003b). Release of any of these materials is prohibited within the Monument and in waters outside the Monument if these materials would subsequently drift into Monument waters.

#### *Spill and Release Incidents*

There is a persistent threat to water quality from an accidental oil spill or cargo release from a vessel within or outside of Monument boundaries. Offshore spills have the potential to severely impair water quality and sensitive nearshore ecosystems. Floating debris from vessels is also a significant threat to the resources of the Monument, and there have been a number of such incidents. The most noteworthy example was in 1987, when a container of the pesticide Carbofuran is believed to have washed ashore at Laysan Island. The pesticide killed all invertebrates and the endangered Laysan finches that came into contact with or consumed contaminated sand.

#### *Ship and Aircraft Wrecks*

The NWHI region has been a significant center of maritime activity historically and of aircraft activity during World War II. As such, a number of ships and aircraft have been wrecked in the area. There are 52 known shipwrecks, 14 of which have been located. There are also 67 known aircraft wrecks in the area, only two of which have been located. While most of the shipwrecks are sailing vessels and pose little threat to the marine water quality, more modern ship and aircraft wrecks are likely to pose a threat of petroleum contamination (Friedlander et al. 2005a).

One of the more harmful ship groundings occurred in 1998, when the Paradise Queen II, an 80-foot (24-meter) lobster fishing vessel, ran aground on a coral reef at Kure Atoll, spilling approximately 4,000 gallons (15,140 liters) of diesel fuel and other petroleum hydrocarbons into the marine environment. The remaining 7,000 gallons (26,500 liters) of fuel were recovered from

the vessel during salvage operations (Maragos and Gulko 2002). More recently, the 85-foot-long (26-meter-long) line fishing vessel *Swordman I*, carrying more than 10,000 gallons (37,800 liters) of diesel fuel and hydraulic oil, ran aground at Pearl and Hermes Atoll in 2000 (NOAA 2001a). The 145-foot (45-meter) ship *Casitas* ran aground on the northern side of Pearl and Hermes Atoll on July 2, 2005, with more than 33,000 gallons (124,900 liters) of diesel fuel on board (TenBruggencate 2005a). Additionally, iron that erodes from the ships acts as a nutrient in the marine waters, often causing growths of invasive algae and soft corals that smother the reefs surrounding the wrecks.

### ***Land-Based Sources***

Early extractive activities in the NWHI occurred around the turn of the twentieth century, with guano mining at Laysan Island. Later, the islands became strategically important for the U.S., which constructed a naval base at Midway Atoll and FFS during the first half of the twentieth century. During World War II, FFS and Pearl and Hermes Atoll were used for seaplane refueling. After World War II, the USCG constructed LORAN stations at Kure Atoll and FFS. Midway Atoll's U.S. Navy Airfield, which was in operation from 1941 to 1996, is the island's most significant source of land-based marine pollution (Friedlander et al. 2005a).

Land-based pollution sources from these early developments include lead and mercury batteries, transformers, capacitors, barrels, and landfills (uncharacterized and unlined). There is suspected petroleum on FFS and Pearl and Hermes Atoll from the historic refueling operations on those islands. Kure Atoll, Midway Atoll, and FFS are known point sources for PCBs from the former LORAN stations (Friedlander et al. 2005a).

On Midway Atoll, historic contamination includes petroleum in groundwater and coastal waters, pesticides, PCBs, metals, including lead and arsenic, and unknown contaminants that continue to leak and erode from landfills. As part of the base realignment and closure process, the U.S. Navy remediated much of the historic contamination. PCBs, dichloro-diphenyl-trichloroethane/dichloro-diphenyl-dichloroethylene- (DDT/DDE-), and petroleum-contaminated soils were excavated and treated, and petroleum-contaminated groundwater was remediated. In addition, a large number of underground and aboveground storage tanks and several miles of petroleum pipeline were drained and removed. However, despite extensive remediation efforts, several areas may warrant continued monitoring for potential releases (U.S. Fish and Wildlife Service 2005b; Friedlander et al. 2005a). In 1997, a FWS contractor installed a septic system for Sand Island and closed the Navy's sewage outfall pipe.

Some pollution studies in the NWHI have been performed in areas where conditions and historical use indicate the potential for elevated levels of contaminants (Miao 2000a, Miao 200b, Miao 2001). In addition, the U.S. Navy and USCG conducted investigations to document the scope and extent of contamination at their installations to aid in remediation efforts. Evidence of terrestrial and aquatic contamination is present in wildlife in the NWHI (PCBs, PAHs, lead, and other metals).

There are several point sources of pollution throughout the Monument. It appears that most of the negative effects of these contaminants are localized. Studies are on-going to determine upper trophic level effects of some of the persistent compounds. The remoteness of the NWHI, the low level of development on the islands, and the oceanographic conditions of the region have

ensured that the marine environment remains relatively pristine, as strongly indicated by the health of the coral reef ecosystems in the NWHI. Potentially, the most persistent and significant threat to water quality in the ROI is the vessels that transit the area. Vessel traffic presents the risk of a large oil spill or release of cargo that could greatly impair the marine water quality of the affected environment.

## **2.5.2 Transportation and Communication Infrastructure**

### **2.5.2.1 Introduction/Region of Influence**

The ROI for the marine transportation and communication infrastructure analysis is the area inside the Monument and open ocean areas within the U.S. EEZ, which extends 230 mi (200 nm, 368 km) from land.

### **2.5.2.2 Regulatory Environment**

A number of acts in Congress govern the movements of commercial vessels in specified waterways. These acts include the Ports and Waterways Safety Act (1972), the Port and Tanker Safety Act (1978), and the Oil Pollution Act (1990). However, these acts have little jurisdiction in the open seas. For this reason, the traffic lanes used by commercial vessels transiting the waters surrounding NWHI are the result of vessels following the most direct routes (great circle routes) to and from major ports between the west coast of North America and East Asia (Franklin 2006). The first international law to address submarine cables was the 1884 Convention for the Protection of Submarine Cables. This agreement is still in force today and has provisions to ensure the safety of cable repairs and to prevent interference with and from other ocean uses.

Entering the Monument is prohibited except for passage without interruption, when responding to emergencies, for law enforcement, and activities and exercises of the armed forces (50 CFR, Sections 404.8 and 404.9) or unless permitted under 50 CFR, Sections 404.10 or 404.11. All U.S. vessels passing through the Monument without interruption are subject to the prohibitions in 50 CFR, Sections 404.5, 404.6, and 404.7 and must provide notification prior to entering and after leaving the Monument (50 CFR, Section 404.4 (b)). VMS is required under 50 CFR, Section 404.5 for any vessel that is issued a permit to enter the Monument. Only VMS approved by NOAA's Office of Law Enforcement (OLE) may be used. The USCG may enforce all applicable federal laws within the boundaries of the Monument. The USCG has the authority to enforce Monument regulations and restrictions concerning ship traffic under 14 USC 2 and 14 USC 89. Prohibitions in the Monument regulations do not apply to activities necessary to respond to emergencies threatening life, property, or the environment, or to activities necessary for law enforcement purposes (50 CFR, Section 404.8).

In response to national concern regarding introduction of aquatic nuisance species, the National Invasive Species Act of 1996 was enacted, which reauthorized and amended the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990.

On December 22, 2006, the Marine Debris Research, Prevention, and Reduction Act was signed into law. The act makes the Marine Debris Program permanent and directs NOAA to work in

conjunction with federal agencies such as EPA and the USCG to identify the origin, location, and projected movement of marine debris within navigable waters of the United States and within the U.S. exclusive economic zone.

### **2.5.2.3 Resources Overview**

On April 3, 2008, the IMO designated the Monument as a PSSA. As part of the PSSA designation process, the IMO adopted U.S. proposals for associated protective measures consisting of (1) expanding and consolidating the six existing recommendatory Areas to be Avoided (ATBA) in the Monument into four larger areas and enlarging the class of vessels to which they apply; and (2) establishing a ship reporting system for vessels transiting the Monument, which is mandatory for ships 300 gross tons or greater that are entering or departing a U.S. port or place and recommended for other ships. The vessel reporting system requires that ships notify the U.S. shore-based authority (i.e., the USCG; NOAA will be receiving all messages associated with this program on behalf of the USCG) at the time they begin transiting the reporting area and again when they exit. Notification is made by e-mail through the Inmarsat-C system or other satellite communication system. It is estimated that almost all commercial vessel traffic will be able to report via Inmarsat-C. The Armed Forces are not subject to the access restrictions and reporting requirements in the Monument when they are conducting activities and exercises. Sovereign immune vessels also are not subject to the reporting requirement, but all vessels are encouraged to participate.

The PSSA and associated protective measures were adopted to provide additional protection to the exceptional natural, cultural and historic resources in the Monument. Requiring vessels to notify NOAA upon entering the reporting area will help make the operators of these vessels aware that they are traveling through a fragile area with potential navigational hazards such as the extensive coral reefs found in many shallow areas of the Monument. The PSSA is now in effect, and the IMO has provided for an effective date for the associated protective measures of May 1, 2008. These measures have been codified in Federal Law (50 CFR Part 404). Sovereign immune vessels are not subject to the reporting requirement but all vessels are encouraged to participate.

### **Vessel Activity**

With the exception of a few small boats at Midway Atoll and Tern Island, no vessels have home ports in the NWHI. For this reason, almost all marine traffic in the waters surrounding the NWHI is made up of Department of Defense vessels conducting training and testing activities, transiting vessels, research vessels, and fishing vessels, with cruise ships, USCG ships, and recreational boats occasionally visiting. An estimated 50 vessels pass through the EEZ surrounding the NWHI each day (Mathers 2005; Franklin 2006). On average, the range of vessel types include 20- to 60-foot fishing and recreational vessels, 150- to 250-foot research vessels, 500- to 700-foot passenger cruise ships and freighters, 700- to 1,000-foot tankers, and USCG, military, and international ships of all sizes and types.

#### ***Research Vessels***

Research vessels have been visiting the NWHI in increasing numbers over the past ten years. However, the number of days spent at sea in the Monument has remained fairly constant over the



last four years (Table 2.5-1). Several research vessels regularly visit the NWHI, including ships operated by NOAA, FWS, the University of Hawai‘i, and private charter vessels. Three vessels in the NOAA fleet operate in the NWHI, the *Oscar Elton Sette*, *Hi‘ialakai*, and *Ka‘imimoana*. The NOAA fleet spends more time within the boundaries of the Monument than any other research organization. Table 2.5-1 shows the number of sea days each NOAA vessel spent in the Monument from 2003 to 2007. These vessels are most active in the NWHI from April through November. They average 200 feet in length, weigh 2,300 tons, and carry 50 crew, researchers, and other staff.

**Table 2.5-1  
Number of Days Spent in the Monument from 2003 to 2007**

NOAA Vessel	Number of Days Spent in the Monument				
	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Oscar Elton Sette	80	113	154	177	138
Hi‘ialakai	N/A	18	144	97	120
Charter Vessels	120	120	90	2	2

The University of Hawai‘i has two blue-water research vessels on which it occasionally conducts research in the waters surrounding the NWHI, the R/V *Kilo Moana* and R/V *Kaimikai-O-Kanaloa*. The university conducted research in the Monument twice in 2003 and once in 2004, spending about a month in the Monument on each cruise. There were no cruises to the NWHI planned for University of Hawai‘i ships in 2005 (Winslow 2005).

***Fishing Vessels***

The only commercial fishery occurring in the Monument is the federal bottomfish fishery. This fishery operates according to the management regime specified in the Fishery Management Plan for Bottomfish and Seamount Groundfish Fisheries in the Western Pacific Region. In the NWHI, the bottomfish fishery is a hook and line fishery that targets a range of snappers, jacks, emperors, and groupers that live on the outer reef slopes, seamounts, and banks at depths of approximately 50 to 400 fathoms.<sup>1</sup> The management regime includes several precautionary measures that minimize potential effects of this fishery. For instance, the bottomfishery participants do not operate in the presence of the Hawaiian monk seals so as to avoid any direct or indirect effects of the fishery on the species.<sup>2</sup> Also, it is known that the vessels operations do not negatively affect habitat.<sup>3</sup> Finally, the annual catch limit in the NWHI is set by regulation at 300,000 lbs of bottomfish and 180,000 lbs of pelagic species (50 CFR Part 404). In practice, bottomfish harvest

<sup>1</sup> For a full list of bottomfish management unit species or BMUS, see DEIS Draft Amendment 14 to the Fishery Management Plan for Bottomfish and Seamount Groundfish Fisheries of the Western Pacific Region, June 27, 2007, Table 5.

<sup>2</sup> 50 CFR Part 665.61(2007) Subpart E – Bottomfish and Seamount Groundfish Fisheries and the Endangered Species Act Consultation on the Fishery Management Plan for the Bottomfish and Seamount Groundfish Fisheries in the Western Pacific Region, March 8, 2002.

<sup>3</sup> See the finding of no significant impact for the environmental assessment, “Issuance of a Conservation and Management Permit to the National Marine Fisheries Service Pacific Islands Regional Office for Anchoring in Non-coral Areas by the Northwestern Hawaiian Islands Bottomfish Fishery,” issued July 6, 2007.

is below catch limits and is not thought to affect the status of the bottomfish stocks in the NWHI or throughout the Hawaiian archipelago.

The fishery management plan divides the fishery into two zones, the Mau and Ho‘omaluku. Four vessels fish the Mau zone, which includes areas east of the 165° longitude, and four vessels fish the Ho‘omaluku zone, which includes areas west of the 165° longitude. All vessels offload their catch in Honolulu. A small number of foreign fishing companies use the open seas to the north and south of the EEZ surrounding the NWHI. These companies often fish the open ocean north or south of the EEZ, then transit through the island chain to fish the open ocean on the other side. Foreign fishing vessels in the open ocean also transit the Monument en route to Honolulu (Franklin 2006).

Eight commercial fishing permits are eligible for use in the Monument. The fishermen average 2 to 10 trips per year per vessel, with duration ranging from 3 to 22 days per trip. For the most part, these vessels bottomfish around the atolls and banks at the 100-fathom depth, and troll in deep water and across banks as they transit between islands. Crew size ranges from one to four people. Presidential Proclamation 8031 allows this fishery to continue operating until June 15, 2011 (50 CFR, Section 404.10 [b][3]), at which time the commercial fishery will cease altogether in the Monument.

### ***Cruise Ships***

A small number of cruise ships have visited Sand Island in the Midway Atoll National Wildlife Refuge. The Seven Seas Voyager visited Midway once, and the Pacific Princess visited twice in 2004. In 2005, 2006, and 2007, one cruise ship visited the atoll each year (Maxfield 2007 personal communication). Due to their size and the narrow width of the entrance channel at Midway, as well as port security requirements, cruise ships offload passengers 3 to 4 miles outside the lagoon and transport them ashore in small boats. Cruise ship passengers participate in a guided tour of the historical section of Sand Island led by FWS staff or volunteers. Typically, a cruise ship visit begins in mid-morning, and all passengers have returned to the ship by 4:00 pm. The ship departs the SMA before sunset.

Worldwide, cruise ships constitute a large and growing industry, and like other ships, they present a potential environmental threat to the Monument. Large cruise ships can carry thousands of passengers and crew, producing hundreds of thousands of gallons of wastewater and tons of garbage each day. Monument regulations and permit requirements (which are more restrictive than other open ocean sites) appear to have discouraged cruise ship visits, and none are scheduled for 2008.

### ***Marine Debris Removal Vessels***

The USCG provides ship support for marine debris activities and sends a buoy tender once a year. This mission also serves as a law enforcement patrol. In addition, the USCG may send other ships to the area as needed (Havlik 2005). Since 1997, regular marine debris removal efforts have been conducted through a multi-agency effort led by NOAA, in collaboration with FWS, the State of Hawai‘i, City and County of Honolulu, Honolulu Waste Disposal, USCG, U.S. Navy, University of Hawai‘i Sea Grant College Fund, Schnitzer Steel Hawai‘i Corporation (formerly Hawai‘i Metals Recycling Company), The Ocean Conservancy, and other local agencies, businesses, and nongovernmental partners. Since then, this effort has resulted in the removal of

more than 563 tons (502 metric tons) of derelict fishing gear and other marine debris from the coral reef ecosystems of the NWHI (figure 1.24) and put one ship on the reef. Marine debris survey and collection activities have been conducted at Kure Atoll, Midway Atoll, Pearl and Hermes Atoll, Lisianski Island, Laysan Island, and FFS. Removal operations have targeted areas where marine debris has accumulated over the past several decades. Long-term average accumulation rates are estimated at 45 to 79 tons (40 to 71 metric tons) per year. Until substantial efforts are made to significantly reduce the sources of debris and until debris can be effectively removed at sea, similar amounts are expected to continue accumulating indefinitely in the reef ecosystems of the NWHI.

### ***Native Hawaiian Vessels***

Between 2003 and 2007, several trips for Native Hawaiian cultural practices, education, and documentary film and photography projects were conducted on vessels in the Monument. Vessel size varied, as did anchoring and waste discharge practices. Such trips normally include a representative from FWS or NOAA.

### ***Support Vessels***

FWS maintains permanent facilities on Tern Island at FFS, Sand Island, and Midway Atoll and a field camp at Laysan Island, while NMFS maintains seasonal camps at Pearl and Hermes Atoll and Lisianski Island. A fuel barge makes a port call at Midway once a year, and supply barges provision Midway and the other refuge islands at least twice each year.

The DLNR maintains permanent facilities on Green Island at Kure Atoll. The DLNR does not operate or charter vessels to transport people or supplies to or from the NWHI; instead, it uses other agency vessels to access the Kure Atoll station (Smith 2005).

There are deteriorating deep-water piers to accommodate between two and four large visiting ships. Midway Atoll annually authorizes two supply barges, one fuel barge, and two visiting large ships (NOAA, USCG, university, or charter). There are also deteriorating small boat finger piers and a boat ramp that are exposed to incoming wind chop.

The deep water cargo pier (Pier 1 on charts) is in functional condition and can handle ships up to 450 feet but will need maintenance in the next 3 to 4 years to remain serviceable for the long term. It can safely handle one ship at a time. The fuel pier is in unsafe condition and is no longer operational. Midway Atoll normally has one barge per year associated with ongoing construction projects that brings supplies for those projects and general materials for island operation. With the new fuel farm capacity, FWS expects to have a fuel barge delivery to Midway every 11-14 months, depending on usage. NOAA ships transiting the Monument typically stop at Midway 3 to 5 times per year. FWS maintains a fleet of 11 small boats for routine operational and research needs. These include several 21 to 23-foot fiberglass skiffs and two aluminum SAFE boats, one 23-foot and one 31-foot with a full cabin. Both SAFE boats have full electronic packages, including RADAR. The existing small boat maintenance facility is in poor condition and needs replacement within the next 5 years.

### ***Vessel Routes***

Container ships, bulk carriers, and tankers regularly transit the waters of the Monument. Although it is estimated that 50 vessels transit the EEZ surrounding the Monument each day, most traffic passes to the north of the island chain, following great circle routes to and from ports

on the west coast of North America and East Asia. Occasionally vessels will transit farther south, passing within the Monument. Vessels have been observed using the pass between Pearl and Hermes Atoll and Lisianski Island because it allows vessels to maintain an east-west heading while transiting through the island chain (Franklin 2006). Periodically, accidental loss of cargo overboard causes marine debris or hazardous materials to enter sensitive shallow-water ecosystems.

A preliminary analysis of vessel traffic patterns in the NWHI was performed using positional information collected by the Volunteer Observing Ship program (VOS) from March 2004 to November 2005 (Franklin 2006). The VOS program has collected geo-referenced data from a set of selected non-research vessels that make frequent and regular crossings of all major ocean basins and has provided access to these data through the International Comprehensive Ocean-Atmosphere Data Set (ICOADS; NOAA 2006). The vessel names and call signs collected from ICOADS were then used to search for vessel attributes such as service type, length, and tonnage through the USCG Maritime Information Exchange (USCG 2006). During the 21-month study period, there were 132 vessels that reported from within the Monument. The 132 vessels comprised 104 freighters, 8 tankers, 4 research vessels, 2 passenger vessels, 2 school vessels, 1 recreational vessel, 1 towing vessel (with a 666-foot vessel in tow), and 10 vessels with service unidentified. The mean vessel length was 651 feet, and mean gross tonnage was 43,452 tons. The vessels hailed from 23 countries, with Liberia, Panama, and Germany flying the most common foreign flags. There were 17 U.S.-flagged vessels. The study was limited to vessels participating in the VOS program; therefore, these results do not describe the total vessel traffic through the Monument but rather suggest a limited level of vessel activity over a given time period.

### **Aircraft Activity**

A relatively small number of flights are conducted in the Monument. The MMB agencies charter an average of 27 flights to FFS. Henderson Airfield on Sand Island handles approximately 45 chartered flights to Midway Atoll annually. Aircraft transport goods, materials, and passengers. The USCG conducts regular enforcement overflights, often landing at Midway Atoll for refueling. A few research and management activities associated with remote sensing, mapping, wildlife survey, and marine debris detection may be conducted by aircraft each year.

Henderson Field Airport (PMDY), a 7,900-foot runway, is on Sand Island at Midway Atoll. A contractor maintains the infrastructure associated with the airfield under a base operations service contract with FWS. The airport operator and FWS, as the airport owner, jointly hold and maintain the FAA-issued Part 139 Airport Operating Certificate for PMDY (14 CFR Section 139.3337). The airport provides logistical support for the refuge and is an emergency landing strip for commercial extended twin-engine operation jets that traverse the Pacific. Congress provides partial funding for the operation and maintenance of the airfield because of its function as an emergency landing strip. The USCG also uses the airfield to refuel during fisheries enforcement missions and to evacuate injured crew members from fishing and cargo vessels traveling in the north Pacific. In a 1996 environmental assessment, completed before the FWS took over its management, the airport and its operations were found to have no effects (U.S. Fish and Wildlife Service 1996). As part of continued maintenance of the airport, a new airport building was constructed during 2007 and 2008, and new runway lighting and runway painting

are planned for 2008-2009. Midway's 7,900-foot runway is capable of handling almost any type of aircraft. A new FAA operations center was constructed southwest of the existing hangar in 2007. At least three flights per month bring personnel and supplies to the refuge. The plane seats 19 passengers. A separate charter cargo aircraft is used to bring up to 25,000 lbs of cargo three times per year.

At Pearl and Hermes Atoll, visiting NOAA, USCG, or contract ships are used for cargo and personnel delivery from either Honolulu or Midway. The timing is subject to cruise schedule and berth availability. Ship and field camp small boats are used to shuttle supplies. The field camp has two small boats. The weight of present cargo drop off is 13,000 lbs (12 boat loads); pickup is 5,000 lbs.

FFS accepts eight flights per year for personnel transfers. There is an existing runway and seaplane ramp. The area permits three visiting large ships per year for cargo supplies and personnel transfers. Visiting ships may also deliver limited cargo and personnel depending on schedule and berth availability. Small boats are used to shuttle supplies to the island. The field camp has between two and three small boats.

At Nihoa, Laysan Island, and Lisianski Island, visiting NOAA, USCG, or contract ships are used for cargo and personnel delivery from Honolulu or Midway Atoll. The timing is subject to cruise schedule and berth availability. Small boats are used to shuttle supplies to the island. The weight of present cargo drop-off is 3,000 lbs (3 boat loads); pickup is 3,000 lbs.

### **Communication Infrastructure**

Minimum communication infrastructure exists in the Monument. Before satellite communication, ocean cables were used to transmit data across the Pacific Ocean. In July 1903, the first trans-Pacific cable was completed. It was routed along the NWHI, coming ashore at Midway Atoll. The only actively used cable, the Trans-Pacific Cable No. 1, was installed in 1964 and linked Hawai'i to Guam. The cable runs the length of the island chain from O'ahu to Midway, where it comes ashore. From Midway it continues to Wake Island before terminating in Guam. The cable continues to be used for scientific purposes (ICPC 2004).

A new fiber optic distribution system was constructed during 2006/2007 in the core area of Sand Island, Midway Atoll. The satellite antenna was relocated and refurbished in October 2007. Satellite service was upgraded to T-1, and work to install a new VOIP phone system was completed in March 2008. These upgrades will markedly improve telecommunications for the current island population but do not add capacity for a large population increase.

### **Terrestrial Transportation**

The Midway Atoll interim visitor services plan designates areas that are both open and closed to the public. Closed areas ensure public safety and maximum protection for wildlife. Most roads are open to the public. Trails are listed as closed, open by guided tour only, or open. Trails generally follow existing paths, roads, or the edges of aircraft runways. Visitors are free to walk on paved and gravel roads, walkways, and marked trails, but areas such as the fuel farm and pier,



power plant/utility building complex, construction and rehabilitation sites, and aircraft runways and service areas are off limits to visitors. Bikes and golf carts are also used.

At other islands in the Monument, transportation is almost exclusively on foot.

### **2.5.3 Utilities**

#### **2.5.3.1 Introduction/Region of Influence**

This section addresses issues related to the Proposed Action alternative that are associated with utilities. The ROI is the utilities and infrastructure systems on the islands within the Monument.

#### **2.5.3.2 Resources Overview**

The ROI for the utilities and infrastructure systems in the NWHI are limited to Midway Atoll (Sand Island). Field stations located on FFS, Kure Atoll, and Laysan Island rely on satellite communications and field camp utilities such as solar power and desalinated and imported water. All trash generated is shipped off-island. The following section describes the existing utilities and infrastructure at these field camp-style locations and on Midway Atoll.

#### **Potable Water Supply and Fire Protection**

The drinking water source on Midway Atoll consists of a rainwater collection and distribution system. Rainwater is collected in a pond then pumped to storage tanks following a significant rainfall event. The storage volume is approximately 12,000,000 gallons. A new drinking water treatment system and distribution main were constructed and became operational in October 2005. The design daily use rate for the new system is 100 gallons per day/person, or 20,000 gallons per day total for a design capability of 200 people. This new water distribution pipeline was connected to existing lateral pipes at selected buildings through the core area of town but need to be extended to serve newly constructed or remodeled facilities located outside of the new water main.

The old system was left in place to provide water for fire-fighting activities and to serve the Inner Harbor and Cargo Pier areas. This water is not treated to drinking water standards. The storage tanks in the R-1 area provide water for both the new and old systems, but the old system leaks approximately 10,000 gallons per day, which reduces the stored volume of water.

Drinking and other fresh water at Tern Island, FFS, and Laysan Island is produced by desalination and rain catchment systems. Tern Island has the capacity to hold up to 58,000 gallons of rain catchment water and up to 14,500 gallons of desalination treated water. Rain water is collected from an abandoned tennis court and from the roofs of two large buildings on the island. Drinking water is drawn from a brackish water well for desalination. Laysan has holding tanks for 1,000 gallons of rain catchment water, which is collected from the roofs of the living and working tents, and 110 gallons of desalination treated water, which is drawn from a well. Desalination at both locations is conducted using reverse osmosis equipment.

## **Sanitary Wastewater Management**

The existing sanitary wastewater system at Midway Atoll is composed of central septic tanks and drainfields. Stormwater intrusion and suspected groundwater infiltration has overloaded the current system. Work has been performed to eliminate stormwater intrusion, and a new sewer system and treatment and disposal system have been designed for certain facilities located in the core area of town. The estimated construction cost for a new wastewater treatment system is approximately \$2,000,000. A dispersed septic design is preferred over the existing central septic in sensitive habitat areas and bird nesting sites.

Tern Island has two septic tanks to collect the sewage and wastewater from the barracks. These tanks together hold approximately 3,200 gallons of sewage.

## **Stormwater System**

The Navy designed the existing stormwater system on Sand Island to work in conjunction with the sewage disposal system that simply discharged raw sewage into the ocean. The existing septic/leach field system was installed in 1998 and it connected to the old Navy system. The stormwater component floods the leach field during heavy rainfall events which reduces the long term viability of the system by moving solids into the drainfield. The stormwater system collects runoff from streets and the many buildings on Sand Island that were designed with direct downspout discharge into the drains throughout the island. To minimize the stormwater influx into the leach field, the FWS has been disconnecting building downspouts from the system and reducing the hard surface areas that collect rainfall, allowing for more groundwater percolation.

## **Energy**

Electrical power at Midway Atoll is supplied by a diesel generator power plant. Two generators that operate in automatic duplex mode were installed and began operating in 2005. In most cases, only one generator is needed to meet the island's demand. If one generator exceeds capacity, the second generator automatically comes online and automatically shuts off when electrical demand reduces. The current system for generating electricity is sufficient for the existing population. Midway has two electrical distribution grids. A new electrical distribution grid was constructed and placed into service in 2006. This system serves most of Sand Island. The old grid still provides power to the old airport hangar, the old fuel farm, and the finger pier area. Materials and equipment of the old grid are aging and need replacing. Constructing new developments or renovating existing facilities would require the new grid to be extended.

Tern Island and Laysan Island electrical power systems are primarily supported by photovoltaic systems, and generator power is used in emergencies and to supplement low-sun days, as needed. These systems have been in place for several years and are being upgraded and replaced as funding becomes available.

## **Communication System**

Telecommunication is provided by satellite service. A new fiber optic distribution system was constructed during 2006/2007 in the core area of Sand Island, Midway Atoll. The satellite

antenna was relocated and refurbished in October 2007. Satellite service was upgraded to T-1, and work to install a new VOIP telephone system was completed in March 2008. These upgrades will markedly improve telecommunications for the existing island population but will not add capacity for a large population increase.

Primary communications on Tern Island and Laysan are provided by satellite telephone and associated e-mail service. Single-side band radio is used as a secondary means of communicating with the Honolulu office from these field camps. Currently, Tern Island has high speed internet access through a satellite link provided by NMFS.

### **Solid Waste Management**

Solid waste disposal practices in Midway Atoll include the temporary storage of waste in open plastic containers with periodic collection via stake bed truck. The solid waste is then burned in an oil-fired incinerator, dependent on the availability of waste fuel, or burned in an unlined open-aired pit and ashes are disposed of in the existing landfill/dump. The existing incinerator has been modified to burn waste oil, but the island does not generate enough waste oil to operate the incinerator on a daily basis. Alternatively, daily waste is burned in an open pit. Aluminum cans are collected, compacted and sent to a recycling facility in Hawai'i. Glass is collected, crushed, and buried in the landfill/dump. The existing landfill used for solid waste disposal is limited in its capacity and the types of waste it can safely handle. The landfill, which is only used when an item cannot be incinerated, contains general household/food waste or wood materials.

Because of concerns specific to asbestos and lead in many buildings on Sand Island, any major renovations or remodeling must take worker safety and hazmat disposal into consideration in accordance with appropriate OSHA guidelines.

The Bulky Waste Landfill, located on the south shore of Sand Island, is an uncharacterized landfill that was created by the disposal of scrap metal, used equipment, and unconsolidated waste. This landfill is no longer utilized for waste disposal, but continued monitoring and further remediation may be required. Wastes known to have been deposited in the landfill are metals, gasoline, battery acid, batteries, mercury, lead-based paint, solvents, waste oil, PCBs, dioxins, furans, transmission and brake fluids, vehicles, equipment, tires, and miscellaneous debris (BRAC SI 1996 Volume 1). The landfill is eroding, and soil placed on top is sifting through the debris, causing large holes to open up around the edge and in the center of the landfill. Additionally, burrowing birds are bringing up buried soil and nesting below the cover.

Both Tern and Laysan Islands burn all food and paper waste produced on island. Ashes, plastics, glass, metals, and other non-burnable waste is shipped off island to be disposed of or recycled in Honolulu.

### **Fueling Facilities**

A new fuel tank farm was constructed in 2007 with a capacity of 450,000 gallons. The tank farm stores a sufficient amount of fuel to operate electrical generators, vehicles, and aircraft for a year. Of this total capacity, 100,000 gallons were purchased by the USCG for their use in search and

rescue or law enforcement flights. The USCG and FWS have an interagency agreement that covers this cooperative effort and outlines shared costs.

While Laysan Island has very little need for fuel storage or use (up to 40 gallons per year), Tern Island requires storage of several hundred gallons of gasoline, diesel fuel, and aviation gasoline. All fuel is transported to Tern Island in 55-gallon drums and stored in spill containment lockers. This provides spill containment, shelter from the elements, and minimizes fuel handling by allowing fuel storage and shipment in the same containers. Both FWS and NMFS conduct small boat operations at FFS, which requires separate fuel reserves for each agency.

---

---

**CHAPTER 3:**  
**ENVIRONMENTAL EFFECTS**



# CHAPTER 3

## ENVIRONMENTAL EFFECTS

---

### 3.1 INTRODUCTION

This section discusses the potential effects of the Proposed Action on the natural and human environment compared to the No Action alternative. A discussion of cumulative projects and effects is presented in Chapter 4.

Each section in this chapter includes the methods used for effects analysis and a discussion of factors used to determine the significance of direct and indirect effects (40 CFR, Section 1508.8). Direct effects are those that are caused by the Proposed Action and occur at the same time and place. Indirect effects are those caused by the Proposed Action but that occur later or are farther removed in distance from the Proposed Action.

#### 3.1.1 Terminology

To determine whether an effect is significant, Council on Environmental Quality (CEQ) regulations require the consideration of context and intensity of potential effects (40 CFR, Section 1508.27). Context normally refers to the setting, whether local or regional, and intensity refers to the severity of the effect. Effects are categorized as follows:

- Significant – Effects would result in substantial consequences, either “beneficial or adverse” to cultural resources, populations, plant and animal communities within the local area and region, recreation opportunities, or visitor experiences;
- Minor negative effect – Adverse but not significant;
- Beneficial – A positive effect as a result of the Proposed Action; and
- No effect.

The effects analysis assumes that selecting the No Action alternative would maintain the current management regime provided by federal, state, and Monument regulations, and ongoing activities and uses, beneficial or negative, would continue at current levels. It assumes that

effects are presently occurring and would continue to occur under the No Action alternative, but that choosing the No Action alternative would not result in additional effects.

In the effects analyses, effects of the Proposed Action alternative are measured against those of the No Action alternative. A beneficial effect determination means that the Proposed Action would reduce detrimental effects on the natural environment or improve socioeconomic conditions compared to the No Action alternative. How the categories are determined is described in the following subsections for each resource area. A brief summary of the effects is listed at the beginning of each resource section (Sections 3.2 to 3.5).

### **3.1.2 Summary of Effects**

This section provides a summary of potential effects of the Proposed Action on the natural and human environment compared to No Action. The Proposed Action to implement the Monument Management Plan would result, overall, in beneficial effects or no effects on most resource areas compared to the No Action alternative. Short-term negative effects could occur when animals or vegetation are being restored, protected, or enhanced. These effects are inherently of short duration and are limited to the site where the activities occur. Affected resources are expected to return to predisturbance conditions shortly after activity ceases, so this does not constitute a significant effect. In addition, these negative effects are minimized through the use of the BMPs described in Volume III, Appendix F. Therefore, while there may be short-term negative effects as a result of some activities, the long-term beneficial effects almost always offset the negative effects.

Beneficial effects of the Proposed Action on the ecosystem would result from improved planning and coordination of research, monitoring, and management actions by the Co-Trustees, compared to the No Action alternative. Although it is expected that plan implementation will result in overall beneficial effects to the human environment, these beneficial effects do not represent a significant impact. This is because the magnitude of benefits expected to result from plan implementation will be incrementally modest within in the context of the essentially uninhabited pristine lands and waters of the Monument. Research priorities would be developed to address gaps in managing the Monument based on ecosystem principles. There were no significant negative effects found as a result of any of the activities described for the Proposed Action alternative. The Proposed Action's environmental effects are summarized in the following tables: natural resources, (Table 3.2.1), cultural and historic resources (Table 3.3.1), socioeconomic resources (Table 3.4.1) and other resources (water quality, transportation and communications, infrastructure and utilities (Table 3.5.1).

## 3.2 NATURAL RESOURCES

### 3.2.1 Effects Analysis Methodology

In the description of the No Action and Proposed Action alternatives (Chapter 1), activities presented in the Monument Management Plan were divided into three categories: (1) Planning and Administrative, (2) Field, and (3) Infrastructure and Development. Planning and administrative activities are not considered to directly affect natural resources, either because they relate to development of the coordination mechanisms described in the December 2006 MOA and Presidential Proclamation, or they are specifically administrative in nature. However, many activities identified as a result of these planning and administrative actions ultimately would have a direct effect and to the extent adequate information is currently available they are analyzed below. For activities proposed within the Monument or intended to improve management of the Monument, the methodology used to determine the effect on natural resources is as follows:

- Review and evaluate existing and past activities to identify their potential effect on natural resources;
- Review and evaluate activities within the Monument Management Plan to identify their potential to beneficially or negatively affect the ecosystem and its component parts within the Monument; and
- Assess the compliance of each activity within the Monument Management Plan with applicable federal, state, or local laws, regulations, and policies.

In addition, all proposed activities that may affect species protected under the ESA, MMPA, Migratory Bird Treaty Act, or other federal or state law would only proceed after compliance with applicable laws, including as necessary consultation, receipt of permits, and compliance with all permit terms and conditions.

### 3.2.2 Effects Common to Human Interactions with Natural Resources of the Monument

Possible effects from entry to the Monument include (1) effects on nesting and resting seabirds and other migratory birds, (2) effects on Hawaiian monk seals or Hawaiian population of the green turtle swimming and feeding in the nearshore marine environment or resting on beaches, (3) effects on spinner dolphins, (4) effects on fish, cetaceans, marine invertebrates, and corals, (5) effects on Laysan ducks, Nihoa finches, Nihoa millerbirds, and Laysan finches, (6) trampling of native plants and insects, (7) damage to corals, (8) accidental release of pollution and contaminants, and (9) the accidental introduction and establishment of nonnative species. All activities would be designed and managed using BMPs, described in Volume III Appendix F of the Monument Management Plan, to avoid or minimize these effects. However, even with proper management and execution of a well planned project, certain behavioral responses in wildlife may occur that are not easily recognized by the casual observer.

There are a number of adverse consequences, including possible disturbance and mortality, every time a human or humans enter a seabird colony. Human activity or human presence in the Monument could result in detrimental effects which can be characterized as either mechanical,

thermal, or biological in nature. Mechanical effects include accidental crushing of eggs, chicks, or nest burrows and blockage of access to nest sites with gear. They also include equipment and man-made materials brought into the colony which may result in collisions or entanglement, and artificial lights at night which increase collision hazards by disorienting flying birds. Thermal effects can occur to either the eggs and/or very young chicks of seabirds that are vulnerable to exposure. Thermal stress could occur if attending adults are flushed from the nest and kept away for more than 3 minutes, so human activities that require staying in one place and in proximity to the bird nests are hazardous to birds and their young nesting in the vicinity of the operation. Biological effects include negative interspecies interactions between birds. These may be exacerbated by human presence in the colony in cases where an incubating bird is frightened away from its nest and the egg or hatchling is preyed upon by another species. If young ground-nesting terns (<1 week of age) flee their nest-site when humans approach, they may not be able to find their way back and could starve. The MBTA prohibits many of the aforementioned effects.

Stress reactions (elevated heart rate, elevated levels of corticosterone, and behavioral responses) have been documented in several species of nesting seabirds at several ecotourism locations as a result of human activities in nesting colonies (Jungius and Mirsch 1979; Fowler 1995; Nimon et al. 1995; Kitaysky et al. 2003). However, no studies have been conducted to document cumulative effects of human disturbance. Participants observing albatrosses, terns, boobies, Laysan ducks, or other species in the less visited areas could have the potential of greatly elevating stress hormone levels if the duration of the disturbance is excessive. Kitaysky et al. (2003) showed that limited-duration disturbance, however, has only minor, short-term effects. For this reason, BMPs for access would be implemented.

BMPs to avoid or minimize effects on seabirds and to limit access (See Monument Management Plan, Volume III, Appendix F) require several actions. These include when a person first approaches a seabird colony they must look for any nests or for adults flushing from inconspicuous nests. Searching for nests before approaching an area and avoiding any nests will increase protection for the birds and minimize effects from disturbance. Also, all activities would be planned to avoid displacing adults from their eggs or chicks for any longer than 3 minutes. Planning such as timing maintenance work for periods when the fewest birds are in the area or during non-seasonal windows is also important. In addition, BMPs include restricting observation periods for any particular bird or group of birds to 15 minutes or less (though observations occurring from a blind can continue for up to 1 hour) and incorporating quarantine protocols. It is important to note that even wildlife photography by professionals or amateurs can often be disturbing depending on the manner in which it is pursued. Another method to reduce the effects of human operations is in advance of the planned work, to exclude that season's nesting birds by laying down geotextile fabric that prevents seabirds from burrowing or nest-building, as well as applying special terms and conditions in the Monument permitting process.

Human activities have played a major role in determining the status and population trends of Hawaiian monk seals over the past two centuries (Ragen 1997). From the 1960s to the 1990s, decreases in Hawaiian monk seal populations at several locations (French Frigate Shoals, Midway Atoll, and Kure Atoll) have been associated with human disturbance (Gerrodette and

Gilmartin 1990). Recreational beach activities caused Hawaiian monk seals to alter their pupping and hauling patterns, and survival of pups in suboptimal habitats was low, leading to gradual population declines (Kenyon 1972). Human activity and disturbance caused substantial declines at Midway Atoll (Kenyon 1972). Beach counts of Hawaiian monk seals at Midway Atoll averaged 56 animals in the late 1950s, but declined severely by the late 1960s, with only a single seal observed during an aerial survey in 1968. It is clear from these examples that Hawaiian monk seals are very sensitive to disturbance, and proposed activities would be carefully reviewed and, as appropriate, restricted so no further effects on seals would occur.

All water and land activities could continue to be conducted in accordance with BMPs (See Monument Management Plan, Volume III, Appendix F) that avoid the potential for any effects on protected species. For example, should a Hawaiian monk seal or other listed species be observed during a dive trip or operations by humans, the standard procedure is to cease all activity until the animal departs the area. These procedures have been implemented for decades, with the result being no effects on listed wildlife, and only minimal disturbance with no lasting effects on other wildlife (such as to fish that may temporarily avoid or aggregate around divers).

Increased use of Monument waters also increases the potential for introductions of nonnative species, and the potential for negative interactions between humans and Hawaiian monk seals, sea turtles, spinner dolphins, cetaceans, and live corals. Data from research cruises in 2000, 2002 and 2003 have confirmed that at least 11 invasive species of fish, invertebrates and algae have been established in the NWHI. These introductions can have negative short and long-term effects on native species and ecosystems. Any action of pursuit or annoyance from boats potentially disturbs marine mammals in the wild by causing disruption of their behavioral patterns or displacement from essential habitat areas, especially if the cetaceans or seals are in a resting phase (Bejder et al. 1999) and these activities are prohibited under the MMPA. Snorkel or dive operations also include the added risk of damaging living coral (Hawkins et al. 1999). Improper boat operation could result in significant localized effects on the coral reef from repeated anchoring, touching, standing, or other avoidable physical disturbance to the coral.

Maintenance and repair for management operations at all sites where seasonal or year-round personnel reside may sometimes temporarily disturb or displace nesting seabirds or native plants. Examples of these activities are painting, maintaining septic and wastewater systems, keeping runways, roads, and trails clear, and repairing structures and real property assets. These effects are reduced by using standard BMPs, such as timing maintenance work for periods when the fewest birds are nesting in the area. Another method to reduce the effects of operations is, in advance of the planned work, to exclude that season's nesting birds by laying down geotextile fabric that prevents seabirds from burrowing or nest-building.

BMPs used to reduce the risk of bird air strike vary between Midway and French Frigate Shoals because of different species compositions of seabird colonies next to the runways, different types of aircraft used at the two sites, and different constraints based on the runway facilities at each site. The two million seabirds that use Midway during the peak season make aircraft flights to the island potentially hazardous to both the birds and the aircraft personnel. Both Laysan and black-footed albatross use the runway as a soaring area on their way to feed during the day. However, bird use of the runway declines dramatically at night (363 versus 6 seabird runway



crosses per minute, according to Dolbeer and Arrington [1996]), so night flights have a greatly reduced chance of hitting birds (Kenyon et al. 1958). During the primary albatross season, i.e. November through July, flights are scheduled to arrive and depart after dark, thus minimizing effects on albatross and other seabirds (U.S. Fish and Wildlife Service 2004b). During August, September, and October, flights arrive during the day and may occasionally hit a white tern or brown noddy (U.S. Fish and Wildlife, No date). It is not possible to reduce the bird strike risk at Henderson Airfield to zero at any time of day or year, short of suspending all administrative and nonadministrative flight operations. However, the overall effects on natural resources becomes minimal with the small number of annual flights to the island, the requirement of night flights for most of the year, management of lights, advisory to pilots regarding flight paths, and runway clearing. Additionally, vegetation management along the runways modifies bird flight and nesting behavior, and therefore the runway is swept before each flight arrival or departure to remove or disperse birds.

At Tern Island and French Frigate Shoals, the species most commonly killed during aircraft operations is the sooty tern, but occasionally wedge-tailed shearwaters, great frigatebirds, and both species of albatross are also hit. Tern Island does not have runway lights, so all operations are done during daylight. Just before landings and takeoffs, all the staff members on the island frighten birds way from the runway. Flight activities could have a minor negative effect on migratory birds because of increased noise disturbance and potential air strike interaction. However, they also have a beneficial effect on all natural resources by facilitating management actions that benefit wildlife and habitats.

### **3.2.3 No Action**

This section briefly describes activities that are currently under way in the Monument and provides analysis of the effects associated with these activities. Only those activities that could have an effect on natural resources are included in the analysis. The analysis describes the projected beneficial and negative effects that could be expected to continue under the No Action alternative, should this alternative be selected for implementation. Implementation of the No Action alternative could result in no change to the current situation; however, current activities could continue under the Proposed Action alternative, and their effects are summarized under the Proposed Action in Table 3.2-1 at the end of this section.

#### **3.2.3.1 Understanding and Interpreting the Northwestern Hawaiian Islands**

##### **Maritime Heritage Action Plan**

###### ***Planning and Administrative Activities***

As part of the No Action alternative, efforts are under way to plan for conservation of selected maritime artifacts (MH-1.4). Artifacts would be recovered only when this activity can proceed in a manner that respects the integrity of the ecosystem and the goals of the Monument. These activities could have a short-term minor negative effect on terrestrial and marine native species and habitat during recovery actions due to land disturbance, human disturbance, and noise. Operations to recover maritime heritage artifacts occur over a short period of time, and once the recovery is completed, the disturbed areas would be restored as part of BMPs.

***Field Activity***

The effort to monitor, map, and characterize existing resources includes maritime heritage as well as biological and ecological resources are identified in activity MH-1.2. Shoreline terrestrial surveys and inventories, marine remote sensing using magnetometer, and side-scan sonar would continue to be used to locate potential maritime heritage targets, and noninvasive diving surveys would continue for assessing and inventorying sites. All in-water and on-land activities are and would continue to be conducted in accordance with BMPs (See Monument Management Plan, Volume III, Appendix F) that avoid the potential for any effects on threatened and endangered species. For example, should a Hawaiian monk seal or other listed species be observed during a dive, the standard procedure is to cease all activity until the animal departs the area. In addition, any person who encounters a Hawaiian monk seal on a beach while conducting an activity not related to Hawaiian monk seal population monitoring and recovery actions must not come within 150 feet (46 meters) of the seal. The 150 foot (46 meter) buffer around these animals is a general minimum distance, but for certain activities greater distance may be necessary to avoid take. These BMPs have been in effect for decades to avoid negative effects on the Hawaiian monk seal. The agencies also commit to consultation under either the ESA or the MMPA before beginning any action that could affect any marine mammal or federally listed species or designated critical habitat.

Prior to implementation of this activity, additional compliance may be required. There may be a short-term minor negative effect on threatened and endangered species, migratory birds, and marine species from vessels and diver presence during annual maritime heritage field surveys. However, affected individuals could be expected to resume normal behavior within a short period of time, with no lasting negative effects. (See section 3.2.2 for detailed discussion of effects.) The agencies also commit to consultation under either the ESA or the MMPA before beginning any action that could affect any marine mammal or federally listed species or designated critical habitat.

**3.2.3.2 Conserving Wildlife and Habitats****Threatened and Endangered Species Action Plan*****Planning and Administrative Activities***

Plans are under way for education, training, and regular interaction with species and habitat experts to build the capacity of the consulting agencies to conduct consultations and coordinate with action agencies (TES-8.3). NMFS and FWS will investigate the possibility to provide targeted workshops explaining the requirements for project specific and programmatic ESA consultations and work with partners to develop "best practices" and other protocols to avoid effects on listed species and habitats. Implementation of these best practices and protocols developed during the workshops would impose conditions on all future activities for additional protection of listed species and habitat, resulting in long-term beneficial effects on natural resources of the Monument.

***Field Activities***

The No Action alternative includes efforts to reduce marine debris within the Monument and to continue with large-scale efforts to remove debris from critical aquatic habitats (TES-1.1).

There could be short-term minor negative effects on seabirds from boats and humans during marine debris removal activities. Common effects that occur when humans enter a seabird colony are discussed in section 3.2.2. These effects could be reduced by adhering to operational protocols and implementing standard BMPs (see Volume III, Appendix F). However, there could be an overall beneficial effect on the endangered Hawaiian monk seal by reducing injuries and mortality from entanglement in marine debris. Entanglements of migratory birds could also decrease. Marine habitat could benefit from minimizing damage to coral and other marine species from scouring by tangled nets.

Annual spinner dolphin mark/recapture photo identification surveys would be continued at Midway, Kure, and Pearl and Hermes Atolls (TES-2.2) under the No Action alternative. Understanding the population trends of this species could aid in evaluating the success of management activities. Being able to adapt management actions based on real-time data could allow managers to make changes more quickly and could ultimately benefit spinner dolphin populations.

Activities in place to conserve green turtle nesting and basking habitat (TES- 3.2) through the use of BMPs (see Monument Management Plan, Volume III, Appendix F) currently prevent the introduction of mammalian predators on eggs and hatchlings, reduce artificial lighting near nesting beaches, prohibit undesirable habitat alteration, and control human access. Limited-entry policies would be continued, and human activities would be strictly regulated at islands and reefs used by the Hawaiian population of green turtles. Implementation of these activities would comply with ESA recovery permits that include terms and conditions to avoid or minimize effects. Protection and management of nesting habitats could increase nesting success for the green turtle, resulting in long-term beneficial effects on green turtle populations.

Laysan duck population monitoring on Laysan Island and Midway Atoll would continue through mark-recapture and monitoring of reproductive success and survival, disease screening and prevention to avoid translocation of unhealthy individuals, and genetics research to prevent loss of genetic diversity during population translocation (TES-5.1). During mark-recapture and recovery efforts, handling and marking individual ducks could disturb individual organisms, possibly causing them to temporarily leave a nest or other habitat, discontinue feeding, preening, basking or other behavior. While mark-recapture activities may disturb individuals of a population, resulting in short-term negative effects, the long-term beneficial effects of increasing the number and health of the entire population of Laysan ducks would more than offset the short-term negative effects.

Monitoring is a critical element and could be used for adaptive management. Before monitoring takes place, all necessary compliance requirements would be completed. During monitoring, trampled vegetation, human presence, and noise could have short-term minor negative effects on native habitat and could disturb other bird species present. Every effort would be made to minimize effects, and affected individuals would be expected to resume normal behavior within a short period, with no lasting negative effects.

Annual censuses of passerine populations and monitoring of their food and habitat would continue under the No Action alternative. This includes monitoring the status of native plant and

terrestrial invertebrate populations (TES-6.1). This could result in a long-term beneficial effect on passerines by enabling managers to identify changes in population dynamics early so that additional management activities could be implemented to preserve passerine populations. Field activities associated with monitoring passerines could have a short-term minor negative effect on passerine birds and native habitat through human presence and minor trampling of vegetation. These effects could be reduced by adhering to the operational protocols and implementing standard BMPs (see Volume III, Appendix F). Endangered passerines in the Monument (Nihoa finches, Nihoa millerbirds, and Laysan finches) are inquisitive and exploratory and thus can be at risk from human materials and equipment on their breeding islands; for example, curious birds can drown in open containers, such as buckets and cooking pots that catch rainwater; strings, netting, and loose fibers on tarps can entangle their feet; tent openings can attract birds, which become trapped and succumb to overheating. All activities would be planned to ensure that tent openings would remain tightly closed, and the types of materials described above would not be left unattended in campsites at Nihoa, Laysan Island, and Pearl and Hermes Atoll. In addition, the agencies would commit to consultation under the ESA, or MMPA, as appropriate, for any action began that could affect any bird, marine mammal, federal listed species, or designated critical habitat.

Activity TES-7.3 continues actions for the preparations necessary for the establishment of a self-sustaining *Pritchardia remota* population on Laysan Island, including eliminating alien species (TES-7.3). Seeds of native species, e.g., *Pritchardia remota* and *Mariscus pennatiformis*, would continue to be collected from the wild (taking no more than 15 percent of the seeds from any one plant) and reared in a greenhouse on Laysan Island. Strict protocols are followed during seed collection and propagation to avoid transport of pests, diseases, and pathogens. The Monument staff would also continue to propagate approved seed sources collected on Laysan Island in the greenhouse on Sand Island (TES-7.4). These activities could result in a beneficial effect on threatened and endangered species, native habitat, and migratory and passerine birds that use the habitat for cover, nesting, and feeding because they would provide high value habitat to the species that use these fauna and thus would be an important part of the overall protection of the species. To protect *Pritchardia remota* from catastrophic events and achieve recovery objectives, this species is being established outside its known native range on Laysan Island and Eastern and Sand Islands at Midway Atoll (TES-7.5). Effects on native species and risk of hybridization with closely related species would be evaluated before sites are chosen and species are translocated. The goal is to create three colonies with at least 100 mature individuals per colony. In addition, during restoration the actions of replacing vegetation, human presence, and increased noise could have a short-term minor negative effect on native habitat and could disturb other bird species. (Common effects that occur when humans enter a seabird colony are discussed in Section 3.2.2.) Every effort would be made to minimize effects, and affected individuals would be expected to resume normal behavior within a short period, with no lasting negative effects.

## **Migratory Birds Action Plan**

### ***Planning and Administrative***

The Monument staff will work with partners to reduce the effect of commercial and sport fisheries outside the Monument on migratory bird populations (MB-2.5). The black-footed

albatross and Laysan albatross that nest almost exclusively in the Monument are most affected by bycatch mortality (Flint 2004). The FWS, NMFS, and the Regional Fisheries Management Councils have worked cooperatively to implement the National Plan of Action to reduce seabird bycatch, which has reduced mortality from the U.S. based commercial fleet. The agencies are working to extend these efforts to reduce mortality from foreign-based fishing fleets. Continued implementation of this plan could reduce incidents of bycatch mortality in fisheries inside and outside the Monument, resulting in long-term beneficial effects on migratory bird populations in general and the black-footed albatross and Laysan albatross in particular.

## Habitat Management and Conservation Action Plan

### *Field Activities*

Efforts are under way to collect and “fingerprint” oil found washed ashore and on wildlife from mystery spills to determine its origin and build an oil sample archive for possible use as evidence to assign liability (HMC-2.5). The ability to identify the primary sources of oil spilled into the marine environment could provide knowledge needed for developing measures to prevent future spills, thereby reducing the number of future spills, which could lessen the overall effects of oil in the long term. Fingerprinting the source could also provide potential funding as the vessel owners could be made to pay for the spill and cleanup, as is standard if proof can be made, which would provide more income for conservation actions. However, it is important to note that none of these post spill practices outweigh the detrimental effects of oil in the marine environment. Past experience in similar circumstances indicate there are beneficial effects on ocean, nearshore, and shoreline habitats to be had by reducing illness and death of associated marine species that use these habitats (including threatened and endangered species, migratory and resident birds, and marine mammals), and by minimizing the fouling of plants in the nearshore and shoreline beaches.

Under the No Action alternative, monitoring would continue in the area at Laysan Island that was contaminated by the insecticide carbofuran (HMC-2-6). Carbofuran was causing mortalities in carrion flies and ghost crabs at a beach crest site at Laysan Island. The area was cleaned and treated on-site. Continued monitoring to detect evidence of carbofuran resurfacing at Laysan Island would provide managers with the necessary information to quickly institute a cleanup plan to prevent or minimize any future losses. This could result in a long-term beneficial effect on endangered Laysan finches, the dune habitat, and associated insects and other arthropods on Laysan Island.

A plan is in place to propagate and outplant native species, chosen on the basis of historical records at Midway and historical and pollen records from Laysan Island, on 250 acres of vegetated area at Midway Atoll, focusing on the original footprint of the islets of Midway Atoll. Target species for outplanting include bunchgrass (*Eragrostis variabilis*), naupaka (*Scaevola sericea*), morning glory (*Ipomoea pes caprae* and *I. indica*), *Solanum nelsonii*, *Capparus sandwichiana*, *Chenopodium oahuense*, and *Lepidium bidentatum* (HMC-4.1). The restoration of native habitats through propagating and outplanting native species on Midway Atoll could result in long-term beneficial effects on threatened and endangered species, migratory birds, and other native plants and insects. During restoration, the actions of replacing vegetation, human presence, and increased noise could have a short-term minor negative effect on native habitat



and/or could disturb other bird species. Common effects that occur when humans enter a seabird colony are explained in Section 3.2.2. Every effort would be made to minimize effects, and affected individuals would be expected to resume normal behavior within a short period, with no lasting negative effects. In addition, the agencies would commit to consultation under the ESA or MMPA, as appropriate, before any action began that could affect any marine mammal or federally listed species or designated critical habitat.

Current efforts to reestablish 60 acres of native shrub community on Laysan Island would continue under activity HMC-4.3. Reestablishing native shrubs is preceding the removal of the alien plant *Pluchea indica* to avoid an interim loss of nesting substrate for red-footed boobies, great frigatebirds, and black noddies. The restoration effort on Laysan Island would continue to focus on restoring plants, terrestrial arthropods, and avian components of the biological community that occurred before human contact. Reestablishing the native shrub community could result in a beneficial effect on threatened and endangered species, migratory birds, terrestrial arthropods, and native habitat by expanding and improving the quality of habitat. During restoration, human presence and increased noise could have a short-term, minor negative effect on native habitat and could also disturb other bird species. These effects could be reduced by adhering to operational protocols and by implementing standard BMPs (see Volume III, Appendix F). Endangered Laysan finches are inquisitive and exploratory and thus can be at risk from human materials and equipment on their breeding islands; for example, curious birds can drown in open containers, such as buckets and cooking pots that catch rainwater; strings, netting, and loose fibers on tarps can entangle their feet; tent openings can attract birds, which become trapped and succumb to overheating. All activities would be planned to ensure that tent openings would remain tightly closed, and the types of materials described above would not be left unattended. Common effects that occur when humans enter a seabird colony are explained in Section 3.2.2. Every effort would be made to minimize effects, and affected individuals would be expected to resume normal behavior within a short period, with no lasting negative effects. In addition, the agencies commit to consultation under the ESA and MMPA, as appropriate, before beginning any action that could affect any marine mammal or federally listed species or designated critical habitat.

Changes in species composition and structure of the coastal shrub and mixed grass communities on basaltic islands in the Monument would continue to be monitored under activity HMC-4.7. Field activities associated with monitoring vegetation communities could have a short-term minor negative effect on seabirds and native habitat through human presence and minor trampling of vegetation. Common effects that occur when humans enter a seabird colony are explained in Section 3.2.2. These effects could be reduced by adhering to operational protocols and implementation of standard BMPs (see Volume III, Appendix F). Endangered passerines on Nihoa (Nihoa finches, Nihoa millerbirds,) are inquisitive and exploratory and thus can be at risk from human materials and equipment on their breeding islands; for example, curious birds can drown in open containers, such as buckets and cooking pots that catch rainwater; strings, netting, and loose fibers on tarps can entangle their feet; tent openings can attract birds, which become trapped and succumb to overheating. All activities would be planned to ensure that tent openings would remain tightly closed, and the types of materials described above would not be left unattended in campsites at Nihoa, Laysan Island, and Pearl and Hermes Atoll to avoid effects on these species. Every effort would be made to minimize effects, and affected individuals

would be expected to resume normal behavior within a short period after the activity has ended, with no lasting negative effects. In addition, the agencies would commit to consultation under the ESA or MMPA, as appropriate, before any action that could affect any marine mammal or federally listed species or designated critical habitat. Monitoring data could be used to determine future needs through adaptive management, resulting in a beneficial effect on the coastal shrub and mixed grass communities.

Under activity HMC-6.1, water quality monitoring would continue, including monitoring water level, salinity, and other water quality parameters of Laysan Lake and mudflats on Laysan Island and ‘ākulikuli (*Sesuvium portulacastrum*) flats at Southeast Island, Pearl and Hermes Atoll, and Spit Island at Midway Atoll, and documenting any loss of lake area. Monitoring changes in such environmental factors as lake water level and salinity currently provide data used to plan restoration and to assess its efficacy. As needed, dune habitat on Laysan Island would be restored to stabilize movement if lake loss started to occur, as identified in activity HMC-6.2. Common effects that occur when humans enter a seabird colony are explained in Section 3.2.2. Overall, these activities listed above could result in a beneficial effect on threatened and endangered species, migratory and passerine birds, and native vegetation by protecting existing freshwater and saline water sources, and by reducing lake loss from encroaching dunes. There could be short-term minor negative effects on species, such as migratory shorebirds and Laysan ducks, using the mudflats and lakes due to human disturbance during monitoring. However, affected individuals would be expected to resume normal behavior within a short period, with no lasting effects once the activity was finished assuming aforementioned BMPs would be in place. In addition the agencies would commit to consultation under the ESA or MMPA, as appropriate, before any action that could affect any marine mammal or federally listed species or designated critical habitat.

### 3.2.3.3 Reducing Threats to Monument Resources

#### Alien Species Action Plan

##### *Field Activities*

Under activity AS-3.2, hull inspection and cleaning of all vessels, SCUBA gear, marine construction material, and instruments deployed in the Monument would continue to be required. Current quarantine protocols to prevent the introduction of invasive terrestrial species to the Monument would continue under activity AS-3.1. The absence of activities to adequately control and eradicate invasive species, such as *Verbesina* sp., grey bird locust, and house mouse, would cause negative effects on migratory birds, endangered plant and bird species, and other native species and their habitats. Requiring hull inspections and following quarantine protocols would greatly reduce the potential to introduce invasive species into the Monument. Reducing competition with and predation by invasive species would protect the health and condition of all habitat and species in the Monument and would have a beneficial effect on these resources.

#### Maritime Transportation and Aviation Action Plan

##### *Infrastructure Development Activities*

Efforts would continue to encourage the energy and water efficiency of vessels operating in the Monument under activity MTA-2.4. For example, the NOAA ship Hi‘ialakai began a recycling

program and installed water-saving devices to reduce inputs to the Monument as much as possible. Plans are in place to test the use of biofuels and nonpetroleum-based hydraulic fluid. Increased efficiency would not have a direct beneficial effect on natural resources, but as global habitats and resources are conserved, indirect beneficial effects on natural resources would result.

#### **3.2.3.4 Managing Human Uses**

##### **Permit Action Plan**

###### ***Planning and Administrative Activities***

Coordination of appropriate environmental review for all permitted activities would continue under activity P-1.3. Permitting activities would ensure that permittees are aware of all protocols and operating requirements, and the required environmental review of all proposed activities would assess any potential effects of the activities on the resources of the Monument.

Coordinating appropriate environmental review to consider the effects of both federal and state actions could result in a beneficial effect by protecting the natural resources of the Monument.

##### **Enforcement Action Plan**

###### ***Planning and Administrative Activities***

Under the No Action alternative, operation of the VMS for all permitted vessels (EN-2.2) would continue. Additional automated monitoring systems and ship reporting systems for all vessels transiting the Monument would continue to be integrated under activity EN-2.3. In addition regulations briefings in pre-access training required for all Monument users would continue (EN-3.1). The ability to monitor all permitted vessels transiting the Monument would allow enforcement personnel to ensure vessels are following procedures identified in the pre-access training and are operating within their permit area. Additionally, enforcement personnel would be able to respond quickly to vessels engaged in activities that constitute a violation. This could result in a beneficial effect on all resources of the Monument by reducing the potential of vessel groundings vessel dumping, oil spills, etc.

##### **Midway Atoll Visitors Services Action Plan**

###### ***Planning and Administrative Activities***

Activity VS-2.2 includes visitor services specialists and Midway Atoll staff continuing to review the visitor program every two years. The team would review the visitor services to evaluate whether the program is meeting its objectives. This information would inform on such planning decisions as the extent of visitor interactions with wildlife that would be permitted in the future. Reviewing the visitor program every two years would provide a consistent and relatively frequent way to identify potential problems with any existing planning actions and also allows for changes to be made to the plan to additionally minimize any effects visitors might have on the Monument's natural resources, resulting in a long term beneficial effect. The effects of implementing the Interim Midway Atoll Visitor's Plan are evaluated in the associated final EA for the Interim Visitor Services Plan (U.S. Fish and Wildlife Service 2007b). That document may be found at <http://www.fws.gov/midway/VSP/AppendixG.pdf> and is incorporated by

reference herein. The effects of the No Action alternative are the same as those set out in the EA for the Interim Plan.

### **3.2.3.5 Coordinating Conservation and Management Activities**

#### **Constituency Building and Outreach Action Plans**

##### ***Planning and Administrative Activities***

Under activity CBO-1.2 the Monument staff would continue to refine and implement the Monument Media Communications Protocol to engage news media in informing the public about the Monument's natural, cultural, and historic resources and on-going activities. The MMB agencies would continue seeking out and participating in events that reach a broader audience and provide constituents with knowledge of the Monument (CBO-3.1). The Monument staff would continue participating in the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve Advisory Council through NOAA's ONMS until the Monument Alliance is established (CBO-3.8). Engaging Monument constituencies through integrated communications and interactive experiences could result in a beneficial effect on the Monument's natural resources because Monument staff, MMB agencies and members of the Council would be able to more easily provide input from stakeholders and to share information that might be useful in managing natural resources and supporting future programs.

#### **Ocean Ecosystems Literacy Action Plan**

##### ***Planning and Administrative Activities***

At least four teacher workshops per year would be conducted in the main Hawaiian Islands to introduce and support the elementary school and middle school and high school environmental education programs (OEL-1.4). Teacher workshops could increase awareness of the importance of natural resources among teachers and students alike, and possibly among students' families, and would likely increase interest in the Monument and generate support for conservation of its resources. These workshops could result in a beneficial effect on Monument natural resources by creating opportunities to expand public involvement in, enhancing cultural awareness of, and increasing support for protection and restoration efforts, including volunteer participation in Monument activities.

### **3.2.4 Proposed Action**

This section describes the effects of the activities that would be conducted under the Proposed Action. Those activities described above for the No Action alternative, and their beneficial and negative effects, would continue. The effects of the Proposed Action are summarized in Table 3.2-1 and include those effects that would occur with the continuation of actions described in the No Action alternative.

In the subsections that follow, the component activities of the Proposed Action are briefly described, followed by a discussion of the effects of each activity.

### 3.2.4.1 Understanding and Interpreting the Northwestern Hawaiian Islands

#### Marine Conservation Science Action Plan

##### *Field Activities*

The Proposed Action alternative includes measuring connectivity and genetic diversity of key species to compare the similarity or differences of populations (MCS-1.5). Understanding the genetic diversity of species groups, and the way in which the populations in areas change could be helpful to forecast, prepare for and mediate potential threats to populations within the Monument. The Monument staff would implement management-driven research priorities identified in the Monument Natural Resources Science Plan under activity MCS-2.4, which would include monitoring both marine and terrestrial environments. Before implementing this activity, additional compliance might be required. Establishing research priorities would allow researchers to focus on and evaluate areas of greatest importance to the health and protection of the Monument, thereby more effectively applying needed resources to the most critical areas, resulting in long-term beneficial effects on ocean and nearshore habitats. These data could also feed into an adaptive management strategy to improve research results.

#### Native Hawaiian Culture and History Action Plan

##### *Planning and Administrative Activities*

The Proposed Action alternative includes the preparation of a Cultural Resources Program Plan (NHCH-4.1) and the integration of Native Hawaiian values and cultural information into general outreach and education programs (NHCH-5.1). The Proposed Action also calls for the development of a culturally based strategy for education and outreach to the Native Hawaiian community (NHCH-5.2) and integration of Native Hawaiian values and cultural information into Monument permittee education and outreach program (NHCH-5.3). Native Hawaiian culture and history activities proposed under the NHCH Action Plan would increase access to Monument islands for observing Native Hawaiian cultural practices. These activities may result in effects such as temporary disturbance or displacement of native wildlife and plants. Common effects that occur when humans enter a seabird colony are discussed in Section 3.2.2. These short-term minor negative effects are reduced by using BMPs mentioned in Section 3.2.2. These activities would also educate the public as to the importance of the natural environment to Native Hawaiian culture and would ensure that efforts to maintain and restore the natural environment within the Monument take into account traditional Native Hawaiian values and culture. Native Hawaiians and the general public would see that conservation management and respect for traditional beliefs and practices can work together. This in turn could generate greater public support efforts to maintain, restore, and protect the environment, resulting in a beneficial effect on the natural resources within the Monument.

#### Historic Resources Action Plan

##### *Planning and Administrative Activities*

Activity HR-1.1 proposes to reconcile the Historic Preservation Plan with the Midway Visitor Service Plan, lead-based paint abatement plan, and other facilities maintenance and use plans. HR-1.2 proposes to submit the updated Historic Preservation Plan for approval to the Advisory Council on Historic Preservation and Monument partners, and activity HR-2.1 proposes that



within three years, a dedicated capacity to implement the updated Historic Preservation Plan would be created. The Proposed Action alternative proposes to train Monument staff and the Midway contractors annually on the content of the Historic Preservation Plan and implementation of appropriate treatments (HR-2.2). The Historic Preservation Plan includes protocols for not only carrying out historic resource preservation and restoration activities but protocols to ensure that actions taken as part of the plan would be done to avoid any effects on protected species and generally to minimize effects on the Monument's natural resources. The removal of the lead-based paint from buildings and adjacent soil, and following the protocols to minimize effects of preservation and restoration work, would result in a beneficial effect on all natural resources, including on threatened and endangered species and terrestrial habitats. It is estimated that over the life of the project, 6,745 to 9,900 Laysan albatross chicks would be saved from lead poisoning a year (Finkelstein 2006).

### **Maritime Heritage Action Plan**

#### ***Planning and Administrative Activities***

A status report on potential environmental hazards would be completed within a year and updated annually under activity MH-1.3. This activity would identify wreck sites and other debris that represent potential environmental hazards, such as leaking fuel, debris-containing hazardous material, and debris with unknown contaminants. The plan not only identifies these sites but identifies plans for containment, cleanup, removal, and remediation to minimize the potential contamination to ocean, nearshore, and shoreline habitats. The long-term beneficial effects of implementing the plan are to protect and improve the health of these habitats and the species found there, including threatened and endangered species, marine mammals, and migratory birds.

#### **3.2.4.2 Conserving Wildlife and Habitats**

##### **Threatened and Endangered Species Action Plan**

#### ***Planning and Administrative Activities***

Activities that are proposed under the Threatened and Endangered Species Action Plan include planning activities designed to conserve Hawaiian monk seal habitat (TES-1.3) and to reduce the likelihood and effect of human interactions on monk seals (TES-1.4). Before these activities were implemented, additional compliance might be required. The goal of these proposed activities is to restore seal habitat for resting, breeding, and rearing pups and to educate Monument users on proper implementation of standard operating protocols and BMPs (see Monument Management Plan, Volume III, Appendix F). These activities could have a beneficial effect on the endangered Hawaiian monk seal by improving the health of adults and improving breeding success and juvenile survival rates. In addition, using existing BMPs to control activities and reduce disturbance along the beaches could provide benefits to other species as well, such as migratory birds using these areas for nesting and feeding.

Activity TES-1.5 includes actions that would support outreach and education on Hawaiian monk seals. Educating the public and interest groups with information to understand the critical status of the Hawaiian monk seal population would result in better protection of the seal while outside the Monument; for example, the public would know to give space to Hawaiian monk seals

resting on beaches on the main Hawaiian Islands. Increased awareness through outreach and education could have a long-term beneficial effect on the recovery of the Hawaiian monk seal population by reducing incidents of human interaction and harassment, thereby allowing the seal to conserve energy for activities like feeding and reproduction.

Under activity TES-4.1, the FWS would work with Japanese ornithologists on ways to establish one or more breeding populations of the endangered short-tailed albatrosses on Midway Atoll. The goal is to have two colonies of at least 250 breeding pairs per colony (U.S. Fish and Wildlife Service 2005a). Collaborative efforts would also include satellite tagging projects studying feeding patterns, how weather systems and winds influence short-tailed albatross movements, and how ocean productivity and seafloor bathymetry affect their distribution. This would protect the species by establishing nesting colonies on islands free from volcanic activity and mammal predators, resulting in a beneficial effect on the endangered short-tailed albatross species. Activity TES-4.3 would create and disseminate information on fisheries bycatch and bycatch reduction to all fisheries occurring outside the Monument. Bycatch of endangered and migratory birds and nontarget marine species during commercial fishing by foreign fleets outside the Monument is a serious problem. This activity would make information on bycatch avoidance measures available to commercial fishers and would result in a beneficial effect on endangered species, migratory birds, and other marine species that inhabit the Monument by reducing bycatch mortality when they are migrating outside the Monument.

To protect *Amaranthus brownii*, *Schiedea verticillata*, and *Prichardia remota* from catastrophic events and to achieve recovery objectives, the potential for establishing these species outside their known native range on Mokumanamana, Laysan Island, Kure Atoll, and Eastern and Sand Islands at Midway Atoll would be assessed under activity TES-7.5. To minimize the negative effects on native species, the potential for displacement and risk of hybridization with closely related species would be evaluated before sites were chosen and species translocated. The goal is to create three colonies with a minimum of 500 mature individuals per colony of *Amaranthus brownie*, 300 mature individuals per colony of *Schiedea verticillata*, and 100 mature individuals of *Prichardia remota* (U.S. Fish and Wildlife Service 1998). Evaluating the potential to translocate *Amaranthus brownii*, *Schiedea verticillata*, and *Prichardia remota* could result in a beneficial effect on the species once translocation occurs by establishing new populations and providing increased protection from catastrophic events. Before this activity is implemented, additional compliance may be required.

### **Field Activities**

Activities supporting and facilitating emergency response for the endangered Hawaiian monk seal would put into place standardized protocols that could ensure a rapid and well-organized response to situations in the Monument that threaten endangered Hawaiian monk seals (TES-1.2). Improved coordination and collaboration among agencies to facilitate effective and rapid emergency response to ship groundings, oil spills, disease outbreaks and other events would minimize effects on Hawaiian monk seals. Additionally, Monument staff would continue to monitor predation of sharks on Hawaiian monk seals and its effects and develop and implement methods to deter predation as appropriate (TES-1.6). These activities could have a beneficial effect on the endangered Hawaiian monk seal by decreasing population loss. There could also be beneficial effects on migratory birds, marine mammals, and terrestrial and marine habitat by

reducing exposure to oil spills. There may be short-term minor negative effects on marine mammals due to disturbance from response activities. However, emergency response activities would be temporary, and affected individuals would be expected to resume normal behavior within a short period after the activities were completed. In addition, the agencies commit to consultation under the ESA or MMPA, as appropriate, before any action that could affect any marine mammal or federally listed species or designated critical habitat.

Expanding field activity for collecting biological information on nesting turtle populations (TES-3.1) could improve the health of the green sea turtle. Understanding the abundance of nesting sea turtles and their life history needs could result in more effective management of existing populations. In addition, a new activity, protecting and managing marine turtle habitat, including foraging areas and migration routes (TES 3.2), could reduce losses due to disturbance. This could result in the additional management of such potentially detrimental activities as anchoring and effects from vessel transit, could minimize the effects on foraging areas, reduce potential exposure to hazardous materials, and minimize vessel hazards to turtles in open waters. Both of these activities could have a long-term beneficial effect on the Hawaiian population of the threatened green sea turtles by ensuring the health of sea turtles and minimizing losses from shipping and boating interactions.

As a surrogate for estimating contaminant body-burdens in short-tailed albatrosses, the feathers, eggs, and dead chicks of black-footed albatrosses at Midway Atoll (TES-4.2) would be analyzed to determine the level of persistent environmental contaminants. This information could be used to determine a correlation between contamination levels and nesting success and could assist in developing plans to reduce contaminant exposure of the short-tailed albatross by targeting cleanup of areas where albatross feed and nest. Common effects that occur when humans enter a seabird colony are explained in Section 3.2.2. Reducing exposure to contaminants could result in a beneficial effect on the endangered short-tailed albatross through improved nesting success rates. Similar beneficial effects on other migratory birds could also occur. Collection of feather, eggs, and dead chicks could cause a short-term negative effect on seabirds from human interactions and a short-term negative effect on terrestrial vegetation from trampling plants during collection activities. (See section 3.2.2 for detailed discussion of effects.) However, collection would occur infrequently at any given location, and the short-term negative effects could be minor. These effects would be reduced by adhering to the standard operational protocols and implementing standard BMPs mentioned in section 3.2.2 and by implementing accepted BMPs (see Monument Management Plan, Volume III, Appendix F).

Restoration or creation of habitat to support translocation of the endangered Laysan duck to other sites in the Monument would be implemented under activity TES-5.2. This would include transporting juveniles to additional islands and conducting post release monitoring. The goal is to have a total of at least 240 breeding adults at these sites (U.S. Fish and Wildlife Service 2004a). By monitoring the populations, changes could be made through adaptive management that could improve the success of translocating Laysan ducks. Providing improved monitoring practices or adaptive management techniques could further assist in meeting recovery plan criteria. This would occur several ways, including by creating practices that would allow for the expansion of the population throughout its range, by protecting the population from a catastrophic event (resulting in a long-term beneficial effect on the endangered Laysan duck),

and by increasing overall protective measures for this species. During restoration, human presence and noise at translocation sites could result in short-term minor negative effects. Common effects that occur when humans enter a seabird colony are discussed in Section 3.2.2. These effects would be reduced by adhering to the standard operational protocols and implementing standard BMPs mentioned in section 3.2.2 and by implementing accepted BMPs (see Monument Management Plan, Volume III, Appendix F).

Five endangered plant species are restricted to Nihoa and Laysan Island and are subject to extinction from catastrophic events. To protect all endangered plant species on Nihoa and Laysan Island from extinction, seeds would be collected and maintained in off-Monument locations (TES-7.1). This could allow for the restoration of these native plants if such a catastrophic event were to occur. Overall, this activity could result in a beneficial effect on these plants and terrestrial plant communities on Nihoa and Laysan Island and to the Laysan finch, Nihoa finch, and Nihoa millerbird that depend on the native plant community for food, cover, and nesting. Short-term minor negative effects on the terrestrial plant community could occur during seed collection through trampling and reduced seed drop. Seed collection would occur over a short period, and affected individuals would be expected to recover once the activities were completed. These effects would be further reduced by adhering to the standard operational protocols and implementing standard BMPs mentioned in section 3.2.2 and by implementing accepted BMPs (see Monument Management Plan, Volume III, Appendix F).

Existing colonies of *Amaranthus brownii* and *Schiedea verticillata* on Nihoa would be supplemented, and factors restricting colony expansion, such as herbivory by alien species, would be addressed (TES-7.2). This would increase numbers and locations of these species on Nihoa where they are endemic. The goal is to have 300 to 500 individuals per colony. Outplanting *Amaranthus brownii* and *Schiedea verticillata* could result in a beneficial effect on these species once outplanting occurs by expanding the existing colonies, eliminating competition from alien species, and establishing new populations.

## **Migratory Birds Action Plan**

### ***Planning and Administrative Activities***

Activity MB-2.3 would ensure that all spill response plans have adequate coverage of actions necessary to minimize mortality to migratory birds. Monument staff would coordinate with and provide technical information regarding migratory birds to those responsible for multiagency spill prevention and pre-spill activities, as well as actual response actions. This could allow agencies to develop plans that would minimize effects of spills on migratory birds and to develop recovery plans that would include protocols for handling birds that have been affected by spills. This could prevent mortalities and speed rescue efforts. This beneficial effect would help prevent reduction of migratory bird populations that might otherwise result from releases of oil or hazardous materials or from the responses to such releases.

## **Habitat Management and Conservation Action Plan**

### ***Planning and Administrative Activities***

The Proposed Action alternative includes activities that would identify and prioritize restoration needs in shallow-water reef habitats affected by anthropogenic disturbances within five years

(HMC-1.1) and could evaluate costs to ecosystem function and benefits of removing anthropogenic iron sources, such as metal from shipwrecks and discarded debris from reefs, throughout the Monument (HMC-2.4). Managers would investigate opportunities for restoration and would prioritize actions so that they could focus funds and resources to address the most important needs. This attention to conservation and recovery actions could result in a beneficial effect on marine and terrestrial habitats within the Monument.

An ecological risk assessment would be conducted to determine allowable lead levels in soils at Midway and would remove lead from buildings and soils to nonrisk levels under activity HMC-2.7. The ecological risk assessment could determine the cleanup level necessary to reduce risks to human and wildlife health. The beneficial effects of this effort could be to improve the health of nesting migratory birds suffering from droop-wing and other lethal and sublethal effects.

Activity HMC-4.4 would formulate and implement a restoration plan for Lisianski Island using guidelines established for neighboring Laysan Island. This plan calls for investigating the botanical history of Lisianski and Laysan Island and could aid in native habitat restoration efforts, resulting in a beneficial effect on native plant species and on migratory and resident birds and other species that depend on the habitat that would be restored.

Planning activity HMC-7.2 would evaluate the potential to restore and create, as needed, freshwater sources at proposed translocation sites for Laysan duck, Nihoa finch, Laysan finch, and Nihoa millerbird. Before this activity is implemented, additional compliance might be required. This action would provide an important habitat feature presently lacking in these areas, thereby improving the chance of a successful translocation effort. These freshwater sources could also provide benefits to other migratory birds, native invertebrates, freshwater algae, terrestrial arthropods, and native habitat by expanding important habitat and improving reproductive success.

Other federal and state agencies would be educated about overflight rules and would promote compliance regarding overflights and close approaches at the Monument under activity HMC-9.1. This effort could reduce the potential for aircraft collisions with birds, resulting in a beneficial effect on migratory and resident birds, as well as on the crews of the aircraft that might otherwise be injured in collisions with the birds.

Aircraft operations occur at two Islands in the Monument, Sand Island at Midway Atoll and Tern Island at French Frigate Shoals. At both sites there are occasional bird strikes during aircraft takeoff and landings. Between August 2007 and August 2008, there were 6 bird strikes at Midway Atoll NWR. Four Laysan albatross, 1 Brown noddy & 1 Red-tailed tropicbird were hit and killed by aircraft. Flights arrive and depart at night when the albatross are present (November - July) which limits collisions. Additionally, very few seabirds are killed each year by aircraft collisions, because birds are hazed from the runway by trained personnel prior to aircraft operations. Unfortunately, a low number of Bonin Petrels are killed when they crash into lights at the airport hangar building. We do not currently have an estimate of the number killed, but USFWS plans to quantify this impact in the future. The lights are turned on for human safety and are turned off immediately after the aircraft operations are completed. These incidents cause mortality to birds (most often seabirds) and in some cases increase the risk to the aircraft



as well as to crew and passengers. The frequency at which these bird strikes occur varies by site, bird species, time of day, wind velocity, month of the year, and level of breeding activity in the bird colony. BMPs (see Monument Management Plan, Volume III, Appendix F) to reduce risk of bird air strikes vary between Midway and French Frigate Shoals. They were developed because of different species compositions of seabird colonies adjacent to the runways, types of aircraft used at the two sites, and constraints based on the runway facilities at each site. At Midway, the greatest risk of bird aircraft collision is from the two resident albatross species. Because they fly primarily during daylight hours, routine flight takeoffs and landings are scheduled to occur after sundown or before sunrise. Additionally, vegetation management along the runways modifies bird flight and nesting behavior, and the runway is swept or hazed of birds before each flight arrival or departure.

At Tern Island, French Frigate Shoals, the most commonly killed species is the sooty tern but occasionally wedge-tailed shearwaters, great frigatebirds, and albatrosses of both species are also hit. Tern Island does not have runway lights, so all operations are done during daylight hours. Just before landing and takeoffs, staff on the island make a sweep of the runway to haze birds from the runway. Flights would not be scheduled from June to August, when sooty terns are most numerous and most likely to be hit. Loads on takeoff could be minimized to improve the pilots' ability to get above the bird hazard zone as soon as safely possible, and flights could be curtailed on windless days when bird casualty has historically been highest. Flight activities could have a minor negative effect on migratory birds, but efforts to reduce effects would be made before the activities occur. Facilitating management actions that benefit birds, and also a wide variety of plant and wildlife species and habitats could have long-term beneficial effects on the natural resources of the Monument.

### ***Field Activities***

Field personnel would evaluate the effects of contamination in terrestrial and nearshore areas from shoreline dumps at French Frigate Shoals and at Kure, Midway, and Pearl and Hermes atolls. They would prioritize cleanup action based on risk assessments (HMC-2.1) and would work with partners and responsible parties to verify the integrity of known landfills and dumps and to conduct additional remediation if necessary (HMC-2.2). They would investigate the extent of contamination at these sites and would assess their integrity, containment effectiveness, and hazard potential. Based on this information, the highest priority sites would be removed, remediated, or sealed. Monitoring would continue to assess whether further action is needed. Some proposed activities would require further analysis and compliance by the agencies as more detailed information on these potential actions becomes available and specific plans are developed. These requirements may include additional analysis, in accordance with NEPA, and consultation under ESA, MMPA, NHPA, and other relevant laws.

Possible short-term negative effects from these actions could include: (1) disturbance to nesting and resting seabirds and other migratory birds; (2) effect on Hawaiian monk seals or the Hawaiian population of green turtles swimming and feeding in the nearshore marine environment or resting on beaches; (3) effect on spinner dolphins; (4) effect on fish, cetaceans, marine invertebrates, and corals; (5) disturbance to Laysan ducks, Nihoa finches, Nihoa millerbirds, and Laysan finches; (6) trampling of native plants and insects; (7) damage to corals; (8) accidental release of pollution and contaminants; and (9) the accidental introduction and

establishment of nonnative species. Effects of these activities would be reduced by adhering to the standard operational protocols and implementing standard BMPs mentioned in section 3.2.2 and by implementing accepted BMPs (see Monument Management Plan, Volume III, Appendix F). Overall, evaluating the effects of contamination from shoreline dumps and verifying the integrity of known landfills and dumps could result in beneficial effects on marine, coastal, and terrestrial habitats, as well as to marine mammals, migratory birds, and threatened and endangered species, by reducing exposure to hazardous materials from the dump sites.

The proposed activity HMC-2.3 would locate historic disposal sites at French Frigate Shoals and at Kure, Midway, and Pearl and Hermes atolls, and they would be investigated for contamination. Efforts include searching for documented but not yet located landfills and underground storage tanks and evaluating their contamination levels. These sites would be evaluated, and remediation actions would be planned.

Possible short-term minor negative effects from these remediation actions could include: (1) disturbance to nesting and resting seabirds and other migratory birds; (2) effect on Hawaiian monk seals or Hawaiian populations of green turtles swimming and feeding in the nearshore marine environment or resting on beaches; (3) effect on spinner dolphins; (4) effect on fish, cetaceans, marine invertebrates, and corals; (5) disturbance to Laysan ducks, Nihoa finches, Nihoa millerbirds, and Laysan finches; (6) trampling of native plants and insects; (7) damage to corals; (8) accidental release of pollution and contaminants; and (9) the accidental introduction and establishment of nonnative species.

Common results of the effects of human interactions with natural resources are explained in Section 3.2.2. These effects are expected to be reduced by using standard BMPs listed in Section 3.2.2. Another method mentioned in this section to reduce the effects of operations is, in advance of the planned work, to exclude that season's nesting birds by laying down geotextile fabric that prevents seabirds from burrowing or nest-building, as well as applying special terms and conditions in the Monument permitting process. Overall, locating and investigating disposal sites could result in long-term beneficial effects on marine, coastal, and terrestrial habitats, marine mammal, migratory birds, and threatened and endangered species by preventing exposure to and providing adequate protection from contaminants, such as PCBs.

A proposed activity on 34-acre Southeast Island at Pearl and Hermes Atoll would restore native plant vegetation that is critical to the survival of several native plants (HMC-4.5). After the invasive alien plant *Verbesina encelioides* is removed, native species would be propagated and outplanted. This restoration is considered critical to the survival of several native plant species and a small population of endangered Laysan finch. This activity could have beneficial effects on threatened and endangered species by improving the viability of the endangered Laysan finch and native plants. The beneficial effects would occur after a short-term minor negative effect from removing invasive alien vegetation that may currently provide cover or food for Laysan finches.

Coordinated ecosystem restoration activities on Kure Atoll would be implemented (HMC-4.6), including prioritizing and eliminating ecosystem threats caused by past human disturbance, removing invasive species, and increasing the range of and reintroducing native plant species.

The beneficial effects include improving nesting, foraging, and resting (loafing) habitat for migratory birds and improving the chances of survival of the translocated endangered Laysan finch and Laysan duck populations. There could be a short-term minor negative effect by removing invasive alien vegetation that may currently provide cover or feed to migratory birds. This could be offset in the long term by the resultant improved foraging, resting, and nesting conditions which the restored native habitat would afford.

Inventoried and documenting the life histories of endemic terrestrial invertebrates on Nihoa and Mokumanamana (HMC-5.1) would aid in identifying and controlling those species that affect the native vegetative communities, including the five endangered plant species found there. This could have the beneficial effect of preserving the most intact native coastal plant assemblages in the state. Field activities for the plants could however have a short-term minor negative effect on migratory bird species due to increased human presence and resultant disturbance and noise effects. Common effects that occur when humans enter a seabird colony are explained in Section 3.2.2. However, affected bird individuals would be expected to resume normal behavior within a short period after the activity has ended, with no lasting effects if BMPs are utilized.

### **3.2.4.3 Reducing Threats to Monument Resources**

#### **Emergency Response and Natural Resource Damage Assessment Action Plan**

##### ***Planning and Administrative Activities***

Damage assessment is an important component of any emergency response plan (ERDA-1.4). The Monument Emergency Response and Assessment Team would coordinate with the appropriate agencies to ensure that appropriate response, injury assessment, and restoration take place for any given emergency throughout the Monument. This could result in beneficial effects on all threatened and endangered species, migratory birds, marine mammals, marine and terrestrial species, and habitat by minimizing damage from the event and facilitating restoration. An example of this is minimizing unintentional damage that might otherwise result from response and restoration efforts, thereby allowing a faster recovery of any affected population. Any response, by either boat or vehicle, could disturb marine mammals, migratory birds, and other native species, and could include effects on the species ranging from disturbance to potential mortality every time a seabird colony is entered. These effects are explained in Section 3.2.2. The short-term negative effects could be offset by implementing BMPs. In the long term, the benefits provided by the response actions, which could minimize damage from any event and aid in recovery, would offset the short term negative effects. In addition, the agencies commit to consultation under either the ESA or the MMPA before beginning any action that could affect any marine mammal or federally listed species or designated critical habitat.

#### **Marine Debris Action Plan**

##### ***Field Activities***

The Proposed Action alternative calls for Monument staff to work with partners to remove marine debris in the Monument and to reduce additional debris entering the Monument (MD-1.1); to catalog, secure, contain, and properly remove hazardous materials that wash ashore in the NWHI (MD-1.2); and to work with partners on marine debris studies (MD-2.1). These efforts could reduce the potential for species in marine and terrestrial habitats being exposed to

dangerous debris, such as abandoned nets, and to hazardous material. All water and land activities would continue to be conducted in accordance with BMPs (See Monument Management Plan, Volume III, Appendix F) that avoid the potential for any effects on threatened and endangered species. For example, should a Hawaiian monk seal or other listed species be observed during a dive, the standard procedure would be to cease all activity until the animal departs the area. In addition, any person who encounters a Hawaiian monk seal on a beach while conducting an activity not related to Hawaiian monk seal population monitoring and recovery actions must not come within 150 feet (46 meters) of the seal. These BMPs have been in effect for decades to avoid negative effects on the Hawaiian monk seal.

During net removal, breakage, abrasion, and infaunal disturbance could result in short-term negative effects from mechanical damage to the reef ecosystem. Every effort would be made to avoid reef ecosystems and to minimize lasting effects from these activities.

These effects would be reduced by adhering to the standard operational protocols and implementing standard BMPs mentioned in section 3.2.2 and by implementing accepted BMPs (see Monument Management Plan, Volume III, Appendix F). Among other actions these require that a person approaching a seabird colony first look for any nests or for adults flushing from inconspicuous nests. Also, all activities could be planned to avoid displacing adults from their eggs or chicks for more than three minutes. There could be a beneficial effect on natural resources by reducing injury or mortality and improving the health of the reef and associated species.

## **Alien Species Action Plan**

### ***Field Activities***

Surveying distributions and populations of known alien species at regular intervals (AS-2.1) and developing and implementing monitoring protocols for early detection and characterization of new infestations (AS-2.3) would assist in understanding the distribution and populations of known alien species. This would allow for prioritizing control and eradication efforts and in monitoring the success of previous efforts. Instituting monitoring protocols would provide measures for collecting data that are meaningful and useful to managers. This could result in a beneficial effect on all native species within the Monument that are harmed by competition or predation by alien species.

Under activity AS-4.2, rodenticide would be used to eradicate the house mouse from all of Sand Island (1,128 acres) at Midway Atoll. Beforehand, though, additional compliance might be required. Common effects of human interaction with natural resources are explained in Section 3.2.2. Through active management, every effort would be made to prevent negative effects on nontarget native species from the use of rodenticide. Eradication of the house mouse would remove a potential vector for diseases and would eliminate competition for seed and other food items that native species require, resulting in an overall beneficial effect.

To protect nontarget species, Activity AS-5.2 proposes to conduct toxicant trials on pesticides to evaluate their efficacy and to document ecological effects at selected islands on highest priority invasive species of ants and wasps. Common effects that occur when humans enter a seabird colony are explained in Section 3.2.2. Determining the toxicant and treatment levels that would

be least likely to negatively affect nontarget species and reduce or eliminate target invasives could benefit native species by preventing mortality from treatment methods and by eliminating alien species that may compete for food or directly prey on native species. Conducting toxicant trials on pesticides is likely to result in a short-term negative effect on tested native invertebrates. However, additional agency analysis and targeted use of toxicants could reduce or eliminate the potential for harm, resulting in long-term beneficial effects on natural resources.

Activity AS-5.3 would control and possibly eradicate the two introduced mosquito species at Midway Atoll within 10 years, using methods prescribed in the Integrated Pest Management Plan. The mosquito is a vector for avian pox that affects nesting seabirds, the endangered Laysan duck, and other endangered bird species that may be established on Midway Atoll. Eliminating or controlling the mosquito could reduce mortality of these species and nonlethal effects of the pox. This could result in a long term beneficial effect on the Laysan duck and migratory birds and could improve the chances of success for future introductions of other endangered species. Some techniques for eliminating mosquitoes could have a short-term negative effect on native arthropods. However, additional agency analysis and targeted use of toxicants could reduce or eliminate the potential for harm.

Actions under Activity AS-5.4 would develop and implement a plan to control and possibly eradicate the invasive gray bird locust on Nihoa, Mokumanamana, French Frigate Shoals, and Lisianski Island. Additionally, Activity AS-5.5 could protect endangered plants threatened by gray bird locust outbreaks at Nihoa by developing appropriate baits for localized application of toxicants to protect specific high priority plant sites. The locust feeds on native plants, including endangered species, and during periodic outbreaks can strip plants of their leaves and seed. Actions to control and/or eradicate the invasive gray bird locust could have temporary negative effects on native invertebrates. However, additional agency analysis and targeted use of toxicants could reduce or eliminate the potential for harm to other listed species. Controlling and possibly eradicating the invasive gray bird locust could provide long-term benefits to endangered plants by removing stressors. This could also benefit endangered birds that depend on the vegetation for cover, nesting, and feeding.

The Proposed Action alternative includes activities to control and eventually eradicate golden crownbeard (AS-6.1) and weedy shrubs on Kure, Midway, and Pearl and Hermes Atolls. Also, in all areas where they occur, the alternative could control or eradicate the invasive grass sandbur from Kure, Midway, and Pearl and Hermes Atolls, Lisianski Island, and French Frigate Shoals (AS-6.2) and could also control or eradicate Indian pluchea (*Sporobolus pyramidatus*) and swine cress (*Coronopus didymus*) from Laysan Island (AS-6-3). Activity AS-6.4 would also control and eventually eradicate prioritized alien plant species from Kure Atoll. All of these are fast-growing prolific invasives that crowd out native species. Eradicating them could have beneficial effects on native plant species by allowing the natives to expand into areas where they historically occurred. Common effects that occur when humans enter a seabird colony are explained in Section 3.2.2. This eradication could also benefit migratory and endangered birds dependent on the native vegetation for cover, nesting, and feeding.

Eradication could cause short-term negative effects on seabirds from human interactions, increased noise, and from trampling vegetation reducing habitat value. Common effects that



occur when human enter a seabird colony are explained in Section 3.2.2. Endangered passerines in the Monument (Nihoa finches, Nihoa millerbirds, and Laysan finches) are inquisitive and exploratory and thus can be at risk from human materials and equipment on their breeding islands; for example, curious birds can drown in open containers, such as buckets and cooking pots that catch rainwater; strings, netting, and loose fibers on tarps can entangle their feet; tent openings can attract birds, which become trapped and succumb to overheating. All activities could be planned to ensure that tent openings would remain tightly closed, and the types of materials described above would not be left unattended in campsites at Nihoa, Laysan Island, and Pearl and Hermes Atoll to avoid effects on these species. Additional agency analysis and targeted use of toxicants could reduce or eliminate the potential for harm to seabirds.

Under AS-7.1, invasive red algae would be mapped, controlled and eventually eradicated where it occurs (AS-7.1). The red algae grow in dense mats and can cover and smother coral and other marine species. Mapping the location of these infestations could assist in eradication efforts. All water and land activities would continue to be conducted in accordance with operational protocols and BMPs (See Monument Management Plan, Volume III, Appendix F) that avoid the potential for any effects on threatened and endangered species. While removal of red algae might have short-term negative effects on reef ecosystems from mechanical damage to the reef, such as breakage, abrasion, and infaunal disturbance, the long-term beneficial effect of reducing the extent of the red algae infestation could allow native marine corals and marine species that depend on that coral to return to their historic levels.

Activity AS-7.2 proposes to conduct surveillance at appropriate sites for snowflake coral and other incipient marine invasives. Snowflake coral can overgrow corals and hard reef surfaces and eat zooplankton that native corals depend on. Understanding this coral and sites of likely infestation could prepare managers to move quickly to eradicate this invasive before it spreads to large areas. The beneficial effect of this effort could be to protect existing corals, reef, and associated species.

The Proposed Action would support and conduct research on alien species detection and effects of invasive species on native ecosystems (AS-8.1) and would support and conduct research on invasive species prevention, control methods, and eradication techniques (AS-8.2). Understanding alien species and how they affect native species and researching effective control and eradication methods could allow managers to take measures to prevent their establishment and to minimize the effects on native species. The beneficial effect of this effort could be to protect native habitats and the species that depend on them.

#### **3.2.4.4 Managing Human Uses**

##### **Permitting Action Plan**

###### ***Planning and Administrative Activities***

Certain strategies would improve the effectiveness of permit activities through reviewing and revising the permit process and establishing a Monument-wide reporting process. Specifically, these activities are engaging outside experts to review permit applications (P-1.4), analyzing permit data to inform management decision making (P-2.2), developing and implementing a Monument reporting process (P-2.4), and developing and implementing a permit and regulatory

education program (P-3.1). By improving the effectiveness of the permitting process, permit requirements could be improved to ensure that Monument resources are being protected. This could provide beneficial effects for all Monument natural resources.

Developing and implementing a Native Hawaiian cultural education program for all permit recipients (P-3.2), coordinating permitting outreach (P-3.3), and developing a pre-access training and briefing program (P-3.4) could result in beneficial effects on all Monument natural resources. Coordinating information, outreach, and education could minimize and prevent negative effects on the Monument's natural resources by ensuring that all permittees are aware of all protocols and requirements designed to protect the cultural, historic, and natural resources of the Monument.

### **Midway Atoll Visitor Services Action Plan**

#### ***Field Activities***

Activity VS-1.1 would provide visitors with opportunities for wildlife-dependent recreation to enhance their knowledge and appreciation of the Monument's natural resources. Visitors could be given the opportunity to view wildlife on Midway Atoll only and would be required to follow rules and protocols to ensure that their activities are carried out in ways to minimize negative effects.

Continuously monitoring the effects of visitors and other users on wildlife and historic resources to ensure their protection (VS-1.3) would support an adaptive management approach to visitor use of the Monument. Under this scenario, data reflecting visitor effects would inform management decisions on the extent of visitor use that could be permitted in the future. Providing visitors with opportunities for wildlife-dependent recreation and monitoring the effects of visitors and other users on wildlife and historic resources could have beneficial effects by minimizing negative effects on resources, increasing public awareness of native species and listed species, and by protecting natural resources in the Monument. More specific descriptions of the effects of visitors at Midway Atoll are contained in the Environmental Assessment for the Interim Midway Visitors Service Plan and in relevant compatibility determinations.

### **3.2.4.5 Coordinating Conservation and Management Activities**

#### **Constituency Building and Outreach Action Plan**

##### ***Planning and Administrative Activities***

Increased public awareness of and interest in the Monument and in conservation of its natural resources could result from the following: Incorporating new perspectives for understanding the value of NWHI ecosystems, including socioeconomic studies, to increase ocean ecosystem literacy and conservation in the Monument within five years (CBO-1.4); Continuing to develop and update printed materials to aid Monument constituencies in understanding key aspects of the Monument (CBO-2.2); As needed, holding focused forums on various Monument-related issues or topics to inform and engage a broader range of constituents (CBO-3.2); Continuing to seek out and support partnership opportunities that focus on Oceania-related issues (CBO-3.3); Within one year, establishing and supporting a Papahānaumokuākea Marine National Monument Alliance to engage a broad range of constituents, who will regularly provide recommendations

and information on specific management issues (CBO-3.5); Continuing to work with the Friends of Midway Atoll National Wildlife Refuge, through FWS and supporting the establishment of a Monument-related “friends” group (CBO-3.7); and Continuing to convene the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve Advisory Council through NOAA’s ONMS until the Monument Alliance is established (CBO.3.8).

This might generate volunteers and support for ongoing Monument activities. Increased volunteer efforts and support for activities in the Monument could result in a beneficial effect on Monument natural resources by creating opportunities to expand protection and restoration efforts.

### **Ocean Ecosystem Literacy Action Plan**

#### ***Planning and Administrative Activities***

Activity OEL-1.1 would expand and improve the NWHI educational partnership’s Navigating Change curriculum for elementary and middle school students, with increased focus on ocean ecosystems literacy, within three years. As curricula are developed, Activity OEL-1.2 proposes for Monument staff to work with Hawaiian-language immersion schools to ensure the curricula meet their needs, including translation into the Hawaiian language. Activity OEL-1.3 would develop an ocean stewardship program for middle school and high school students within five years. Educating school-age children could result in increased awareness of the importance of natural resources among teachers and students alike and possibly among the students’ families. Increased interest in and support for the conservation of Monument resources could result in a beneficial effect on Monument natural resources by creating opportunities to expand protection and restoration efforts.

### **3.2.4.6 Achieving Effective Monument Operations**

#### **Coordinated Field Operations Action Plan**

#### ***Planning and Administrative Activities***

Additional planning activities would target managing, maintaining, and coordinating the use of small boats and identifying aircraft service that would increase operation efficiency and delivery capacity (CFO-6.1). These planning activities could indirectly benefit natural resources by providing for the most efficient and least detrimental use of available resources to transport researchers and staff engaged in habitat restoration and other Monument management activities to the locations where their work is to be done, and by potentially avoiding or minimizing potential disturbance to or collisions with birds and marine mammals from transportation activities.

#### ***Infrastructure and Development Activities***

Within five to ten years, a small research/enforcement vessel would be stationed at Midway Atoll (CFO-6.3). This would allow enforcement personnel to respond to activities that represent a hazard to terrestrial or marine habitats. Additionally, Monument management staff would have the ability to rapidly respond to potentially hazardous events and to avoid or at least minimize any damage that might be caused. This could result in both a short and long term beneficial

effect on marine and terrestrial natural habitat, threatened and endangered species, marine mammals, migratory birds, and other native species.

Providing logistical, infrastructure, and transportation support for threatened and endangered species recovery actions (CFO-9.3) would enhance the ability to transport threatened and endangered species, equipment, and personnel among the various atolls to aid in recovery efforts. Being able to capture, transport, treat, and return threatened and endangered animals to the wild is important for maintaining a healthy population, and increasing the efficacy of this action would result in a beneficial effect.

### 3.2.5 Summary of Effects

Table 3.2-1 summarizes the effects on natural resources from the Proposed Action. The effects are listed by Action Plan and action areas (planning/administrative, field, or infrastructure and development activities). The Proposed Action could have beneficial and negative effects on natural resources of the Monument. The natural resources of the Monument, includes, but is not limited to, terrestrial and marine resources, native plants and wildlife, seabirds, migratory birds, marine species and special status species.

**Table 3.2-1  
Summary of Effects on Natural Resources of the Proposed Action Alternative**

<b>Understanding and Interpreting the Northwestern Hawaiian Islands</b>		
<b>Action Plan</b>	<b>Action Areas</b>	<b>Effects</b>
<b>Marine Conservation Science</b> <i>(EA section 1.5.1)</i> <i>(EA section 1.6.1)</i>	Planning/ Administrative	<ul style="list-style-type: none"> <li>• Beneficial effects on all natural resources of the Monument</li> </ul>
<b>Native Hawaiian Culture and History</b> <i>(EA section 1.5.2)</i> <i>(EA section 1.6.2)</i>	Planning/ Administrative	<ul style="list-style-type: none"> <li>• Minor negative effects on native plants and wildlife</li> <li>• Short-term minor negative effects on seabirds</li> <li>• Beneficial effect on all natural resources of the Monument</li> </ul>
<b>Historic Resources</b> <i>(EA section 1.5.3)</i> <i>(EA section 1.6.3)</i>	Planning/ Administrative	<ul style="list-style-type: none"> <li>• Beneficial effect on all natural resources of the Monument</li> <li>• Beneficial effects on threatened and endangered species</li> <li>• Beneficial effects on terrestrial habitats</li> </ul>
<b>Maritime Heritage</b> <i>(EA section 1.5.4)</i> <i>(EA section 1.6.4)</i>	Planning/ Administrative	<ul style="list-style-type: none"> <li>• Beneficial effects on ocean, nearshore, and shoreline habitats</li> <li>• Beneficial effects on threatened and endangered species</li> <li>• Beneficial effect on marine mammals</li> <li>• Beneficial effects on migratory birds</li> </ul>
	Field Activities	<ul style="list-style-type: none"> <li>• Short-term minor negative effect on threatened and endangered species</li> <li>• Short-term minor negative effect on migratory birds</li> <li>• Short-term minor negative effect on marine species</li> </ul>
<b>Conserving Wildlife and Habitats</b>		
<b>Action Plan</b>	<b>Action Areas</b>	<b>Effects</b>
<b>Threatened and Endangered Species</b> <i>(EA section 1.5.5)</i>	Planning/ Administrative	<ul style="list-style-type: none"> <li>• Beneficial effect on all threatened and endangered species</li> <li>• Beneficial effect on migratory birds</li> <li>• Beneficial effect on marine mammals</li> </ul>

(EA section 1.6.5)		<ul style="list-style-type: none"> <li>• Minor negative effect on shoreline vegetation</li> </ul>
	Field Activities	<ul style="list-style-type: none"> <li>• Beneficial effect on the endangered spinner dolphin</li> <li>• Beneficial effect on the endangered Hawaiian monk seal</li> <li>• Beneficial effect on the threatened green sea turtle</li> <li>• Beneficial effect on the endangered Laysan duck</li> <li>• Beneficial effect on migratory birds</li> <li>• Beneficial effect on marine habitats</li> <li>• Beneficial effect on terrestrial habitat</li> <li>• Beneficial effect on passerines</li> <li>• Beneficial effect on the endangered <i>Prichardia remota</i> and <i>Mariscus pennatiformis</i></li> <li>• Short-term minor negative effect on Hawaiian monk seal</li> <li>• Short-term minor negative effect on migratory birds</li> <li>• Short-term minor negative effect on seabirds</li> <li>• Short-term negative effect on terrestrial habitat</li> <li>• Short-term minor negative effects on native invertebrates</li> <li>• Short-term minor negative effects on terrestrial plants</li> </ul>
<b>Migratory Birds</b> (EA section 156.6) (EA section 1.6.6)	Planning/ Administrative	<ul style="list-style-type: none"> <li>• Beneficial effect on threatened and endangered species</li> <li>• Beneficial effect on migratory birds</li> </ul>
<b>Habitat Management and Conservation</b> (EA section 1.5.7) (EA section 1.6.7)	Planning/ Administrative	<ul style="list-style-type: none"> <li>• Beneficial effect on migratory and resident birds</li> <li>• Beneficial effect on marine mammals</li> <li>• Beneficial effect on marine, coastal, and terrestrial habitats</li> <li>• Beneficial effect on migratory and resident birds</li> <li>• Beneficial effect on freshwater habitat and species</li> </ul>
	Field Activities	<ul style="list-style-type: none"> <li>• Beneficial effect on the endangered Laysan finch and other threatened and endangered species</li> <li>• Beneficial effect on native coastal plant community</li> <li>• Beneficial effect on native plant communities</li> <li>• Beneficial effect on arthropods</li> <li>• Beneficial effect on migratory birds</li> <li>• Short-term minor negative effects on migratory and passerine birds</li> <li>• Short-term minor negative effects on marine species</li> <li>• Short-term minor negative effect on passerine birds</li> <li>• Short-term minor negative effect on terrestrial plants and habitat</li> </ul>
<b>Reducing Threats to Monument Resources</b>		
<b>Action Plan</b>	<b>Action Areas</b>	<b>Effects</b>
<b>Marine Debris</b> (EA section 15.8) (EA section 1.6.8)	Field Activities	<ul style="list-style-type: none"> <li>• Beneficial effect on the endangered Hawaiian monk seal</li> <li>• Beneficial effect on migratory birds</li> <li>• Beneficial effect on marine and terrestrial habitat</li> <li>• Short-term negative effects on reef ecosystem</li> </ul>



<p><b>Alien Species</b> (EA section 1.5.9) (EA section 1.6.9)</p>	<p>Field Activities</p>	<ul style="list-style-type: none"> <li>• Beneficial effect on threatened and endangered species</li> <li>• Beneficial effect on native species</li> <li>• Beneficial effect on marine and terrestrial habitat</li> <li>• Beneficial effect on native corals and reef fish</li> <li>• Beneficial effect on migratory birds</li> <li>• Beneficial effect on native species</li> <li>• Short-term negative effect on native invertebrates</li> <li>• Short-term minor negative effect on seabirds</li> <li>• Short-term negative effect on reef ecosystem</li> </ul>
<p><b>Emergency Response and Natural Resource Damage Assessment</b> (EA section 1.5.11) (EA section 1.6.11)</p>	<p>Planning/ Administrative</p>	<ul style="list-style-type: none"> <li>• Beneficial effect on threatened and endangered species</li> <li>• Beneficial effect on migratory birds</li> <li>• Beneficial effect on marine mammals</li> <li>• Short-term minor negative effect on marine mammals and migratory birds</li> </ul>
<b>Managing Human Uses</b>		
<b>Action Plan</b>	<b>Action Areas</b>	<b>Effects</b>
<p><b>Permitting</b> (EA section 1.5.12) (EA section 1.6.12)</p>	<p>Planning/ Administrative</p>	<ul style="list-style-type: none"> <li>• Beneficial effect on all natural resources in the Monument</li> </ul>
<p><b>Midway Atoll Visitors Services</b> (EA section 1.5.14) (EA section 1.6.14)</p>	<p>Field Activities</p>	<ul style="list-style-type: none"> <li>• Beneficial effect on all natural resources in the Monument</li> </ul>
<b>Coordinating Conservation and Management Activities</b>		
<b>Action Plan</b>	<b>Action Areas</b>	<b>Effects</b>
<p><b>Constituency Building and Outreach</b> (EA section 1.5.16) (EA section 1.6.16)</p>	<p>Planning/ Administrative</p>	<ul style="list-style-type: none"> <li>• Beneficial effect on all natural resources in the Monument</li> </ul>
<p><b>Ocean Ecosystems Literacy</b> (EA section 1.5.18) (EA section 1.6.18)</p>	<p>Planning/ Administrative</p>	<ul style="list-style-type: none"> <li>• Beneficial effect on all natural resources in the Monument</li> </ul>
<b>Achieving Effective Monument Operations</b>		
<b>Action Plan</b>	<b>Action Areas</b>	<b>Effects</b>
<p><b>Coordinated Field Operations</b> (EA section 1.5.21) (EA section 1.6.21)</p>	<p>Planning/ Administrative</p>	<ul style="list-style-type: none"> <li>• Beneficial effect on threatened and endangered species</li> <li>• Beneficial effect on migratory and resident birds</li> <li>• Beneficial effect on marine mammals</li> </ul>
	<p>Infrastructure and Development</p>	<ul style="list-style-type: none"> <li>• Beneficial effect on threatened and endangered species</li> <li>• Beneficial effect on migratory birds</li> <li>• Beneficial effect on marine mammals</li> <li>• Beneficial effect on marine and terrestrial habitats</li> <li>• Beneficial effect on native species</li> </ul>

### **3.3 CULTURAL AND HISTORIC RESOURCES**

#### **3.3.1 Effects Analysis Methodology**

The method for assessing potential effects on cultural and historic resources involves identifying sensitive resources in the ROI, identifying activities that could affect those resources, and determining the type and magnitude of potential effects on those resources. Only cultural resources that are determined to be eligible for listing under the NRHP are subject to protection under the NHPA; however, additional protection for cultural resources is provided under ARPA, American Indian Religious Freedom Act (AIRFA), the Native American Graves Protection and Repatriation Act (NAGPRA), and several executive orders. Resources that are pending evaluation for NRHP eligibility have been treated and would continue to be treated as eligible until formal determinations are made.

The types of effects that would be difficult to quantify or qualify are those that certain activities may have on the spiritual and cultural values of cultural resources and their inseparability from the natural environment. Traditional Native Hawaiian practices tie current generations to their ancestors through genealogies that link them to the earliest creation in Hawai‘i. These ties hold that their ancestors become familial deities shortly after death and are personified in the natural and physical elements. Because of this familial relationship to these elements, the traditional values view of the world is that it is sacred and to be treated with high reverence. These values center on the integral nature of the cultural and ecological environment. Maintaining this principle is done through pono (righteous, necessary, appropriate) actions toward the natural environment/ecosystem, and more specifically by taking care of wahi kūpuna (ancestral sites), which provide a means to maintain connection with the maui ola of their ancestors (spiritual life force, essence, literally “breath of life”).

#### **3.3.2 Effects Common to Proposed Actions on Cultural and Historic Resources**

Section 106 of the NHPA requires federal agencies to consider the effects of their actions on properties listed on or eligible for listing on the NRHP. These properties also include those ATI that have been evaluated and determined to be eligible. Pending formal evaluations, all cultural resources and potential components of cultural landscapes could be treated as though they are eligible.

NHPA and NEPA compliance are separate and parallel processes, and the standards and thresholds of the two acts are not precisely the same. A negative effect on a historic property, as defined by the NHPA, is not necessarily a significant effect under NEPA. While mitigation under the NHPA does not necessarily negate the negative nature of an effect, mitigation measures identified under NEPA could reduce the significance of an effect. NHPA and NEPA compliance are separate and parallel processes, and the standards and thresholds of the two acts are not precisely the same.

Section 106 and its implementing regulations, 36 CFR Part 800, state that an undertaking has an effect on a historic property (i.e., NRHP-eligible resource) when it could alter those characteristics of the property that qualify it for inclusion on the NRHP. An undertaking is considered to have a negative effect on a historic property when it diminishes the integrity of the

property's location, design, setting, materials, workmanship, feeling, or association. Section 106 negative effects include the following:

- Physical destruction, damage, or alteration of all or part of the property;
- Isolation of the property or alteration of the character of the property's setting when that character contributes to the property's qualifications for the NRHP;
- Introduction of visual, audible, or atmospheric elements that are out of character with the property or changes that may alter its setting;
- Neglect of a property, resulting in its deterioration or destruction; and
- Transfer, lease, or sale of a property without adequate provisions to protect its historic integrity.

A broader range of Native Hawaiian sites, including sacred sites, burials, and cultural items and other areas of traditional importance that might not necessarily be considered eligible for protection under NRHP, may still be protected under AIRFA, ARPA, or NAGPRA.

Activities that are not currently covered by a state cultural impact assessment (CIA) or that have not undergone Section 106 consultations may cause a short-term negative effect on both cultural and historic resources. Activities proposed to identify, collect, and review publications, data sets, and documents to identify cultural resources beyond Midway Atoll within 12 years are not covered under a CIA. Negative effects could be minimized by exercising the NHPA Section 106 process, which includes review and consultation among the Co-Trustees, the State Historic Preservation Officer, OHA, and Native Hawaiian organizations. See Section 3.3.2.2 for further discussion of the CIA.

Historic properties at Midway Atoll NWR are managed according to a 1999 Historic Preservation Plan (Speulda et al. 1999). The plan was drafted with recommendations from interest groups, historic preservation specialists, and the Advisory Council on Historic Preservation. The Midway Historic Preservation Plan prescribes one of six different treatment categories for each of the 63 historic properties on the atoll: reuse, secure, leave as-is, fill in, demolish, or relocate. The plan also identifies procedures for treating new discoveries and caring for museum collections and includes recommendations for interpretation, education, and public outreach.

### **3.3.2.1 Paleontological Resources**

Paleontological sensitivity or potential is a qualitative measure of the density and scientific value of a site's fossils. It also gauges the probability that site development would directly or indirectly destroy a unique scientifically significant paleontological resource. Such a resource is generally considered to consist of vertebrate remains, of unusual, useful, or exceptionally well-preserved trace fossils or invertebrate/plant remains or of exceptionally rich or diverse fossil assemblages. Paleontologists use a three-part classification of paleontological sensitivity

outlined by the Society of Vertebrate Paleontology (1995). It includes high sensitivity, low sensitivity, and undetermined sensitivity rankings. Within this classification scheme, a high sensitivity site has one of the following characteristics:

- It is underlain by or contains exposures of sedimentary rocks or some types of volcanic rocks that are of the right age, origin, and location to *potentially* contain significant fossils;
- It is underlain by or contains exposures of sedimentary rock or some types of volcanic rocks that are *known* to contain significant fossils; or
- It contains potentially datable remains older than the historic period, including nests and middens (a deposit of shells, bones, and other artifacts that suggest previous human settlement).

Sites that do not contain the characteristics listed above are not considered sensitive.

### **3.3.2.2 State of Hawai‘i Cultural Impact Assessment**

Native Hawaiian customary and traditional subsistence, cultural, and religious practices are protected under Section 7 of Article XII of the Constitution of the State of Hawai‘i. Chapter 6E, Hawaii Revised Statutes, and rules adopted thereunder also protect historic and cultural sites and property found within the State.

The state has a number of laws and programs to protect cultural rights and locations. Chapter 6E of the Hawaii Revised Statutes establishes the Historic Preservation Program for ongoing historical and archaeological research and development. This program includes statewide surveying and inventorying historic properties, aviation artifacts, and burial sites; preparing, reviewing, and revising a state historic preservation plan; providing interpretive programs for historic properties; holding burial sites in trust; and regulating archaeological activities. Section 6E-7 maintains that all historic property on lands and under waters owned or controlled by the state shall be property of the state and that property is not allowed to be transferred without consultation with the appropriate island burial council. Section 6E-43 states that discovery of prehistoric and historic burial sites over 50 years old requires consultation with the appropriate island burial council. Section 6E-61 establishes a Hawai‘i biological survey consisting of an ongoing natural history inventory of the Hawaiian archipelago to locate and identify flora and fauna for a wide range of uses. Chapter 6E also defines violations regarding activities that take, excavate, injure, destroy, or alter any historic property, aviation artifact, and burial site, including manipulation of human remains.

Chapter 300 of Hawaii Administrative Rules outlines the practices and procedures of Native Hawaiian burial sites to ensure their care and protection. It establishes the Island Burial Councils, which determine the preservation or relocation of previously identified Native Hawaiian burial sites. These rules, along with Sections 6E-11, 6E-12, 6E-43, 6E-43.5, and 6E-43.6, HRS, were amended or enacted to provide additional protection for Native Hawaiian burial sites.

In addition to the above, the state requires an assessment of potential impacts on cultural practices and features as part of the environmental review process. In assessing cultural effects, the CIA was developed following the Guidelines for Assessing Cultural Impacts by the State of Hawai'i's Department of Health's Office of Environmental Quality Control. A CIA for the Papahānaumokuākea Marine National Monument Management Plan was prepared in accordance with state laws and is found in Appendix A.

### **3.3.3 No Action**

This section is a brief description of activities that are underway in the Monument and an analysis of the effects associated with these activities. Only those activities that could have an effect on cultural and historic resources are included. Analyzed are the projected beneficial and negative effects expected to continue under the No Action alternative. Should this alternative be selected for implementation, it could result in no change to the current situation. Nevertheless, current activities could continue under the Proposed Action alternative, and their effects are summarized under the Proposed Action in Table 3.3-1 at the end of this section.

#### **3.3.3.1 Understanding and Interpreting the Northwestern Hawaiian Islands**

##### **Native Hawaiian Culture and History Action Plan**

###### ***Planning and Administrative Activities***

Monument regulations define Native Hawaiian practices as cultural activities conducted for the purposes of perpetuating traditional knowledge, caring for and protecting the environment, and strengthening cultural and spiritual connections to the NWHI that have demonstrable benefits to the Native Hawaiian community. Monument staff would identify cultural research needs, priorities and opportunities as they arise (NHCH-1.2) and would continue to manage cultural and historic resources through planning and administrative activities that could increase the staff's capacity to carry out strategies and activities (NHCH-3.1). These activities could have beneficial effects on cultural and historic resources by increasing the Monument staff's knowledge base, understanding, and interpretive values of cultural and historic resources, providing for better protection and management of cultural and historic resources.

Research needs that could be accomplished through Hawaiian cultural methods would be identified and used to increase staff knowledge. Such research could be conducted through ethnographic interviews, researching oral traditions, and archival searches (NHCH-1.1). The MMB would continue to support Native Hawaiian cultural research needs and facilitate research on issues and priorities identified by providing grants, logistical support, and berthing space aboard research vessels (NHCH-2.2). Native Hawaiian traditional knowledge and management concepts would be identified and incorporated into the management of Monument resources (NHCH-3.4). Identifying research needs, supporting Native Hawaiian cultural access, and incorporating Native Hawaiian traditional knowledge and associated practices into Monument management could have beneficial effects on cultural and historic resources. This would come about by enhancing, incorporating, and perpetuating understanding of Native Hawaiian culture and knowledge, in an effort to better manage and protect the resources.



## **Maritime Heritage Action Plan**

### ***Planning and Administrative Activities***

Preserving maritime heritage resources, such as submerged and beached shipwrecks, aircraft, and other sites of historical, cultural, and archaeological significance, provides records of the historical activities in the NWHI and allows increased protection and management of the resources. The MMB would continue to carry out activities under the Maritime Heritage action plan and would complete a Monument Maritime Heritage Resource Research Plan (MH-3.3). Efforts would be made to collect and review maritime publications and to develop regular status reports to develop a maritime heritage database (MH-1.1, MH-1-4). Maritime archaeologists would develop and maintain this internal maritime heritage resource database to prioritize target sites (MH-1.5). All new data and findings, including recovered and conserved maritime artifacts, would be incorporated into education and outreach materials through the participation of Monument maritime archaeologists in coordinating and participating in public outreach regarding Monument heritage resources and maritime history (MH-2.1) and participating in select presentations, conferences, and events (MH-2.2). Protecting and managing maritime heritage resources through inventorying, evaluating, and interpreting them would increase maritime heritage preservation in the Monument and awareness of these resources. This could have beneficial effects on cultural and historic resources.

For more effective use of facilities and equipment, the MMB would coordinate interagency communication regarding maritime resources management (MH-3.1). Protective status for specific sites would be sought as needed using federal recognition under the NHPA and the NRHP. Preservation measures of the DLNR would be implemented for resources on state bottomlands (3 nautical miles from emergent lands) via the SHPD (MH-3.2). Under the No Action alternative, there could be beneficial effects on cultural and historic resources as a result of improved management, preservation, and protection of cultural and historic resources.

### ***Field Activities***

Locating and preserving heritage sites within the Monument increases the understanding of these resources and fosters effective and protective management of historic sites. Monument staff would continue to coordinate and carry out annual field mapping surveys and complete progress reports of select heritage sites to better understand and interpret heritage sites (MH-1.2). Knowledge gained from mapping would contribute to understanding and interpreting heritage sites and would lead to better management and protection; therefore, these activities could have beneficial effects on cultural and historic resources.

## **3.3.3.2 Conserving Wildlife and Habitats**

### **Threatened and Endangered Species Action Plan**

#### ***Planning and Administrative Activities***

Through proper planning, implementation, and inclusion of established management practices, the protection of cultural and historic sites could be incorporated as appropriate into natural resource management plans. Increasing the capacity of NMFS and FWS (TES-8.1) and working

with federal agencies proposing activities within the Monument (TES-8.3) to facilitate ESA consultation would ensure protection of threatened and endangered species by improving the consultation process for all persons involved. Through protection of the natural environment, cultural and spiritual values of the Native Hawaiian culture in the Northwestern Hawaiian Islands can be maintained. This preserves intangible elements of the Hawaiian culture, such as their recognized spiritual and genealogical connections to the natural environment, the integrity of Native Hawaiian sacred sites, and the ability of people to perpetuate traditional practices. Protecting the surrounding natural habitats could have beneficial effects on the integrity of cultural and historic resource sites.

### ***Field Activities***

The natural environment and its resources are seen as an integral part of Hawaiian culture and many of its practices. Field activities that are carried out to conserve, manage, monitor, and document natural habitats include supporting activities to advance recovery of Hawaiian monk seals removing marine debris from critical habitats (TES-1.1); encouraging increasing populations of Laysan ducks through monitoring (TES-5.1); and maintaining stable populations of passerine species by conducting annual censuses of populations and their required food and habitats (TES-6.1).

These activities aim to protect surrounding natural resources and to increase or stabilize species' populations, thereby having beneficial effects on cultural and historic resources.

Intangible elements of the Hawaiian culture, such as its recognized spiritual and genealogical connections to plants, would be maintained by establishing populations of listed plant species. Species abundance is increased and the natural environment is restored by increasing the number and locations of *Amaranthus brownii* and *Schiedea verticillata* on Nihoa (TES-7.2), establishing a self-sustaining *Pritchardia remota* population on Laysan Island (TES-7.3), and continuing greenhouse operations on Laysan Island to propagate and outplant rare plant taxa (TES-7.4). These activities aim to protect surrounding natural resources and to increase or stabilize species' populations, thereby having beneficial effects on cultural and historic resources and traditional practices.

## **Migratory Birds Action Plan**

### ***Field Activities***

Protecting the natural environment can maintain cultural and spiritual values of Native Hawaiian culture in the NWHI. Field activities to conserve, manage, monitor, and document natural habitats and to minimize the impact of threats to migratory birds include maintaining rigorous quarantine protocols to prevent the introduction of alien species, such as invasive plants or animals that may damage migratory bird habitats (MB-2.4). Protecting natural habitats for migratory birds could have beneficial effects on cultural and historic resource site integrity by maintaining natural values important to Native Hawaiian culture.

## Habitat Management and Conservation Action Plan

### *Field Activities*

Restoring and maintaining native ecosystems supports the traditional practices of Native Hawaiians for protecting and maintaining natural resources. Investigating and inventorying known contamination from historic human use in the NWHI include collecting and characterizing oil found washed ashore and on wildlife, building an oil sample archive (HMC-2.5), and monitoring the area at Laysan Island that was contaminated by carbofuran (HMC-2.6). The investigation and inventories of contaminated sites in the NWHI could have beneficial effects on cultural and historic resources by protecting and restoring native ecosystems from the numerous effects of known contaminants.

Restoring and maintaining coastal mixed grasses and shrubs on all the coralline islands and atolls of the Monument includes propagating and outplanting native species (HMC-4.1), implementing the Draft Restoration Plan (HMC-4.2), and replacing 60 acres of introduced shrub *Indian pluchea* at Laysan Island with native species (HMC-4.3). The maintenance and better understanding of the Monument's wetland and mudflat habitats include monitoring water level, salinity, and other water quality parameters of Laysan Lake, documenting any loss of lake area (HMC-6.1), and restoring dune habitat on Laysan Island to minimize sand movement (HMC-6.2). These activities could have beneficial effects on cultural and historic resources by preserving the native ecosystems and natural habitats, thereby supporting traditional Hawaiian values of protecting and maintaining natural resources.

### 3.3.3.3 Reducing Threats to Monument Resources

#### Marine Debris Action Plan

##### *Planning and Administrative Activities*

Culture and historic resources that may be submerged or located on coastal sites provide evidence of historical activities in the NWHI. The MMB will work with fishery management councils to assess and address fishing practices or domestic fishing gear that contribute to marine debris problems (MD-1.5) The results of this planning activity would include coordinating with the Councils for an accountability requirement for all vessels using the type of gear that contributes to marine debris in the NWHI. Planning for the removal of debris, detecting and preventing incoming debris, and educating the public to prevent future generations of debris in the Monument could prevent the destruction or desecration of undiscovered cultural and historic resources. This could result in beneficial effects on cultural and historic resources.

#### Alien Species Action Plan

##### *Field Activities*

Detecting, controlling, eradicating, and preventing the introduction of alien species supports the traditional Native Hawaiian values of protecting and maintaining natural resources. Measures taken to enforce the use of current quarantine protocols and hull inspections and cleaning to prevent the introduction of invasive terrestrial species to the Monument could have a beneficial effect on cultural resources (AS-3.1, AS-3.2). Preventing alien species invasions could reduce

the need to work on, near, or at cultural sites to eradicate alien species. This could have a beneficial effect on cultural and historic resources. While eradication of pests could yield a beneficial effect on cultural and historic resources, there is a potential for short-term minor negative effects through site disturbance during activities requiring work on, near, or at cultural sites. During eradication, every effort would be made to minimize effects from disturbance on cultural sites. Additionally, exercising the NHPA Section 106 process, if appropriate, could further reduce the potential for negative effects.

#### **3.3.3.4 Managing Human Uses**

##### **Permitting Action Plan**

###### ***Planning and Administrative Activities***

The natural environment is protected and strong cultural and spiritual ties of the Native Hawaiians to the NWHI are maintained through an effective and integrated permit program to manage human access and to minimize and prevent negative impacts on the Monument. This is achieved by promptly reviewing permit applications to ensure informed permit-related decision making across Co-Trustee agencies (P-1.1); refining and updating the permit application, instructions, and permit template through feedback from permittees and other users (P-1.2); coordinating appropriate environmental review for all permitted activities (P-1.3); and regularly updating the public on proposed and permitted activities (P-3.5).

These activities provide additional oversight of Monument activities, contributing to a well-informed resource management staff, who would be better equipped to manage and protect cultural and historic resources. This could result in beneficial effects on cultural and historic resources.

##### **Enforcement Action Plan**

###### ***Planning and Administrative Activities***

The natural environment is protected and strong cultural and spiritual ties of the Native Hawaiians to the NWHI are maintained through an effective compliance and enforcement program within the Monument. Such activities as conducting a comprehensive threat assessment, drafting an enforcement plan (EN-2.1), and operating the mandatory VMS for all permitted vessels (EN-2.2) would provide additional oversight of Monument activities. This contributes to a well-informed resource management staff, who would be better equipped to manage and protect cultural and historic resources. This could result in beneficial effects on cultural and historic resources.

#### **3.3.3.5 Coordinating Conservation and Management Activities**

##### **Constituency Building and Outreach Action Plan**

###### ***Planning and Administrative Activities***

Public outreach for managing activities within the Monument helps maintain the connection between cultural and conservation practices. Outreach is improved by MMB agencies

collaborating to reach a broader audience (CBO-3.1), to support partnership opportunities that focus on Oceania-related issues (CBO-3.3), and to convene the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve Advisory Council to provide formal advice on management activities (CBO-3.8). Through public outreach, the Monument could garner public support for protecting and properly managing cultural and historic resources. This could result in beneficial effects on cultural and historic resources.

### **Native Hawaiian Community Involvement Action Plan**

#### ***Planning and Administrative Activities***

The unique biological, cultural, scientific, educational, historical, and recreational values of the NWHI require that the region be carefully managed to ensure these values are not diminished for future generations. Such activities as identifying how traditional knowledge could be integrated into Monument activities (NHCI-3.1) would further engage the Native Hawaiian community in management activities in the Monument. Native Hawaiian involvement would perpetuate the relationship between their spirituality and the natural and physical elements of the NWHI, resulting in beneficial effects on cultural and historic resources.

### **Ocean Ecosystem Literacy Action Plan**

#### ***Planning and Administrative Activities***

The natural environment would be protected and the strong cultural and spiritual ties of the Native Hawaiians to the NWHI would be maintained by developing and implementing educational programs to increase ocean ecosystems literacy and promote stewardship values. Activities to accomplish this include expanding and improving the NWHI educational partnership's Navigating Change curriculum for elementary and middle school students, with increased focus on ocean ecosystems literacy, within three years (OEL-1.1). Through public outreach, the Monument could garner public support for protecting and properly managing cultural and historic resources. This could result in beneficial effects on cultural and historic resources.

#### ***Field Activities***

The natural environment and its resources are an integral part of the Hawaiian culture and many of its practices. The natural environment would be protected and the strong cultural and spiritual ties of the Native Hawaiians to the NWHI would be maintained through educational expeditions to the NWHI. An example of this is activities that continue to provide educational opportunities for teachers and students at the NWHI (OEL-1.5, OEL-1.8). Through public outreach, the Monument could garner public support for protecting and properly managing cultural and historic resources. This could result in beneficial effects on cultural and historic resources.



### **3.3.3.6 Achieving Effective Monument Operations**

#### **Evaluation Action Plan**

##### *Planning and Administrative Activities*

An annual program review would include a description of the status of activity implementation and any recommended adjustments that would be provided in an annual report (EV-1.2). This review, including tracking the progress of the actions plans, would ensure ongoing protection and proper management of cultural and historic resources. This could result in beneficial effects on cultural and historic resources.

#### **3.3.4 Proposed Action**

The Proposed Action would expand current activities and includes new activities described in the Monument Management Plan; the effects of these activities are described below. Implementation of the Proposed Action includes continuing those activities described for the No Action alternative, described in Section 3.3.3 above. The effects of these activities would also continue under the Proposed Action. Only those activities that would have an effect on cultural and historic resources are included in this analysis.

The Proposed Action would require additional conditions of permittees accessing the Monument. The permittee and any person entering the Monument must attend a cultural briefing or view designated cultural informational materials outlining the region's cultural significance and Native Hawaiians' spiritual and genealogical connection to the natural and cultural resources. Disturbance of any cultural or historic property is prohibited under the conditions of a Monument permit. The Proposed Action could result in additional funding for educational programs and exhibits for historic resources in the Monument. Further public outreach provided through new programs, visitor centers, and educational materials would bring heightened public awareness for historic resources within the Monument and a greater constituency base for support and protection of cultural resources. Repairing, maintaining, and restoring historic structures would prolong their integrity and would protect cultural and historic resources into the future.

#### **3.3.4.1 Understanding and Interpreting the Northwestern Hawaiian Islands**

##### **Native Hawaiian Culture and History Action Plan**

##### *Planning and Administrative Activities*

Monument regulations define Native Hawaiian practices as cultural activities conducted to perpetuate traditional knowledge, to care for and protect the environment, and to strengthen cultural and spiritual connections to the NWHI that have demonstrable benefits to the Native Hawaiian community. In partnership with the Native Hawaiian Cultural Working Group, cultural practitioners, and other experts, the MMB would develop a Cultural Resources Program Plan (NHCH-4.1). The purpose would be to identify cultural resources, sites, and other locations within the Monument that are appropriate for use in contemporary Native Hawaiian culture. The Cultural Resources Program Plan would address protocols, policies, and procedures for

collecting, curating, and disposing of archaeological materials, artifacts, and human remains. Monument staff would continue to work with partners to compile existing information about the region and initiate new cultural and historic research (NHCH-2.1). The MMB would support Native Hawaiian cultural research needs through additional partnership contracts, grants or formal agreements with Native Hawaiian organizations (NHCH-2.2). Increasing the understanding of Native Hawaiian histories and culture and documenting the archaeological sites and sacred resources of the NWHI by developing a formal plan and facilitating research could have beneficial effects on the cultural and historic resources of the Monument by recognizing the significance of the NWHI to Native Hawaiians.

As part of the Cultural Resources Program Plan, the MMB would work toward establishing agreements with local universities and museums to provide proper stewardship of cultural resources and artifacts through curation, research, use, return, and repatriation of collections (NHCH-2.7). A Native Hawaiian nomenclature working group would also be established to evaluate newly discovered regions, islands, and geographical and oceanic features and sites (NHCH-2.4). Information developed through this working group would be recorded in the forthcoming Monument Information Management System (NHCH-2.5). Increasing the understanding and documentation of Native Hawaiian histories and culture through research could have beneficial effects on the cultural and historic resources of the Monument. This would be done by enhancing and perpetuating understanding of Native Hawaiian culture and knowledge so as to better manage and protect the resources.

The MMB would work toward increasing resource managers' knowledge base of Native Hawaiian values and cultural information through "in-reach" programs. Monument resource managers and staff and MMB members would participate in informal and formal briefings, cultural workshops, and cultural exchanges in cooperation with other marine protected area sites that integrate traditional knowledge into their management (NHCH-3.3). This activity could have a beneficial effect on cultural and historic resources by increasing the Monument staff's knowledge base, understanding the interpretive values of cultural and historic resources, and providing for better protection and management of cultural and historic resources.

Native Hawaiian values and cultural information would be used to guide outreach and the development of educational materials (NHCH-5.1). Traditional ways of storytelling, such as hula, mele, and oli, would be encouraged to develop a culturally based strategy for education and outreach (NHCH-5.2). Native Hawaiian values and cultural information would be integrated into Monument permittee education and outreach programs and would foster a deeper respect for the NWHI through better understanding of, and respect for, Hawaiian values and the cultural significance of the place (NHCH-5.3). Increasing the understanding and documentation of Native Hawaiian histories and culture practices through education and public outreach could have beneficial effects on the cultural and historic resources of the Monument. This would come about by recognizing and addressing the significance of the NWHI to Native Hawaiians and by preserving their traditional and familial connections to their natural environments by implementing similar resource management practices.

### ***Field Activities***

The MMB would continue to support, provide, and facilitate research and educational activities on issues and priorities identified and to make opportunities available to students, teachers, and researchers in the form of grants, logistical support, and berthing space aboard research vessels (NHCH-2.3). In an effort to support access for Native Hawaiian practices and to ensure that cultural research needs are met, partnership contracts, grants, or formal agreements with Native Hawaiian organizations would be created (NHCH-2.6). Conducting and supporting cultural and historical research and facilitating access to the NWHI could have beneficial effects on cultural and historic resources by providing Native Hawaiians with the opportunity to engage in the cultural traditions, practices, and histories of the NWHI, while educating the broader public on the significance of these resources. The MMB would engage the Native Hawaiian Cultural Working group and other Native Hawaiian cultural practitioners to develop and implement the Monument's management activities (NHCH-3.2). This could have beneficial effects on cultural and historic resources by integrating the traditional ecological knowledge of Native Hawaiian practitioners and experts.

Specific preservation and access plans would be developed to further protect cultural sites on and collections from Nihoa and Mokumanamana (NHCH-4.2). The plans would address monitoring and stabilization of cultural sites and curatorship or potential return and repatriation agreements with museums and institutions that house artifact collections. A Cultural Resources Program Plan would fully integrate cultural resource protection and would be initiated and implemented by the MMB (NHCH-4.3). Planning, developing, and implementing a Monument Cultural Resources Program could have long-term beneficial effects on cultural and historic resources by protecting the cultural resources in the Monument and acknowledging and preserving their cultural significance.

### **Historic Resources Action Plan**

#### ***Planning and Administrative Activities***

Preserving historic resources, including nonmarine sites, structures, artifacts, culture, and places from the Monument's historic period, provides records of past activities and increases protection and management of the resources. Through the MMB, management plans under the different agencies would be reconciled to address Monument management needs as a whole, including the needs of the Historic Preservation Plan, Midway Visitor Service Plan and the lead paint abatement plan (HR-1.1). The consolidation of plans would allow for more effective use of facilities and equipment, while preserving the integrity of historic sites, thereby resulting in beneficial effects on historic resources.

The Midway Atoll Historic Preservation Plan and the NHL would be updated and submitted to the Advisory Council on Historic Preservation (HR-1.2, HR-3.3). Capacity would be built for a staff dedicated to implementing the Midway Atoll Historic Preservation Plan, which would include archival research and data collection on the Battle of Midway NHL and improvement of the function and capacity of the Midway Museum (HR-2.1, HR-3.1, HR-4.1). The Midway Museum collection would undergo organization and curation, and oral histories of life on Midway would be compiled, collected, curated, and published to ensure a record of alternative perspectives and unique history of life on Midway (HR-4.3, HR-5.1, HR-6.1). These efforts

would improve the understanding and interpretation of the history and natural history of Midway Atoll, possibly resulting in beneficial effects on cultural and historic resources.

Monument staff would undergo annual training on the treatments identified in the Historic Preservation Plan to be aware of the responsibilities and procedures on the atoll (HR-2.2). The staff would also plan, conduct, and report on field surveys and documentation of selected sites within 15 years (HR-5.2). Standard historic archaeological practice would be exercised in this activity. Protecting and managing historic resources through staff training and planning historic resource surveys would increase historic preservation and awareness of the Monument resources. This could have beneficial effects on cultural and historic resources.

### ***Field Activities***

Opportunities for visitors and volunteers would be incorporated into Midway Atoll visitor services program to implement historic preservation treatments. Volunteers, under expert supervision, would be able to maintain historic properties, such as painting, restoring windows, and landscaping (HR-2.3). The adaptive reuse of historic properties at Midway Atoll would foster increased preservation of historic sites, thereby resulting in beneficial effects on historic resources.

Selected NHL sites would be documented through field surveys, using standard historic archaeological practices (HR-3.2). Additional field surveys and documentation of selected NHL mark sites and features would be conducted, including an archaeological investigation of the Commercial Pacific Cable Station site to learn about the lifestyle of Midway's earliest permanent residents (HR-6.2). Performing field surveys and conducting archaeological investigations provides insight into the rich history of the Monument, while preserving the resources. This could have beneficial effects on cultural and historic resources.

### ***Infrastructure and Development Activities***

The Midway Museum would be remodeled to meet professional curation standards, which would better preserve the artifacts and historic materials and would enhance visitors' experience with historic resources (HR-4.2). Under the Proposed Action, repair and maintenance treatments on NHL features would be accomplished through volunteer work, unskilled labor, and specially trained historic preservation architects and engineers, when required (HR-3.4). Renovating museums and visitors centers would bring heightened public awareness for historic resources within the Monument and a greater constituency base for supporting and protecting cultural resources. This could have beneficial effects on cultural and historic resources. Repairing and maintaining historic structures would maintain the integrity of these sites for longer periods, thereby having beneficial effects on the historic resources.

## **Maritime Heritage Action Plan**

### ***Planning and Administrative Activities***

Preserving maritime heritage resources, such as submerged and beached shipwrecks, aircraft, and other sites of historical, cultural, and archaeological significance, provides records of past activities and increases protection and management of the resources. A status report would be

compiled and updated annually to document wreck sites and other debris, which represent potential environmental hazards (MH-1.3). Protecting maritime heritage resources by assessing the need for responding to or remediating potential environmental hazards would increase maritime heritage preservation. This could have beneficial effects on cultural and historic resources.

### **3.3.4.2 Conserving Wildlife and Habitats**

#### **Threatened and Endangered Species Action Plan**

##### ***Planning and Administrative Activities***

Through proper planning, implementation, and inclusion of established management practices, cultural and historic site protection could be incorporated into natural environment, cultural, and spiritual resources. Planning and administrative activities to support the recovery of the Hawaiian monk seal include evaluating the loss of critical habitat (TES-1.3); ensuring that all users of the NWHI are aware of the impacts of disturbing Hawaiian monk seals on breeding beaches and in nearshore waters to reduce the likelihood of impacts from human interaction (TES-1.4); and increasing outreach and education activities focusing on Hawaiian monk seals (TES-1.5).

These activities would protect surrounding resources and would increase species populations, thereby having beneficial effects on cultural and historic resources.

Other ways to further reduce the potential threats to threatened and endangered species are cooperating with international recovery teams and governments to increase short-tailed albatross populations by establishing one or more breeding populations on islands free of threats (TES-4.1) and disseminating public outreach information on fisheries bycatch and bycatch reduction to fisheries outside the Monument (TES-4.3). There could be beneficial effects on cultural and historic resource site integrity by increasing the awareness of irreplaceable resources in the Monument in order to provide better protection and management. This could be done by reducing negative effects on threatened and endangered species through outreach and education and by exchanging data with domestic and international groups.

##### ***Field Activities***

Field activities that are carried out to conserve, manage, monitor, and document species and their natural habitats include facilitating emergency response activities for Hawaiian monk seals (TES-1.2); determining the status of cetacean populations (TES-2.1); verifying and managing potential threats to cetaceans (TES-2.3); preventing negative human-cetacean interactions (TES-2.5); ensuring that nesting populations of green turtles at source beaches are stable or increasing (TES-3.1); protecting marine habitats used by green turtles for foraging and migration routes (TES-3.3); and conducting studies to protect short-tailed albatross and contaminant loads (TES 4.2).

These activities aim to protect surrounding natural resources, increase or stabilize species populations, and protect critical habitats. This could have beneficial effects on cultural and historic resources.



Maintaining stable populations of species by relocating Laysan ducks (TES-5.2) and finches, Nihoa finches, and Nihoa millerbirds (TES-6.2) to other sites in the Monument would protect surrounding natural resources and critical habitats and would increase or stabilize species' populations. This could have beneficial effects on cultural and historic resources.

Developing ecological baselines of listed species and critical habitat (TES-8.2) would assist Monument managers, consulting agencies, and action agencies in determining whether activities may affect listed species. The activities described above would contribute to a well-informed management staff who would be better equipped to manage and protect surrounding natural resources, increase or stabilize species' populations, and protect critical habitats. This could have beneficial effects on cultural and historic resources.

### **Migratory Birds Action Plan**

#### ***Field Activities***

Protecting the natural environment and surrounding natural resources maintains the strong cultural and spiritual values of the Native Hawaiians to the NWHI. Field activities that are carried out to conserve, manage, monitor, and document natural habitats and minimize the negative effects of threats to migratory birds include controlling or eradicating nonnative species that have a negative effect on migratory birds (MB-1.1); restoring components of the native plant communities that are important to seabird nesting (MB-1.2); and monitoring other conditions that might limit the success of existing colonies, hinder restoration efforts, or change the quantity or quality of habitat on which migratory birds depend (MB-2.2, MB-3.1, and MB-3.2, MB-3.3).

Protecting natural habitats for migratory birds and their populations could have beneficial effects on cultural and historic resource site integrity by increasing the awareness of irreplaceable resources in the Monument and by preserving the natural environment.

### **Habitat Management and Conservation Action Plan**

#### ***Planning and Administrative Activities***

Restoring and maintaining native ecosystems supports the traditional Native Hawaiian practices of protecting and maintaining natural resources. Planning activities include identifying and prioritizing restoration needs in shallow reef habitats (HMC-1.1); evaluating the costs to ecosystem function and benefits of removing scrapped iron debris from reefs in the Monument (HMC-2.4); and conducting ecological risk assessments of lead-based paint to determine necessary cleanup levels (HMC-2.7).

These activities would increase the protection of the native ecosystems and natural resources in the Monument and therefore could have beneficial effects on cultural and historic resources.

Developing and implementing culturally appropriate and innovative remote and direct techniques and methods for monitoring plant and animal populations on cliff habitats in the Monument (HMC-9.2) could have beneficial effects by minimizing the amount of on-site management near cultural sites.

### ***Field Activities***

Restoring and maintaining native ecosystems supports the traditional Native Hawaiians practices for protecting and maintaining natural resources. Changes in the species composition and structure of mixed grass and shrub plant communities would be monitored on all the coralline islands and atolls of the Monument (HMC-4.7). Increasing or stabilizing the mixed grass and shrub plant communities and protecting critical habitat could have long-term beneficial effects on cultural and historic resources through increased protection and maintenance of natural resources. Work on, near, or at cultural sites could result in a short-term minor negative effect on cultural and historic resources from site disturbance during monitoring. This could be minimized through a programmatic agreement.

Field activities to investigate and inventory known sources of contamination and to restore and maintain indigenous ecosystems include conducting remedial actions at shoreline dumps at FFS and at Kure, Midway, and Pearl and Hermes Atolls (HMC-2.3); restoring native vegetation on the 34-acre Southeast Island at Pearl and Hermes Atolls (HMC-4.5); implementing coordinated ecosystem restoration on Kure Atoll (HMC-4.6); inventorying and documenting life histories of endemic terrestrial invertebrates at Nihoa and Mokumanamana (HMC-5-1); and removing ironwood on 50-acres on Sand Island.

Investigating, inventorying, restoring, and maintaining contaminated sites could have long-term beneficial effects on cultural and historic resources by increased protection of natural resources. However, these activities could result in short-term minor negative effects on cultural and historic resources from physical disturbance during remediation. Effects could be minimized by exercising the NHPA Section 106 process.

### **3.3.4.3 Reducing Threats to Monument Resources**

#### **Marine Debris Action Plan**

##### ***Planning and Administrative Activities***

Cultural and historic resources that may be submerged or located on coastal sites provide evidence of historical activities in the NWHI. Protecting the historic resources by reducing the amount of debris entering the North Pacific Ocean is critical to preserving the history of the Monument. Gaining international cooperation and involvement for the marine debris issue (MD-1.3), developing standard marine debris monitoring protocols and outreach (MD-2.2, MD-3.1, MD-1.4), and removing hazardous materials that wash ashore (MD-1.2) would further protect the cultural and historic resources that may be submerged or located on coastal sites. Destruction or desecration of known and undiscovered cultural and historic resources could be minimized by heightening awareness through working with groups at an international level, through the Monument staff gaining knowledge from investigative marine debris studies, and through continuing outreach of multiagency partnerships. This could have beneficial effects on cultural and historic resources.

### ***Field Activities***

Cultural and historic resources that may be submerged or located on coastal sites provide evidence of historical activities in the NWHI. Protecting the historic resources by reducing the amount of debris entering the North Pacific Ocean is critical to preserving the history of the Monument. The MMB would work with partners and with fishery management councils and other partners to remove marine debris in the Monument and to reduce additional debris entering the Monument (MD-1.1, MD-1.5, MD-2.1). Removing debris, detecting and preventing incoming debris, and preventing future generations of debris entering the Monument could prevent destruction or desecration of existing and undiscovered cultural and historic resources. This could result in a beneficial effect on cultural and historic resources.

### **Alien Species Action Plan**

#### ***Planning and Administrative Activities***

Detecting, controlling, eradicating, and preventing the introduction of alien species supports the traditional Native Hawaiian values for protecting and maintaining natural resources. Activities aimed at preventing, controlling, and eradicating alien species include developing management practices through integrated management plans (AS-1.2); maintaining a GIS database of marine and terrestrial alien species (AS-2.2); encouraging participation in statewide and Pacific regional alien species efforts (AS-10); and integrating alien species information into the overall outreach program for Monument permittees and outreach materials (AS-9.1, AS-9.2).

These activities to prevent alien species invasions would reduce the need to work on, near, or at cultural sites and therefore could have beneficial effects on cultural resources. While pest eradication would yield beneficial effects on cultural and historic resources, there is a potential for short-term minor negative effects through site disturbance. Activities may require work on, near, or at cultural sites. Known and yet-to-be-found cultural and historic resources could be unintentionally harmed through alien species eradication. Resource managers would be required to use BMPs while working at these sites to minimize effects.

#### ***Field Activities***

Detecting, controlling, and eradicating alien species supports the traditional Native Hawaiian values for protecting and maintaining natural resources. By protecting the natural environment, strong cultural and spiritual values of the Native Hawaiian culture in the NWHI may be maintained. Activities aimed at preventing, controlling and eradicating alien species include surveying distributions and populations of known alien species (AS-2.1); detecting and characterizing new infestations (AS-2.3); eradicating the house mouse (AS-4.2); conducting toxicant trials (AS-5.2); controlling and eradicating two mosquito species (AS-5.3); controlling and eradicating the gray bird locust with toxicants (AS-5.4, AS-5.5); controlling and eradicating invasive grass sandbur (AS-6.2); controlling and eradicating *Indian pluchea*, *Sporobolus pyramidatus*, and *swine cress* (AS-6.3); controlling and eradicating prioritized alien plant species (AS-6.4); mapping, controlling, and eradicating invasive red algae (AS-7.1); and conducting surveillance of snowflake coral and other incipient marine invasives (AS-7.2).

Controlling and eradicating alien species could have beneficial effects on cultural and historic resources by protecting and maintaining the natural environment and resources. While eradication of pests could yield beneficial effects on culture and historic resources, there is potential for short-term minor negative effects from the potential disturbance of cultural and historic sites while controlling alien species, such as removing vegetation and applying pesticides. Known and yet-to-be-found cultural and historic resources could be unintentionally harmed. Resource managers would be required to use BMPs while working at these sites to minimize effects.

## **Maritime Transportation and Aviation Action Plan**

### ***Planning and Administrative Activities***

Through proper planning, implementation, and inclusion of established management practices, cultural and historic sites would be protected. Activities aimed at reducing potential threats from maritime transportation and aviation include improving the pre-access information for inclusion on the Monument Web site and in permit application instructions (MTA-2.3) and updating nautical charts (MTA-1.3). These activities would increase Monument users' awareness and knowledge of cultural and historic sites within the Monument, reducing the potential for their activities to affect undiscovered resources. This could result in beneficial effects on cultural and historic resources.

## **Permitting Action Plan**

### ***Planning and Administrative Activities***

Protecting the natural environment and the strong cultural and spiritual ties of the Native Hawaiians to the NWHI is maintained through an effective and integrated permit program to manage human access and minimize and prevent negative effects on the Monument. Implementing an effective and integrated permit program includes external review of Monument permit applications (P-1.4); investigations of individual and vessel insurance (P-1.5); analyzing permit data for management decision making and for patterns of compliance (P-2.2, P-2.3); implementing a Monument reporting process (P-2.4); developing and implementing education programs (P-3.1, P-3.2); coordinating permitting outreach (P-3.3); and developing a pre-access training and briefing program.

These activities would provide additional oversight of Monument activities, contributing to a well-informed resource management staff who would be better equipped to manage and protect cultural and historic resources and through public outreach, the public could develop a greater understanding of the values of the Monument, thereby resulting in beneficial effects on cultural and historic resources.

## **Enforcement Action Plan**

### ***Planning and Administrative Activities***

The natural environment and strong cultural and spiritual ties of the Native Hawaiians to the NWHI are protected by chartering a Monument law enforcement working group (EN-1.1); developing interagency agreements (EN-1.2); developing an integrated law enforcement training program (EN-1.3); assessing law enforcement capacity and program effectiveness (EN-1.4); integrating additional automated monitoring systems and ship reporting systems (EN-2.3); and integrating regulations briefings into pre-access training (EN-3.1).

These activities would provide additional oversight of Monument activities, contributing to a well-informed resource management staff who would be better equipped to manage and protect cultural and historic resources, thereby resulting in beneficial effects on cultural and historic resources.

## **Midway Atoll Visitors Service Action Plan**

### ***Field Activities***

The natural environment and strong cultural and spiritual ties of the Native Hawaiians to the NWHI would be protected by offering visitors opportunities to enhance their knowledge and appreciation of the Monument's resources. Activities to enhance the visitor's service program include providing visitors with opportunities for wildlife-dependent recreation (VS-1.1); providing opportunities to learn about cultural and historic resources (VS-1.2); monitoring impacts of visitors and other users on wildlife and historic resources (VS-1.3); and monitoring visitor satisfaction surveys (VS-2.1).

Through these activities, visitors would have the opportunity to enhance their knowledge and appreciation of the Monument's natural resources and to learn about and appreciate cultural and historic resources at the Monument. Additionally, continuous monitoring to determine effects from Monument visitors would help resource managers manage and protect cultural and historic sites. This could result in beneficial effects on cultural and historic resources.

### **3.3.4.4 Coordinating Conservation and Management Activities**

#### **Agency Coordination Action Plan**

##### ***Planning and Administrative Activities***

Involving Native Hawaiian entities in the coordinated management of the Monument helps preserve and maintain the connection between cultural and conservation practices. The Proposed Action alternative includes exploring the potential of developing new agreements, including the possibility of amending the 2006 MOA to increase Native Hawaiian involvement in the management of the Monument. (AC-2.1). The involvement of a Native Hawaiian governing entity in the management of the Monument would enhance coordinated management in the Monument by providing added authority for increased protection of cultural and historic resources, therefore having a beneficial effect.



## **Constituency Building and Outreach Action Plan**

### ***Planning and Administrative Activities***

The following activities involve efforts to cultivate an informed constituency that supports the conservation of the natural, cultural, and historic resources of the Monument: engaging in efforts to increase ocean ecosystem literacy and conservation (CBO-1.4); establishing a Monument Web site for Monument-related information (CBO-2.1); developing and updating printed material to aid in understanding key aspects of the Monument (CBO-2.2); supporting other entities' efforts to broaden knowledge of and appreciation for Monument resources and management priorities (CBO-2.3); continuing support of the Native Hawaiian Cultural Working Group through OHA (CBO-3.6); and developing interagency Monument interpretive themes to guide all interpretive products and activities (CBO-4.1).

Through public outreach, the Monument could garner public support for the protection and proper management of cultural and historic resources. This could result in a beneficial effect by generating an increased interest in restoration and protection of cultural and historic resources in the Monument.

### ***Field Activities***

The natural environment and the strong cultural and spiritual ties of Native Hawaiians to the NWHI would be protected by involving the public in the activities at the Monument. Researching and implementing new technologies and tools to increase public understanding of the NWHI ecosystems (CBO-1.5), including telepresence technology, would allow people to feel as if they were present. Through such technologies, Monument staff would be able to provide the public with an opportunity to experience the cultural and historic resources of the Monument, without risking negative effects from physical access, resulting in beneficial effects on cultural and historic resources.

### ***Infrastructure and Development Activities***

Involving constituents in managing the Monument through public outreach enhances the connection between cultural and conservation practices. Initiatives to develop an engaged constituency to enhance management of the Monument include developing partnerships with the National Park Service and other key entities. These partnerships would develop off-site exhibits on the Battle of Midway and the associated National Memorial, to be integrated into World War II memorial sites of the Pearl Harbor Historic District (CBO-4.5). Through public outreach, the Monument could garner public support for protecting and properly managing cultural and historic resources. Through the availability of off-site exhibits, Monument staff would be able to provide the public with an opportunity to experience the cultural and historic resources of the Monument, without risking negative effects of allowing access to the Monument. This could result in beneficial effects on cultural and historic resources.

## **Native Hawaiian Community Involvement Action Plan**

### ***Planning and Administrative Activities***

The Proposed Alternative includes activities that would expand and convene the Native Hawaiian Cultural Working Group (NHCI-1.1); develop and annually maintain partnerships with Native Hawaiian organizations and institutions (NHCI-1.2); establish an annual cultural resources exchange (NHCI-1.3); expand and explore opportunities to partner with institutions serving Native Hawaiians (NHCI-2.1); and use and integrate Native Hawaiian traditional knowledge in Monument management activities (NHCI-3.2).

Native Hawaiian involvement would perpetuate the relationship between their spirituality and the natural and physical elements of the NWHI, which could increase support for future protection or restoration, thereby resulting in beneficial effects on cultural and historic resources.

## **Ocean Ecosystem Literacy Action Plan**

### ***Field Activities***

The natural environment and the strong cultural and spiritual ties of Native Hawaiians to the NWHI would be protected by developing and implementing educational programs to increase ocean ecosystems literacy and promote stewardship values. Activities included are those that provide educational opportunities for formal and informal educators and community and conservation leaders at Midway Atoll (OEL-1.7) and using telepresence technologies for educational and outreach activities (OEL-2.2). Through public outreach, the Monument could garner public support for the protection and proper management of cultural and historic resources. Through such technologies, the public could experience cultural and historic resources of the Monument, without risking negative effects of physical access, resulting in beneficial effects on cultural and historic resources.

### **3.3.4.5 Achieving Effective Monument Operations**

#### **Coordinated Field Operations Action Plan**

##### ***Infrastructure and Development Activities***

Preserving historic resources provides a record of the historical activities in the NWHI and allows increased protection and management of these resources. Activities to preserve historic structures include rehabilitating Officers Row Housing at Midway Atoll (CFO-3.4, CFO-9.4) and treating all wooden historic structures at Midway Atoll for termites (CFO-5.3).

Rehabilitating historic structures would preserve the integrity of historic sites, resulting in a beneficial effect on historic resources. Known and undiscovered cultural and historic resources could be unintentionally harmed through infrastructure and development work under this or any of the other infrastructure operations called for in the sections analyzed in this chapter. Resource managers would be required to use established management practices while working at these sites to avoid such harm. Short-term minor negative effects that might result from infrastructure and development activities generally could be minimized by exercising the NHPA Section 106 process, as explained in section 3.3.2.

**3.3.5 Summary of Effects**

Table 3.3-1 summarizes the effects on cultural and historic resources from the Proposed Action. The effects are listed by Action Plan and action areas (planning/administrative, field, or infrastructure and development activities). The Proposed Action could have beneficial and short-term minor negative effects on cultural and historic resources of the Monument. The cultural and historic resources of the Monument, includes historic properties, landscapes, cultural items, archaeological resources, sacred sites, or collections subject to protection under the NHPA, the ARPA, and the guidelines on Curation of Federally Owned and Administered Collections (36 CFR Part 79).

**Table 3.3-1  
Summary of Effects on Cultural and Historic Resources  
of the Proposed Action Alternative**

<b>Understanding and Interpreting the Northwestern Hawaiian Islands</b>		
<b>Action Plan</b>	<b>Action Areas</b>	<b>Effects</b>
<b>Native Hawaiian Culture and History</b> <i>(EA section 1.5.2)</i> <i>(EA section 1.6.2)</i>	Planning/Administrative	• Beneficial effects on cultural and historic resources.
	Field Activities	• Beneficial effects on cultural and historic resources.
<b>Historic Resources</b> <i>(EA section 1.5.3)</i> <i>(EA section 1.6.3)</i>	Planning/Administrative	• Beneficial effects on cultural and historic resources.
	Field Activities	• Beneficial effect on cultural and historic resources.
	Infrastructure and Development	• Beneficial effects on cultural and historic resources.
<b>Maritime Heritage</b> <i>(EA section 1.5.4)</i> <i>(EA section 1.6.4)</i>	Planning/Administrative	• Beneficial effects on cultural and historic resources.
	Field Activities	• Beneficial effects on cultural and historic resources.

<b>Conserving Wildlife and Habitats</b>		
<b>Action Plan</b>	<b>Action Areas</b>	<b>Effects</b>
<b>Threatened and Endangered Species</b> <i>(EA section 1.5.5)</i> <i>(EA section 1.6.5)</i>	Planning/Administrative	• Beneficial effect on cultural and historic resources.
	Field Activities	• Beneficial effect on cultural and historic resources.
<b>Migratory Birds</b> <i>(EA section 1.5.6)</i> <i>(EA section 1.6.6)</i>	Field Activities	• Beneficial effect on cultural and historic resources.
<b>Habitat Management and Conservation</b> <i>(EA section 1.5.7)</i> <i>(EA section 1.6.7)</i>	Planning/Administrative	• Beneficial effect on cultural and historic resources.
	Field Activities	• Beneficial effect on cultural and historic resources. • Short-term minor negative effects on cultural

Conserving Wildlife and Habitats		
Action Plan	Action Areas	Effects
		and historic resources.

Reducing Threats to Monument Resources		
Action Plan	Action Areas	Effects
<b>Marine Debris</b> <i>(EA section 1.5.8)</i> <i>(EA section 1.6.8)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>Beneficial effect on cultural and historic resources.</li> </ul>
	Field Activities	<ul style="list-style-type: none"> <li>Beneficial effect on cultural and historic resources.</li> </ul>
<b>Alien Species</b> <i>(EA section 1.5.9)</i> <i>(EA section 1.6.9)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>Beneficial effect on cultural and historic resources.</li> <li>Short-term minor negative effects on cultural and historic resources.</li> </ul>
	Field Activities	<ul style="list-style-type: none"> <li>Beneficial effect on cultural and historic resources.</li> <li>Short-term minor negative effects on cultural and historic resources.</li> </ul>
<b>Maritime Transportation and Aviation</b> <i>(EA section 1.5.10)</i> <i>(EA section 1.6.10)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>Beneficial effect on cultural and historic resources.</li> </ul>

Managing Human Uses		
Action Plan	Action Areas	Effects
<b>Permitting</b> <i>(EA section 1.5.12)</i> <i>(EA section 1.6.12)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>Beneficial effect on cultural and historic resources.</li> </ul>
<b>Enforcement</b> <i>(EA section 1.5.13)</i> <i>(EA section 1.6.13)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>Beneficial effect on cultural and historic resources.</li> </ul>
<b>Midway Atoll Visitors Services</b> <i>(EA section 1.5.14)</i> <i>(EA section 1.6.14)</i>	Field Activities	<ul style="list-style-type: none"> <li>Beneficial effect on cultural and historic resources.</li> </ul>

Coordinating Conservation and Management Activities		
Action Plan	Action Areas	Effects
<b>Agency Coordination</b> <i>(EA section 1.5.15)</i> <i>(EA section 1.6.15)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>Beneficial effect on cultural and historic resources.</li> </ul>
<b>Constituency Building and Outreach</b> <i>(EA section 1.5.16)</i> <i>(EA section 1.6.16)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>Beneficial effect on cultural and historic resources.</li> </ul>
	Infrastructure and Development	<ul style="list-style-type: none"> <li>Beneficial effect on cultural and historic resources.</li> </ul>
	Infrastructure and Development	<ul style="list-style-type: none"> <li>Beneficial effect on cultural and historic resources.</li> </ul>

<b>Coordinating Conservation and Management Activities</b>		
<b>Action Plan</b>	<b>Action Areas</b>	<b>Effects</b>
<b>Native Hawaiian Community Involvement</b> <i>(EA section 1.5.17)</i> <i>(EA section 1.6.17)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effect on cultural and historic resources.</li> </ul>
<b>Ocean Ecosystems Literacy</b> <i>(EA section 1.5.18)</i> <i>(EA section 1.6.18)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effect on cultural and historic resources.</li> </ul>
	Field Activities	<ul style="list-style-type: none"> <li>• Beneficial effect on cultural and historic resources.</li> </ul>

<b>Achieving Effective Monument Operations</b>		
<b>Action Plan</b>	<b>Action Areas</b>	<b>Effects</b>
<b>Evaluation</b> <i>(EA section 1.5.22)</i> <i>(EA section 1.6.22)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effect on cultural and historic resources.</li> </ul>



### 3.4 SOCIOECONOMICS

#### 3.4.1 Effects Analysis Methodology

In the description of the No Action and Proposed Action alternatives, activities presented in the Monument Management Plan were divided into three categories: planning and administrative, field, and infrastructure and development. Planning and administrative activities are not considered to directly affect socioeconomic resources (human use, human health, safety and hazardous materials, land use, and economics), either because they relate to the development of the coordination mechanisms described in the December 2006 MOA and Presidential Proclamation 8031 or they are specifically administrative in nature. However, many activities identified as a result of these planning and administrative actions ultimately would have a direct effect and to the extent adequate information is currently available they are analyzed below. For activities proposed within the Monument or intended to improve management of the Monument, the method used to determine the effect on socioeconomic resources is as follows:

- Review and evaluate current and past activities to identify their potential effect on socioeconomic resources (human use, human health, safety and hazardous materials, land use and economics);
- Review and evaluate activities within the Monument Management Plan to identify their potential to beneficially or negatively affect socioeconomic resources (human use, human health, safety and hazardous materials, land use, and economics) and its components within the Monument; and
- Assess whether or not each activity within the Monument Management Plan is consistent with applicable federal, state, or local laws, regulations, and policies.

#### 3.4.2 No Action

This section briefly describes activities that are underway in the Monument and analyzes the effects associated with these activities. Only those activities that would have an effect on human health, safety and hazardous waste, human uses and land use are included in the analysis. The analysis describes the projected beneficial and negative effects that would be expected to continue under the No Action alternative, should it be selected for implementation. The No Action alternative would not change the current situation. However, these activities would continue under the Proposed Action alternative, and their effects are summarized under the Proposed Action in Table 3.4-1 at the end of this section.

##### 3.4.2.1 Understanding and Interpreting the Northwestern Hawaiian Islands

###### Marine Conservation Science Action Plan

###### *Planning and Administrative Activities*

###### *Human Uses*

Characterizing types and spatial distributions of shallow-water marine habitats (MCS-1.1) and monitoring shallow-water coral reef ecosystems (MCS-1.2) provides a framework for biogeographical assessments that would offer up-to-date research findings for the project area.

These research and monitoring activities have a beneficial effect on the use of the area by research personnel because the activities offer the opportunity for more effective use of resources while conducting research activities in the project area.

### **Maritime Heritage Action Plan**

#### ***Planning and Administrative Activities***

##### *Human Uses*

Field mapping surveys and status reports would continue under the Maritime Heritage Action Plan (MH-1.2). Different phases of research on Maritime Heritage include shoreline terrestrial surveys and inventories, as well as remote sensing using state of the art technology, such as sidescan sonar and magnetometers in order to locate potential heritage areas. These activities have a beneficial effect on use of the area by research personnel because they offer the opportunity for more effective use of resources while personnel are conducting continuing research activities.

### **3.4.2.2 Achieving Effective Monument Operations**

#### **Central Operations Action Plan**

#### ***Planning and Administrative Activities***

##### *Human Health, Safety, and Hazardous Materials*

There is currently coordination and implementation of an annual operating plan (CO-1.1), which includes several administrative tasks, such as budget tracking, in addition to field activity planning. Specifically, the annual plan includes functional information about emergencies to ensure staff safety. This coordination adds to the efficiency of safety operations throughout the Monument, as well as the health of staff persons. Under the No Action alternative, this coordinated plan would continue to be implemented, so this activity would have a beneficial effect on human health and safety within the Monument.

### **3.4.3 Proposed Action**

The Proposed Action would expand current activities and includes new activities described in the Monument Management Plan; the effects of these activities are described below. Implementation of the Proposed Action includes continuation of those activities described for the No Action alternative described in section 3.4.2 above. The effects of these activities would also continue under the Proposed Action. Only those activities that would have an effect on human uses, human health, safety and hazardous materials, and land use are included in this analysis.

### **Economics and Environmental Justice**

The economic effects of the Proposed Action alternative are analyzed based on the entire budget of all activities. This is because personnel may work on more than one activity and budget dollars may be shared between activities. Therefore, the effects by activity are not analyzed here.

### ***Economics***

The Proposed Action would provide an integrated framework for Monument management among the Co-Trustees. While this coordination could save money, it is anticipated that activities needed to address priority management needs will never be fully funded. As such, savings achieved through coordination would be channeled into research and management. A few additional jobs would be generated as a result of the Proposed Action, such as facilities repair and construction at Midway. An integrated approach presented in the Monument Management Plan could result in increased funding for research and management. However, overall, the total level of funding would still be subject to annual budgetary process and would likely experience increases or decreases, depending on overall federal spending. The cost of implementing the Proposed Action is estimated to average \$23 million a year over 15 years, but because funding is subject to federal and state budget and appropriations and private donations, it is not possible to determine in advance what level of funding may be available in any given year, or over the life of the plan. Overall, the Proposed Action alternative is not expected to have an effect on population, employment, industry, income or the broader Hawai‘i economy, compared to the No Action alternative.

### ***Environmental Justice***

The Proposed Action would not result in a disproportionate placement of negative environmental or health effects on minority or low-income populations compared to the No Action alternative. The proposed activities in the Monument Management Plan would be conducted largely in the Northwestern Hawaiian Islands, away from human population. Since potential changes in environmental, health, or economic conditions are not expected to disproportionately affect any particular low-income or minority groups, as in accordance with EO 12898, no effects on environmental justice are anticipated from the Proposed Action compared to the No Action alternative.

## **3.4.3.1 Understanding and Interpreting the Northwestern Hawaiian Islands**

### **Marine Conservation Science Action Plan**

#### ***Field Activities***

##### *Human Uses*

With the establishment of data collection protocols, statistical sampling design, and site selection criteria, new research opportunities would arise for research personnel within the Monument. In establishing these new research techniques and using the shallow-water ecosystem monitoring protocols as a guide, the goal of monitoring deepwater ecosystems would be achieved (MCS-1.4). With new research activities being conducted, the opportunity to include live Web sites from research vessels using written updates, imagery, and video is possible (MCS-3.3). These activities would have beneficial effects on research personnel who could benefit from new research opportunities. The public, especially students and teachers, could benefit from new activities aboard NOAA research vessels because they would be given an inside look at up-to-date research techniques and research findings that were not previously available.

## **Historic Resources Action Plan**

### ***Planning and Administrative Activities***

#### *Human Health, Safety, and Hazardous Materials*

Within the Historic Resources Action Plan, the Midway Atoll Historic Preservation Plan would be updated within one year, including reconciling it with the current lead-based paint abatement plan (HR-1.1). This activity would require consultation and coordination among refuge program specialists and Monument staff to balance the needs of each plan. The preservation efforts regarding historic resources, coupled with revitalization efforts involved with visitor service centers, would provide the impetus for increased planning for removing hazardous building materials from structures. The eventual removal of these hazardous materials would decrease the risk of human exposure and therefore could have a beneficial effect on human health and safety within the Monument.

## **Maritime Heritage Action Plan**

### ***Planning and Administrative Activities***

#### *Human Health, Safety, and Hazardous Materials*

Within the Maritime Heritage Action Plan, a status report on potential environmental hazards is to be completed within one year and would be updated annually (MH-1.3). This report would identify wreck sites and other debris through field work. The report would also identify any potential hazards in order to assess the need for response and remediation. Because most accidental oil spills occur due to vessel groundings and accidents, this status report could have a beneficial effect by reducing the likelihood of hazardous materials being released from vessel groundings and accidents. The identification of hazards could also have a beneficial effect on vessel safety because operators would be able to avoid incidents with more accuracy.

## **Historic Resources Action Plan**

### ***Field Activities***

#### *Human Uses*

Opportunities currently available for volunteers include assisting with historic preservation tasks, working with FWS on historic restoration projects, and, for well-qualified volunteers, assisting Monument staff with the operation of visitors services programs. With the expansion of current volunteer programs, there would be opportunities available to visitors to continue these activities and to participate in new historic preservation treatments deemed necessary by the agencies (HR-2.3). With continuing archaeological investigations throughout the Monument, new archaeological and historical research would be necessary. New research opportunities within the next 10 years could include excavation in such areas as the Commercial Pacific Cable Station (HR-6.2). These research opportunities would provide visitors and research personnel with an insight into Midway Atoll's earliest residents. These activities under the Historic Resources Action Plan could have minor beneficial effects on research personnel because they would be able to participate in new research that would help in understanding the history of the NWHI. The activities could have a minor beneficial effect on the public because, with new visitor and volunteer opportunities, the public would be given more opportunities and different reasons to

visit the Monument. These opportunities would not increase the total number of visitors and volunteers on Midway but could shift some focus from habitat restoration toward historic preservation and restoration activities.

## **Native Hawaiian Culture and History Action Plan**

### ***Field Activities***

#### ***Human Uses***

The expansion of current research activities in the Monument would include field research and cultural education opportunities for students, teachers, and cultural specialists. Specifically, these researchers would be provided with space aboard research vessels and logistical and technical support from personnel on the research vessels and from the agencies (NHCH-2.3). This activity would have a beneficial effect on students, teachers, and cultural specialists because new cultural education opportunities would be made available.

In support of Native Hawaiian cultural research, Activity NHCH-2.6 would offer Native Hawaiian organizations contracts, grants, or formal agreements for cultural access needs. These needs include access to Mokumanamana for cultural practices and regular access for Polynesian voyaging canoes for cultural practices training. This activity could be beneficial to the Native Hawaiian community because it would ensure that cultural practice needs were met.

In order to develop management activities for the Monument that include understanding the history of the Monument and its peoples, Activity NHCH-3.2 allows for the Native Hawaiian community and the Native Hawaiian Cultural Working Group to participate in developing these management needs. This would include engaging younger generations of Native Hawaiians in cultural research field activities. This would be beneficial to the Native Hawaiian community because it would allow them more access to preserving the cultural and historic resources of the NWHI through research opportunities and consultations with the agencies.

In developing and implementing specific preservations plans, including the Monument Cultural Resources Program, it would be possible for new sites to be listed on the NRHP on Nihoa and Mokumanamana Island (NHCH-4.2 and NHCH-4.3). This would result in no effect on human use of the area because these two islands would remain closed to general public access. Native Hawaiian use of these areas is allowed only under trip-specific permits from the MMB. Increased educational material that would result in the research of cultural resources and new historic sites could have a beneficial effect on the public, who would gain more knowledge of the history of the Monument.

### **3.4.3.2 Conserving Wildlife and Habitats**

#### **Threatened and Endangered Species Action Plan**

##### ***Planning and Administrative Activities***

###### ***Human Uses***

Various practices are instituted by the agencies that work to eliminate human interactions with marine mammals, seabirds, sea turtles, and other endangered or threatened species. These



practices include “Best Practices for Minimizing the Impact of Artificial Light on Sea Turtles,” “Precautions for Minimizing Human Impacts on Endangered Land Birds in Papahānaumokuākea Marine National Monument,” “Special Conditions and Rules for Moving between Islands and Atolls and Packing for Field Camps in Papahānaumokuākea,” “Human Hazards to Seabirds in Papahānaumokuākea Marine National Monument” (all found in Appendix F). Other practices include “Disease and Introduced Species Prevention Protocol for Permitted Activities in the Marine Environment, Papahānaumokuākea Marine National Monument” (PIRO 2007), “Marine Wildlife Viewing Guidelines (NOAA-NMFS, undated), and compatibility determinations for activities on the refuges. In order to reduce the likelihood and negative effect of human interactions on Hawaiian monk seals (*Monachus schauinslandi*), Activity TES-1.4 would include the extensive permit review process of any activities (including nearshore ship traffic, beach use, noise, research, and any other effect that could negatively affect the marine or terrestrial habitat of the seal) and thus could have a negative effect on human use in any areas that include the marine or terrestrial habitat of the monk seal. At the same time, to the extent these restrictions contribute to the recovery of the monk seal, these actions could result in a beneficial effect on human uses because of increased observational opportunities at Midway and the main Hawaiian Islands.

### ***Field Activities***

#### *Human Uses*

Currently, limited entry policies, no-access areas, and BMPs (See Volume III, Appendix F) are in place for avoiding threatened and endangered species and human interactions. Most beaches on the western side of Sand Island at Midway Atoll are closed to public access to protect the Hawaiian monk seal from human disturbance. “Turtle Beach,” on the east side of Sand Island, is inhabited by the endangered Laysan duck (*Anas laysanensis*) and is therefore closed to public use. Spit Island and Eastern Island at Midway are closed to visitors, with the exception of FWS-trained escorts conducting scheduled trips to Eastern Island. The critical habitat of the Hawaiian monk seal covers all beach areas, lagoon waters, and ocean waters to a depth of 20 fathoms, with the exception of Sand Island and its harbor. Therefore, these areas are strictly regulated by the agencies. Activities TES-2.5 and TES-3.3 would continue to prevent human interactions with cetaceans and sea turtle nesting habitat through controls that would make off limits such areas as sea turtle nesting areas and Monument lagoons and nearshore areas where cetaceans rest. Both of these activities would therefore increase limits on current human use. Green turtle (*Chelonia mydas*) nesting habitat occurs throughout the beaches of the NWHI. Continuing efforts do not limit human use overall, but beaches (deemed public use areas) could be temporarily closed. Because there are currently controls limiting public access, these activities could result in a long-term minor negative effect on human use.

#### *Human Health, Safety, and Hazardous Materials*

The Threatened and Endangered Species Action Plan includes facilitating emergency response for Hawaiian monk seals (TES-1.2). Although the response would be focused specifically on Hawaiian monk seals, the protocols include ensuring that a rapid and well-organized response is possible. Incidents that threaten Hawaiian monk seals include oil spills, disease outbreak, and ship groundings. The interagency coordination involved with improving emergency response logistical capabilities and transportation could increase the efficiency of the current emergent vessel capacity. Although instituting protocols for monk seal rescue would not directly reduce

the occurrence of the incidents described above, the coordination and planning efforts could have a beneficial effect on safety operations within the Monument.

Protecting and managing marine habitat includes identifying and mapping foraging areas and migration routes in and around the Monument (TES-3.3). By identifying and mapping turtle foraging areas, necessary information would be obtained to manage anchoring and vessel transit activities.

## **Migratory Bird Action Plan**

### ***Planning and Administrative Activities***

#### *Human Health, Safety, and Hazardous Materials*

To minimize migratory bird mortality during oil spills, the Migratory Bird Action Plan calls for adequate coverage of appropriate actions in all spill response plans (MB-2.3). This would include multiagency coordination during spill prevention planning and actual spill response actions. Although this activity is not a direct human-related emergency response, the coordination and planning efforts could have a beneficial effect on the emergency response operations and therefore safety within the Monument.

## **Habitat Management and Conservation Action Plan**

### ***Planning and Administrative Activities***

#### *Human Health, Safety, and Hazardous Materials*

The Habitat Management and Conservation Action Plan calls for a cost evaluation for the removal of iron sources, such as shipwrecks, from Monument waters (HMC-2.4). This would include cataloging all the existing sources. The plan would also build an oil sample archive from oil washed ashore, as well as wildlife affected by mystery spills (HMC-2.5). This inventory would be used to determine liability and understanding of the primary sources of oil pollution. These two activities would increase the knowledge of hazardous materials within the Monument and help decision makers determine the best course of action for their removal. The oil sample archive would also help Monument staff determine appropriate preventative measures for oil spill occurrence by discovering the key factors in mystery cases. Therefore, these two activities could have beneficial effects on hazardous material practices within the Monument.

### ***Field Activities***

#### *Human Health, Safety, and Hazardous Materials*

There are several activities in the Habitat Management and Conservation Action Plan focused on reducing the effects of human actions. The first activity is to evaluate the effects of contamination from shoreline dumps and landfills at French Frigate Shoals, Kure Atoll, Midway Atoll, and Pearl and Hermes Atolls and to prioritize cleanup action based on risk assessments (HMC-2.1). The risk assessments would evaluate the effects of runoff, erosion, and seepage from hazardous waste sites. The plan would also work to verify the integrity of known landfills and to conduct additional remediation where necessary (HMC-2.2). This activity would occur at the old bulky waste landfill and the “Rusty Bucket” at Midway. The dump site material would continue to be removed from Tern Island and French Frigate Shoals. The investigations and

cleanup efforts would target PCB contamination. Finally, under the plan, historic disposal sites would be located at FFS and Kure, Midway, Pearl, and Hermes Atolls, the sites would be investigated for contamination (HMC-2.3).

These assessment activities could help characterize the nature and extent of contamination within the Monument. Appropriate cleanup and remediation actions could then be determined from information obtained through these studies. These activities could increase compliance with regulations and could reduce the likelihood of further contamination or release. There could be a benefit to human health because of the decreased risk of human exposure to and release of potentially hazardous materials within the Monument.

There would also be an ecological risk assessment performed at Midway to determine the levels of lead in the soil for possible removal. Field activities include removing flaking lead-based paint from buildings and effectively removing lead-contaminated soils on Midway Atoll (HMC 2.7). This includes conducting an ecological risk assessment to determine the allowable lead levels in the soils. Paint removed from buildings is stored short term in sealed 55-gallon barrels in a secure, dry storage area on Sand Island. Due to the extremely high cost of transporting these materials off island, current plans call for storing the barrels at Midway until all lead-based paint is removed. At that time, a fully licensed hazardous waste contractor would be hired to repack if necessary and then ship all wastes to a licensed disposal site on the mainland.

While the ecological risk assessment to determine soil lead-based paint cleanup levels at Midway would not be affected under the No Action alternative, the proposed activity under the Proposed Action alternative could result in a faster clean up and therefore could reduce the long-term exposure time. Except for a few employees that have lived at Midway for 10 to 25 years, most staff members do not live at Midway for more than three to five years, and most visitors and researchers stay for only a few weeks to months. This could help bring the Monument into compliance with hazardous waste regulations and could decrease the risk of human exposure; therefore, it could have a long-term beneficial effect on human health and safety within the Monument.

### **3.4.3.3 Reducing Threats to Monument Resources**

#### **Marine Debris Action Plan**

##### ***Planning and Administrative Activities***

##### ***Human Health, Safety, and Hazardous Materials***

The Marine Debris Action Plan includes an activity to catalog, secure, contain, and properly remove hazardous materials that wash ashore (MD-1.2). These materials include unidentified chemical containers, unexploded ordnance, oceanographic instruments, and objects that regularly wash ashore. The items would be documented, identified, and secured until removed and disposed of by approved contractors. The proper handling of hazardous materials within the Monument would increase compliance with hazardous materials regulations. It would also decrease the likelihood of threats to human health. Therefore, this activity could have a beneficial effect on hazardous materials and human health within the Monument.

## Alien Species Action Plan

### *Planning and Administrative Activities*

#### *Human Health, Safety, and Hazardous Materials*

There are several activities within the Alien Species Action Plan that aim to eradicate pests and alien species. The eradication of the house mouse would require treatment with rodenticide, which falls under the Federal Insecticide, Fungicide, and Rodenticide Act (PL 95-516; U.S.C. 136-136y) (AS-4.2). Toxicants would be used on invasive species of ants and wasps (AS-5.2) and gray bird locusts (AS-5.5). Glyphosate would be applied to reduce and eradicate various invasive plant species (AS-6.1, AS-6.2); Garlon (AS-6.3) and Garlon 4 (AS-6.4) would be painted on stumps to prevent further growth of additional invasive species. These hazardous chemicals would be applied in accordance with the Alien Species Management Plan and therefore would comply with all applicable local, state, and federal laws. Although the use of toxic chemicals could have short-term minor negative effects on human health and safety from an increased risk of exposure or spills, all applicable rules and procedures, including use of personal protective clothing, would be followed to safeguard the health of the person applying them. The use of toxicant applications to eradicate pests and alien species could have beneficial effects on species and humans by reducing future threats from invasive species (such as wasps, mosquitoes, and ants).

The Alien Species Action Plan also calls for controlling and possibly eradicating two introduced mosquito species that pose risks to humans and special status species health (AS-5.3). This activity could decrease threats to human health by minimizing mosquito breeding habitat and killing larvae in freshwater ponds. Therefore, this activity could have a beneficial effect on human health within the Monument.

### *Field Activities*

#### *Human Uses*

The Alien Species Action Plan includes a field activity to control and, if possible, eradicate the two mosquito species that were introduced to Midway Atoll (AS-5.3). In order to eradicate these insects, staff members would kill mosquito larvae in freshwater ponds and would eliminate mosquito breeding habitat by getting rid of standing water sources where possible and appropriate. The eradication measures that would generally be used are draining standing water, stocking mosquito-eating fish, and using biological controls. If chemical agents are used in the eradication process, staff members would be properly trained and would be provided with appropriate protective gear; thus there would be no effect on staff members from this activity. Human visitors and staff living on the island could benefit from this activity because it could minimize the possibility of mosquito-vector diseases, such as West Nile virus and avian pox. Therefore, controlling and possibly eradicating the two mosquito species at Midway Atoll could result in a beneficial effect on human uses by protecting public health.

## **Maritime Transportation and Aviation Action Plan**

### ***Planning and Administrative Activities***

#### *Human Uses*

Developing boundary and zoning information tools (MTA-1.2), including updates to nautical charts and Notices to Mariners (MTA-1.3), would provide Monument permittees with up-to-date information on vessel and airplane allowances in the Monument. Pre-access information would be improved, and these informational materials would be provided to Monument users and vessel operators in trip training (MTA-2.3). Informational materials provided and trip training exercises include waste discharge locations and types, preventing the introduction of nonnative species and preventing and reporting interactions with federally and state protected species, as well as other wildlife. Providing updates to navigational charts, informational materials, and notices to mariners is a beneficial effect because it enhances public safety and awareness of the environment. These activities are proposed in order to reduce the effects of marine and air traffic on the Monument, but, because these are planning activities, they would not create new limits on use of the Monument in relation to permittees.

#### *Human Health, Safety, and Hazardous Materials*

The Maritime Transportation and Aviation Action Plan would improve pre-access information including pre-trip training that would cover regulations and compliance, navigation hazards, zoning designations, including waste discharge locations and types, preventing light and noise pollution, and preventing anchor damage to coral reefs and other benthic (bottom-dwelling) organisms and their habitats (MTA-2.3). All vessel operators, captains, crews, and trip participants would have access to this information. The Monument staff would work with the ICC to convene a group of vessel and aircraft personnel to discuss safety for boating and flight operations (MTA-2.2). These suggestions would be incorporated into the pre-trip training. By increasing access and training opportunities concerning hazards and potential pollution pathways, the likelihood of accidental vessel groundings and hazardous waste discharge could decrease. The MMB would benefit from expert experience by convening a group of seasoned operators, thus further improving the communication and implementation of Monument regulations for safety and spill prevention. Therefore, this plan could have a beneficial effect on hazardous materials and safety within the Monument.

### ***Field Activities***

#### *Human Health, Safety, and Hazardous Materials*

The Maritime Transportation and Aviation Action Plan outlines several activities to assess potential aircraft and vessel hazards and effects (MTA-2.1). There are many research studies, including an assessment of how discharge from vessels affects the environment. If needed, protocols and restrictions would be modified. The research conducted for this study may decrease the likelihood of effects from discharge by discovering where current practices can be improved. Therefore, these activities could have a beneficial effect on human health and safety by implementing practices to reduce the potential release of hazardous materials from vessels within the Monument.



## **Emergency Response and Natural Resource Damage Assessment Action Plan**

### ***Planning and Administrative Activities***

#### *Human Health, Safety, and Hazardous Materials*

The Emergency Response and Natural Resource Damage Assessment Action Plan includes activities to plan for and respond to an emergency within the ICS for the region, or other unanticipated events that fall outside the scope of the Area Contingency Plan for the Hawaiian Islands. The plan would create an ERAT for ICS responses (ERDA-1.1). ERAT members would be required to acquire and maintain training and certifications appropriate for response preparedness (ERDA-1.2, ERDA-2.3), to participate in emergency response drills (ERDA-1.3), and to participate in damage assessment programs and training (ERDA-1.4). These activities would properly prepare the ERAT for emergencies and disasters within the ICS.

In the second year of the plan, the appropriate type and response to non-ICS emergencies would be determined (ERDA-2.1). Monument staff would be designated for each non-ICS response team, including species experts for protected species incidents (ERDA-2.2). The plan would require an update and, if needed, improvement of the Area Contingency Plan and the Environmental Sensitivity Indexes (ERDA-3.1). Finally, within three years, the ERAT would create damage assessment criteria and protocols for non-ICS incidents.

These activities could not only increase the efficiency of response to special status species incidents but increase response efficiency to emergency and safety hazard occurrences as well. This could increase the speed of emergency vehicle response time by streamlining protocols and adequately training team members. The ERAT would be well qualified to assist region-wide incidents as well as local emergencies. Therefore, the plan could have a beneficial effect on safety, human health, and hazardous materials practices within the Monument.

### **3.4.3.4 Managing Human Uses**

#### **Permitting Action Plan**

### ***Planning and Administrative Activities***

#### *Human Health, Safety, and Hazardous Materials*

The Permitting Action Plan outlines several activities that develop tracking, evaluation, and outreach components. A GIS-based permit tracking system would allow each agency to input and track activities within the Monument that pertain to individual requirements (P-2.1). A system would then be instituted to analyze this data to inform management decisions (P-2.2) and discover patterns of compliance (P-2.3). In conjunction, a Monument reporting process would be developed to ensure adherence to regulations and, if necessary, issue compliance visits from enforcement agents (P-2.4). A permit and regulatory education program would be required for all permit applicants (P-3.1). Outreach efforts would be coordinated between agencies to avoid delays and to ensure the highest level of regulatory understanding by permittees (P-3.3). Finally, pre-access training for first time Monument visitors to communicate regulations, permit requirements, and best conduct would be implemented (P-3.4).

These activities could increase accountability and compliance with permits required to enter the Monument. The outreach component would integrate understanding of regulations by all Monument users, which could decrease the likelihood of accidents and hazardous waste spills. This could decrease the demand on emergency response, as well as risks to human health from vessel groundings and hazardous material exposure. Therefore, this plan could have a beneficial effect on human health, safety, and hazardous materials practices within the Monument.

### ***Field Activities***

#### *Human Uses*

Midway Atoll is the main gateway to the Monument. Because it is outside the State of Hawai‘i, regulations at 50 CFR Part 38 were put in place to provide for public safety at Midway. Increased law enforcement capacity on Midway Atoll would include the presence of credentialed officers (EN-1.5) in order to develop means of understanding enforcement and to share resources between the different enforcement agencies. These officers would ensure safety, regulatory compliance, and enforcement, which could benefit Monument visitors and staff because of the assurance of their safety while visiting or living at Midway.

### **Midway Visitors Services Action Plan**

#### ***Planning and Administrative Activities***

##### *Human Uses*

With the current, expanded, and new activities that are possible through this management plan for visitors to come to the Monument, it becomes necessary to have a way to assess the visitor programs in order to provide the most beneficial services to the public. Activities VS-2.2 and VS-2.3 would create a team of visitors services members at Midway Atoll who would review the visitors program every other year and would use the results from these reviews to improve the visitors programs. These activities could have a beneficial effect on visitors to the Monument because of the assurance that Monument staff are providing and offering the most beneficial programs and activities in the NWHI.

### ***Field Activities***

#### *Human Uses*

Activity VS-1.1 would provide opportunities for additional visitors to enjoy wildlife-dependent recreation. These opportunities include guided interpretive tours, wildlife photography, snorkeling, diving, kayaking, and self-guided walks. Currently, 25 percent of visitors staying three days or longer are given the opportunity to assist with wildlife population monitoring as volunteers. Seven compatibility determinations are in place that allow activities on Midway. The covered activities are allowed under agreed-on terms and conditions that comply with state and federal policies. Additional compatibility determinations allow for other beach use activities for visitors, such as swimming, volleyball, nonadministrative airport operations, bicycling, jogging, and amateur radio use. While most of these activities are currently available to Midway Atoll visitors, this activity in the Monument Management Plan outlines opportunities for additional recreational activities for a slightly greater number of visitors. These activities would be evaluated, monitored, and implemented in accordance with the preservation and conservation of the Monument’s biological, cultural, and historic resources. The goal of this activity is to

provide recreation for visitors that would educate them about the environment and would allow them to gain knowledge of all of the resources the Monument has to offer. This activity could be beneficial to visitors by providing them with a variety of opportunities to experience the resources of Midway Atoll and the Monument.

Visitors' effects on the various resources of the Monument are being monitored through the MVSP. In addition to a visitors services review team outlined in planning Activity VS-2.2, Activity VS-2.1 would monitor visitor satisfaction surveys completed by visitors leaving Midway Atoll. Based on these satisfaction surveys, in addition to monitoring Monument resources, this activity also includes the monthly adjustment of activities, facilities, and maintenance schedules to provide the best possible visitor services. While continuing to comply with the preservation and protection of Monument resources, this activity could be beneficial to visitors because it would provide assurance that they were given the best possible experiences while visiting Midway.

### **3.4.3.5 Coordinating Conservation and Management Activities**

#### **Ocean Ecosystems Literacy Action Plan**

##### ***Field Activities***

###### ***Human Uses***

The "Navigating Change" program is an educational program that focuses on raising awareness of marine ecosystems and their conservation in the Hawaiian Islands. Over the past few years, over 15 workshops have been conducted throughout the Hawaiian Islands to provide teachers with the educational materials and methods for effectively teaching this material. The Navigation Change Curricula would provide wildlife-dependent educator workshops at Midway Atoll, targeting a mix of formal and informal educators and community and conservation leaders (OEL-1.7). These annual workshops would provide teachers with major themes of the ocean ecosystem-based curriculum. Moreover, teaching materials, such as telepresence and ocean stewardship programs, would be developed. These workshops could be beneficial to the teachers of the Hawaiian Islands, who would be given hands-on experience and the opportunity to learn the most effective way of presenting this material to their students.

### **3.4.3.6 Achieving Effective Monument Operations**

#### **Central Operations Action Plan**

##### ***Planning and Administrative Activities***

###### ***Human Uses***

Regularly assessing the current status and future needs for human resources (CO-2.1) would enhance human resources and organizational capacity in the Monument. Currently, human resources capacities are examined regularly in order to organize and make better use of current staff. Alternative human resources capacity-building activities could include internships, volunteer programs, and partnerships, all of which could benefit researchers and the public because they would be given additional opportunities for helping to conserve Monument resources.

## **Coordinated Field Operations Action Plan**

### ***Planning and Administrative Activities***

#### *Human Uses*

Originally, Midway's infrastructure was built to service a population of up to 5,000 individuals. The current population of Sand Island is less than 100 people, with future projections of no more than 200 individuals. This includes interagency personnel, volunteers, researchers, and visitors. In order to be efficient for this population, FWS has allotted the time, money, and resources to downsizing the infrastructure on Sand Island. In order to meet this downsizing goal, such activities as developing a strategy for long-term sustainability for operations throughout the Monument using alternative energy systems and waste reduction would be implemented within two years (CFO-1.3) and would benefit those researchers and visitors. Also, sustainability activities would help keep the human presence in the Monument at the levels anticipated under either alternative. The facilities on Midway would require less energy, would grow limited amounts of produce (at Midway only), and perhaps would use sustainable fuel types, in addition to other sustainable efforts. This could require fewer shipments of fuel and materials to and from the main Hawaiian Islands. Thus, these activities could have a beneficial effect on sustaining the human presence within the Monument for management, research, and visitation purposes.

#### *Human Health and Hazardous Materials*

Planning and administrative activities in the Coordinated Field Operations Action Plan include the integration of alternative energy systems and waste reduction strategies within two years (CFO-1.3) and the use of sustainable engineering, technology, and landscape architecture throughout the Monument (CFO-1.4). These sustainable development activities could decrease the likelihood of hazardous materials release and subsequent human exposure by integrating nontoxic building materials and lubricants for Monument building and operations. Thus, this plan could have a beneficial effect on human health and hazardous materials practices within the Monument.

### ***Infrastructure Development Activities***

#### *Human Uses*

In relation to the downsizing plan described above, several infrastructure activities in the Proposed Action would help in achieving this goal. These activities include rehabilitating "Officer's Row" Housing at Midway Atoll (CFO-3.4), which would increase the housing capacity for increased agency and partner personnel; maintaining and enhancing the infrastructure at Kure Atoll (CFO-3.5), which would maintain, expand, or replace communications equipment, solar and water power equipment, sewage treatment, and buildings and facilities on Green Island; and completing Phase I rehabilitation of Midway Mall and Commissary (CFO-9.4), which would offer space for Monument staff and partner offices, classrooms, storage, visitor services, and laboratories. These activities could benefit management, research, and visitation in the Monument by providing sufficient housing for an increased number of staff and visitors. Researchers at Kure Atoll who rely on housing and facilities for permanent biological monitoring and restoration programs would be provided with these necessities. The Visitors Services Program could benefit from a better and well-maintained space to hold such events as lectures and training.

In order to improve transportation, education, evacuation, research, surveillance, management, and enforcement within the Monument, it is necessary to have improved aircraft services, perhaps including an aircraft dedicated to Monument purposes. Activity CFO-7.3 proposes to acquire an aircraft dedicated to these activities within 15 years following the implementation of the Monument Management Plan. This activity could benefit the human presence within the Monument for research and management purposes, as well as visitors, because it would allow more frequent and perhaps less expensive access to Midway, including transport of people, equipment, and supplies necessary for activities outlined in the Monument Management Plan.

#### *Human Health and Hazardous Materials*

Infrastructure Development activities in the Coordinated Field Operations Action Plan include replacing Bravo Barracks and Charlie Barracks at Midway Atoll (CFO-3.2 and CFO-3.3), rehabilitating the Officers Row Housing at Midway (CFO-3.4), maintaining infrastructure at Kure Atoll (CFO-3.5), and rehabilitating the Midway mall and commissary building (CFO-9.4). Replacing Bravo and Charlie Barracks would include demolition and facilities construction to provide safe housing for island visitors and transient personnel and housing for operations and maintenance personnel. Rehabilitation at Midway would result in increased housing capacity to accommodate increased agency and partner personnel. At Kure Atoll, this would apply to the ongoing need to maintain, expand, or replace communications equipment, solar power and water units, sewage treatment infrastructure, buildings, and equipment. Because the structures at both Midway and Kure Atolls were built with materials that may contain hazardous materials, these activities increase the likelihood of release and subsequent human exposure. However, structures would be demolished or rehabilitated in accordance with Monument regulations and protocols, including the handling of PCB-containing materials, lead-based paint, and other such toxic substances. Disposal of hazardous materials through proper EPA and Hawai'i Department of Health protocols could decrease the overall quantity of hazardous materials within the Monument and, thus, the risk of human exposure. Therefore, these activities could have a beneficial effect on hazardous materials and human health within the Monument.

With the increased number of research activities that would be taking place according to this Monument Management Plan, the opportunities for new vessels to operate in the Monument would be addressed by activities in the Coordinated Field Operations Action Plan. One or possibly more new vessels would be stationed at Midway Atoll for expanded or new field activities and to act as a stepping stone to establish research and monitoring programs in the northern end of the Monument (CFO-6.2). A new, small research vessel would be stationed at Midway to service field activities from French Frigate Shoals to Kure Atoll (CFO-6.3). This new vessel would expand research, education, enforcement, and emergency response capabilities. These activities could be beneficial to the current and projected future human presence in the Monument for management and research purposes because they could provide equipment for carrying out new and expanded field activities outlined in this Monument Management Plan and emergency and law enforcement response capabilities that do not currently exist.

Currently, nonintrusive research diving is allowed within the Monument. Activities CFO-8.1, CFO-8.2, and CFO-8.3 include replacing the dive recompression chamber at Midway Atoll, investigating the acquisition of a portable dive recompression chamber, and incorporating a dive



operations center at Midway Atoll. Developing a comprehensive dive program to carry out marine research, emergency response, and management of dive operations could benefit researchers and diving visitors by providing a more effective and better managed program. This includes having additional safety equipment available to effectively perform dive operations.

Currently at Midway, humans living and working in buildings are potentially exposed to lead-based paint. Under the No Action alternative, replacing Bravo (CFO-3.2) and Charlie (CFO-3.3) barracks, rehabilitating Officer’s Row at Midway Atoll (CFO-3.4), and rehabilitating Midway Mall (CFO-9.4) would take many more years than it would under the Proposed Action alternative, so the risk to humans would last longer. Except for a few employees that have lived at Midway for 10 to 25 years, most staff members do not live there for more than three to five years, and most visitors and researchers stay for only a few weeks to months. Therefore, this extension of the time to replace or rehabilitate the buildings would not prolong exposure to most individuals, but it could expose more individuals.

**3.4.4 Summary of Effects**

Table 3.4-1 summarizes the effects on socioeconomic resources from the Proposed Action. The effects are listed by Action Plan and action areas (planning/administrative, field, or infrastructure and development activities). The Proposed Action could have beneficial and minor negative effects on socioeconomic resources (human uses, human health, safety and hazardous materials, land use, and economics) of the Monument. The socioeconomic resources of the Monument includes historical uses, current human uses and activities, activities within marine areas in and adjacent to the Monument, activities in land areas within the Monument, current land uses, population, employment and industry, and income.

**Table 3.4-1  
Summary of Effects on Socioeconomic Resources of the Proposed Action Alternative**

<b>Economics and Environmental Justice</b>		
<b>Resource Area</b>	<b>Action Areas</b>	<b>Proposed Action</b>
<b>Economics and Environmental Justice</b>	All	<ul style="list-style-type: none"> <li>• Minor beneficial effect on population, employment, industry, or income</li> <li>• No effect on environmental justice</li> </ul>

<b>Understanding and Interpreting the Northwestern Hawaiian Islands</b>		
<b>Action Plan</b>	<b>Action Areas</b>	<b>Proposed Action</b>
<b>Marine Conservation Science</b> <i>(EA section 1.5.1)</i> <i>(EA section 1.6.1)</i>	Field Activities	<ul style="list-style-type: none"> <li>• Beneficial effects on human uses</li> </ul>
<b>Native Hawaiian Culture and History</b> <i>(EA section 1.5.2)</i> <i>(EA section 1.6.2)</i>	Field Activities	<ul style="list-style-type: none"> <li>• Beneficial effect on human uses</li> </ul>
<b>Historic Resources</b>	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effects on human health, safety, and</li> </ul>

<b>Understanding and Interpreting the Northwestern Hawaiian Islands</b>		
<b>Action Plan</b>	<b>Action Areas</b>	<b>Proposed Action</b>
<i>(EA section 1.5.3)</i> <i>(EA section 1.6.3)</i>		hazardous materials
	Field Activities	<ul style="list-style-type: none"> <li>• Minor beneficial effects on human uses</li> </ul>
<b>Maritime Heritage</b> <i>(EA section 1.5.4)</i> <i>(EA section 1.6.4)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effects on human health, safety, and hazardous materials</li> </ul>

<b>Conserving Wildlife and Habitats</b>		
<b>Action Plan</b>	<b>Action Areas</b>	<b>Proposed Action</b>
<b>Threatened and Endangered Species</b> <i>(EA section 1.5.5)</i> <i>(EA section 1.6.5)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effect on human uses</li> </ul>
	Field Activities	<ul style="list-style-type: none"> <li>• Beneficial effect on human health, safety, and hazardous materials</li> <li>• Long-term minor negative effect on human uses</li> </ul>
<b>Migratory Birds</b> <i>(EA section 1.5.6)</i> <i>(EA section 1.6.6)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effect on human health, safety, and hazardous materials</li> </ul>
<b>Habitat Management and Conservation</b> <i>(EA section 1.5.7)</i> <i>(EA section 1.6.7)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effect on human health, safety, and hazardous materials</li> </ul>
	Field Activities	<ul style="list-style-type: none"> <li>• Beneficial effect on human health, safety, and hazardous materials</li> </ul>

<b>Reducing Threats to Monument Resources</b>		
<b>Action Plan</b>	<b>Action Areas</b>	<b>Proposed Action</b>
<b>Marine Debris</b> <i>(EA section 1.5.8)</i> <i>(EA section 1.6.8)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effect on human health, safety, and hazardous materials</li> </ul>
<b>Alien Species</b> <i>(EA section 1.5.9)</i> <i>(EA section 1.6.9)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effect on human health, safety, and hazardous materials</li> <li>• Short-term minor negative effect on human health, safety, and hazardous materials</li> </ul>
	Field Activities	<ul style="list-style-type: none"> <li>• Beneficial effect on human uses</li> </ul>
<b>Maritime Transportation and Aviation</b> <i>(EA section 1.5.10)</i> <i>(EA section 1.6.10)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effect on human uses</li> <li>• Beneficial effect on human health, safety, and hazardous materials</li> </ul>
	Field Activities	<ul style="list-style-type: none"> <li>• Beneficial effect on human health, safety, and hazardous materials</li> </ul>
<b>Emergency Response and Natural Resource Damage Assessment</b> <i>(EA section 1.5.11)</i> <i>(EA section 1.6.11)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effect on human health, safety, and hazardous materials</li> </ul>

<b>Managing Human Uses</b>		
<b>Action Plan</b>	<b>Action Areas</b>	<b>Proposed Action</b>
<b>Permitting</b> (EA section 1.5.12) (EA section 1.6.12)	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effect on human health, safety, and hazardous materials</li> </ul>
<b>Enforcement</b> (EA section 1.5.13) (EA section 1.6.13)	Field Activities	<ul style="list-style-type: none"> <li>• Beneficial effect on human uses</li> </ul>
<b>Midway Atoll Visitors Services</b> (EA section 1.5.14) (EA section 1.6.14)	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effect on human uses</li> </ul>
	Field Activities	<ul style="list-style-type: none"> <li>• Beneficial effect on human uses</li> </ul>

<b>Coordinating Conservation and Management Activities</b>		
<b>Action Plan</b>	<b>Action Areas</b>	<b>Proposed Action</b>
<b>Ocean Ecosystems Literacy</b> (EA section 1.5.18) (EA section 1.6.18)	Field Activities	<ul style="list-style-type: none"> <li>• Beneficial effect on human uses</li> </ul>

<b>Achieving Effective Monument Operations</b>		
<b>Action Plan</b>	<b>Action Areas</b>	<b>Proposed Action</b>
<b>Central Operations</b> (EA section 1.5.19) (EA section 1.6.19)	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effect on human uses</li> </ul>
<b>Coordinated Field Operations</b> (EA section 1.5.21) (EA section 1.6.21)	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effect on human uses</li> </ul>
	Infrastructure and Development	<ul style="list-style-type: none"> <li>• Beneficial effect on human health, safety, and hazardous materials</li> <li>• Beneficial effect on human uses</li> </ul>

### **3.5 OTHER RESOURCES**

#### **3.5.1 Effects Analysis Methodology**

In the description of the No Action and Proposed Action alternatives, activities presented in the plan were divided into three categories: 1) Planning and Administrative, 2) Field, and 3) Infrastructure and Development. Planning and administrative activities are not considered to directly affect water quality, transportation, and utilities either because they relate to development of the coordination mechanisms described in the December 2006 MOA and Presidential Proclamation 8031, or because they are solely administrative in nature. However, many activities identified as a result of these planning and administrative actions ultimately will have a direct effect and to the extent adequate information is currently available are analyzed below. For activities proposed within or intended to improve management of the Monument, the methodology used to determine whether effects on water quality, transportation, and utilities would occur is as follows:

- Review and evaluate ongoing and past activities to identify the action's potential effect on water quality, transportation, and utilities;
- Review and evaluate activities within the plan to identify their potential to beneficially or negatively affect the ecosystem and its component parts within the Monument; and
- Assess the compliance of each activity within the plan with applicable federal, state, or local regulations.

In addition, all proposed activities that may affect water quality under the Clean Water Act or other federal or state law will only proceed after compliance with applicable laws, including, as necessary, consultation, receipt of permits, and compliance with all permit terms and conditions.

#### **3.5.2 Effects Common to Human Interactions on Water Quality, Transportation, and Communications and Utilities in the Monument**

Possible effects from increased air, marine, and terrestrial transportation traffic associated with the Monument to general transportation within and to the Monument include: 1) potential effects from delays to transiting vessels, 2) infrastructure improvements to accommodate increased traffic within the Monument, 3) potential conflicts between research vessels, cruise ships, and transiting vessels, and 4) effects of increased air traffic to and from Midway Atoll. All activities would be designed and managed using BMPs to avoid or minimize these effects, as analyzed below.

#### **3.5.3 No Action**

This section briefly describes activities that are underway in the Monument and provides analysis of the effects associated with these activities. Only those activities that would have an effect on water quality, transportation, and utilities are included in the analysis. The analysis describes the projected beneficial and negative effects that would be expected to continue under the No Action alternative, should this alternative be selected for implementation. Implementing the No Action alternative would result in no change to the current situation. However, these

activities would continue under the Proposed Action alternative, and their effects are summarized under the Proposed Action in Table 3.5-1 at the end of this section.

### **3.5.3.1 Understanding and Interpreting the Northwestern Hawaiian Islands**

#### **Maritime Heritage Action Plan**

##### ***Field Activities***

###### *Transportation*

Efforts to monitor, map, and characterize maritime heritage and biological and ecological resources are ongoing (MH-1-2). Shoreline terrestrial surveys and inventories, marine remote sensing using magnetometer, and side-scan sonar would continue to be used to locate potential maritime heritage targets, and noninvasive diving surveys would continue to assess and inventory sites. Field activities may require a small increase in vessel traffic within the Monument. Existing marine, air, and terrestrial traffic associated with ongoing activities at the Monument currently have no effect on transportation outside and through the Monument. Under the No Action alternative, transiting vessels would still be able to pass through the Monument with no delays.

### **3.5.3.2 Conserving Wildlife and Habitats**

#### **Threatened and Endangered Species Action Plan**

##### ***Field Activities***

###### *Transportation*

Efforts to reduce marine debris within the Monument also continue, along with large-scale efforts to remove debris from sensitive aquatic habitats (TES-1.1). Sites would continue to be prepared for establishing a self-sustaining *Pritchardia remota* population on Laysan Island, including eliminating alien species and ensuring the purity of seed stocks (TES-7.3). To protect *Pritchardia remota* from catastrophic events and to achieve recovery objectives, this species is being established outside its known native range on Laysan Island and on Eastern and Sand Islands at Midway Atoll NWR (TES-7.5). These activities may require a small increase in vessel traffic within the Monument. Existing marine, air, and terrestrial traffic associated with ongoing activities at the Monument currently have no effect on transportation outside and through the Monument.

#### **Habitat Management and Conservation Action Plan**

##### ***Field Activities***

###### *Transportation*

The Habitat Management and Conservation Action Plan includes the following field activities: 1) Continue collecting and fingerprinting oil found washed ashore and on wildlife from mystery spills to determine its provenance, and build an oil sample archive for possible use as evidence in liability assignment (HMC-2.5); 2) Continue monitoring the area at Laysan Island that was contaminated by the insecticide Carbofuran (HMC-2.6); 3) Propagate and outplant native species (HMC-4.1); 4) Continue efforts to reestablish 60 acres of native shrub community on Laysan



Island (HMC-4.3); and 5) Monitor changes in species composition and structure of the coastal shrub and mixed grass communities on basaltic islands in the Monument (HMC-4.7). The general effects of these field activities on transportation would be a small increase in vessel traffic within the Monument. Existing marine, air, and terrestrial traffic associated with ongoing activities at the Monument currently have no effect on transportation outside and through the Monument. Under the No Action alternative, transiting vessels would still be able to pass through the Monument with no delays.

### **3.5.3.3 Reducing Threats to Monument Resources**

#### **Alien Species Action Plan**

##### *Field Activities*

###### *Transportation*

The Alien Species Action Plan includes the following continuing field activities: 1) Continue to require hull inspection and cleaning of all vessels, SCUBA gear, marine construction material, and instruments deployed in the Monument (AS-3.2); and 2) Enforce the use of current quarantine protocols to prevent the introduction of invasive terrestrial species to the Monument (AS-3.1). These activities may generate a slight inconvenience to vessels harboring within the Monument. Existing marine, air, and terrestrial traffic associated with ongoing activities at the Monument currently have no effect on transportation outside and through the Monument. Under the No Action alternative, transiting vessels would still be able to pass through the Monument with no delays.

#### **Maritime Transportation and Aviation Action Plan**

##### *Infrastructure Development Activities*

###### *Transportation*

Efforts would continue to encourage the energy and water efficiency of vessels operating in the Monument (MTA-2.4). For example, the NOAA ship *Hi'ialakai* began a recycling program and installed water-saving devices to reduce effects on the Monument. Plans are in place to test the use of biofuels and nonpetroleum-based hydraulic fluid. Increased efficiency would not have a direct beneficial effect on transportation but would create a benefit as resources are conserved. Existing marine, air, and terrestrial traffic associated with ongoing activities at the Monument currently have no effect on transportation outside and through the Monument. Under the No Action alternative, transiting vessels would still be able to pass through the Monument with no delays.

### **3.5.3.4 Achieving Effective Monument Operations**

#### **Central Operations Action Plan**

##### *Planning and Administrative Activities*

###### *Utilities*

As part of the No Action alternative, coordination and implementation of annual operating plans would continue (CO-1.1). Annual operating plans are guided by site-specific needs and are

designed to increase efficiencies and establish standard operating procedures, where possible. The administrative procedures and functions included in the annual operating plans address required maintenance of communication equipment, including telephones, cellular phones, satellite phones and connections, and radios in the Monument. The Monuments' staffs continued coordination and implementation of annual operating plans provides beneficial effects on Monument communications by extending the life of the communications systems, identifying system deficiencies and identifying needs for system upgrades.

### **Coordinated Field Operations Action Plan**

#### ***Infrastructure and Development Activities***

##### *Utilities*

As part of the No Action alternative, maintenance of the fuel farm at Midway would continue (CFO-4.1). The recent replacement fuel farm constructed at Midway Atoll was designed to meet current FWS, FAA, and USCG needs. Efforts are underway to increase the capacity of gasoline and biodiesel or other sustainable fuel types available to multi-agency partners. The new fuel farm provides beneficial effects on the environment at Midway by eliminating the threats of spills associated with the aging system, including storing the fuel in multiple smaller tanks rather than one or two extremely large tanks and providing new easily maintained tanks and infrastructure. The new fuel farm also contributes to the overall beneficial effects of Monument management activities under both alternatives by supporting the current scale of human presence at Midway, including operation of the airfield and refueling capacity, while being capable of ready expansion, as needed.

#### **3.5.4 Proposed Action**

The Proposed Action would expand current activities described above under the No Action alternative, while implementing the new activities described in the Monument Management Plan. The effects of these activities on water quality, transportation, and utilities are described below.

##### **3.5.4.1 Understanding and Interpreting the Northwestern Hawaiian Islands**

#### **Marine Conservation Science Action Plan**

##### ***Field Activities***

##### *Transportation*

The Marine Conservation Science Action Plan would implement management-driven research priorities identified in the Monument Natural Resources Science Plan (MCS-2.4), including implementing monitoring activities. The effect of increased science-based activities may result in a minor increase in the number of research cruises. Considering the current low levels of vessel traffic, this minor increase would not have an effect on transportation.

## **Native Hawaiian Culture and History Action Plan**

### ***Field Activities***

#### *Transportation*

Within the Native Hawaiian Culture and History Action Plan, one activity provides for regular access for Polynesian voyaging canoes for wayfinding and navigational training (NHCH-2.6). The trips would likely occur once or twice per year and would include a canoe and support vessel. Considering the current low levels of vessel traffic, this minor increase would not have an effect on transportation.

## **Maritime Heritage Action Plan**

### ***Planning and Administrative Activities***

#### *Water Quality*

Wreck sites and other debris can represent potential hazards that may contribute hydrocarbons, chemicals, or iron to the marine ecosystem. Iron has been shown to be a limiting nutrient and may cause increased growth of algae or corallomorphs that smother surrounding reefs. The MMB would be informed of any discovered potential hazards in order to assess the need for response or remediation (refer to section 3.3.4 of the Monument Management Plan). A status report on potential environmental hazards would be completed within one year and would be updated annually thereafter (MH-1.3). While planning and administrative activities would not directly affect physical water quality changes, there could be beneficial effects on water quality by removing debris that could contain hazardous materials and could have a negative effect on water quality.

### **3.5.4.2 Conserving Wildlife and Habitats**

#### **Threatened and Endangered Action Plan**

### ***Planning and Administrative Activities***

#### *Transportation*

Activities proposed under the Threatened and Endangered Action Plan include planning activities designed to conserve Hawaiian monk seal habitat (TES-1.3) and to reduce the likelihood and effects of human interactions on Hawaiian monk seals (TES-1.4). The plan also would support outreach and education on Hawaiian monk seals (TES-1.5). Under activity TES-4.1, Monument staff would work with Japanese ornithologists to establish one or more breeding populations of the endangered short-tailed albatrosses on Midway Atoll NWR. To protect *Amaranthus brownii*, *Schiedea verticillata*, and *Pritchardia remota* from catastrophic events and to achieve recovery objectives, the potential for establishing these species outside their known native range on Mokumanamana (Necker Island), Laysan Island, Kure Atoll, and Eastern and Sand Islands at Midway Atoll is being assessed (TES-7.5). This could result in a minor increase in small vessel traffic. Considering the current low levels of vessel traffic, this minor increase would not have an effect on transportation.

## ***Field Activities***

### *Transportation*

Supporting and facilitating emergency response for the endangered Hawaiian monk seal would put into place standardized protocols that would ensure a rapid and well-organized response to situations in the Monument that threaten Hawaiian monk seals (TES-1.2). Although the response would be focused specifically on Hawaiian monk seals, the protocols include ensuring that a rapid and well-organized response to groundings and oil spills is possible. The interagency coordination involved with improving emergency response logistical capabilities and transportation would increase the efficiency of the existing emergency vessel capacity. Although instituting protocols for Hawaiian monk seal rescue would not directly reduce the occurrence of the incidents described above, the coordination and planning efforts could reduce the number of vessel trips required. Therefore, this could have a beneficial effect on vessel operations and transportation within the Monument.

To reduce the potential for cetaceans to be negatively affected by marine debris, the MMB would monitor, characterize, and address the effects of marine debris on cetaceans (TES-2.3). This measure would augment the activities within the Marine Debris Action Plan that are aimed at reducing the quantity of marine debris introduced into the Monument. The overall effects of proposed marine debris activities would result in a minor increase in vessel trips within the Monument to collect the debris. Considering the current low levels of vessel traffic, this minor increase would not have an effect on transportation.

Protecting and managing marine habitat, including foraging areas and migration routes (TES 3.2), would manage activities such as anchoring and vessel traffic within the Monument to minimize disturbance to foraging areas, reduce potential exposure to hazardous materials, and minimize vessel hazards to turtles in open waters. This activity would have a negligible effect on transportation.

## **Habitat Management and Conservation Action Plan**

### ***Planning and Administrative Activities***

#### *Water Quality*

Planning and administrative activities would evaluate costs to ecosystem function and benefits of removing anthropogenic iron sources such as metal from shipwrecks and discarded debris from reefs throughout the Monument (HMC-2.4). An ecological risk assessment would be conducted to determine allowable lead levels in soils at Midway and lead-based paint would be removed from buildings and soils to nonrisk levels (HMC-2.7). Ecological risk assessments, cost evaluation efforts, and other planning activities would work to improve water quality and thus could have a beneficial effect on water quality.

#### *Transportation*

The Habitat Management and Conservation Action Plan would identify and prioritize restoration needs in shallow-water reef habitats affected by anthropogenic disturbances within five years (HMC-1.1) and would evaluate the costs to ecosystem function and the benefits of removing anthropogenic iron sources such as metal from shipwrecks and discarded debris from reefs throughout the Monument (HMC-2.4). Managers would investigate opportunities for restoration

and would prioritize actions so that funds and resources would be focused to address the most important needs. The activity also calls for an ecological risk assessment to determine allowable lead levels in soils at Sand Island on Midway Atoll NWR and removing lead from buildings and soils to nonrisk levels (HMC-2.7); an ecological risk assessment to determine the cleanup level necessary to reduce risks to human and wildlife health; formulating and implementing a restoration plan for Lisianski Island using guidelines established for neighboring Laysan Island (HMC-4.4); and evaluating the potential to restore, and create as needed, freshwater sources at proposed translocation sites for Laysan duck, Nihoa finch, Laysan finch, and Nihoa millerbird (HMC-7.2). Implementing these planning activities may involve field activities that could result in a minor increase in vessel and air traffic. Considering the current low levels of vessel and air traffic, this minor increase would not have an effect on transportation.

An effort to educate other federal and state agencies about overflight rules and to promote compliance regarding overflights and close approaches (HMC-9.1) would increase safety awareness and may reduce the potential for aircraft collisions with birds, thus resulting in a beneficial effect on air traffic.

### ***Field Activities***

#### *Water Quality*

Field activities would include efforts to evaluate the effects of contamination in terrestrial and nearshore areas from shoreline dumps at FFS and at Kure, Midway, and Pearl and Hermes Atolls and to prioritize cleanup action based on risk assessments (HMC-2.1); to work with partners and responsible parties to verify the integrity of known landfills and dumps and to conduct additional remediation, if necessary (HMC-2.2); and to locate historic disposal sites at FFS and at Kure, Midway, and Pearl and Hermes Atolls and investigate them for contamination (HMC-2.3). Contamination evaluation, risk assessment, and remediation efforts would work to remove or encapsulate contaminants, thereby improving water quality and resulting in a beneficial effect on water quality.

Additional field activities would include efforts to monitor salinity, parasites, contaminants, and native arthropods associated with groundwater, freshwater seeps, and ponds (HMC-7.1) and to evaluate the potential for developing and creating additional freshwater sources at potential translocation sites for avifauna species, as needed (HMC-7.2). These field activities would provide data to support improvement to terrestrial water and groundwater quality; therefore, there could be a beneficial effect on water quality.

#### *Transportation*

The Habitat Management and Conservation Action Plan includes field activities to evaluate effects of contamination in terrestrial and nearshore areas from shoreline dumps at FFS and at Kure, Midway, and Pearl and Hermes Atolls and prioritize cleanup action based on risk assessments (HMC-2.1) and work with partners and responsible parties to verify the integrity of known landfills and dumps and to conduct additional remediation, if necessary (HMC-2.2). These activities would investigate the extent of contamination at these sites and would assess their integrity, containment effectiveness, and hazard potential. Based on this information, the highest priority sites would be removed, remediated, or sealed. Monitoring would continue to assess if further action is needed. Coordinated ecosystem restoration activities on Kure Atoll



would be implemented (HMC-4.6), as would inventorying and documenting the life histories of endemic terrestrial invertebrates on Nihoa and Mokumanamana (HMC-5.1). The effects of these activities would be minor increase in vessel traffic. Considering the current low levels of vessel traffic, this minor increase would not have an effect on transportation.

### **3.5.4.3 Reducing Threats to Monument Resources**

#### **Marine Debris Action Plan**

##### ***Planning and Administrative Activities***

###### *Water Quality*

Activities proposed under the Marine Debris Action Plan include planning activities to develop and implement a five-year marine debris removal and prevention strategy for the Monument (MD-1.3); working with the U.S. Department of State to gain international cooperation and involvement for marine debris issues (MD-1.4); developing and standardizing marine debris monitoring protocols for marine and terrestrial habitats (MD-2.2); and working with partners to continue to develop and implement an outreach strategy for marine debris (MD-3.1). These activities would work to improve water quality and to prevent potential degradation to water quality; therefore, these activities would have a beneficial effect.

###### ***Field Activities***

###### *Water Quality*

Activities that are proposed under the Marine Debris Action Plan include field activities that would allow Monument staff to continue working to remove marine debris in the Monument and to reduce additional debris entering the Monument (MD-1.1); catalog, secure, contain, and properly remove hazardous materials that wash ashore in the NWHI (MD-1.2); and work with partners on marine debris studies (MD-2.1). These activities would work to improve water quality and to prevent potential degradation to water quality; therefore, these activities would have a beneficial effect.

###### *Transportation*

Activities to institute measures for preventing marine debris from entering the Monument include gear modifications, gear loss reporting requirements, dockside gear accountability inspections of vessels prior to their departure on fishing trips and upon their return, working with the fishery and management councils to reduce illegal fishing and destructive fishing practices, and pursuing technological means to detect and retrieve lost gear (MD-1.1). The MMB would continue to participate in multiagency cleanup efforts of current infrastructure, protocols, and experience and would work with fishery management councils, including the Western Pacific and North Pacific Fishery Management Councils, to assess and address fishing practices and gear that contribute to marine debris (MD-1.4). This collaborative effort may include inspections, technological requirements, and implementing incentive programs. In addition, the MMB would work with the Marine Debris Program to determine the sources of marine debris and to support studies that determine economical and biological effects of marine debris. Finally, the MMB would continue working with partners to remove marine debris in the Monument and to reduce additional debris entering the Monument (MD-1.1), catalog, secure, contain, and properly remove hazardous materials that wash ashore in the NWHI (MD-1.2); and

work with partners on marine debris studies (MD-2.1). These activities may result in a minor increase in vessel traffic and prolong their duration of stay in the Monument, but the effects on transportation would be negligible. Removing marine debris may benefit vessel traffic by reducing the potential of prop fouling from nets and other debris.

### *Utilities*

Under the Proposed Action, expanded marine debris removal activities would include retrieving existing debris at sea and continuing reef and beach cleanup efforts. The MMB would continue working with partners to remove marine debris and reduce additional debris from entering the Monument (MD 1.1). Currently, a small quantity of the collected marine debris is burned in the incinerator at Midway Atoll, and the remaining marine debris is stored for eventual shipping and disposal in the Main Hawaiian Islands. The limited capacity of the existing landfill on Sand Island precludes its use for disposal of marine debris; therefore, no marine debris is deposited in the landfill at Midway. No effects on the landfill in Midway Atoll are expected from waste collected during marine debris removal activities; however, long-term minor negative effects from increased solid waste are expected at the respective disposal sites in the main Hawaiian Islands.

## **Alien Species Action Plan**

### *Field Activities*

#### *Transportation*

The Alien Species Action Plan contains a number of actions to reduce the presence of alien species in the NWHI, including surveying distributions and populations of known alien species at regular intervals (AS-2.1); developing and implementing monitoring protocols for early detection and characterization of new infestations (AS-2.3); implementing and completing house mouse eradication (AS-4.2); conducting toxicant trials to evaluate their efficacy and documenting ecological effects at selected islands on highest-priority invasive species of ants and wasps (AS-5.2); controlling, and, if possible, eradicating the two introduced mosquito species at Midway Atoll NWR within 10 years using methods prescribed in the Integrated Pest Management Plan (AS-5.3); and developing and implementing a plan to control and, if possible, eradicate the invasive gray bird locust on Nihoa, Mokumanamana (Necker Island), FFS, and Lisianski Island (AS-5.4).

Additionally, the plan would protect endangered plants threatened by gray bird locust outbreaks at Nihoa by developing appropriate baits for localized application of toxicants to protect specific high-priority plant sites (AS-5.5) and would control and eventually eradicate golden crownbeard (AS-6.1) and co-occurring weedy shrubs on Kure, Midway, and Pearl and Hermes Atolls. In all areas where they occur, the plan would control and eradicate the invasive grass sandbur from Kure, Midway, and Pearl and Hermes Atolls, Lisianski Island, and FFS (AS-6.2); Indian pluchea, *Sporobolus pyramidatus*, and swine cress from Laysan Island (AS-6.3); and prioritized alien plant species from Kure Atoll (AS-6.4).

The plan would map, control, and eventually eradicate invasive red algae where it occurs (AS-7.1); conduct surveillance at appropriate sites for snowflake coral and other incipient marine invasives (AS-7.2); support and conduct research on alien species detection and effects of

invasive species on native ecosystems (AS-8.1); and support and conduct research on invasive species prevention, control methods, and eradication techniques (AS-8.2). Research regarding the introduction, control, and eradication of species under the Alien Species Action Plan would focus on determining the likely introduction patterns to aid prioritization of control and eradication efforts (AS-7.1, AS-7.2, and AS-8.1). Specifically, research documenting the effectiveness of preventative methods would aid decision makers in quarantine protocol choices (AS-8.2).

Activities under the Alien Species Action Plan would result in an increase in vessel traffic and would extend the duration of time vessels that would stay in the Monument to conduct invasive species removal and associated activities. Considering the current low levels of vessel traffic, this increase could have a minor negative effect on transportation.

## **Maritime Transportation and Aviation Action Plan**

### ***Planning and Administrative Activities***

#### *Water Quality*

Activities proposed under the Maritime Transportation and Aviation Action Plan include planning activities that would develop protocols and practices as needed and that would integrate with current protocols for safe aircraft and vessel operations (MTA-2.2). Providing pretrip training and implementing standard protocols would work to prevent potential degradation to water quality by reducing the likelihood of incidence occurring during flight and boat operations; therefore, these activities would have a beneficial effect.

#### *Transportation*

The Maritime Transportation and Aviation Action Plan is aimed at establishing a framework for evaluating the effects of various activities conducted by ships and aircraft. There are several planning activities within the plan that would have a beneficial effect on transportation within the Monument. The MMB would develop boundaries and zoning information tools to help all Monument users comply with maritime transportation requirements (MTA-1.2). The MMB would also provide updates to nautical charts and Notice to Mariners to reflect Monument boundaries, zones, and other pertinent designations (MTA-1.3). These updates may require coordination with research vessels already conducting other research within the Monument. This would be accomplished through dual-purpose surveying and cost-sharing, which would increase the efficiency of current research ventures in addition to the maritime and aircraft benefits from such research.

The plan would also improve pre-access information, including a pre-trip training that would cover regulations and compliance; navigational hazards; zoning designations, including waste discharge locations and types; and information on preventing the introduction of alien species, preventing and reporting interactions with protected species and other wildlife, preventing light and noise pollution, and preventing anchor damage to coral reefs and other benthic habitats and organisms (MTA-2.3). All vessel operators, captains, crews, and trip participants would have access to this information. The MMB would work with the International Code Council to convene a group of vessel and aircraft personnel to discuss safety for boating and flight operations (MTA-2.2). These suggestions would be incorporated into the pre-trip training.

The activities would address aircraft and airfield equipment hazards to wildlife and would minimize these hazards at Midway Atoll and Tern Island. At Midway, actions taken to minimize hazards include reducing the height of airport signs to prevent bird collisions, using striped painting and lighting to make airport equipment more visible to birds, scheduling nighttime flights during albatross nesting season, and turning off unnecessary lighting around the airfield that disorients seabirds. At Tern Island, wildlife hazards are minimized for take-offs and landings by maintaining small wildlife exclusion areas at the ends of the runway and removing birds from the runway before aircraft take-offs or landings. Contracted pilots must follow strict flight guidelines for minimizing impacts on wildlife. Using these BMPs to minimize hazards could have a minor negative effect on transportation activities from increased constraints on aircraft timing and loads.

The coordination and outreach efforts within the Maritime Transportation and Aviation Action Plan would increase the efficiency and effectiveness of current and future transportation needs. Combining research efforts, costs, and beneficial knowledge will benefit vessel and aircraft operations. The outreach components will also improve compliance with Monument transportation guidelines. Therefore, these activities could have a beneficial effect on transportation within the Monument.

### ***Field Activities***

#### *Water Quality*

Activities that are proposed under the Maritime Transportation and Aviation Action Plan include field activities that would conduct studies on potential aircraft and vessel hazards and effects (MTA-2.1). These activities would work to prevent potential degradation to water quality; therefore, these activities could have a beneficial effect.

#### *Transportation*

The Maritime Transportation and Aviation Action Plan outlines several field activities aimed at studies of potential aircraft and vessel hazards and effects (MTA-2.1). The studies include anchoring and mooring location feasibility, hull inspections, alien species introduction pathways, wildlife strikes by aircraft, and the effects of permit reporting requirements on protected species, light and noise, and discharge. These assessments will determine transportation effects on resources within the Monument and suggest possible improvements to be implemented. The research conducted for these studies will increase the efficiency and effectiveness of many transportation activities within the Monument, including alien species introduction prevention, minimizing bird strikes by aircraft anchoring locations and practices, hull inspections, and light and noise regulations. The effectiveness of current practices will be evaluated and improved upon, thus increasing the ease and efficiency of vessel and aircraft traffic within the Monument. Therefore, the plan could have a beneficial effect on transportation within the Monument.

## **Emergency Response and Natural Resource Damage Assessment Action Plan**

### ***Planning and Administrative Activities***

#### *Water Quality*

Activities proposed under the Maritime Transportation and Aviation Action Plan include creating a Monument Emergency Response and Assessment Team for ICS responses (ERDA-

1.1); acquiring and maintaining training and certification to complement and support the Regional Response Team (ERDA-1.2); participating in emergency response and preparedness drills and meetings (ERDA-1.3), and implementing damage assessment programs and training throughout the life of the plan (ERDA-1.4); in the second year, determining the non-ICS emergencies and the necessary type and scope of responses (ERDA-2.1); designating appropriate Monument personnel for each non-ICS response team (ERDA-2.2); ensuring that appointed personnel acquire and maintain training and certifications throughout the life of this plan (ERDA-2.3); updating and improving upon the Area Contingency Plan and the Environmental Sensitivity Indices (ERDA-3.1); and within three years, creating damage assessment criteria and protocols (ERDA-3.2). While these planning and administrative activities would have no direct and immediate effect on water quality, they would work to prevent potential degradation to water quality by improving emergency response to water quality threats. This improved response could reduce the duration of and level of potential degradation of water quality and would therefore have an overall beneficial effect.

#### *Transportation*

Damage assessment is an important component of any emergency response (ERDA-1.4). The Monument Emergency Response and Assessment Team would coordinate with the appropriate agencies to ensure that appropriate response, injury assessment, and restoration activities take place for any given emergency throughout the Monument, including an Unusual Mortality Event in Hawaiian monk seals or other species. The effects of these activities would be a minor increase in vessel traffic. Considering the current low levels of vessel traffic, this minor increase would not have an effect on transportation. However, there would be beneficial effects on transportation safety and emergency response to vessel, aircraft, or vehicle accidents.

### **3.5.4.4 Managing Human Uses**

#### **Permitting Action Plan**

##### *Planning and Administrative Activities*

#### *Transportation*

The Permitting Action Plan outlines several activities that develop tracking, evaluation, and outreach components. A GIS-based permit tracking system would allow each agency to input and track activities within the Monument that pertain to individual requirements (P-2.1). A system would then be instituted to analyze these data to inform management decisions (P-2.2) and discover patterns of compliance (P-2.3). In conjunction, a Monument reporting process would be developed to ensure adherence to regulations and, if necessary, issue compliance visits from enforcement agents (P-2.4). A permit and regulatory education program would be required for all permit applicants (P-3.1). Outreach efforts would be coordinated between agencies to avoid delays and to ensure the highest level of regulatory understanding by permittees (P-3.3). Finally, pre-access training for first-time Monument visitors to communicate regulations, permit requirements, and best conduct would be implemented (P-3.4).

These activities would increase accountability and compliance with permits required to enter the Monument. The outreach component would integrate understanding of regulations by all Monument users, which would decrease the likelihood of accidents. It would also familiarize



Monument users with quarantine protocols, hull inspection regulations, and alien species introduction prevention methods. In turn, vessel operators would not be delayed, disrupted, or displaced by noncompliance with regulations. Therefore, this plan would have a beneficial effect on transportation within the Monument.

## **Enforcement Action Plan**

### ***Planning and Administrative Activities***

#### *Water Quality*

Planning and administrative activities would include creating a Monument law enforcement working group (EN-1.1); developing an integrated law enforcement training program (EN-1.3); assessing Monument law enforcement capacity and program effectiveness (EN-1.4); and integrating additional automated monitoring systems and ship reporting systems for all vessels transiting the Monument (EN-2.3). While these planning and administrative activities would have no direct and immediate effects on water quality, they would work to improve water quality by improving enforcement to prevent anthropogenic water quality threats, resulting in an overall beneficial effect.

#### *Transportation*

One tenant of the Enforcement Action Plan is to integrate briefings into pre-access training of Monument users that would inform users of regulations, permit requirements, and best management practices (EN-3.1). Similar to the outreach component of the Permitting Action Plan, this activity would increase compliance with regulations and thus have a beneficial effect on transportation within the Monument.

## **Midway Atoll Visitor Services Action Plan**

### ***Field Activities***

#### *Transportation*

The Midway Atoll Visitor Services Action Plan would provide visitors with opportunities for wildlife-dependent recreation to enhance their knowledge and appreciation of the Monument's natural resources (VS-1.1). Visitors would be given the opportunity to view wildlife on Midway Atoll NWR only, and the effects of visitors and other users on wildlife and historic resources would be continuously monitored to ensure their protection (VS-1.3). The indirect effects of these activities may be a minor increase in vessel and air traffic as a result of improving the visitor experience and potentially attracting more visitors to the Midway Atoll NWR. Considering the current low levels of vessel and air traffic and planned improvements for mooring and to the airport, this increase could have a minor negative effect on transportation.

More specific descriptions of the effects of visitors at Midway Atoll are contained in the Environmental Assessment for the Interim Midway Visitors Service Plan and in relevant compatibility determinations.

### 3.5.4.5 Achieving Effective Monument Operations

#### Coordinated Field Operations Action Plan

##### *Planning and Administrative Activities*

###### *Transportation*

The Coordinated Field Operations Action Plan calls for developing interagency agreements to facilitate effective field coordination throughout the Monument (CFO-2.1). It also calls for the inventory, maintenance, and coordinated use of small boats and related field resources (CFO-6.1). Generally, this activity would increase transportation efficiency by increasing communication between agencies that use and manage the Monument. The coordination of field resources would also logistically improve transportation operations. Therefore, this activity could have a beneficial effect on transportation.

This plan outlines the development of an aircraft capacity within the Monument. The USFWS charters a twin-engine aircraft (Gulf Stream 1 or G-1) to transport people and supplies to Midway. The G-1 would continue to provide service through fiscal year 2008 (CFO-7.1). Within five years, an inter-island aircraft transportation carrier would be identified to deliver passengers and cargo between Honolulu and Midway (CFO-7.1), followed by an evaluation of the need for a dedicated aircraft for transportation, management, research, evacuation, education, surveillance, and enforcement (CFO-7.2). These planning mechanisms would increase the capacity of aircraft transportation within the Monument incrementally. The ability of staff to accomplish many of the tasks outlined within this document, such as emergency response improvements, data collection, and research, would be augmented by this new aircraft capacity. Therefore, these activities could have beneficial effects on transportation within the Monument.

###### *Utilities*

Planning and administrative activities would include initiating and completing necessary planning for implementing the draft Midway Atoll Conceptual Site Plan (CFO-1.1); developing conceptual site plans for the Hawaiian Island National Wildlife Refuge and the State Seabird Sanctuary at Kure Atoll (CFO-1.2); developing alternative energy systems and waste reduction strategies for the Monument within two years (CFO-1.3); and planning for sustainable engineering, technology, and landscape architecture throughout the Monument (CFO-1.4). While these planning and administrative activities would have no direct and immediate effects on utilities, they would work to improve the utilities services in the Monument by conducting necessary site planning and infrastructure development and could therefore have an overall beneficial effect.

##### *Infrastructure Development Activities*

###### *Transportation*

The Coordinated Field Operations Action Plan outlines infrastructure improvements in the future. These improvements include additional vessels at Midway for summer marine research (CFO-6.2), a small research/enforcement vessel at Midway (CFO-6.3), and an appropriate aircraft to service the Monument and Pacific region (CFO-7.3). The plan would also improve dive capabilities by acquiring a portable dive recompression chamber for a research vessel (CFO-8.2) and incorporating a dive operations center at a boathouse at Midway (CFO-8.3). The

plan also provides for improved logistical, infrastructure, and transportation support for endangered species recovery actions (CFO-9.3). Finally, there are provisions for the construction of an airport welcome center on Sand Island within two years, including capacity to handle passenger arrival and departures from Midway Atoll NWR.

These infrastructure developments will increase the efficiency of many current and future transportation demands within the Monument. The ability of staff to accomplish many of the tasks outlined within this document, including emergency response improvements, data collection, and research, would be augmented by these new vessels and facilities. Therefore, these activities would have a beneficial effect on transportation within the Monument.

#### *Utilities*

Restoration activities would include rehabilitating “Officers Row” Housing at Midway Atoll (CFO-3.4) and existing housing and facilities on Green Island at Kure Atoll (CFO-3.5). These activities would increase the housing capacity and would provide maintenance, expansion, or replacement of existing utility systems. Additional demands on utilities, including electricity, wastewater, potable water supply, solid waste and communications, would result from increased housing capacity. The current utilities are adequate for the existing demands at Midway Atoll, but expanded operations and housing that is currently planned will require additional analysis to determine which system upgrades are necessary. Additional compliance associated with Midway site infrastructure improvements may be required as planning and design details are developed.

Minor negative effects are expected from increased demands on utilities but would be offset by rehabilitation and replacement of existing infrastructure with more sustainable and efficient systems, having beneficial effects overall.

Constructing an airport welcome center on Sand Island (CFO-9.5) would include restroom facilities construction. The current utilities are adequate for the existing demands at Midway Atoll, but planned expanded operations would require additional analysis to determine which system upgrades are necessary. Additional compliance associated with Midway site infrastructure improvements may be required as planning and design details are developed.

### **3.5.5 Summary of Effects**

Table 3.5-1 summarizes the effects on other resources from the Proposed Action. The effects are listed by Action Plan and action areas (planning/administrative, field, or infrastructure and development activities). The Proposed Action could have beneficial and negative effects on other resources (water quality, transportation and communications, and utilities) of the Monument. The other resources of the Monument includes: the water quality conditions of marine, terrestrial and potable water resources; sources of marine pollution; vessel and aircraft activity; communications infrastructure; terrestrial transportation; potable water supply and fire protection; wastewater management; stormwater management; energy; communication systems; solid waste management; and management of fueling facilities in the Monument.

**Table 3.5-1  
Summary of Effects on Other Resources (Water Quality, Transportation, and Communications Infrastructure and Utilities) of the Proposed Action Alternative**

<b>Understanding and Interpreting the Northwestern Hawaiian Islands</b>		
<b>Action Plan</b>	<b>Action Areas</b>	<b>Effects</b>
<b>Maritime Heritage</b> <i>(EA section 1.5.4)</i> <i>(EA section 1.6.4)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effects on water quality.</li> </ul>

<b>Conserving Wildlife and Habitats</b>		
<b>Action Plan</b>	<b>Action Areas</b>	<b>Effects</b>
<b>Threatened and Endangered Species</b> <i>(EA section 1.5.5)</i> <i>(EA section 1.6.5)</i>	Field Activities	<ul style="list-style-type: none"> <li>• Beneficial effects on transportation.</li> </ul>
<b>Habitat Management and Conservation</b> <i>(EA section 1.5.7)</i> <i>(EA section 1.6.7)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effects on water quality.</li> <li>• Beneficial effects on transportation.</li> </ul>
	Field Activities	<ul style="list-style-type: none"> <li>• Beneficial effects on water quality.</li> </ul>

<b>Reducing Threats to Monument Resources</b>		
<b>Action Plan</b>	<b>Action Areas</b>	<b>Effects</b>
<b>Marine Debris</b> <i>(EA section 1.5.8)</i> <i>(EA section 1.6.8)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effects on water quality.</li> </ul>
	Field Activities	<ul style="list-style-type: none"> <li>• Beneficial effects on water quality.</li> <li>• Beneficial effects on transportation.</li> <li>• Long-term minor negative effects on utilities.</li> </ul>
<b>Alien Species</b> <i>(EA section 1.5.9)</i> <i>(EA section 1.6.9)</i>	Field Activities	<ul style="list-style-type: none"> <li>• Minor negative effects on transportation.</li> </ul>
<b>Maritime Transportation and Aviation</b> <i>(EA section 1.5.10)</i> <i>(EA section 1.6.10)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effects on water quality.</li> <li>• Beneficial effects on transportation.</li> </ul>
	Field Activities	<ul style="list-style-type: none"> <li>• Beneficial effects on water quality.</li> <li>• Beneficial effects on transportation.</li> </ul>
<b>Emergency Response and Natural Resource Damage Assessment</b> <i>(EA section 1.5.11)</i> <i>(EA section 1.6.11)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effects on water quality.</li> <li>• Beneficial effects on transportation.</li> </ul>

<b>Managing Human Uses</b>		
<b>Action Plan</b>	<b>Action Areas</b>	<b>Effects</b>
<b>Permitting</b> <i>(EA section 1.5.12)</i> <i>(EA section 1.6.12)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effects on transportation.</li> </ul>

<b>Managing Human Uses</b>		
<b>Action Plan</b>	<b>Action Areas</b>	<b>Effects</b>
<b>Enforcement</b> <i>(EA section 1.5.13)</i> <i>(EA section 1.6.13)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effects on water quality.</li> <li>• Beneficial effects on transportation.</li> </ul>
<b>Midway Atoll Visitors Services</b> <i>(EA section 1.5.14)</i> <i>(EA section 1.6.14)</i>	Field Activities	<ul style="list-style-type: none"> <li>• Minor negative effects on transportation.</li> </ul>

<b>Achieving Effective Monument Operations</b>		
<b>Action Plan</b>	<b>Action Areas</b>	<b>Effects</b>
<b>Coordinated Field Operations</b> <i>(EA section 1.5.21)</i> <i>(EA section 1.6.21)</i>	Planning/Administrative	<ul style="list-style-type: none"> <li>• Beneficial effects on transportation.</li> <li>• Beneficial effects on utilities.</li> </ul>
	Infrastructure and Development	<ul style="list-style-type: none"> <li>• Beneficial effects on transportation.</li> <li>• Beneficial effects on utilities.</li> </ul>



---

---

**CHAPTER 4:**  
**OTHER NEPA ANALYSES**

# CHAPTER 4

## OTHER NEPA ANALYSES

---

### 4.1 INTRODUCTION

In addition to the analyses discussed in Chapter 3, this chapter discusses additional environmental analyses, including:

- Cumulative effects;
- Significant unavoidable negative effects;
- The relationship between short-term uses and long-term productivity; and
- Any irreversible or irretrievable commitment of resources.

Issues related to environmental justice and the protection of children are addressed in section 2.4.4 of this document.

### 4.2 CUMULATIVE EFFECTS ANALYSIS

A cumulative effect is an “impact on the environment which results from the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions” (40 CFR Section 1508.7; NOAA 1999). Cumulative effects can result from individually minor but collectively significant actions taking place over time (40 CFR Section 1508.7).

The CEQ’s guidance for considering cumulative effects states that NEPA documents “should compare the cumulative effects of multiple actions with appropriate national, regional, state, or community goals to determine whether the total effect is significant” (CEQ 1997). Cumulative projects considered below in Section 4.2.2 are similar to the Proposed Action, large enough to have far-reaching effects, or are in proximity to the Proposed Action with similar types of effects.

#### 4.2.1 Cumulative Effects Evaluation Methodology

The CEQ's cumulative effects guidance sets out several different methods to determine the significance of cumulative effects, such as checklists, modeling, forecasting, and economic effect assessment, where changes in employment, income, and population are evaluated (CEQ 1997). Very little definitive data are available at this time for determining cumulative effects of potential future projects (see Table 4-1). As a result, this EA looks primarily at resource trends and the expected effects the cumulative projects would have based on the individual project purpose; for example, a project that is expected to bring additional visitors to the Monument might be expected to result in minor disturbances to terrestrial species. In general, past, present, and future foreseeable projects are assessed by resource area.

Cumulative effects may arise from single or multiple actions and may result in additive or interactive effects. Interactive effects may be countervailing, where the negative cumulative effect is less than the sum of the individual effects, or synergistic, where the net negative cumulative effect is greater than the sum of the individual effects (CEQ 1997). Where applicable, the resource sections below include a discussion of whether project effects will accelerate any ongoing trends of resource degradation. The ROI for cumulative effects is often larger than the ROI for direct and indirect effects. The cumulative effect ROI is defined for each specific resource.

#### 4.2.2 Past, Present, and Reasonably Foreseeable Future Projects

Cumulative effects include the analysis of the following:

- Present effects of past projects, which are represented by the conditions described in Chapter 2;
- Effects of the Proposed Action, which are analyzed in Chapter 3; and
- Potential effects from reasonably foreseeable future projects, which are listed in Table 4-1.

The analysis of cumulative effects considers the present effects of past actions to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of, the Proposed Action, and future projects would collectively result in a significant effect on the environment.

The project information provided in Table 4-1 was compiled from a number of sources, including NOAA, FWS, DLNR, USCG, the Navy, and the University of Hawai'i. The initial list of identified projects was reviewed and revised to include only those with some potential to contribute to cumulative effects.

#### Filling at Whale-Skate Island

Whale-Skate Island has been shrinking over the last decade and is now an ephemeral island. NOAA is evaluating a filling project to restore Hawaiian monk seal haul-out areas.

## Establish Regular Visitation at Midway Atoll

FWS was unable to offer a visitor program from early 2002 until early this year. FWS goal is to maintain Midway as the only remote island National Wildlife Refuge open to public visitation, primarily for wildlife and ecotourism tours. An Interim Visitor Services Plan, with a final EA, was approved in May 2007 and implemented in January 2008. A draft plan for a long-term visitor program based on this is included in the Monument Management Plan and analyzed in this document. Both the interim and proposed visitor plans include on-going monitoring and evaluation of effects.

**Table 4-1  
Cumulative Projects**

<b>Project</b>	<b>Related Project Location</b>	<b>Project Sponsor</b>	<b>Project Description</b>
Filling at Whale-Skate Island	French Frigate Shoals	NOAA Protected Species Division	NOAA is evaluating a filling project to restore Hawaiian monk seal haul-out areas.
Establish regular visitation at Midway	Midway Atoll	FWS	The goal is to re-establish public visitation at Midway on a regular basis.
New water treatment system	Midway Atoll, Sand Island	FWS	Upgrades to treatment system to accommodate future demands.
New wastewater treatment system	Midway Atoll	FWS	Upgrades to treatment system to accommodate future demands.
Airport runway resurfacing and restriping	Midway Atoll	FWS	Upgrade runway to meet FAA Part 139 standards.
Develop Biodiesel or Appropriate Alternative Fuel Capacity	Midway Atoll	FWS	To advance sustainable use at Midway Atoll.
Design and Construct a Low Impact Shelter	Midway Atoll	FWS	To develop housing with low impact on natural resources.
Replace Bravo Barracks	Midway Atoll	FWS	To provide safe housing for residents and transients working on future projects.
Complete Phase I Rehabilitation of the Commissary building and Midway Mall	Midway Atoll	FWS	To provide needed office, classroom, storage, and basic laboratory space.
Termite treatment on all wooden/historic structures	Midway Atoll	FWS	To extend the life of existing structures for future uses and to protect historic resources.
Redevelop Existing Boathouse into New Boathouse, Dive Center, and Water-based Storage Facilities	Midway Atoll	FWS	Convert existing structure to a multipurpose boathouse, dive center, and storage facility.
Construct New Finger Piers along North Wall of Inner Harbor	Midway Atoll	FWS	Construct piers for fueling, loading, and short-term in-water storage of vessels.
Design and Construct Marine Laboratory	Midway Atoll	FWS	To meet research and educational needs of future users.

<b>Project</b>	<b>Related Project Location</b>	<b>Project Sponsor</b>	<b>Project Description</b>
Complete Full Rehabilitation of Midway Mall	Midway Atoll	FWS	To provide office space, visitor services, and classrooms.
Rehabilitate Officers' Row Housing	Midway Atoll	FWS	To provide housing for projected increased Monument personnel.
Remodel or Replace Clipper House	Midway Atoll	FWS	To provide expanded food service needs.
Rehabilitate Seaplane Hangar	Midway Atoll	FWS	Work would be primarily to restore this historic structure.
Replace Charlie Barracks	Midway Atoll	FWS	Provide safe housing for visitors and transient personnel
Repair Inner Harbor Sea Wall	Midway Atoll	FWS	To protect the harbor repair of this seawall is needed.

**New Wastewater Treatment System, Midway Atoll**

The wastewater treatment system at Midway Atoll includes 20,280 feet (6,181.3 meters) of underground line and lift stations, and a septic and leach field system that was added in 1997. FWS is rehabilitating and replacing the existing wastewater collection and treatment system as required to adequately service the buildings. Work will include constructing a new wastewater treatment system, including septic tanks and drain fields, eliminating rainfall entry into the system, and replacing distribution lines as required. Any major site work would take place August through October to minimize wildlife effects.

**Airport Runway Resurfacing and Restriping, Midway Atoll**

The Midway Island runway is 7,904 feet (2,409 meters) by 200 feet (61 meters), with an asphalt surface. It is subject to the following weight limitations: 195,000 lbs for single wheel aircraft, 260,000 lbs for double wheel aircraft, and 390,000 lbs for double tandem aircraft. In the past, an average of 226 aircraft landed at Midway every year. This project is not yet funded in its entirety. Proposed construction will be beyond 2008.

**Develop Biodiesel or Appropriate Alternative Fuel Capacity ad Midway Atoll**

In an effort to advance the use of sustainable technologies at Midway, small boats, vehicles, and heavy equipment will be evaluated and where feasible, transitioned to the use of biodiesel. Ideally, this fuel would be stored on the existing concrete pad along the north wall of the inner harbor near the location where new finger piers will be constructed. Alternatively tanks would be located near the newly constructed fuel farm on the southwest corner of the inner harbor.

**Design and Construct a Low Impact Shelter**

Construct low impact shelter for short term housing in the housing zone. The housing will be constructed as a sustainable design pilot project intended to showcase the synergistic potential of innovative design on the island. The design will elevate the building off the ground, providing for human habitation while increasing the total amount of available wildlife habitat, and providing environmental security from tsunamis and storm surges. This structure will



incorporate Pacific Island regional design principles to consider local wind and sunlight patterns, will aim to be nonpolluting and will incorporate recycled materials. The use of solar power, composting toilets, and, if needed, a small rain catchment system will be explored in an effort to sustain the building off the power grid and minimize wildlife impacts.

### **Replace Bravo Barracks**

Demolition costs for existing building must be included in construction cost. Bravo Barracks replacement is essential in order to provide safe housing for permanent island residents and transients working on future maintenance/construction projects.

### **Complete Phase I Rehabilitation of the Commissary building and Midway Mall**

Collectively the commissary building and the Midway Mall present ideal central locations for Co-Trustee and partner office, classroom, storage, and basic laboratory space. Phase I rehabilitation of the commissary will include cleaning and maintenance, construction of office and classroom space, and a feasibility study of how best to incorporate solar power and other sustainable design principles. The Midway Mall will require more substantial design and a preservation plan for renovation to provide basic office and storage space along with visitor information.

### **Termite treatment on all wooden/historic structures**

By treating all wooden/historic structures immediately we buy ourselves 5-10 more years to find funding for ultimate rehabilitation/restoration. Without treatment these structures either need to be rehabilitated immediately or abandoned forever.

### **Redevelop Existing Boathouse into New Boathouse, Dive Center, and Water-based Storage Facilities**

Redevelop the existing boathouse at Midway into a multipurpose boathouse, dive center, and storage facility to support agency operations in the northwestern end of the Monument. The facility will have maintenance bays and equipment for servicing small boats; a dive locker including a compressor, recompression chamber; and appropriate storage and work areas. The dive center may also support the visitor program. The building will be re-sited or reconstructed and potentially raised to address concerns of flooding on the seaplane pad.

### **Construct New Finger Piers along North Wall of Inner Harbor**

To meet small boat needs, within 5 years construct three finger piers along the north wall of the inner harbor across from the existing concrete pad. These piers may be used for fueling, loading, and short term in-water storage of vessels. These vessels will be used to support programs at Midway and neighboring atolls in the future.

### **Design and Construct Marine Laboratory**

A variety of needs will be met by a marine laboratory at Midway. An evaluation and planning effort will help determine if the research and educational needs of potential users will be best met by developing several small facilities over time, or by a modular design that allow new requirements to be filled as they arise. Initially the lab would provide basic amenities to augment research and education capacity including field schools, seasonal research, and long-term monitoring. A Hawaiian monk seal captive care facility, wet/dry lab infrastructure, quarantine standards, and possibly freezer space will be included in the plan. Several locations are well suited for a small laboratory including the old commissary building adjacent to the Midway Mall as well as several sites on the seaplane apron. The commissary building may be ideal for a first phase location, but would have to be reevaluated in order to accommodate a captive care facility.

### **Complete Full Rehabilitation of Midway Mall**

Midway Mall would be rehabilitated as the “Midway Atoll Visitor Center” and would be used as office space for FWS, NOAA, State of Hawai‘i and other potential partner personnel; as well as a hub for visitor services, classrooms, and education. Phase I rehabilitation would allow for agency offices and be completed within 3 years.

### **Rehabilitate Officers’ Row Housing**

The 10 historic Officers’ row houses serve as examples of historic Albert Kahn architecture and will be restored. This increased housing capacity will accommodate increased agency and partner personnel

### **Remodel or Replace Clipper House**

The Clipper House presently serves as the primary food service facility for Midway. Overall food services will need to be expanded to accommodate future population increases and enlargement of the Clipper House, reuse of older existing food service facilities, or construction of a new dining facility will be evaluated.

### **Rehabilitate Seaplane Hangar**

Due to its size (large enough to hold such things as heavy equipment, boats, and workshops), its location (short distance from inner harbor and boat ramp) and its historic significance (designed by Albert Kahn, still contains scars from the Battle of Midway), this building needs to be utilized and preserved. Rehabilitation work will be guided by a detailed preservation plan.

### **Replace Charlie Barracks**

Charlie Barracks replacement is essential in order to provide safe housing for island visitors and transient personnel. Demolition costs for the existing building must be included in the construction cost. This replacement is expected to take place within 10 years.

**Repair Inner Harbor Sea Wall**

The harbor is critical to operations at Midway. Any future expansion of docking/pier facilities in the southwest corner of the harbor must be preceded by the repair of the existing sea wall.

**4.2.3 Cumulative Effects**

**Summary of Cumulative Effects**

The contributions of the No Action and Proposed Action to cumulative effects on various resource areas are summarized in Table 4-2. It is anticipated that the cumulative projects would have overall beneficial cumulative effect for all resource areas with the exception of cultural and historic resources and Environmental Justice, where the project will have no effects.

**Table 4-2  
Summary of Potential Contribution of the No Action and  
Proposed Action Alternatives to Cumulative Effects**

Resource Area	Effects
Natural Resources	Beneficial
Cultural and Historic Resources	None
Socioeconomics	Beneficial
Other	Beneficial
Environmental Justice	None

**Natural Resources**

For the evaluation of cumulative effects relative to natural resources, the ROI is the same as that described in section 2.2. The cumulative projects described above would not have an effect beyond the Monument boundary.

Cumulative effects for natural resources use are assessed based on the past trends described in section 3.2. These trends are important because they are used as the context for determining whether the project alternatives would contribute to negative trends occurring in the ROI. The effects of the project alternatives are then added to the past, present, and reasonably foreseeable future project effects to determine if the incremental effects of all the projects would add to the historical or existing trends in land use and recreation.

The impacts of the Proposed Action on natural resources were analyzed in Section 3.2. While some activities would have a minor negative effect on natural resources, the effects are inherently of short duration and are limited to the site where activities occur. Although it is expected that plan implementation will result in overall beneficial effects to the human environment, these beneficial effects do not represent a significant impact. This is because the magnitude of benefits expected to result from plan implementation will be incrementally modest within in the context of the essentially uninhabited pristine lands and waters of the Monument. Beneficial effects to natural resources by the cumulative projects are anticipated under both the No Action and Proposed Action alternatives. The infrastructure projects, which will be built on existing disturbed area, will improve waste treatment, communications, water treatment,

housing, and will result in better management of fuels and more efficient power generation. These projects will reduce potential pollution from wastewater discharges and fuel spills.

### **Cultural and Historic Resources**

For cumulative effects on historic, cultural, and archeological resources including Midway's historic context, the ROI would be the same as described in section 2.3, which includes all the islands and surrounding waters of the Monument. Hawai'i's rich history produced a large collection of historic properties on several of the islands. Since Western contact, commercial and military operations and natural forces have destroyed or damaged many cultural and historic resource sites and have caused negative cumulative effects. Today more is known about historic and cultural resources, their importance, and how to minimize effects on them. No other projects were identified in the foreseeable future that would result in cumulative effects to cultural and historical resources under the No Action or Proposed Action alternatives.

### **Socioeconomic Resources**

#### ***Human Uses and Activities***

For cumulative effects on human uses and activities, the ROI would be the same as described in section 2.4.1, which includes all the islands and surrounding waters of the Monument. Historic events have resulted in various levels and types of human use and activity. The height of human activity likely occurred in the 1940s during World War II, when military construction and use was at its highest. Over the past 65 years, the level of human use has decreased, with the military pulling out of Midway Atoll. Human use is now limited to Department of Defense training, testing, and missile defense activities, managers, contractors, researchers, and visitors of the Monument. Controlling human use will have a beneficial cumulative effect.

Under the No Action alternative, the cumulative effects to human use and activities would be beneficial. Activities may include SCUBA diving, snorkeling, bird watching, ecotours, and cruise ship visits, as safe mooring becomes available.

#### ***Human Health, Safety, and Hazardous Materials***

The ROI for the cumulative effects on hazardous materials and conditions is the same as described in section 2.4.2. Past activities and actions have caused spills of hazardous materials and conditions that threaten human health and safety. Hazardous conditions have included spills of oil and fuels from commercial and military activities, and hazardous conditions on commercial vessels are compounded by the remote location of the Northwestern Hawaiian Islands, making rescue and response operations difficult. The cumulative effects of past activities on human health and safety and hazardous materials are considered significant. However, present and future cumulative projects would improve conditions, particularly with the improvement of the infrastructure on Midway Atoll NWR. For example, improvement to the lodgings would improve living conditions, and improvements to the airfield would improve aircraft safety.

#### ***Land Use***

The ROI for the cumulative effects on land use is the same as described in section 2.4.3. Past activities have caused a major shift in land use from undisturbed native habitat to military uses.

This change is most notable at Midway Atoll, French Frigate Shoals, and Kure Atoll. The cumulative effects of past activities on land use are considered significant. However, present and future cumulative projects would take place on the existing footprint of buildings or facilities presently in place, with no changes in land use. The Proposed Action would result in a beneficial cumulative change as some developed area would be restored to native habitat.

### ***Economics***

For cumulative effects on socioeconomics, the ROI would be the same as described in section 2.4.4, which would include all the islands and surrounding waters of the Monument. Under the No Action and Proposed Action alternatives, the cumulative effects to socioeconomics would be beneficial, with the re-establishment of public visitation and construction of the infrastructure facilities at Midway Atoll. The increase in visitation could provide very minor increased income to cruise lines, air charter services, the service industry supporting these activities on the main Hawaiian Islands, and the agencies responsible for management activities.

### **Other Resources**

#### ***Water Quality***

For cumulative effects on marine water quality, the ROI would be the same as described in section 2.5.1, which includes all the islands and surrounding waters of the Monument. Historic activities and actions have resulted in discharges to the marine waters from wartime activities, including oils and fuels from downed aircraft and sunken vessels, to spills from fishing boats and other vessels that have sunk or run aground throughout the island chain. However, because of the long time span between events, in some cases decades, and the frequent exchange of waters surrounding the location of discharges, these past activities have had a minor negative cumulative effect.

Existing Federal laws and Monument regulations already provide safeguards for protecting marine water quality. The Monument Management Plan, which fulfills Comprehensive conservation planning requirements for the Midway Atoll NWR by FWS, and the upgrade of sanitation systems at Midway Atoll will allow for further control of vessel traffic and discharges. The net result is that there would be a beneficial cumulative effect on marine water quality.

#### ***Traffic and Communication Infrastructure***

For cumulative effects on marine traffic, the ROI would be the same as described in section 2.5.2, which includes all the islands and surrounding waters of the Monument. Historic activities and actions have had little effect on marine traffic. Commercial traffic has historically avoided the Northwestern Hawaiian Islands because of grounding hazards. Some ships do transit the chain between Pearl and Hermes Atoll and Laysan Island, but most skirt the chain to the north. Past and present projects have had no cumulative effect on marine traffic. The future cumulative projects listed in Table 3-1 would not affect marine traffic. There would be a beneficial effect on communications with the construction of the communications network proposed by FWS at Midway. This would provide a higher level of services in the area than presently exists. Neither these projects nor the Proposed Action would restrict marine commercial vessel transit; therefore, they would have no cumulative effects.



### **Utilities**

The ROI for the cumulative effects on utilities is the same as described in section 2.5.3. Past activities included construction of a power plant, water treatment facility, sewage treatment, and fuel storage tanks as a result of military use, and more recently, FWS operations. These facilities can be found on Sand Island at Midway Atoll and Tern Island, FFS. There were no cumulative effects of past activities on utilities, as adequate capacity was constructed based on demand. However, some of the present and future cumulative projects would place a demand on the utilities that might exceed capacity. The balance of the proposed project is designed to upgrade sewage treatment to meet future demands. Therefore, the present and proposed projects would have no cumulative effect on utilities.

### **Environmental Justice**

For cumulative effects on environmental justice, the ROI would be the same as described in section 2.4.4, which includes all the islands and surrounding waters of the Monument. The cumulative projects listed in Table 3-2 would have no effect on environmental justice. No disproportionate negative environmental or health effects from the cumulative projects would occur on minority or low-income populations.

#### **4.3 SIGNIFICANT UNAVOIDABLE NEGATIVE EFFECTS**

No significant unavoidable negative effects have been identified.

#### **4.4 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY**

The short-term uses of the environment relating to the No Action and Proposed Action alternatives would improve the health and quality of the environment by managing vessel traffic through a permit system, requiring VMS on all vessels, and requiring hull inspections, thereby reducing the potential for groundings and hazardous spills, reducing the potential for the spread of invasive species, and reducing human activities and disturbance of special status species. In addition, control of terrestrial invasive species, restoration of native habitat and species populations, upgrades to infrastructure, and establishment of a permit process to control access and activities would reduce the potential of the spread of alien species, reduce stressors to special status species, reduce potential hazardous events, and improve health and safety for researchers, management staff, and visitors.

The long-term productivity related to the No Action and Proposed Action alternatives is based on the Presidential Proclamation 8031 establishing the Monument; prohibitions and regulated activities codified in Monument regulations; the December 2006 MOA between Co-Trustees that establishes the vision, mission, and guiding principles for the Monument; and the Monument Management Plan that defines strategies and activities to achieve long-term productivity of the resources.

#### **4.5 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES**

The No Action and Proposed Action alternatives would require minor commitments of both renewable and nonrenewable energy and material resources for the management, public use, and research activities associated with the Monument. The Proposed Action alternative in the Monument Management Plan would also commit substantial resources, staff time, and funds for conservation and management activities. Nonrenewable resources that would be used during management and research activities include fuel, water, power, and other resources necessary to maintain and operate the equipment and facilities at the field stations, field camps, vessels, and offices of the Monument.

---

---

**CHAPTER 5:**  
**AGENCY AND PUBLIC PARTICIPATION**

## CHAPTER 5

# AGENCY AND PUBLIC PARTICIPATION

---

The establishment of the NWHI Coral Reef Ecosystem Reserve (Reserve), and steps taken to designate it as a proposed sanctuary, represent a long and extensive history of public consultation and involvement. As a result of this outreach, nearly 52,000 public comments were received in support of strong protection of NWHI.

Since 2000, NOAA conducted over 100 meetings with interagency partners, the Reserve Advisory Council, Western Pacific Fishery Management Council, Native Hawaiian community groups, stakeholders, and the general public. The purpose of the meetings was to identify issues related to designating a proposed sanctuary and to solicit input on developing the alternatives to be considered in a draft environmental impact statement. Furthermore, these stakeholder groups helped prepare a draft management plan for the proposed sanctuary, which serves as the basis for the Monument Management Plan.

Monument regulations established as a result of Presidential Proclamations 8031 and 8112 and codified in 50 CFR Part 404 reflect input received during agency and public participation. After the Monument was established, public informational meetings were held on all main Hawaiian Islands to inform the public. A total of 471 people attended. Overall, the establishment of the Monument and the regulations codified under 50 CFR Part 404 were well received by the public, most of whom supported strong protection of the ecosystem of the Monument.

In addition, in December 2006, FWS released the draft Midway Atoll NWR Interim Visitor Services Plan proposing small-scale visitation at Midway. The draft Interim Visitor Plan was publicly distributed and received over 6,000 comments during the review. This interim plan was finalized in May 2007 and a final plan is incorporated in the Monument Management Plan.

On April 4, 2007, FWS and NOAA issued a *Federal Register* notice (72 FR16328) to prepare the Monument Management Plan and associated EA for the Monument. The notice stated that “It is the intent of the Co-Trustees to integrate agency planning and operational needs into a single Monument Plan. A draft Monument Plan [and associated environmental assessment] will be distributed for public review and comment early in 2008.” The public was directed to focus additional comments “on any new environmental issues identified as a result of new information

or changed circumstances since the comment periods identified above.” The public comment period for this notice ended on June 4, 2007. A scoping report was prepared that summarized all issues raised over the course of this process and a September planning update was publicly distributed that described the primary issues identified during the scoping process.

NOAA, the FWS, and the State of Hawai‘i released the Draft Monument Management Plan and the associated EA for public comment on April 22, 2008. The documents were made available on the Internet at <http://papahanaumokuakea.gov>, at local libraries in Hawai‘i, and by calling the Fish and Wildlife Service. The federal public comment period was from April 23 to July 8 and later was extended to July 23, 2008, at the request of members of the public during a series of ten public meetings in June.

**Public Meetings**

The co-trustees hosted public meetings in nine locations throughout Hawai‘i and one in Washington, DC. Table 5-1 lists the locations of the public meetings, the number of persons attending, and the number of speakers providing testimonials.

Public comments on the Draft Monument Management Plan and EA were submitted by individuals, organizations, and agencies via mail, hand delivery, e-mail, and testimony at the public meetings (Table 5-1). A total of 6,434 comments were received, including 27 letters, 6,246 form letters as e-mails, 74 e-mails, and 87 testimonials. A summary of comments and responses and agency comments and responses is provided in Volume V, Response to Comments, and a list of commenters, including federal, state and local agencies and organizations is provided in Table 5-2 below.

**Table 5-1  
Public Meetings**

<b>Date</b>	<b>Location</b>	<b>Number of Attendees</b>	<b>Number of Speakers</b>
June 9, 2008	Wai‘anae Parks and Recreation Complex 85-601 Farrington Highway, Wai‘anae, O‘ahu	12	3
June 11, 2008	Auditorium, Main Interior Building 1849 C Street NW, Washington, DC	10	1
June 12, 2008	Maui Arts and Cultural Center One Cameron Way, Kahului, Maui	15	7
June 13, 2008	Lāna‘i High and Elementary School 555 Frasier Avenue, Lāna‘i City, Lāna‘i	3	2
June 16, 2008	Kūlana ‘Oiwī Hālau 610 Maunaloa Highway, Kaunakakai, Moloka‘i	12	9
June 17, 2008	He‘eia State Park 46-465 Kamehameha Highway, Kāne‘ohe, O‘ahu	20	6
June 18, 2008	King Kamehameha Hotel 75-5660 Palani Road, Kailua-Kona, Kona, Hawai‘i	35	22
June 19, 2008	Mokupāpapa Discovery Center 308 Kamehameha Ave., Suite 109, Hilo, Hawai‘i	36	9
June 23, 2008	Hilton Kaua‘i Beach Resort 4331 Kauai Beach Drive, Līhu‘e, Kaua‘i	28	11
June 24, 2008	Japanese Cultural Center 2454 South Beretania Street, Honolulu, O‘ahu	60	17



**Table 5-2**  
**Agency/Organization Affiliation**

'Aha Kiole Advisory Committee
Association of Hawaiian Civic Clubs
BEACH
Center for Biological Diversity
Conservation Council for Hawai'i
Coral Reef Alliance and Project S.E.A. Link
Defenders of Wildlife
Department of Land and Natural Resources, Division of Forestry and Wildlife
Earth Corps International
Friends of Midway Atoll National Wildlife Refuge, Inc.
Friends of the Earth
Hawai'i County Council
Hawai'i Institute of Marine Biology
Hawai'i Undersea Research Laboratory
Hawai'i Cultural Alliance
Historic Hawai'i Foundation
Kahea
Kanaka Nation
Kaua'i Alliance for Peace and Social Justice
Kaua'i Monk Seal Conservation Hui Volunteer
Marine Biology Conservation Institute
Marine Conservation Biology Institute Hawaii
Marine Mammal Commission
Memorial University, Biology Department
Midway Alakai Program
Missile Defense Agency
Molokai High School & Fisherman
Na Koa Ikaika
U.S. Navy
NOAA Hawaiian Islands Humpback Whale National Marine Sanctuary Volunteers
NWHI CRER Advisory Council
Ocean Conservancy
Office of Hawaiian Affairs
OHA Native Hawaiian Cultural Working Group
Public Voice
Recreational Fishing Alliance
Save Our Seas
Space Options
Surfrider Foundation
U.S. Navy, JAGC, Pacific Fleet Environmental Counsel
Western Pacific Regional Fishery Management Council

---

---

**CHAPTER 6:**  
**REFERENCES**

## CHAPTER 6

### REFERENCES

---

- American Airports Corporation. 2003. *Henderson Field Airport Sand Island Midway Atoll National Wildlife Refuge Airport Certification Manual*. Approved by the Federal Aviation Administration on February 3, 2004. Honolulu, Hawaii. Certification manual prepared for the US Fish and Wildlife Service at Midway Atoll National Wildlife Refuge.
- Amerson, Binion A., Jr. 1971. The natural history of French Frigate Shoals, Northwestern Hawaiian Islands No. 150. Smithsonian Institution. Washington, DC. As cited in Starr, F. and K. Martz. 1999. S. S. Midway Expedition May 21, 1999 – June 16, 1999. Trip report for the U.S. Fish and Wildlife Service.
- Andrews, K., L. Karczmarski, W. Au, S. Rickards, C. Vanderlip, and R. Toonen. 2006. Patterns of genetic diversity of the Hawaiian spinner dolphin. *Atoll Research Bulletin*, vol. 543: 65-74.
- Asher, J. 2006. Personal communication. Pacific Islands Fisheries Science Center - Coral Reef Ecosystem Division Specialist. E-mail to Kevin Kelly, January 5, 2006.
- Ashmole, N. P. 1963. The biology of the Wide-awake or Sooty Tern (*Sterna fuscata*) on Ascension Island. *Ibis* 103b: 297-364.
- Associated Press. 2004. Woman Med-evaced from Midway Island to Honolulu. 13 September, 2004. Internet Web site: [www.kpua.net/news.php?id=3187](http://www.kpua.net/news.php?id=3187).
- Athens, Steve, Jerome V. Ward, and Dean W. Blinn. 2005. "Holocene Paleoenvironment of Laysan, Northwestern Hawaiian Islands." A Report by the International Archaeological Research Institute, Inc. Prepared for Pacific Islands Ecoregion, Division of Ecological Services, U.S. Fish and Wildlife Service. November 2005.
- Au, D. K., and R. L. Pitman. 1986. "Seabird Interactions with Dolphins and Tuna in the Eastern Tropical Pacific." In: *The Condor* 88 (3): 304-317.

- Ayau, H., and T. K. Tengan. 2002. Ka Huaka`i o Nā `Ōiwi – The Journey Home. In: Ffrode et al. (ed.), *The Dead and Their Possessions: Repatriation in Principle, Policy, and Practice*. Page 1-1. New York: Routhedge Publications.
- Balazs, G. H. 1980. Synopsis of biological data on the green turtle in the Hawaiian Islands. US Dept. of Commerce, NOAA Tech. Memo. NOAA-TM-NMFS-SWFC-7.
- Balazs, G. H., and M. Chaloupka. 2004. “Thirty year recovery trend in the once depleted Hawaiian Green Sea Turtle stock.” *In: Biological Conservation*, 117: 491-498.
- Beckwith, M. 1951. *The Kumulipo: A Hawaiian Creation Chant*. University of Hawai`i Press, Honolulu.
- Bejder, L., S. M. Dawson, and J. A. Harraway. 1999. “Responses by Hector’s dolphins to boats and swimmers in porpoise bay, New Zealand.” New Zealand Marine Science Conference. Dunedin, July 1998. 15(3):738-750.
- Benoit-Bird, K. J., W. W. L. Au, R. E. Brainard, M. O. Lammers. 2002. “Diel horizontal migration of the Hawaiian mesopelagic boundary community observed acoustically.” *Mar. Ecol. Prog. Ser.* 217:1-14.
- Boeing Company. 1998. ETOPS Expansion. Aero Magazine No. 4. October 1998. Internet Web site: [www.boeing.com/commercial/aeromagazine/aero\\_04/fo/fo01/story.html](http://www.boeing.com/commercial/aeromagazine/aero_04/fo/fo01/story.html).
- Boyd. 1886. Report to the Minister of Interior relative to the Annexation of the above or Mokupāpapa to the Hawaiian Islands. Interior Dept. of Land. Box 87, Hawai`i State Archives. September 1886.
- Christenson, Barry. 2005. Deputy Refuge Manager, U.S. Fish and Wildlife Service, Midway Atoll National Wildlife Refuge. Personal communication with Joel Paschal, Tetra Tech, Inc. March 24, 2005.
- Clague, D. A. 1996. The Growth and Subsidence of the Hawaiian-Emperor volcanic chain. In: *The origin and evolution of the Pacific Island biotas, New Guinea to Eastern Polynesia: patterns and processes*. A. Keast, S. E. Miller (editors), SPB Academic Publishing, Amsterdam. 35-50.
- Clapp, R. B. 1972. “The natural history of Gardner Pinnacles, northwestern Hawaiian Islands.” *Atoll Res. Bull.* 163:1-25.
- Cleghorn, P. 1988. “The settlement and abandonment of two Hawaiian outposts: Nihoa and Necker.” *Bishop Museum Occasional Papers* 28:35-49.
- DiNardo, G., and R. Marshall. 2001. *Status of Lobster Stocks in the Northwestern Hawaiian Islands, 1998-2000*. Southwest Fisheries Science Center Administrative report H-01-04.
- Dolbeer, R., and D. P. Arrington. 1996. “Can albatross and aircraft coexist on Midway Atoll?” *In: Bird Strike Committee Europe*, London.

Dollar, S. J. 1982. "Wave stress and coral community structure in Hawai'i." *Coral Reefs* 1:71-81.

Dollar, S. J., and R.W. Grigg. 2004. "Anthropogenic and natural stresses on selected coral reefs in Hawai'i: A multi-decade synthesis of impact and recovery." *Pacific Science*, vol. 58(2): 281-304.

Ely, C. A., and R. B. Clapp. 1973. "The natural history of Laysan Island, Northwestern Hawaiian Islands." *Atoll Res. Bull.* 171: 1-361.

Emerson, N. B. 1915. *Pele and Hi'iaka: A Myth from Hawai'i*. 'Ai Pōhaku Press, Honolulu.

Emory, Kenneth P. 1928. "Archaeology of Nihoa and Necker Islands." Bernice P. Bishop Museum, Bulletin No. 53. Bishop Museum Press, Honolulu.

Enos, Eric. 1998. "Taro Culture." *In: Preserving Hawaii's Traditional Landscapes, Conference Proceedings, September 15-17, 1995*. William Chapman and Chris Kirk-Kuwaya, (eds.) Historic Preservation Program, Department of American Studies, University of Hawai'i at Mānoa, Honolulu, Hawai'i. June 1998.

Evenhuis, Neal L., and Lucius G. Eldredge (eds.). 2004. *Natural History of Nihoa and Necker Islands*. Bishop Museum Press.

Executive Order 1019. February 3, 1909. Establishing the Hawaiian Islands Reservation.

Executive Order 13022. November 1, 1996. Administration of the Midway Islands.

Feare, C. J. 1976. "The breeding of the Sooty Tern *Sterna fuscata* in the Seychelles and the effects of experimental removal of its eggs." *In: Journal of Zoology, London* 179: 317-360.

Fefer, S. I., C. S. Harrison, M. B. Naughton, and R. J. Shallenberger. 1984. "Synopsis of results of recent seabird research conducted in the Northwestern Hawaiian Islands." *In: R. W. Grigg and K. Y. Tanoue (eds.). Resource investigations in the Northwestern Hawaiian Islands, University of Hawaii Sea Grant College Program, UNIHI-SEAGRANT-MR-84-01, Honolulu, Hawaii*, pp 9-76.

Finkelstein, M. 2006. *Midway Atoll National Wildlife Refuge Lead Poisoning of Laysan Albatross Chicks 2006 Summary Report*. Department of Ecology and Evolutionary Biology, University of California, Santa Cruz.

Flint, Beth. 2004. Supervisory Refuge Biologist. United States Fish and Wildlife Service. Personal observation on *M/V Searcher* and communication with staff at the Seabird Hospital at Sea Life Park, Honolulu, Hawaii.

Flint, E., and C. Rehkemper. 2002. "Control and eradication of the introduced grass, *Cenchrus echinatus*, at Laysan Island, central Pacific Ocean." *In: C. R. Veitch and M. N. Clout (eds.). Turning the Tide: The Eradication of Invasive Species*. IUCN SSC Invasive Species Specialist Group. IUCN, Gland, Switzerland, and Cambridge, UK. Pp 110-115.

- Fowler, G. S. 1995. "Ecotourism, field studies, and stress: behavioral and hormonal responses of Magellanic penguins to nest site disturbance." Abstracts to Pacific Seabird Group Annual Meeting.
- Franklin, E. C. 2006. "Patterns of vessel traffic in and around the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve." Northwestern Hawaiian Islands Interagency Group Meeting, January 17, 2006.
- Friedlander, A., G. Aeby, R. Brainard, A. Clark, E. DeMartini, S. Godwin, J. Kenyon, J. Maragos, R. Kosaki, and P. Vroom. 2005. The Status of the Coral Reefs of the Northwest Hawaiian Islands. In: J. E. Waddell (ed.). *The State of Coral Reef Ecosystems of the United States and Pacific Freely Associated States: 2005*, pp.270-311. NOAA Technical Memorandum NOS NCCOS 11. NOAA/NCCOS Center for Coastal Monitoring and Assessment's Biography Team. Silver Spring, MD.
- Friedlander, A., and E. DeMartini. 2002. "Contrasts in density, size, and biomass of reef fishes between the northwestern and main Hawaiian Islands: the effects of fishing down apex predators." *Mar. Ecol. Prog. Ser.*, 230: 253-264.
- Garrison, Tom. 1999. *Oceanography: An Invitation to Marine Science*. 3rd ed. Wadsworth Publishing Co. Belmont, California.
- Gerrodette, T. G., and W. G. Gilmartin. 1990. "Demographic consequences of changed pupping and hauling sites of the Hawaiian monk seal." *Conservation Biology* 4:423-430.
- Gittings, S., M. Tartt, C. Alexander, and R. Kosaki. 2004. *Information Needs for Conservation Science and Management of the Northwestern Hawaiian Islands*. US Department of Commerce, National Oceanic and Atmospheric Administration.
- Graves, Michael, and Kekuewa Kikiloi. (In prep.). Preliminary Reconnaissance Report for the Archaeological Sites of Nihoa Islands, February 2006. Prepared for U.S. Fish and Wildlife Services.
- Grigg, R.W., and D. Epp. 1989. "Critical depth for the survival of coral islands: effects on the Hawaiian archipelago." *Science*, vol. 243: 638-640.
- Havlik, Beverly. 2005. Branch Chief, Aids to Navigation, United States Coast Guard, District 14. Personal communication with Joel Paschal, Tetra Tech, Inc., January 4, 2005.
- Hawkins, J. P., C. M. Roberts, T. V. T. Hof, K. D. Meyer, J. Tratalos, and C. Aldam. 1999. "Effects of recreational scuba diving on Caribbean coral and fish communities." *Conservation Biology* 13(4):888-897.
- Hoeke, R., R. Brainerd, R. Moffitt, and M. Merrifield. 2006. "The role of oceanographic conditions and reef morphology in the 2002 coral bleaching event in the Northwestern Hawaiian Islands." *Atoll Research Bulletin*, vol. 543: 489-503.



*Honolulu Advertiser*. 2003. "Sick fishermen flown to Hawai'i." October 24, 2003. Internet Web site: [www.the.honoluluadvertiser.com/article/2034/Oct/24/ln/ln33a.html](http://www.the.honoluluadvertiser.com/article/2034/Oct/24/ln/ln33a.html).

Horvath, Dominique. 2005. Refuge Operations Specialist, United States Fish and Wildlife Service. Personal communication with Joel Paschal, Tetra Tech, Inc. January 7, 2005.

Huegh-Guldberg, O. 1999. "Climate, change, coral bleaching and the future of the world's coral reefs." *Marine and Freshwater research*, vol. 50(8): 839-866.

Itano, D. G., and K. N. Holland. 2000. "Movement and vulnerability of big-eye (*Thunnus obesus*) and yellowfin tuna (*Thunnus albacares*) in relation to FADs and natural aggregation points." *Aquat. Living Resour.* 13: 213-223

Johnson, R. W., and J. K. Mahelona. 1975. *Nā Inoa Hōkū: A Catalogue of Hawaiian and Pacific Star Names*. Topgallant Publishing Company, Honolulu, Hawai'i.

Johnston, D.W., M. E. Chapla, L. E. Williams, D. K. Mattila. 2007. "Identification of humpback whale *Megaptera novaeangliae* wintering habitat in the Northwestern Hawaiian Islands using spatial habitat modeling." *Endangered Species Research* 3: 249-257

Jungius, H., and U. Mirsch. 1979. "Changes in heartbeats in nesting birds at Galapagos by human disturbance." *Journal of Field Ornithology*. 120:299-310.

Kame'eleihiwa, Lilikalā. 1992. *Native Land and Foreign Desires: Pehea la e Pono ai? How Shall We Live in Harmony?* Bishop Museum Press, Honolulu, Hawai'i.

Kanahele, Pualani Kanaka'ole. 2003. *Native Hawaiian Environment. Wao Akua*. Division of Forestry and Wildlife Department of Land and Natural Resources, State of Hawai'i.

Karczmarski, L., B. Würsig, G. Gailey, K. Larson, and C. Vanderlip. In press. "Spinner dolphins in a remote Hawaiian atoll: social grouping and population structure." *Behavioral Ecology*, vol. 16.

Kawaharada, Dennis. 1991. *Personal Stories of Nihoa and Necker Islands*. Bishop Museum, Honolulu, Hawai'i.

Keenen, E., R. Brainerd, and L. Basch. 2006. "Historical and present status of the pearl oyster at Pearl and Hermes Atoll, Northwestern Hawaiian Islands." *Atoll Research Bulletin*, vol. 543: 333-344.

Kelley, C., and R. Moffitt. 2004. "The impacts of bottomfishing on the Raita and West St. Rogation Reserve Preservation Areas in the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve." Paper read at Northwestern Hawaiian Islands 3rd Scientific Symposium, Honolulu, Hawai'i.

Kelley, C., R. Moffitt, and W. Ikehara. 2004. "Mega to macro-scale descriptions of bottom-fish habitats on Raita, West St. Rogation Bank, Brooks Bank, and Bank 66." Paper read at Northwestern Hawaiian Islands 3rd Scientific Symposium, Honolulu, Hawai'i.

- Kelley, Christopher, Robert Moffitt, and John Smith. 2006. "Mega to micro-scale classification and description of bottomfish essential fish habitat on four banks in the Northwestern Hawaiian Islands." *Atoll Research Bulletin*, vol. 543: 319-332.
- Kenyon, K. W., D. W. Rice, C. S. Robbins, and J. W. Aldrich. 1958. *Birds and aircraft on Midway Island; November 1956 - June 1957 Investigations*. U.S. Fish and Wildlife Service, Washington, DC.
- Kenyon, K. W. 1972. "Man verses the monk seal." *Journal of Mammalogy* 53:687-696.
- Kikiloi, S. Kekuewa. 2006. "Reconnecting with Ancestral Islands: Examining historical relationships between kānaka maoli and the Northwestern Hawaiians Islands." Report to NOAA for the Kia'i Kai (Guardians of the Sea) Project, Kamakakūokalani, Center for Hawaiian Studies, University of Hawai'i, Mānoa. January 2006.
- Kingdom of Hawai'i. 1857. Resolution 1. Privy Council Minute Books, Series 421, Vol. 10, Hawai'i State Archives.
- Kitaysky, A., M. Benowitz-Fredericks, Z. Kitaiskaia, M. Shultz, and B. Zaun. 2003. "Effects of tourist disturbance on stress physiology of wedge-tailed shearwaters (*Puffinus pacificus*) chicks at Kilauea Point National Wildlife Refuge, Kauai, Hawaii." Unpublished refuge report.
- Klavitter, J. 2004. Midway Atoll National Wildlife Refuge wildlife assessment for Henderson Field airport operations. Honolulu, Hawai'i. U.S. Fish and Wildlife Service.
- Kleypas, J. A., R. A. Feely, V. J. Fabry, C. Langdon, C. L. Sabine, and L. L. Robbins. 2006. "Impacts of ocean acidification on coral reefs and other Marine calcifiers: a guide for future research." Report of a workshop held April 18-20, 2005, St. Petersburg, Florida, sponsored by NSF, NOAA, and the US Geological Survey.
- Liller, W. 2000. "Necker Islands, Hawai'i: Astronomical implications of an island located on the Tropic of Cancer." *Rapa Nui Journal* Vol. 14 (4) Dec. 2000.
- Longhurst, A. R., and D. Pauly. 1987. *Ecology of Tropical Oceans*. Academic Press, Inc. San Diego, California.
- Lowe, C. G., B. M. Wetherbee, and C. G. Meyer. 2006. "Using acoustic telemetry monitoring techniques to quantify movement patterns and site fidelity of sharks and giant trevally around French Frigate Shoals and Midway Atoll." *Atoll Research Bulletin* 543: 281-304.
- MacKenzie, Melody Kapilialoha, and Bernice K. Kaiama. 2003. Report to the Office of Hawaiian Affairs. Native Hawaiian Claims to the Lands and Natural Resources of the Northwestern Hawaiian Islands. Office of Hawaiian Affairs. February 2003.
- Maly, Kepa, and Onaona Maly. 2003. Volume 11 – "Oral History Interviews: Ka Hana Lawai'a a me Nā Ko'a o Nā Kai 'Ewalu." Compiled from oral interviews with Kūpuna and Kama'āina. Prepared for the Nature Conservancy. December 10, 2003.

Mantua, N. J., S. R. Hare, Y. Zhang, J. M. Wallace, and R. C. Francis. 1997. "A Pacific interdecadal climate oscillation with impacts on salmon production." *Bulletin of the American Meteorological Society* 78, pp. 1069-1079.

Maragos, J., and P. Jokiel. 1986. "Reef corals of Johnston atoll: one of the world's most isolated reefs." *Coral Reefs*, vol. 4: 141-150.

Maragos, J. E., D. Potts, G. Aeby, D. Gulko, J. Kenyon, D. Siciliano, and D. Van Ravenswaay. 2004. "2000-2002 Rapid ecological assessments of corals (Anthozoa) on shallow reefs of the Northwestern Hawaiian Islands. Part I: Species and distribution." *Pacific Science*, vol. 58 (2): 211-230.

Mathers, Dwight. 2005. Chief of Law Enforcement and Intelligence, United States Coast Guard, District 14. Personal communication with Joel Paschal, Tetra Tech, Inc. January 5, 2005.

McGregor, Davianna. 1998. "The Native Hawaiian Landscape." *In: Preserving Hawai'i's Traditional Landscapes. Conference Proceedings, September 15-17, 1995. William Chapman and Chris Kirk-Kuwaya (eds.). Historic Preservation Program, Department of American Studies, University of Hawai'i. June 1998.*

Miao, X. S., L. A. Woodward, C. Swenson, and Q. X. Li. 2001. "Comparative concentrations of metals in marine species from French Frigate Shoals, North Pacific Ocean." *Mar. Poll. Bull.* 42 (11): 1049-1054.

Miao, X. S., C. Swenson, K. Yanagihara, and Q. X. Li. 2000. "Polychlorinated biphenyls and metals in marine species from French Frigate Shoals, North Pacific Ocean." *Arch. Environ. Contam. Toxicol.* 38: 464-471.

Miao, X. S., C. Swenson, L. A. Woodward, and Q. X. Li. 2000. "Distribution of polychlorinated biphenyls in marine species from French Frigate Shoals, North Pacific Ocean." *Sci. Tot. Environ.* 257 (2000): 17-28.

Miller, J. E., R. K. Hoeke, T. B. Applegate, P. J. Johnson, J. R. Smith, and S. Bevacqua. 2004. *Bathymetric Atlas of the Northwestern Hawaiian Islands (Draft). National Oceanic and Atmospheric Administration. February 2004.*

Miller, J. E., S. Vogt, R. Hoeke, S. Ferguson, B. Applegate, J. R. Smith, and M. Parke. 2006. "Bathymetric atlas and website for the northwestern Hawaiian Islands." *Atoll Research Bulletin* 543: 409-422.

Mitchell, C., C. Ogura, D. W. Meadows, A. Kane, L. Strommer, S. Fretz, D. Leonar, and A. McClung. 2005. *Hawaii's Comprehensive Wildlife Conservation Strategy. Department of Natural Resources. Honolulu, Hawai'i.*

Moffitt, R., J. Johnson, and G. DiNardo. 2006. "Spatiotemporal analysis of lobster trap catches: impacts of trap fishing on community structure." *Atoll Research Bulletin*, vol. 543: 217-236.

- Morin, M., and S. Conant. 1998. Laysan Island Ecosystem Restoration Plan. University of Hawaii at Manoa, Dept. of Zoology, Honolulu, Hawai'i.
- Naughton, M., and E. Flint. 2004. "Populations and conservation status of seabirds nesting in the Northwestern Hawaiian Islands." Paper read at Northwestern Hawaiian Islands 3<sup>rd</sup> Scientific Symposium, Honolulu, Hawai'i.
- Newman, A. L. 1988. "Mapping and Monitoring Vegetation Change on Laysan Island." Thesis submitted to the Graduate division of the University of Hawai'i Department of Geography.
- Nimon, A. J., R. C. Schroter, and B. Stonehouse. 1995. "Heart rate of disturbed penguins." *Nature* 374:415.
- Nishida, G. M. 2002. *Hawaiian Terrestrial Arthropod Checklist, 4<sup>th</sup> Edition*. Bishop Museum Technical Report 22. Bishop Museum Press, Honolulu, Hawai'i, pp. i-iv, 1-313.
- NMFS (National Marine Fisheries Service) and USFWS (U.S. Fish and Wildlife Service). 1998. Recovery Plan for the U.S. Pacific populations of the green sea turtle *Chelonia mydas*. NMFS, Silver Springs, Maryland.
- NOAA (National Oceanic and Atmospheric Administration). 1999. NOAA Administrative Order Series 216-6, Environmental Review Procedures for Implementing the National Environmental Policy Act, May 20, 1999.
- \_\_\_\_\_. 2001a. Case History: Swordman I. Abandoned Vessel Project. Internet Web site: [www.archive.orr.noaa.gov/dac/vessels/cases/swordman.html](http://www.archive.orr.noaa.gov/dac/vessels/cases/swordman.html).
- \_\_\_\_\_. 2001b. Final EIS Fishery Management Plan Pelagic Fisheries of the Western Pacific Region. Prepared by URS Corporation. Pacific Islands Regional Office, National Marine Fisheries Service. March 30, 2001.
- \_\_\_\_\_. 2002. Maritime Cultural Resources Survey Northwest Hawaiian Islands. Prepared by Hans Van Tilburg, Northwest Hawaiian Islands Coral Reef Ecosystem Reserve (CRER). December 2002.
- \_\_\_\_\_. 2003a. Background material on the Insular Pacific-Hawaiian Large Marine Ecosystem. Internet Web site: <http://na.nefsc.noaa.gov/lme/text/lme10.htm>.
- \_\_\_\_\_. 2003b. Hawaiian Monk Seal Recovery Plan (Draft). Prepared by the Hawaiian Monk Seal Recovery Plan Team for the Office of Protected Resources, National Marine Fisheries Service.
- \_\_\_\_\_. 2003c. Northwestern Hawaiian Islands. A Resource Guide. U.S. Department of Commerce. Honolulu, Hawai'i.
- \_\_\_\_\_. 2003d. Joint Management Plan Review Recommendations from JMPR Working Groups & Internal Teams to the Gulf of the Farallones Sanctuary Advisory Council. July 2003.

- \_\_\_\_\_. 2004a. Stock Assessment Report, Sperm Whale, Hawai'i. Internet Web site: [www.nmfs.noaa.gov/prot\\_res/PR2/Stock\\_Assessment\\_Program/Cetaceans/Sperm\\_Whale\\_\(Hawaii\)/po04spermwhalehawaii.pdf](http://www.nmfs.noaa.gov/prot_res/PR2/Stock_Assessment_Program/Cetaceans/Sperm_Whale_(Hawaii)/po04spermwhalehawaii.pdf).
- \_\_\_\_\_. 2004b. Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve Draft Final Reserve Operations Plan. U.S. Department of Commerce. Honolulu, Hawai'i.
- \_\_\_\_\_. 2004c. Action Plan: Water Quality—Cruise Ship Discharges. August 2004.
- \_\_\_\_\_. 2005. Northwestern Hawaiian Islands Proposed National Marine Sanctuary—Draft Management Plan. March 28, 2005. Pre-Decisional Document. Honolulu, Hawai'i.
- \_\_\_\_\_. 2006. International Comprehensive Ocean-Atmosphere Data Set. Internet Web site: [www.icoads.noaa.gov/](http://www.icoads.noaa.gov/).
- \_\_\_\_\_. 2008. Environmental Assessment for the Issuance of a Research Permit to the National Marine Fisheries Service, Pacific Islands Fisheries Science Center, Protected Species Division for Conducting Shark Deterrent Activities in the Papahānaumokuākea Marine National Monument. May, 2008, Prepared by the National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Pacific Islands Fisheries Science Center and National Ocean Service, Office of National Marine Sanctuaries.
- Office of Protected Resources. Hawaii Marine Mammal and Sea Turtle Encounter Guidelines. Internet Web site: [www.nmfs.noaa.gov/pr/education/hawaii/guidelines.htm](http://www.nmfs.noaa.gov/pr/education/hawaii/guidelines.htm).
- Parrish, F. 1989. "Identification of habitat of juvenile snappers in Hawai'i." *Fisheries Bulletin*, vol. 87: 1001-1005.
- Parrish, F. A., M. P. Craig, T. J. Ragen, G. J. Marshall, and B. M. Buhleier. 2000. "Identifying diurnal foraging habitat of endangered Hawaiian monk seals using a seal-mounted video camera." *Marine Mammal Science*, vol. 16: 392-412.
- Parrish, F. A., and R. C. Boland. 2004. "Habitat and reef-fish assemblages of banks in the Northwestern Hawaiian Islands." *Marine Biology*, 144 (6):1065-1073.
- Parrish, F., and K. Abernathy. 2006. "Movements of monk seals relative to ecological depth zones in the lower Northwestern Hawaiian Islands." *Atoll Research Bulletin* 543: 115-130.
- Polovina, J. J., G. T. Mitchum, N. E. Graham, M. P. Craig, E. E. DeMartini, and E. N. Flint. 1994. "Physical and biological consequences of a climate event in the central North Pacific." *Fish. Oceanogr.* 3(1): 15-21.
- Polovina, J. J., E. Howell, D. R. Kobayashi, M. P. Seki. 2001. "The transition zone chlorophyll front, a dynamic global feature defining migration and forage habitat for marine resources." *Progress in Oceanography* 49:469-483.
- Pratt, H. D., P. L. Bruner, and D. G. Berrett. 1987. *A Field Guide to the Birds of Hawaii and the Tropical Pacific*. Princeton University Press, Princeton, New Jersey.

- Presidential Proclamation 2416. 1940. Renaming the Hawaiian Islands Reservation as the Hawaiian Islands National Wildlife Refuge. July 25, 1940.
- Presidential Proclamation 8031. 2006. Establishing the Northwestern Hawaiian Islands Marine National Monument (71 FR 36443). June 15, 2006.
- Presidential Proclamation 8112. 2007. Establishment of the Papahānaumokuākea Marine National Monument (72 FR 10031). March 6, 2007.
- Ragain, Sean. 2004. Big Fuel Spill Plus Very Remote Site Equals Success. Abstract details from 2004 Facilities and Asset Management Conference, Department of the Interior. Internet Web site: [www.nbc.gov/facilities/abdetails.cfm?ID=90](http://www.nbc.gov/facilities/abdetails.cfm?ID=90).
- Ragen, T. 1997. "Human Activities Affecting the Population Trends of the Hawaiian Monk Seal." Conservation of Long-Lived Marine Animals Conference. August 24, 1997; Monterey, California.
- Randall, J. E. 1987. "Introductions of marine fishes to the Hawaiian Islands." *Bulletin of Marine Science* 41: 490-502.
- Reynolds, M., M. Vekasy, L. Laniawe, J. Breeden, and J. Klavitter. 2006. Project and trip report: Laysan teal project report Laysan Island and Midway Atoll, U.S. Geological Survey Report for Project Cooperators, Hawai'i National Park, Hawai'i.
- Reynolds, M. H., J.H. Breeden, Jr., and J.L. Klavitter. 2007. Translocation of wild Laysan teal from Laysan Islands to Midway Atoll: project update. *Wildfowl* 57: 120-124.
- Silberman, Jay. 2005. United States Coast Guard Civil Engineering Unit District 14. Personal communication with Joel Paschal, Tetra Tech, Inc. January 7, 2005.
- Smith, J. R., A. Baco-Taylor, C. Kelley, and S. Cairns. 2004. "Preliminary results from NWHI seamount surveys of deep-sea fauna in relation to geological setting." Paper read at Northwestern Hawaiian Islands 3rd Scientific Symposium, Honolulu, Hawai'i.
- Smith, Dave. 2005. Biologist, Hawai'i Department of Land and Natural Resources, Division of Forestry and Wildlife. Personal communication with Joel Paschal, Tetra Tech, Inc. January 28, 2005.
- Speulda, Lou Ann, Anan Raymond, and Virginia Parks. 1999. *Midway Atoll National Wildlife Refuge Historic Preservation Plan*. U.S. Fish and Wildlife Service, Region 1. Portland, Oregon.
- Stoffle, Richard W., David B. Halmo, and Diane E. Austin. 1997. "Cultural Landscapes and Traditional Cultural Practices: A Southern Paiute View of the Grand Canyon and Colorado River." *In: American Indian Quarterly*, 21:2, Spring 1997; pp.229-249.
- Tava, R., and M. K. Keale, Sr. 1989. *Ni`ihau: The Traditions of an Hawaiian Island*. Mutual Publishing, Honolulu, Hawai'i.



TenBruggencate, Jan. 2005a. "Flight Finds No New Leaks at Wreck." *Honolulu Advertiser*, July 6, 2005.

\_\_\_\_\_. 2005b. "Coconut pollen found on Laysan." *Honolulu Advertiser*, May 23, 2005.

USCG (US Coast Guard). 1994b. Kure Atoll LORAN remediation report. Enclosure (1). Research Management Consultants, Inc., for US Coast Guard Civil Engineering Unit, Honolulu, Hawai'i. RMCI Project Number F170-001. RMCI, Lakewood, Colorado.

\_\_\_\_\_. 2006. USCG Maritime Information Exchange. Internet Web site: [ww.cgmix.uscg.mil/PSIX/VesselSearch.aspx](http://ww.cgmix.uscg.mil/PSIX/VesselSearch.aspx).

USDOD (United States Department of Defense). 2003. Defense Environmental Restoration Program Report to Congress FY03, Midway Naval Air Facility, Base Closure and Realignment. Internet Web site: [www.63.88.245.60/DERPARC\\_FY03/PDFS/INSTALLATION\\_SUMMARY/IS\\_MQ917002758400.pdf](http://www.63.88.245.60/DERPARC_FY03/PDFS/INSTALLATION_SUMMARY/IS_MQ917002758400.pdf).

U.S. Fish and Wildlife Service. 1986. Hawaiian Islands National Wildlife Refuge Master Plan/Environmental Impact Statement. U.S. Fish and Wildlife Service, Portland, Oregon.

\_\_\_\_\_. 1998. Final Recovery Plan for Three Plant Species on Nihoa Island. U.S. Fish and Wildlife Service, Portland, Oregon.

\_\_\_\_\_. 1999. Recovery plan for multi-island plants. U.S. Fish and Wildlife Service, Portland, Oregon.

\_\_\_\_\_. 2000. Press release. National Marine Fisheries Service, Department of Land and Natural Resources. October 3, 2000.

\_\_\_\_\_. 2004a. Revised Recovery Plan for the Laysan Duck (*Anas laysanensis*). PIFWO; draft STAL RP. U.S. Fish and Wildlife Service, Region 1, Anchorage, Alaska. Internet Web site: [http://ecos.fws.gov/tess\\_public/SpeciesRecovery.do?sort=1](http://ecos.fws.gov/tess_public/SpeciesRecovery.do?sort=1).

\_\_\_\_\_. 2004b. Cleanup of lead paint contaminated soil and stabilization of lead based paint on buildings at Midway Atoll National Wildlife Refuge. U.S. Fish and Wildlife Service. Midway Atoll National Wildlife Refuge, Northwestern Hawaiian Islands. July 6, 2004.

\_\_\_\_\_. 2005a. Midway Atoll National Wildlife Refuge. Preserving Midway's Past: Chronology of Events through History. Internet Web site: [www.midway.fws.gov/intro/default.htm](http://www.midway.fws.gov/intro/default.htm).

\_\_\_\_\_. 2005b. Midway Naval Base Closure Transfer to Fish and Wildlife Service. Internet Web site: [www.midway.fws.gov/past/base.html](http://www.midway.fws.gov/past/base.html).

\_\_\_\_\_. 2005c. Short-tailed Albatross Draft Recovery Plan United States Fish and Wildlife Service, National Oceanic and Atmospheric Administration, National Wildlife Refuge System, and the State of Hawaii. "Interim Visitors Services Plan for Midway Atoll National Wildlife

Refuge, the Battle of Midway National Memorial, and the Papahānaumokuākea Marine National Monument's Midway Atoll Special Management Area." May 2007.

\_\_\_\_\_. 2007a. Marine National Monument's Midway Atoll Special Management Area Interim Visitor Services Plan for Midway Atoll National Wildlife Refuge, the Battle of Midway National Memorial and Papahānaumokuākea Marine National Monument's Midway Atoll Special Management Area.

\_\_\_\_\_. 2007b. Environmental Assessment for the Interim Visitors Services Plan at Midway Atoll National Wildlife Refuge, the Battle of Midway National Memorial, and Papahānaumokuākea Marine National Monument. May 2007.

\_\_\_\_\_. No date. Compatibility Determination for Research and Surveys at Midway Atoll National Wildlife Refuge and the Battle of Midway National Memorial and the Papahānaumokuākea Marine National Monument.

\_\_\_\_\_. No date. Compatibility Determination for Wildlife Observation and Photography in the Hawaiian Islands National Wildlife Refuge (NWR) and at Papahānaumokuākea Marine National Monument.

U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration, and the State of Hawai'i. 2008. Draft Management Plan for the Papahānaumokuākea Marine National Monument (DMMP 2008). February 2008.

US Navy. 1998. Final Record of Closure. Time-Critical Removal Action at IR Sites US Naval Air Facility (NAF) Midway Island. OHM Remediation Services Corp. PACNAVFACENGCOM Contract No. N62742-93-D-0610, Delivery Order No. 0020. OHM Project No. 18156.

\_\_\_\_\_. August 2001. Draft Remediation Verification Report. Contaminated Sediment and UST Removal, Midway Atoll. IT Corporation. PACNAVFACENGCOM Contract No. N62742-98-D-1808. Contract Task Order No. 0017.

\_\_\_\_\_. 2001. Action Memorandum for Time-Critical Removal Action of Abandoned Tug and Barge, LCM, Boiler, and PCB-Contaminated Marine Sediment, Bulky Waste Landfill, Midway Atoll. October 30, 2001.

Usinger, R. L. 1942. "The genus *Nysius* and its allies in the Hawaiian Islands (Hemiptera, Lygaeidae, Orsillini)." Bernice P. Bishop Museum Bulletin 173. Bishop Museum Press, Honolulu, Hawai'i, pp 1-167.

Van Tilburg, Hans. 2002. Maritime Cultural Resources Survey Northwestern Hawaiian Islands NOWRAMP 2002. Prepared for NOAA/NOS/NWHICRER. December 2002.

Veron, J. E. N. 1986. *Corals of Australia and the Indo-Pacific*. Angus and Robertson, London.

- Vitousek, P.P. 1994. Beyond global warming: ecology and global change. *Ecology* 75: 1861-1876.
- Wagner, W. L., D. Herbst, and S. H. Sohmer. 1990. *Manual of the flowering plants of Hawai`i, Revised Edition*. University of Hawai`i Press, Bishop Museum Press, Special Publication. 83: 1-1853.
- WPFMC (Western Pacific Fishery Management Council). 2004a. Final Environmental Impact Statement, Bottomfish and Seamount Groundfish Fishery of the Western Pacific Region, Honolulu.
- \_\_\_\_\_. 2004b. Pelagic Fisheries of the Western Pacific Region Annual Report, 2003. Honolulu, Hawai`i.
- \_\_\_\_\_. No date. History of the Fisheries in the Northwestern Hawaiian Islands. Honolulu, Hawai`i.
- Winslow, Stan. 2005. Marine Superintendent, University of Hawai`i Marine Center. Personal communication with Joel Paschal, Tetra Tech, Inc. January 7, 2005.
- Wood, Bill. 2001. Personal communication with L. A. Woodward
- Woodward, LeeAnn. 2005. United States Fish and Wildlife Service, Pacific/Remote Island National Wildlife Refuge Complex. Personal communication with Joel Paschal, Tetra Tech, Inc. January 6, 2005.
- Zabin, C., J. Carlton, S. Godwin. 2003. "First report of the Asian sea anemone *Diadumene lineata* from the Hawaiian Islands." Bishop Museum occasional papers, No. 79, 2004541.
- Ziegler, A. 1990. Search for Evidence of Early Hawaiian Presence on Lisianski Islands, NWHI. A Report prepared for State of Hawai`i. Summer 1990.

---

---

**SECTION 7:**  
**LIST OF PREPARERS**

# CHAPTER 7

## LIST OF PREPARERS

---

**Tetra Tech, Inc.**  
**737 Bishop Street, Suite 3020**  
**Honolulu, Hawai'i 96813**  
**(808) 533-3366**

**Tetra Tech EM, Inc.**  
**737 Bishop Street, Suite 3010**  
**Honolulu, Hawai'i 96813**  
**(808) 441-6600**

---

Name	Role	Degree/School	Years of Experience
Kitty Courtney	Project Manager	PhD, Oceanography, University of Hawai'i MS, Biology, San Jose State University BS, Biology, University of California, Santa Cruz	24
George Redpath	EA Project Manager	MS, Ecology, University of California, Davis BS, Fish and Wildlife Biology, University of California, Davis	35
Marleina Overton	Deputy Project Manager	BS, Environmental Studies, Florida State University	8
<b>Interdisciplinary Team</b>			
Maren Anderson	Human Uses Land Uses	BA, Ecology and Evolutionary Biology, University of Colorado	1

<b>Name</b>	<b>Role</b>	<b>Degree/School</b>	<b>Years of Experience</b>
Susan Carstenn, PhD	Natural Resources	PhD, Environmental Science, University of Florida	8
		M.Ed, Science Education, University of Florida	
		BS, Education, University of Florida	
Kitty Courtney	DOPAA	PhD, Oceanography, University of Hawai‘i	24
		MS, Biology, San Jose State University	
		BS, Biology, University of California, Santa Cruz	
Landin Johnson	Water Quality	BA, Political Science & Economics, University of Hawai‘i at Manoa	4
	Transportation and Communications Infrastructure		
Dawn Lleces	Cultural and Historic Resources	BA, Environmental Sciences, University of Hawai‘i	5
	Response to Comments		
Jenny Lovell	Human Health, Safety, and Hazardous Materials	BA, Environmental Policy, Tulane University	5
	Transportation and Communications Infrastructure		
Marleina Overton	Utilities	BS, Environmental Studies, Florida State University	8
	Socioeconomics		



<b>Name</b>	<b>Role</b>	<b>Degree/School</b>	<b>Years of Experience</b>
George Redpath	Natural Resources	MS, Ecology, University of California, Davis  BS, Fish and Wildlife Biology, University of California, Davis	35
Aaron Ungerleider	DOPAA	MA, Ecologically Sustainable Development, Murdoch University, Australia  BA, Geography, University of Hawai‘i, Honolulu	1
<b>Production Staff</b>			
Vicky Aki	Document Preparation		9
Kerry Broderson	Editorial Review	BA, English, University of California at Santa Cruz	18
Amy Cordle	Technical Editor	BS, Civil Engineering, Virginia Polytechnic Institute and State University	14
Butch Fries	Editorial Review	MA, Mass Communication, University of Minnesota  BA, Journalism, University of Wisconsin-Madison	28
Kevin Kelly	Technical Review	MS, Oceanography, University of Hawai‘i  BS, Biology, Pennsylvania State University	13
Cindy Schad	Word Processor	BFA, Creative Writing, Emerson College	15
Brian Vahey	Word Processor	BFA, Film and TV, New York University	18

<b>Name</b>	<b>Role</b>	<b>Degree/School</b>	<b>Years of Experience</b>
Randolph Varney	Senior Technical Editor	MFA in Writing, University of San Francisco  BA, Technical and Professional Writing, San Francisco State University	16

---

---

**APPENDIX A**  
**CULTURAL IMPACT ASSESSMENT**

## **CULTURAL IMPACT ASSESSMENT**



### **Papahānaumokuākea Marine National Monument Management Plan**

**November, 2008**

**STATE OF HAWAI‘I  
DEPARTMENT OF LAND AND NATURAL RESOURCES**

**TABLE OF CONTENTS**

**1.0 INTRODUCTION.....3**  
     **1.1 Project Background.....3**  
     **1.2 Scope of Work.....4**  
     **1.3 Physical and Natural Setting.....4**  
**2.0 TRADITIONAL AND HISTORIC BACKGROUND.....8**  
     **2.1 Cultural Setting.....8**  
     **2.2 Historical Period.....11**  
     **2.3 Contemporary Connections to the Northwestern Hawaiian Islands.....12**  
     **2.4 Cultural Access for Native Hawaiian Practices.....13**  
**3.0 MONUMENT MANAGEMENT PLAN.....13**  
**4.0 ARCHAEOLOGICAL BACKGROUND.....16**  
**5.0 NATIVE HAWAIIAN COMMUNITY CONSULTATION.....22**  
**6.0 COMMUNITY CONSULTATION OF TRADITIONAL CULTURAL PRACTICES AND BELIEFS OF PAPA HĀNAUMOKUĀKEA**  
     **A WAHI PANA (Sacred Place)..... 24**  
     **6.1 Wahi Pana (Storied/Sacred Place).....25**  
     **6.2 The Continuation of Religious Practices.....30**  
     **6.3 Mo‘oleo Associated with Fishing.....31**  
     **6.4 Voyaging.....35**  
     **6.5 Cultural “Subsistence”: A Way of Life.....38**  
     **6.6 Advice and Recommendations for Access to the Islands of Papahānaumokuākea.....44**  
**7.0 ASSESSMENT OF CULTURAL IMPACTS.....47**  
**8.0 OBSERVATIONS AND CONCERNS YIELDED FROM COMMUNITY CONSULTATION PROCESS AND RESPONSES TO ADDRESS THESE CONCERNS.....48**  
**9.0 REFERENCES.....52**  
  
**Appendix A: Transcripts of Interviews.....56**

**LIST OF FIGURES**

**1 Papahānaumokuākea Marine National Monument Management Area..... 6**  
**2 Papahānaumokuākea Marine National Monument Boundary..... 7**  
**3 Map of Nihoa Island Showing Archaeological Sites..... 18**  
**4 Map of Mokumanamana, Showing Archaeological Sites..... 19**  
**5 Hawaiian Concepts Concerning the Movement of the Sun..... 20**

**LIST OF TABLES**

**1 Community Contact Table..... 23**

## 1.0 INTRODUCTION

### 1.1 Project Background

The State of Hawai‘i Department of Land and Natural Resources (DLNR), Division of Aquatic Resources has prepared this Cultural Impact Assessment (CIA) associated with the proposed implementation of the Papahānaumokuākea Marine National Monument Management Plan (MMP), and the Environmental Assessment (EA) for proposed MMP activities. The MMP and EA were prepared in compliance with the statutory requirements of the Federal National Environmental Policy Act (NEPA), the State of Hawai‘i Revised Statute (HRS) Chapter 343 Environmental Impact Statements law, and in accordance with the State of Hawai‘i Department of Health’s Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts as adopted by the Environmental Council, State of Hawai‘i, on November 19, 1997.

Papahānaumokuākea Marine National Monument (Monument) is a very sacred and spiritual place to the Kānaka Maoli (Native Hawaiian) and is the largest protected area in the United States, as well as the world’s largest fully protected marine area. It was created by Presidential Proclamation under the authorities of the Antiquities Act, 16 U.S.C. §§ 431-433. Creation of the Monument was based on extensive public input, including hearings and the involvement of a broad spectrum of stakeholders and interested persons. Nearly 52,000 public comments were received, the majority of which supported strong protection for the Northwestern Hawaiian Islands (NWHI). Based upon this extensive public input, and in order to provide additional immediate protection to the NWHI, the Monument was created on June 15, 2006, by Presidential Proclamation 8031. National Monument status ensures the immediate, comprehensive, strong, and lasting protection of the resources of the NWHI.

The three principal entities with responsibility for managing lands and waters of the Monument are the Department of Commerce, via the National Oceanic and Atmospheric Administration (NOAA), the Department of the Interior, via the U.S. Fish and Wildlife Service (USFWS), and the State of Hawai‘i (collectively, the Co-Trustees). The Co-Trustees work cooperatively and consult to administer the Monument. The Proclamation provides that the Co-Trustees shall develop a management plan for the region, based upon the draft management plan developed during the sanctuary designation process. The management plan will include provisions for coordinated permitting, research, education, enforcement, cultural practices, and other management related activities. In December 2006, Governor Lingle and the Secretaries of Commerce and the Interior signed a Memorandum of Agreement (MOA) that outlined the roles and responsibilities for the Co-Trustee agencies for coordinated conservation and management of the Monument. The MOA created a governance structure for the Monument and established the Monument Management Board (MMB), which is composed of representatives from the Federal and State agency offices that carry out the day-to-day management and coordination of Monument activities. In addition to the Co-Trustee agencies, the Office of Hawaiian Affairs (OHA) is a member of the MMB and participates in management activities.



## 1.2 Scope of Work

The scope of work for this CIA includes:

- Examination of cultural and historical resources, including historic maps, and previous research reports and interviews, with the specific purpose of identifying traditional Hawaiian activities including religious practices, fishing, voyaging, gathering of plant, animal, and other resources, or agricultural pursuits as may be indicated in the historic or oral history records;
- A review of previous archaeological work that may be relevant to reconstruction of traditional land use activities; and the identification and description of cultural resources, practices, and beliefs associated with Papahānaumokuākea;
- Consultation and interviews with knowledgeable parties regarding traditional cultural practices, present and/or past uses of the area; and
- Preparation of a report summarizing the results of these research activities.

## 1.3 Physical and Natural Setting

Papahānaumokuākea Marine National Monument is located in the northwestern portion of the Hawaiian Archipelago, and encompasses the NWHI (Fig. 1). The Monument is located between approximately 22°N and 30°N latitude and 161° W and 180°W longitude, and is roughly 1,200 miles long and 100 miles wide, totaling an area of approximately 140,000 square miles.

Beginning 125 miles from the main Hawaiian Island of Kaua‘i, the ten islands and atolls are referred to as the NWHI, or in past decades as the Leeward Islands (Fig. 2). None of these islands are more than 2–3 square kilometers in size, and all but four have an average mean height of less than 10 m. As a group, they represent a classic geomorphological sequence, consisting of highly eroded high islands, near-atolls with volcanic pinnacles jutting from surrounding lagoons, true ring-shaped atolls with roughly circular rims and central lagoons, and secondarily raised atolls, one of which bears an interior hypersaline lake. The region also includes numerous submerged banks and seamounts. This geological progression along the Hawaiian Ridge continues northwestward beyond the last emergent island, Kure Atoll, as a chain of submerged platforms that makes a sudden northward bend to become the Emperor Seamounts, and extend across the entire North Pacific to the base of the Kamchatka Peninsula in Russia.

The Monument contains a wide range of marine and terrestrial habitats ranging from ocean basins more than 15,000 feet below sea level, to emergent land with hills and cliffs rising to 900 feet above sea level. These habitats include deep and shallow coral reefs, lagoons, littoral shores, dunes, dry grasslands, and shrub lands that support a wide variety

of plants and animals. More than 7,000 marine species are found in the NWHI, of which 25% are endemic (NOAA 2006). High densities of apex predators such as sharks, groupers, and jacks dominate the marine environment. These species thrive because of minimal anthropogenic stressors. Friedlander et al. (2005) noted that the NWHI are one of the few large-scale, intact predator dominated reef ecosystems in the world. The physical isolation of the Hawaiian Archipelago explains the relatively low species diversity and high endemism levels of its biota (DeMartini and Friedlander, 2004) and the direction of flow of surface waters explain biogeographic relationships between the NWHI and other sites such as Johnston Atoll to the south as well as patterns of endemism and population structure and density of reef fish within the archipelago (DeMartini and Friedlander, 2006).

The majority of the Monument consists of deep pelagic waters that surround the island platforms. At least 13 banks lie at depths between 100 and 1,300 feet (30 and 400 meters) within the Monument, providing important habitat for bottomfish and lobster species, although only a few of these banks have been studied in any detail (Kelley and Ikehara, 2006). These waters represent important deep water foraging grounds for endangered Hawaiian monk seals, as well as a spatial refugium for pelagic fishes such as tunas and their allies that are currently in declared states of overfishing throughout the Pacific region.

Scientists using deep-diving submersibles have recorded the presence of deep-water precious coral beds within the Monument at depths of 1,200-1,330 feet (365–406 m); these include ancient gold corals whose growth rate is now estimated to be only a few centimeters every hundred years and whose ages may exceed 2,500 years (Roark et al., 2006). At depths below 1,640 feet (500 meters), a diverse community of octocorals and sponges flourish. These deepwater sessile animals prefer hard substrates devoid of sediments (Baco-Taylor et al., 2006). Even deeper yet, the abyssal depths of the Monument, while harboring limited biomass, are home to many poorly documented fishes and invertebrates with remarkable adaptations to this extreme environment. The deep-waters are also important insofar as they support an offshore mesopelagic boundary community (Benoit-Bird et al. 2002), a thick layer of pelagic organisms that rests in the deep ocean (1,300-2,300 feet or 400–700 m) during the day, then migrates up to shallower depths (from near zero to 1,300 feet or 400 m) at night, providing a critical source of nutrition for open-ocean fishes, seabirds, and marine mammals. Overall, the fauna of the Monument's waters below standard SCUBA diving depths remains poorly surveyed and documented, representing an enormous opportunity for future scientific research in a system largely undisturbed by recent trawling or other forms of resource extraction.

The marine and coastal areas of the Monument are home to several species of marine mammals. Over 20 species of whales and dolphins are found in the Monument, of which 6 species are listed as endangered or threatened under the federal Endangered Species Act. The NWHI support the majority of the critically endangered Hawaiian monk seal population. Additionally, 90% of the Hawaiian green turtles nest in these islands.

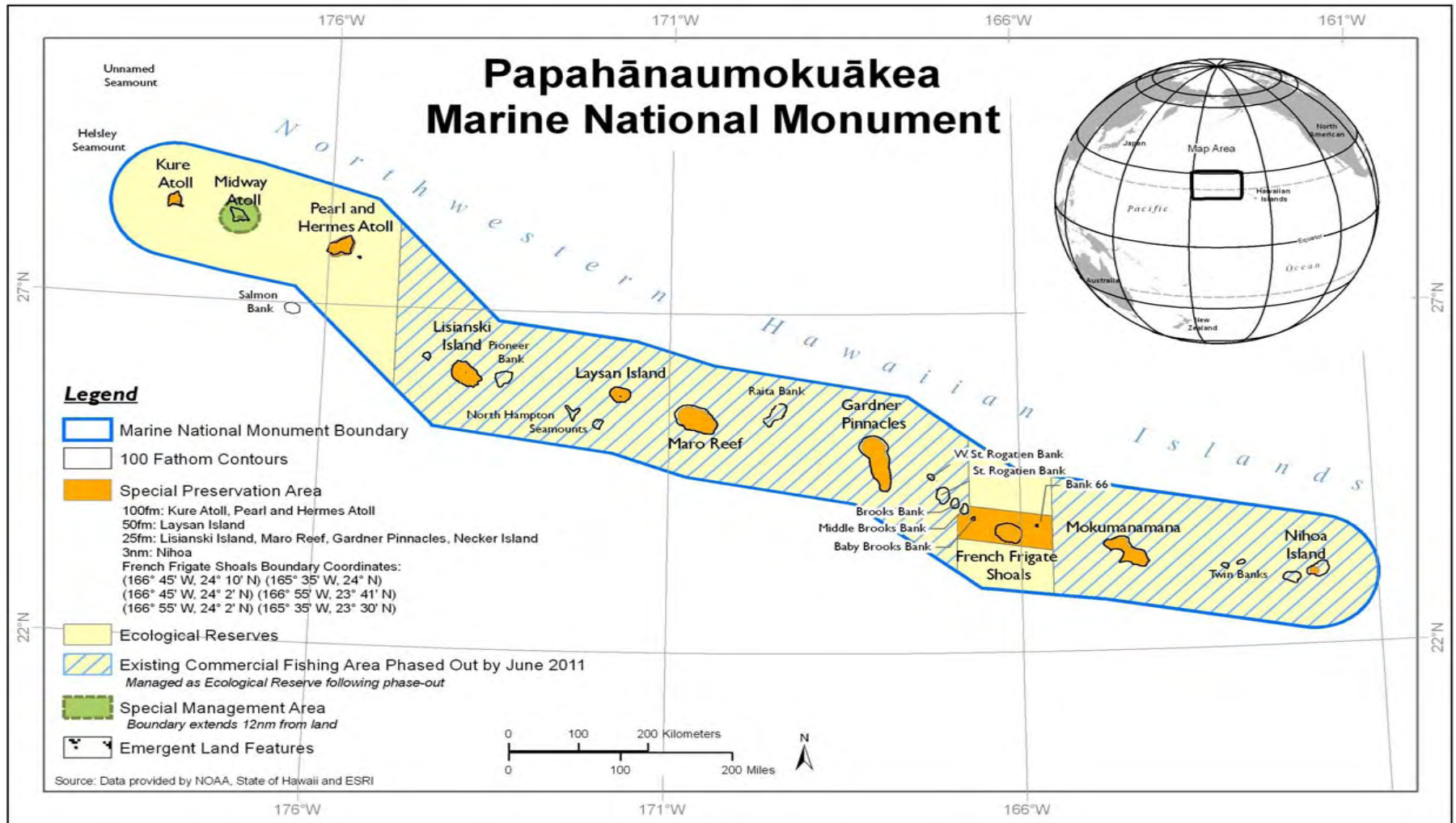
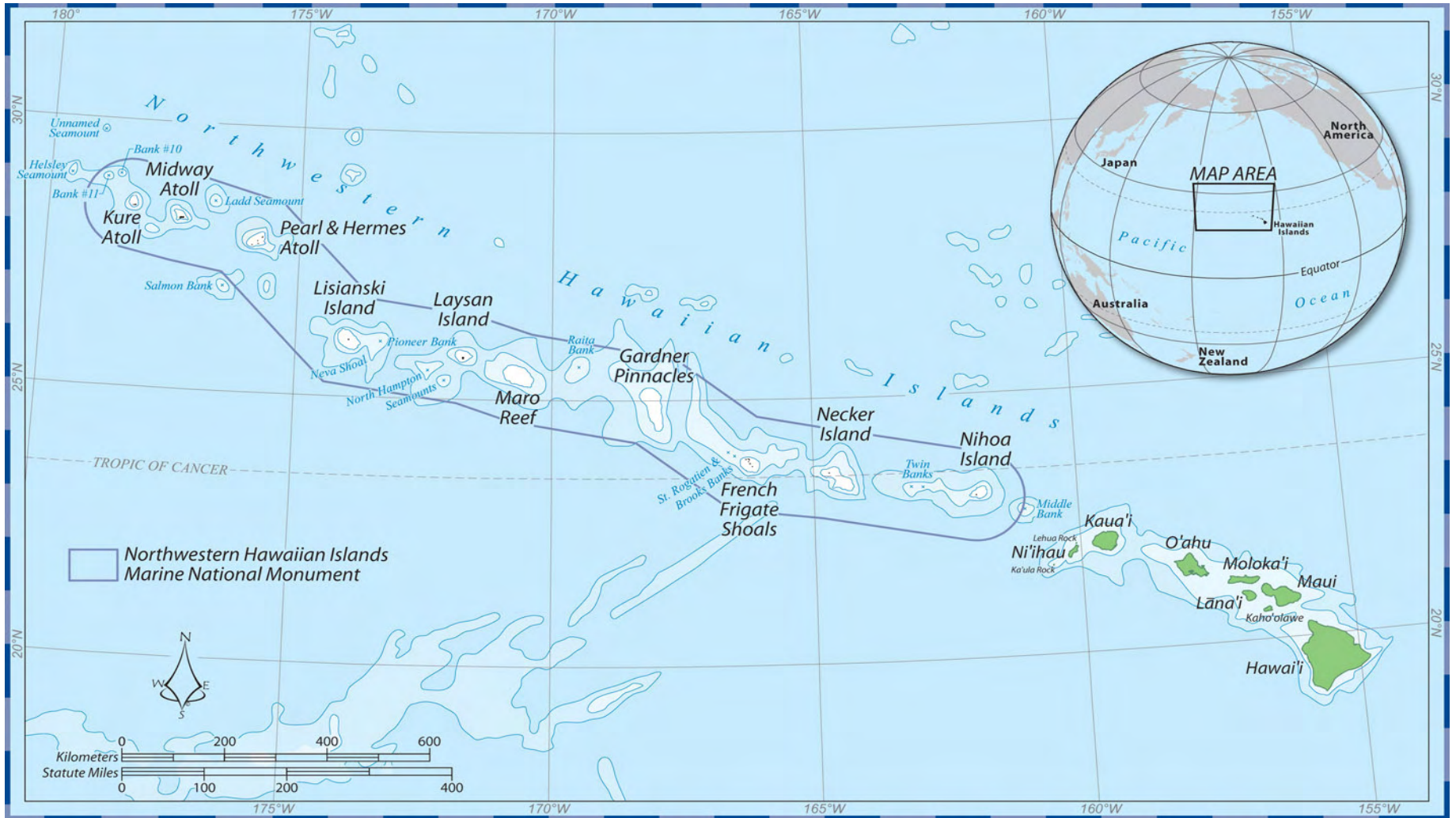


Figure 1. Papahānaumokuākea Marine National Monument Management Area



**Figure 2.** Papahānaumokuākea Marine National Monument Boundary

The rates of marine endemism in the NWHI are unparalleled in the world. In addition, the mass of apex predators in the marine system is simply not seen in areas subject to higher levels of human impact. The Monument represents one of the last unspoiled marine wilderness areas remaining on the planet. The sheer isolation of the islands, 3,000 kilometers from the nearest continent, causes them to function as a miniature evolutionary universe. This has resulted in a phenomenally high degree of endemism – for marine fishes alone endemics comprise over 50 percent of the population in terms of numerical abundance in the northernmost atolls. In addition, Papahānaumokuākea is a critically important habitat for in-situ conservation of twenty-three endangered or threatened species, many which are listed as species of global concern.

In contrast to its marine systems, the terrestrial area of the Monument is comparatively small but supports significant endemic biodiversity. This includes six species of endemic plants, including a palm, and four species of endemic birds, including remarkably isolated species such as the Nihoa finch, Nihoa millerbird, Laysan finch, and Laysan duck, one of the world's rarest ducks. In addition, over 14 million seabirds nest on the tiny islets in the chain, including 99 % of the world's Laysan albatrosses and 98 % of the world's black-footed albatrosses, making it the world's largest tropical seabird rookery in the world. Although still poorly documented, the terrestrial invertebrate fauna also shows significant patterns of precinctive speciation, with endemic species present on Nihoa Island, Mokumanamana Island, French Frigate Shoals, Laysan Island, Lisianski Island, Pearl and Hermes Atoll, and Kure Atoll.

## **2.0 TRADITIONAL AND HISTORIC BACKGROUND**

### **2.1 Cultural Setting**

More than 1,500 years ago, Polynesian voyagers arrived in the Hawaiian Archipelago, the Polynesian Triangle's most northern point, where they found islands filled with all the natural resources needed to sustain a vibrant society, from fertile soil to reefs rich with fish. Over the next millennia, Native Hawaiians, the descendents of the first Polynesians who discovered Hawai'i, would alter the islands' landscapes, creating agricultural terraces along the hillsides; extensive water paddies for their staple food, kalo (taro), in the valleys; and impressive fishponds over the shallow reefs.

The first discoverers of the Hawaiian Archipelago, Native Hawaiians inhabited these islands for thousands of years prior to Western contact. During this time, Native Hawaiians developed complex resource management within these islands. Native Hawaiians continue to maintain their strong cultural ties to the land and sea and continue to understand the importance of managing the islands and waters as inextricably connected to one another (Beckwith 1951; Lili'uokalani 1978). Poetically referred to as ke kai popolohua mea a Kāne (the deep dark ocean of Kāne), the ocean was divided into numerous smaller divisions and categories, beginning from the nearshore to the deeper pelagic waters (Malo 1951). Likewise, channels between islands were also given names and served as connections between islands, as well as a reminder of their larger oceanic history and identity.

More specifically the ocean played an important role to Native Hawaiians as it was used for resources and physical and spiritual sustenance in their everyday lives. In Hawaiian traditions, the NWHI are considered a sacred place, a region of primordial darkness from which life springs and spirits return after death (Kikiloi, 2006). Much of the information about the NWHI has been passed down in oral and written histories, genealogies, songs, dance, and archaeological resources. Through these sources, Native Hawaiians are able to recount the travels of seafaring ancestors between the NWHI and the main Hawaiian Islands. Hawaiian language archival resources have played an important role in providing this documentation, through a large body of information published over a hundred years ago in local newspapers (e.g., *Kaunamano 1862 in Hoku o ka Pakipika*; *Manu 1899 in Ka Loea Kalai‘aina*; *Wise 1924 in Nupepa Kuoko‘a*). In Hawaiian *mo‘olelo* (stories, historical narratives, mythologies) there are many of versions of the epic of Pele and Hi‘iaka. In one account by N.B. Emerson, Pele migrated from Kuaihelani to Hawai‘i to escape conflict between her and her sister Nāmakaokaha‘i, a deity of the sea. Their journey led them through the Northwestern Hawaiian Islands. In the Emerson version, Pele first stopped at the island of Nihoa and decided to leave Kāneapua, her younger brother, behind. Pele’s journey continued down the island chain from place to place, until she found comfort in the pit of Halema‘uma‘u crater on the island of Hawai‘i. These travels of Pele and her family are recognized as the migration of gods to Hawai‘i and each version of the *mo‘olelo* gives us important information about the cultural significance of these islands in the northwest.

*... ‘O Nihoa ka ‘āina a mākou i pae mua aku ai  
 Lele a‘e nei mākou kau i uka o Nīhoa  
 ‘O ka hana nō a ko‘u pōki‘i o Kāneapua  
 ‘O ka ho‘oli ka ihu o ka wa‘ a nou i ke kai  
 Waiho anei ‘o Kamohoali‘i iā Kāneapua i uka o Nīhoa*

**Translation:**

... Nīhoa is the first land that we disembark upon  
 We land on the shore of Nīhoa  
 Then the charge that was given to my brother Kāneapua  
 Was to keep the stern of the canoe positioned towards the sea  
 Then Kamohoali‘i left Kāneapua in the uplands of Nīhoa (Tsuha 2007).

More recent ethnological studies (Maly 2003) highlight the continuity of Native Hawaiian traditional practices and histories in the NWHI. Only a fraction of these have been recorded, and many more exist in the memories and life histories of *kūpuna* (elders). Native Hawaiians made detailed observations of the oceanic environment, its interrelation to the terrestrial environment, seasonal and lunar patterns, and species life cycles, and used this information to develop and conserve their resources (Kamakau 1976; Malo 1951; Beckwith 1951). *Kapu*, or restrictions, on resource extraction were implemented based on these ecological understandings (Pukui and Handy 1950; Handy et al. 1972). Other traditional strategies were set up to naturally enhance marine resources through increased protection, growth, and reproduction (Kikiloi 2003).



## **The Naming of Papahānaumokuākea**

The process to give a Hawaiian name to the Northwestern Hawaiian Islands Marine National Monument began during the Sanctuary designation process as an initiative of the Northwestern Hawaiian Islands Native Hawaiian Cultural Working Group. In 2006 the group chose two distinguished members of the Hawaiian community to contribute names - Uncle Buzzy Agard and Auntie Pua Kanahēle. Once the names were put forth, the Cultural Working group would select among them for an appropriate name for the Northwestern Hawaiian Islands managing entity and region.

Uncle Buzzy Agard, an esteemed kupuna and long time fisherman in the Northwestern Hawaiian Islands was instrumental in the establishment of the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve in 2000, and a long time advocate for the protection of this special place. Uncle Buzzy Agard, who is also affiliated with the Office of Hawaiian Affairs (OHA), was one of three Native Hawaiian representatives on the Reserve Advisory Council. Auntie Pua Kanahēle, is a well known and respected kumu hula, scholar, and spiritual practitioner from Hilo, Hawai‘i. Since 2003, she has been the main catalyst for the revival of cultural access trips to the Northwestern Hawaiian Islands in partnership with the voyaging canoe Hōkūle‘a.

The names offered by both Auntie Pua and Uncle Buzzy were brought to the Cultural Working Group in September 2006. Other names were also offered by Keoni Kuoha from the Kamakākūkalani, U. H. Center for Hawaiian Studies and by Ka‘i‘ini Kaloi of the Department of Interior’s Office of Hawaiian Relations. Three subsequent meetings were held to discuss the names, their meanings and purpose. On January 4, 2007 the group selected Papahānaumokuākea.

The Northwestern Hawaiian Islands Native Hawaiian Cultural Working Group is comprised of members with long standing interest and involvement in the region. Members come from varied relevant backgrounds, and include academic scholars, teachers, cultural practitioners, community activists, and resource managers that have experience in working directly with issues concerning the Northwestern Hawaiian Islands. Representatives from the National Oceanic Atmospheric Administration (NOAA), U.S. Fish and Wildlife Service (USFWS), Office of Hawaiian Relations, State of Hawai‘i’s Department of Land and Natural Resources (DLNR), Kaho‘olawe Island Reserve Commission (KIRC), and Office of Hawaiian Affairs (OHA) were involved in the meetings and discussions that led up to the final decision.

### ***The meaning of the name***

The name Papahānaumokuākea (pronounced Pa-pa-HA-now-mo-ku-AH-kay-uh) comes from an ancient Hawaiian tradition concerning the genealogy and formation of the Hawaiian Islands. Papahānaumoku (who is personified in the earth) and Wākea (who is personified in the expansive sky) were two of the most recognized ancestors of our people. Their union resulted in the creation or “birthing” of the entire archipelago. “Papa” which means “foundational earth,” provides the imagery of the numerous low flat islands that stretch across into the northwest. “Ākea” provides the imagery of the “expanse – of

space.” From Mauna “Ākea” on Hawai’i Island to the low flat “Papa” of the northwest, the physical features define our homeland and Hawaiian identity. The preservation of these names, together, as Papahānaumokuākea, strengthens Hawaii’s cultural foundation and grounds us to an important part of our historical past.

Papahānaumokuākea is a name that will encourage abundance and energize the continued procreative forces of earth, sea, and sky. It reminds us that it is spiritual inspiration that supports the physical world. Papahānaumokuākea will help to continue life for everything that pro-creates, gives birth, a continuum, everything that is part and parcel of our world, the Hawaiian archipelago.

## **2.2 Historical Period**

By the time of Western European contact with the Hawaiian Islands, little was collectively known about the NWHI by the majority of the population, as relatively few individuals traveled to these remote islands and had seen them with their own eyes, except families from Kaua’i and Ni’ihau who voyaged to these islands to perpetuate subsistence fishing practices (Maly 2003). Within the next century, a number of expeditions were initiated by Hawaiian ali’i to visit these islands and bring them under Hawaiian political control and ownership. The accounts of these historical expeditions were published in great detail in the Hawaiian newspapers from 1857 through 1894, as they related to each visit.

Contact between the main Hawaiian islands and the NWHI seems to have slowed for a period until the 19th century, when Hawaiian monarchs exhibited a strong interest in reuniting the entire Hawaiian Archipelago by consolidating the NWHI into the Kingdom of Hawai’i. Title to the islands and waters of the NWHI was vested in the Kingdom Hawai’i throughout the 1800s (Mackenzie and Kaiama 2003). In 1822, Queen Ka’ahumanu organized and participated in an expedition to locate and claim Nihoa Island under the Kamehameha Monarchy. In 1856, Nihoa was reaffirmed as part of the existing territory of Hawai’i by authority of Alexander Liholiho, Kamehameha IV (March 16, 1856 Circular of the Kingdom of Hawai’i). The following year, King Kamehameha IV voyaged to Nihoa and then returned to Honolulu. He instructed Captain John Paty on the vessel Manuokawai to explore the rest of the northwestern region to annex any lands discovered during the expedition. Paty traveled to Nihoa, Mokumanamana, Gardner, Laysan, Lisianski, and Pearl and Hermes. Later in 1857, the islands of Laysan and Lisianski were declared new lands to be included into the domain of the Kingdom (Kingdom of Hawai’i 1857).

In 1885, the most famous visit by Hawaiian royalty was made by then princess Lydia Lili’uokalani and her 200-person party who visited Nihoa on the ship Iwalani. In 1886, King David Kalakaua, through Special Commissioner Colonel James Harbottel annexed Kure Atoll (Ocean Island) and announced formal possession of the island (Harbottel-Boyd 1886). In 1893, Queen Lydia Lili’uokalani was overthrown by the self-proclaimed provisional government, with the assistance of U.S. Minister John L. Stevens. In 1898, the archipelago, inclusive of the certain lands in the NWHI, was collectively ceded to the United States through a domestic resolution, called the “New Lands Resolution”.

The *ea*, (sovereignty, life), and *kuleana* (responsibility) for the entire Hawaiian Archipelago continues to exist in the hearts and minds of many Native Hawaiians. The “Apology Bill” (U.S. Public Law 103-150), a joint Resolution of Congress that was signed by the President in 1993, recognizes that “the health and well-being of the Native Hawaiian people is intrinsically tied to their deep feelings and attachment to the land.” The Apology Bill “apologizes to Native Hawaiians on behalf of the people of the United States for the overthrow of the Kingdom of Hawaii on January 17, 1893 with the participation of agents and citizens of the United States, and the deprivation of the rights of Native Hawaiians to self-determination.”

### **2.3 Contemporary Connections to the Northwestern Hawaiian Islands**

Today, Native Hawaiians remain deeply connected to the NWHI on genealogical, cultural, and spiritual levels. Kaua‘i and Ni‘ihau families voyaged to these islands indicating that they played a role in a larger network for subsistence practices into the 20th century (Tava and Keale 1989; Maly 2003). The NWHI as a region qualifies as an important traditional place of Native Hawaiian culture worthy of global recognition. The Monument includes a collection of *wahi pana* (places of great cultural significance and practice) (OHA, *wahi pana* list) that are linked together throughout the expanse of the ten main atolls and islands. *Wahi pana* benefit all Hawaiian people - past, present and future-born, as well as inspiring generations of all cultures. The *wahi pana* and geography of this remote area includes storied names that give connotative value and meaning. Much of the cultural information about the NWHI has been passed down in oral and written histories, genealogies, songs, dance, and via archaeological sites. Through these sources, Native Hawaiians are able to recount the travels of seafaring ancestors between the NWHI and the main Hawaiian Islands in centuries past. Hawaiian language archival resources have played an important role in providing this documentation, through a large body of information published more than a hundred years ago in local newspapers. More recent ethnological studies have highlighted the continuity of Native Hawaiian traditional practices and histories in the NWHI. Only a fraction of these have been recorded, and many more exist in the memories and life histories of *kūpuna* (elders).

In recent years, Native Hawaiian cultural practitioners voyaged to the NWHI to honor their ancestors and perpetuate traditional practices. As discussed above, in 1997, Hui Mālama I Nā Kāpuna o Hawai‘i Nei repatriated sets of human remains to Nihoa and Mokumanana that were collected by archaeologists in the 1924-25 Bishop Museum Tanager Expeditions (Ayau and Tengan 2002). In 2003, a cultural protocol group, Na Kupū‘eu Paemoku, traveled to Nihoa on the voyaging canoe Hōkūle‘a to conduct traditional ceremonies. In 2004, Hōkūle‘a sailed over 1,200 miles to the most distant end of the island chain to visit Kure Atoll as part of a statewide educational initiative called “Navigating Change.” In 2005, Na Kupū‘eu Paemoku sailed to Mokumanamana to conduct protocol ceremonies on the longest day of the year, June 21, the summer solstice. Cultural practitioners (Kamakakūokalani Center for Hawaiian Studies and the Edith Kanaka‘ole Foundation) continued this practice in 2006 and in 2007.

## 2.4 Cultural Access for Native Hawaiian Practices

Presidential Proclamation 8031 recognizes that the NWHI has great cultural significance to Native Hawaiians and provides a means to issue permits for Native Hawaiian practices. The Proclamation defines these practices as cultural activities conducted for the purposes of perpetuating traditional knowledge, caring for and protecting the environment, and strengthening cultural and spiritual connections to the Northwestern Hawaiian Islands that have demonstrable benefits to the Native Hawaiian community. This may include, but is not limited to, the non-commercial use of Monument resources for direct personal consumption while in the Monument. Monument goals and objectives reinforce this position and the MMP includes several activities that support access and use of the NWHI for Native Hawaiian practices.

## 3.0 MONUMENT MANAGEMENT PLAN

The Monument Management Plan (MMP) was developed cooperatively by the State of Hawai'i Department of Land and Natural Resources (DLNR), Office of Hawaiian Affairs (OHA), the U.S. Fish and Wildlife Service (FWS), and National Oceanic and Atmospheric Administration (NOAA), and was based on the earlier draft NOAA Sanctuary management plan. The MMP outlines current and future planning, administrative, and field activities to enhance the conservation and protection of the natural, cultural, and historic resources in the NWHI.

The draft MMP was available for public review and comment for 90 days from April-July, 2008. The MMP consists of 22 Action Plans that describe the wide-ranging and coordinated management process necessary to achieve the vision, mission, and guiding principles, and desired outcomes of the Monument. The mission of the Monument is to: "Carry out seamless integrated management to ensure ecological integrity and achieve strong, long-term protection and perpetuation of NWHI ecosystems, Native Hawaiian culture, and heritage resources for current and future generations."

The vision, mission, guiding principles, and goals outlined in the MMP honor and protect the significance of the NWHI for Native Hawaiians. Monument Goal no. 6 specifically is written to: "support Native Hawaiian practices consistent with long-term conservation and protection."

The MMP includes a Native Hawaiian Cultural and History Action Plan, and a Native Hawaiian Community Involvement Action Plan, with the goal to increase the understanding and appreciation of Native Hawaiian cultural values related to Papahānaumokuākea Marine National Monument.

The desired outcome for the Native Hawaiian Cultural and History Action Plan is to:

**"Increase the understanding and appreciation of Native Hawaiian histories and cultural practices related to Papahānaumokuākea Marine National Monument and effectively manage resources for their cultural, educational and scientific value".**

Five strategies have been identified to achieve this outcome:

**1: Identify and prioritize scientific and Native Hawaiian cultural research needs.**

- 1.1: Identify and research needs that can be accomplished through anthropological, archaeological, historical, and Hawaiian cultural methods.
- 1.2: Develop cultural research priorities alongside associated management challenges and opportunities.

**2: Conduct, support, and facilitate Native Hawaiian cultural and historical research of the NWHI over the life of the plan.**

- 2.1: Continue to compile information and conduct new cultural and historical research about the NWHI.
- 2.2: Support Native Hawaiian cultural access to ensure cultural research needs are met.
- 2.3: Facilitate cultural field research and cultural education opportunities annually.
- 2.4: Convene a Native Hawaiian nomenclature working group.
- 2.5: Incorporate cultural resources information into the Monument Information System.
- 2.6: Continue to facilitate Native Hawaiian cultural access.
- 2.7: Establish agreements with local universities and museums to address possible curation, research, use, return, and repatriation of collections.

**3: Increase cultural resource management capacity across MMB agencies.**

- 3.1: Assess Monument cultural resource capacity.
- 3.2: Engage Native Hawaiian practitioners and cultural experts and the Native Hawaiian Cultural Working Group in the development and implementation of the Monument's management activities.
- 3.3: Increase knowledge base of Native Hawaiian values and cultural information through "in-reach" programs for resources managers.
- 3.4: Identify and integrate Native Hawaiian traditional knowledge and management concepts into Monument management.

**4: Plan, develop, and implement a Monument Cultural Resources Program.**

- 4.1: Prepare a Cultural Resources Program Plan.
- 4.2: Develop and implement specific preservation plans, as appropriate, to protect cultural sites and collections on Nihoa and Mokumanamana.
- 4.3: Initiate implementation of the Monument Cultural Resources Program.

**5: Provide cultural outreach and educational opportunities to serve the Native Hawaiian community.**

- 5.1: Integrate Native Hawaiian values and cultural information into general outreach and education programs.
- 5.2: Develop a culturally based strategy for education and outreach to the Native Hawaiian community.

5.3: Integrate Native Hawaiian values and cultural information into the Monument permittee education and outreach program.

The desired outcome of the Native Hawaiian Community Involvement Action Plan is to:

“Engage the Native Hawaiian community in active and meaningful involvement in Papahānaumokuākea Marine National Monument management.

Three strategies have been identified to achieve this outcome.

**1: Regularly involve the Native Hawaiian community.**

1.1: Formalize, expand, and convene the Native Hawaiian Cultural Working Group.

1.2: Engage the Native Hawaiian Cultural Working Group in the development of a Monument Cultural Resource Program.

1.3: Establish an annual cultural resources exchange.

**2: Develop and annually maintain partnerships with Native Hawaiian organizations and institutions.**

2.1: Continue to expand and explore opportunities to partner with institutions serving Native Hawaiians.

**3: Identify and integrate Native Hawaiian traditional knowledge and management concepts into Monument management annually.**

3.1: Engage the Native Hawaiian community to identify how traditional knowledge will be integrated into Monument activities.

3.2: Use and integrate Native Hawaiian traditional knowledge in Monument management activities.

The development of the MMP included extensive consultation with the Native Hawaiian community and Native Hawaiian cultural practitioners. Initial consultations with the Native Hawaiian community occurred at the inception of the designation of the NWHI as a Coral Reef Ecosystem Reserve in 2000 and continued during the process to designate this area as a sanctuary through the National Marine Sanctuary Program. During this process a Native Hawaiian Cultural Working Group (CWG) was formed as a part of the Reserve Advisory Council. Over 200 individuals in the Native Hawaiian community were consulted in the development of the draft sanctuary management plan. The formation of the CWG increased Native Hawaiian involvement in the planning process for the Monument. The CWG and additional Native Hawaiian practitioners were consulted by DLNR during the development of the State’s NWHI Marine Refuge. The consultation resulted in a recommendation that cultural importance should be weighed equally with biological importance during the review of proposed activities within the NWHI. This recommendation was subsequently incorporated into the MMP and the Co-Trustees joint permitting process.



In summary, the implementation of the MMP will expand the current Monument efforts to incorporate Native Hawaiian traditional and customary cultural and religious practices and research needs into the day-to-day management of the Monument. Native Hawaiian cultural research needs will continue to be identified and prioritized through consultation with OHA and other Native Hawaiian institutions and organizations. The MMB will continue to assess capacity needs to support cultural resource management activities. Native Hawaiian traditional ecological knowledge and management concepts will continue to inform management decisions in the Monument.

#### **4.0 ARCHAEOLOGICAL BACKGROUND**

Physical remnants of wahi kūpuna (ancestral places), Hawaiian language archival and oral resources, and historical accounts provide evidence of the various past uses of the NWHI and the surrounding ocean by Native Hawaiians (Kaunamano 1862 in Hoku a ka Pakipika; Manu 1899 in Ka Loea Kalaiaina; Wise 1923 in Nupepa Kuokoa). Evidence indicates that the area served as a home and a place of worship for centuries. It is posited that the first Native Hawaiians to inhabit the archipelago and their descendants frequented Nihoa and Mokumanamana for at least a 500- to 700-year period (Emory 1928; Cleghorn 1988; Irwin 1992). They brought many of the skills necessary to survive with them from their voyaging journeys throughout Polynesia.

The impressions left by Hawaiian ancestors can be seen through the distinctive archaeology of Nihoa and Mokumanamana. The heiau (place of worship) and platform foundations with upright stones found on both Nihoa and Mokumanamana resemble other Hawaiian wahi pana on the islands of Maui at Haleakalā, Hawai‘i Island on top of Mauna Kea and the island of Kaua‘i Kea Ali‘i heiau in Waimea (Cleghorn 1988; Meech and Warther 1993). These sites all correspond to the important journey of the sun especially Mokumanamana. Mokumanamana is often referred to as the Tropic of Cancer Island because of its once unique location on the Tropic of Cancer (Meech & Warther 1993). Mokumanamana may reflect the hypothesis of the role of geography in the development of Polynesian Tropic astronomy (Meech and Warther 1993). These sites are not only amazing examples of unique traditional Hawaiian architectural forms of stone masonry work, but they also show similarities to samples from the inlands of Tahiti (Emory 1928). The structures are some of the best preserved early temple designs in Hawai‘i, and have played a critical role in understanding Hawai‘i’s strong cultural affiliation with the rest of Polynesia, and the significant role of Native Hawaiians in the migratory history and human colonization of the Pacific (Cleghorn 1988).

Archaeological surveys on Nihoa and Mokumanamana have documented numerous archaeological sites and cultural material (Emory 1928; Cleghorn 1988; Ziegler 1990; Graves and Kikiloi, 2006.). Nihoa Island (Site # 92-01-89) and Mokumanamana (Necker Island) (Site # 91-01-53) are both listed on the National Register of Historic Places, with over 140 archaeological sites documented thus far on these two islands (see Fig. 3 & 4). Though quite barren and seemingly inhospitable to humans, the number of cultural sites they support is testimony to their religious importance, occupation and use prior to European understanding.

Nihoa is unlike any of the other Northwestern Hawaiian Islands (NWHI) with its 900 foot cliffs, basalt rocky surface, and tiny beach. This small island is about 1 square km (171 acres) and is at the southeastern end of the NWHI chain. More than 90 cultural sites have been recorded, (66 by the Tanager Expedition (Emory 1928) and 22 in 1984 (Cleghorn 1984) and Graves and Kikiloi, 2006 in progress. The sites included; habitation sites such as massive platforms; rockshelters, terraces and enclosures; heiau that are small terraces with single linear arrangement of upright dike stones and numerous pieces of branch coral laying on surface; extensive agricultural terraces that cover over 10% of the island's land surface; and burial sites (Cleghorn 1984).

Various artifacts have been collected, including fishhooks, sinkers, cowry shell lures, hammerstones, grindstones, adzes, and coral rubbing stone (Emory 1928;38-50). Many of the mea makamae (cultural objects) and structures associated with these wahi pana (sacred places) are similar to many found throughout the Main Hawaiian Islands. This island also has sufficient soil development for extensive agriculture, along with stone terraces that suggest expenditure and investment in agricultural food production. Sweet potato would have been the predominant crop cultivated given its hardy nature with the ability to produce 64 tons annually (Cleghorn 1988). It is believed that the abundance of natural resources fish, shell fish, birds, and bird eggs and at least three freshwater seeps may have supported as many as 100 people between A.D. 1000 and A.D. 1700 on semipermanent or brief visits (Cleghorn 1988).

Mokumanamana is also known for its numerous wahi pana and mea makamae. Fifty-five cultural places are known, of which 33 are religious, 17 are shelter caves, and 2 sites are of unknown function, making it the highest concentration of such religious sites found anywhere in the Hawaiian Archipelago. All of these sites are strategically placed and act as physical reminders of the important spiritual role these sites play in Hawaiian culture.

Because the island is small, dry, and has little soil suitable for agriculture, Hawaiians probably traveled to Mokumanamana from Nihoa and other Hawaiian Islands primarily for religious purposes. It has also been theorized that the shrines, which line the spine of the island, may have been used for navigational purposes during the great trans-pacific voyages of the early Hawaiians and Polynesians. In addition to constructing shrines, Hawaiians made ki'i pohaku or stone human images while on Mokumanamana. More than 11 of these stone ki'i are known. Other activities that took place on the island are indicated by the production and use of stone adzes, grindstones, stone bowls, and fishing tools.

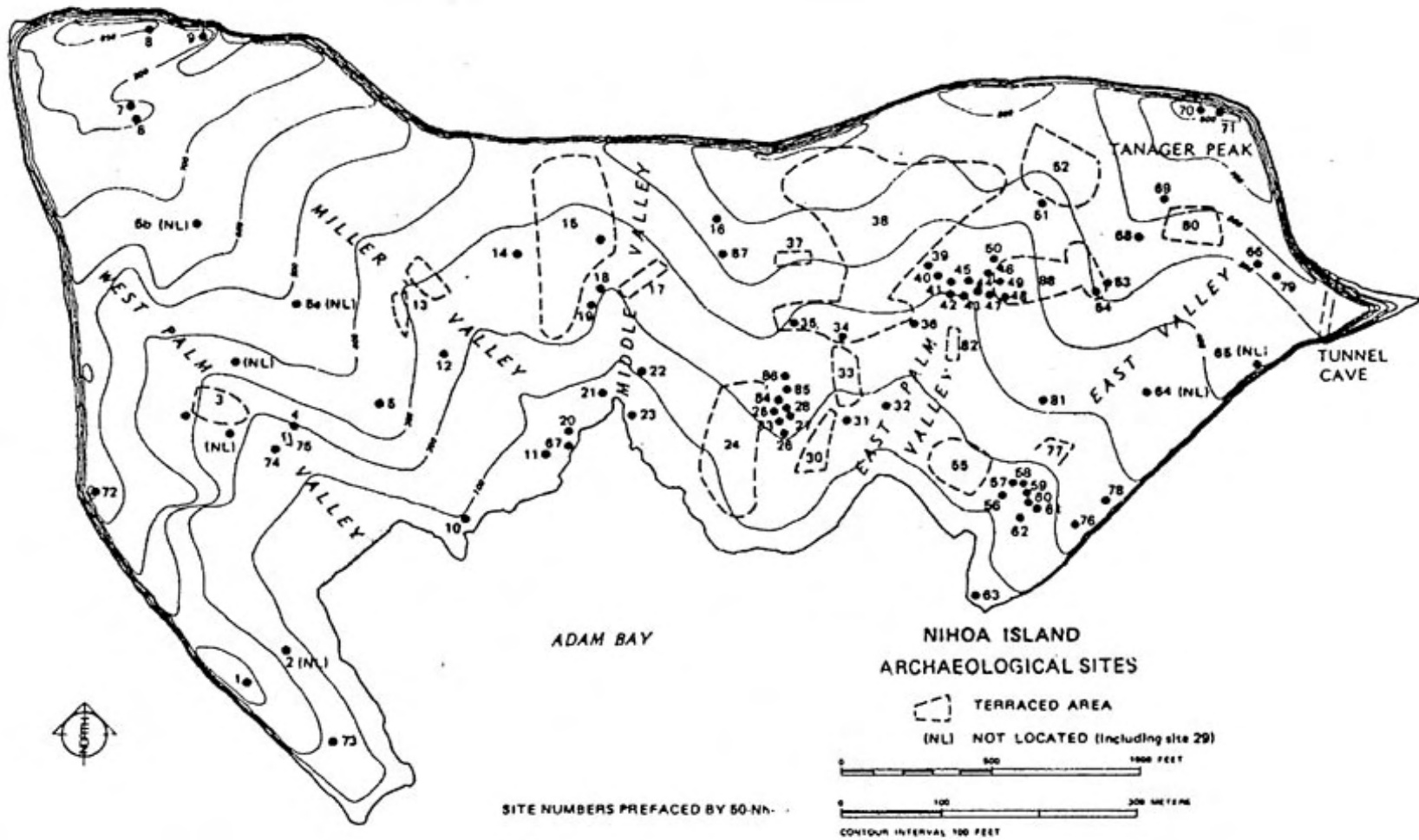


Figure 3. Map of Nihoa Island, showing archaeological sites (Emory 1928)

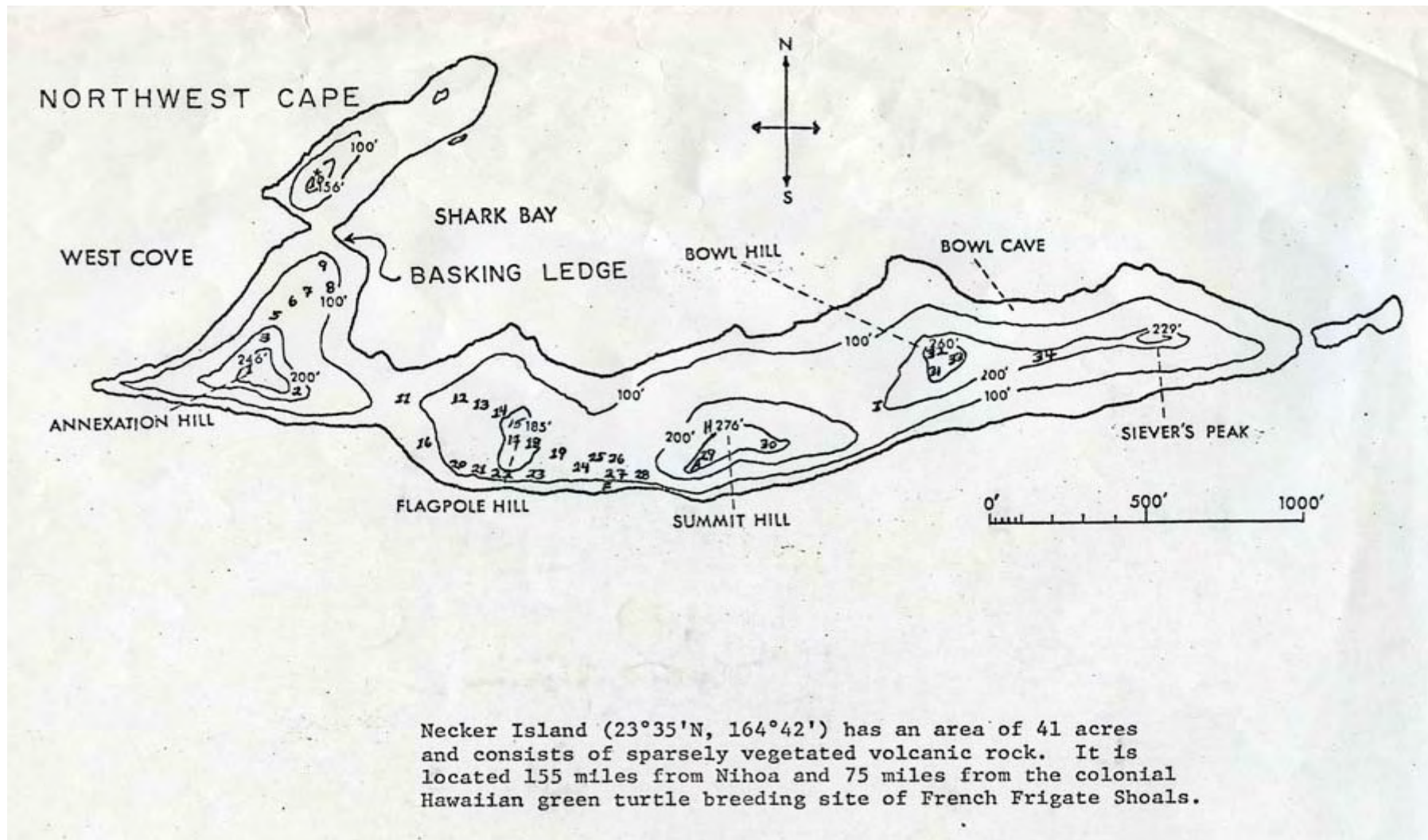
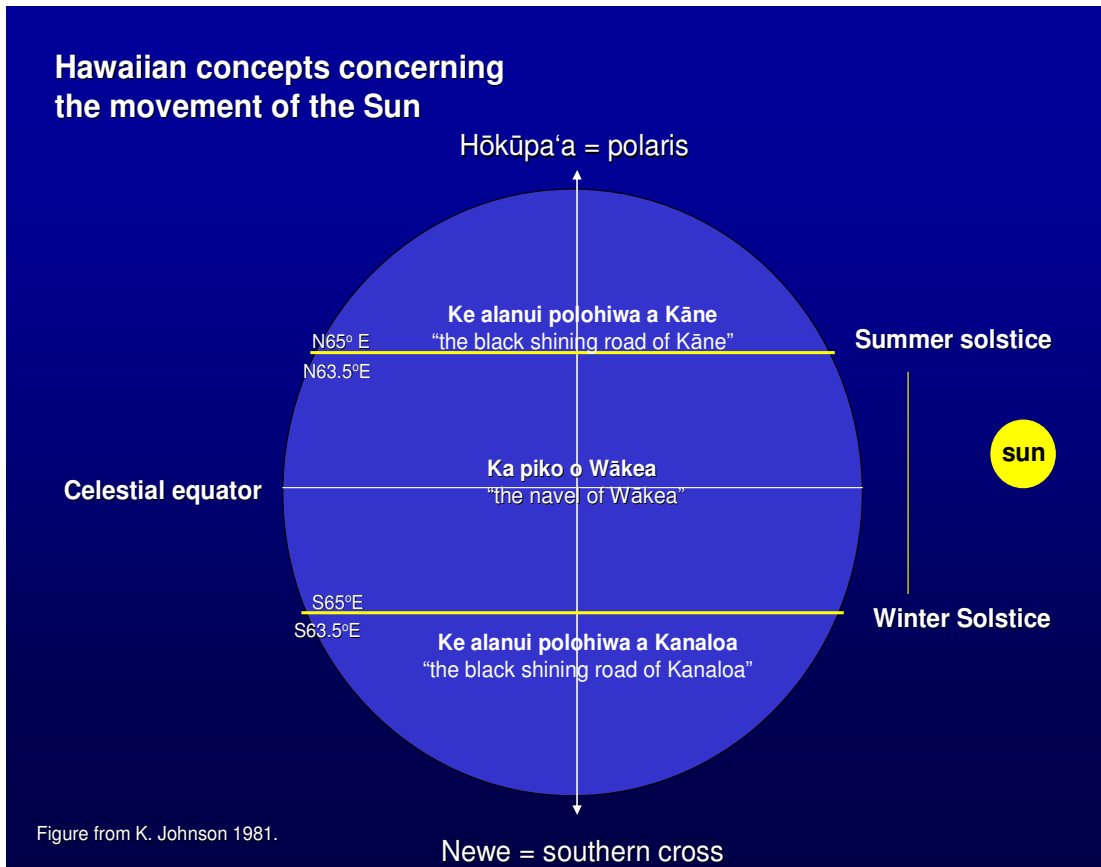


Figure 4. Map of Mokumanamana, Showing Archaeological sites (Emory 1928)

It is believed that Mokumanamana played a central role in Hawaiian ceremonial rites and practices a thousand years ago because it was directly in line ( $23^{\circ} 34.5'$  N latitude) with the rising and setting of the equinoctial sun along the Tropic of Cancer (Liller 2000). Research shows that the Tropic of Cancer is slowly decreasing by about  $1'$  every 128 years. In Hawaiian, this path is called *Ke alanui polohiwa a Kāne* or the black shining road of Kāne. Because Mokumanamana sits on the northernmost limit of the path the sun makes throughout the year, it sits centrally on an axis between two spatial and cultural dimensions: *pō* (darkness, creation, and afterlife) and *ao* (light, existence) (Fig.5).



**Figure 5. Hawaiian concepts concerning the movement of the sun (K. Johnson 1981)**

During the summer solstice (the longest day of the year), the sun travels slowest across the sky on this northern passage, “standing still” directly over Mokumanamana. Liller also notes it is no accident that nine out of 34 heiau are aligned with the rising winter solstice and the setting summer solstice (Liller 2000). The early Hawaiians knew that the sun would make its way up north and pause directly overhead for only one day out of the year on the summer solstice June 21st. There is mythological and ritualistic reason for this important moment on Mokumanamana it is called “Kau ka lā i ka lolo, the sun rests on the brain [it is noon; ... but formerly believed a time with great mana as a man’s aka (shadow, image) was no longer visible and was thought to have entered his sacred head]” (Pukui 1986). In Hawaiian culture when there is no visible shadow cast from a human,

that person is in direct connection with his creator, source or God he is in the image of ke Akua. The strategic concentration of ceremonial sites on this island is a reminder of the important spiritual role it plays in Hawaiian culture in channeling the creation of new life and facilitating the return to source after death.

There are no other Polynesian islands that are situated on or close to the Tropic of Cancer but on the southern end there are similar cultural sites on or very near the Tropic of Capricorn. Verin in 1969 reported six marae, four of the marae were in alignment with the winter solstice sunset on the island of Tubua'i in the Austral Islands. On the Island of Ra'ivavae 92 marae were recorded and of the 79 that were mapped 11 were astronomically oriented (Liller 2000). There are other evidence of "sun temple" sites situated near the mystical Tropic Latitudes such as Mexico, Egypt, Africa, India, and China.

In 1786, *Compte de La Pérouse*, a French explorer, visited Mokumanamana and named it "Necker Island" after Jacques Necker, the finance minister under Louis XVI. In 1857, Kamehameha IV sent Captain John Paty to claim Mokumanamana for the Kingdom of Hawai'i. His claim was contested until 1894, when the island was annexed by Hawai'i's Provisional Government.

The Tanager Expedition visited Mokumanamana in 1923-24 to conduct biological and cultural research, collecting cultural artifacts and ancestral human bones for further study. Members of the Native Hawaiian organization Hui Mālama I Nā Kūpuna O Hawai'i Nei visited Mokumanamana in 1997 to rebury ancestral human bones that were removed from the island in the 1920s.

The sites and structures on these islands are believed to be channels for the creation of new life, and facilitate Native Hawaiians' return to their spiritual source after death (Liller 2000). Several archaeological surveys have collected cultural artifacts from both of these islands which are now stored in the Bernice Pauahi Bishop Museum and the University of Hawai'i Archaeological Laboratory. The range in types of cultural artifacts stored in these collections is testimony to the various uses these islands and the surrounding oceans served for Native Hawaiians. These ancient sites on Nihoa and Mokumanamana provide important examples of how over time, they developed complex resource management systems and specialized skill sets to survive on these remote islands with limited resources (Cleghorn 1988). Given the number of religious structures definitely indicates the sacredness of these islands Emory noted, "there must have been strong religious reasons for making the dangerous journey to this isolated island" (Cleghorn 1984). As one can see that, a more comprehensive archaeological study is needed for both Nihoa and Mokumanamana. Liller suggest "I should think that since it has been 76 years since Emory visited Necker, a new more exhaustive archaeological study should be made of this fascinating little island that was once perched on the Tropic of Cancer (Liller 2000)



## 5.0 NATIVE HAWAIIAN COMMUNITY CONSULTATION

As indicated above, the development of the draft sanctuary management plan for the NWHI included extensive consultation with the Native Hawaiian community and Native Hawaiian cultural practitioners. The CWG was maintained after Presidential Proclamation 8031 established the Monument, and is now hosted by OHA. OHA worked with MMB members to convene four workshops on proposed Native Hawaiian practices in the NWHI as a part of the process to revise the draft sanctuary management plan. The outcome of these workshops provided the basis for the action plan strategies and activities outlined in the Native Hawaiian Cultural and History Action Plan of the MMP.

Several additional Native Hawaiian organizations and individuals were contacted in 2008 by DLNR to provide supplementary information regarding Native Hawaiian cultural practices and resources in the Papahānaumokuākea Marine National Monument in relation to the implementation of the MMP. Individuals and organizations that received scoping letters were identified in consultation with OHA and using the Native Hawaiian Cultural Working Group (CWG) member lists. The following organizations and individuals were contacted via consultation request letters, and/or phone calls, as well as interviews as part of the consultation process (Table 1). The individuals interviewed for this project were William Aila, Buzzy Agard, Wilma Holi, and Nolan Holi. Many other kūpuna that held the knowledge of this sacred area have past on, thanks to Kepa Maly's interviews they have left their mana'o which are also incorporated into this report. Transcripts are also incorporated from a cultural video produced by OHA in regards to the Monument.

The consultation letters sent by DLNR requested *kōkua* and guidance regarding the following aspects of the assessment:

- General history, and current and past uses of the land and marine resources in the NWHI.
- Knowledge of cultural sites that may be impacted by activities taking place in the Monument, including natural resource research activities and cultural practices and research activities.
- Knowledge of traditional gathering practices and rights in the NWHI.
- Legends and traditional uses of the NWHI.
- Referrals of kūpuna and *kama'āina* who might be willing to share their cultural knowledge of the NWHI.
- Any other cultural concerns the community might have related to Hawaiian cultural practices within or in the vicinity of the NWHI.

The responses received as a result of DLNR's solicitation of the above members of the Native Hawaiian Community in regard to the implementation of the MMP were favorable. Responses received acknowledged that the MMB were actively striving to incorporate Native Hawaiian histories and cultural practices into Monument management strategies.

Additionally, the activities and programs (undertakings) implemented by the MMP will be subject to review under the National Historic Preservation Act of 1966 (NHPA).

Specifically, Section 106 of the NHPA requires the Monument Co-Trustees agencies to take into account potential effects of MMP undertakings on historic and cultural properties. The NHPA requires consultation with Native Hawaiian organizations regarding historic properties with religious or cultural significance to the Native Hawaiian community during the Section 106 review process.

**Table 1. Community Contact Table**

Name	Affiliation
Marilyn Leimomi Khan	Association of Hawaiian Civic Clubs
Buzzy Agard	CWG/Kahea
Professor Carlos Andrade	University of Hawai‘i at Mānoa/CWG
Kēhaulani Souza	CWG/ Nāki‘i Ke Aho
Edward Halealoha Ayau	Hui Mālama I Nā Kūpuna O Hawai‘i Nei
Vicky Takamine & Wayne Kaho’onei Panoke	‘Ilio‘ulaokalani Coalition
State Historic Preservation Program - Burial Councils	Burial Councils for: <ul style="list-style-type: none"> <li>• Hawai‘i</li> <li>• O‘ahu</li> <li>• Kaua‘i/Ni‘ihau</li> <li>• Moloka‘i</li> <li>• Maui/Lana‘i</li> </ul>
Isaac & Tammy Harp	CWG
Dr. Emmett Aluli, Chair	Kaho‘olawe Island Reserve Commission
Sol Koho’ohalahala	Kaho‘olawe Island Reserve Commission
Kainani Kahaunaele	Na Kupu‘eu Paemoku
Kaliko Amona	CWG
Kamana’opono Crabbe	Na Kupu‘eu Paemoku
Kekuewa Kikilo	Kamehameha Schools/CWG/Nāki‘i Ke Aho
Nainoa Thompson	Kamehameha Schools/PVS
Kepa Maly	Kumupono Consultants
Laura Thompson	CWG
Manu Boyd	Kumu Hula
Mahealani Kama’u-Wendt	Native Hawaiian Legal Corporation
Clyde Namu’o	Office of Hawaiian Affairs
Oswald Stender	Office of Hawaiian Affairs
Kim Birnie	Papa Ola Lokahi
Professor Isabella Abbott	University of Hawai‘i at Mānoa/CWG

Professor Lilikala Kame'eleihiwa	University of Hawai'i at Mānoa/CWG
Dr. Pua Kanaka'ole Kanahahele	Edith Kanka'ole Foundation/CWG
Representative Mina Morita	Hawai'i State Legislature
State Historic Preservation Program	State Historic Preservation Office
William Aila	Lawai'a /Wai'anae Harbor Master/CWG
Wilma Holi	Hui Mālama I Nā Kūpuna O Hawai'i Nei
Nolan Holi	Lawai'a
Atwood "Maka" Makanani	Protect Kaho'olawe 'Ohana
Kai'ulani Murphy	Polynesian Voyaging Society
Kalei Tsuha	Na Kupu'eu Paemoku
Mehana Hind	Na Kupu'eu Paemoku
Keone Nunes	Cultural Practitioner

## **6.0 COMMUNITY CONSULTATION OF TRADITIONAL CULTURAL PRACTICES AND BELIEFS OF PAPA HĀNAUMOKUĀKEA A WAHI PANA (Sacred Place)**

Hawaiian culture has embraced the very essence of man living in balance with nature with their holistic view of the world and all that it encompasses. Therefore, it is difficult to dissect and separate Hawaiian culture into western terms. Many topics overlap when trying to discuss them individually. However, the best effort was put forth during this process. Discussions of traditional Hawaiian culture during the community consultation process as well as prior community consultations with Kepa Maly and OHA are incorporated throughout this section as they relate to The Papahānaumokuākea Marine National Monument. Below Kepa Maly eloquently transforms the art of Hawaiian culture into words:

In a traditional Hawaiian context, nature and culture are one and the same; there is no division between the two. The wealth and limitations of the land and ocean resources gave birth to, and shaped the Hawaiian world view. The 'āina (land), wai (water), kai (ocean), and lewa (sky) were the foundation of life and the source of the spiritual relationship between people and their environs. Every aspect of life, whether in the sky, on land, or of the waters was believed to have been the physical body-forms assumed by the creative forces of nature, and the greater and lesser gods and goddesses of the Hawaiian people. Respect and care for nature, in turn meant that nature would care for the people. Thus, Hawaiian culture, for the most part, evolved in a healthy relationship with the nature around it, and until the arrival of foreigners on Hawaiian shores, the

health and well-being of the people was reflected in the health of nature around them (Maly 2005).

### **6.1 Wahi Pana (Storied/Sacred Place)**

Papahānaumokuākea is a sacred place, the ancestral homelands of the Hawaiian people. The naming process in Hawaiian culture is a very intimate spiritual process. It is a deep connection to the past and, therefore, the ancestors. The name of a specific place reveals intimate details about the people and akua who live/lived there, the environment, cultural practices, and historical events that took place. Hawaiians believe that mana (spiritual power) is attached to a place, which increases its importance. This section will bring to life the stories of Papahānaumokuākea, in specific Nihoa and Mokumanamana. On the subject of wahi pana Edward Kanahale writes:

*As a native Hawaiian, a place tells me who I am and who my extended family is. A place gives me my history, the history of my clan, and the history of my people. I am able to look at a place and tie in human events that affect me and my loved ones. A place gives me a feeling of stability and of belonging to my family, those living and dead. A place gives me a sense of well-being and of acceptance of all who have experienced that place. The concept of wahi pana merges the importance of place with that of the spiritual. My culture accepts the spiritual as a dominant factor in life; this value links me to my past and to my future, and is physically located at my wahi pana.*

*Where once the entire Native Hawaiian society paid homage to numerous wahi pana, now we may give wahi pana hardly a cursory glance. Only when a Native Hawaiian gains spiritual wisdom is the ancestral and spiritual sense of place reactivated. Spiritual knowledge and the wahi pana are ancestrally related, thus spiritual strength connects to the ancestral guardians, or ‘aumakua. My ‘aumakua knew that the great gods created the land and generated life. The gods infused the earth with their spiritual force or mana. The gravity of this concept was keenly grasped by my ancestors: they knew that the earth’s spiritual essence was focused through the wahi pana. (Kanahale in James 1995:6)*

William Aila was asked during a video interview to describe his imagery that relates to the name Papahānaumokuākea:

*Uh, I think the imagery that you’re referring to is the—the imagery that someone on a—on a canoe or boat gets; uh, this sort of—this mating of uh, Wakea and Papahanaumoku. As you’re—as you’re traveling, and you see the island emerge from ... uh, and the emergence can be two ways. It can be an emergence from the sea, or it actually could be an emergence from the sky, yeah? But what you visualize, and the symbolism is the—the mating of the sky and the Earth, and then the ... the demonstration of life; as you get closer, you see the seabirds. Um, then as you get closer, you see the fish, the emergence of life ... the—the emergence of life from this mating, which is so clearly visible as you approach from the ocean. So it’s the most appropriate name, um ... with the correct symbolism that comes out. And anybody that sees it, immediately knows it.*

Aila elaborates on wahi pana, the sanctity of Papahānaumokuākea often referred to as the Kūpuna Islands, a place where Hawaiian ancestors emerged and then make their westward journey back. These islands are the physical manifestation of the mythical world of the Hawaiian Ancestral Godly Realm:

*... the area ... is important, because it is our ancestral—it is ... it is the physical manifestation of our ancestral connection to all of those islands, yeah, the various um ... migrations that came through. For example, in some of the Pele ... Pele oli, um ... and moolelos, you have Pele coming down from the north ... traveling through these—you know, it's all one island chain, yeah? We—we break it up, but it's all one island chain. That's one of the thi—uh, one—one of the things that's wrong with this Western thinking about, oh, we have to say northwest, and then main Hawaiian Islands. It's all one island chain. Um ... but we have these connections to this place uh, genealogical connections, as well as sort of a geological connection in that these truly are the kupuna islands. They—they are the—the first ones to have risen from the hot spot uh, moving on their journey to the west northwest, um ... being born, and then slowly dying.*

*...So these island are important for us, because number one ... this is our ancestral connections. Number two, um, we're also connected to all of the birds, all of the fish, all the marine mammals, that inhabit those waters. Uh, who are our brothers, sisters, uncles, aunties, cousins, our aumakua.*

*Um, it's a place where kupuna had been left um, and interred. So it's our responsibility to make sure that they're protected, as well as the inhabitants on the land and in the water that's over there. It's our kuleana to make sure that they're protected. Um, that's why it's important for Hawaiians to be at the table, and ... we're very fortunate that the Office of Hawaiian Affairs asserted itself, and then was given a place—a place at the daily management um ... in the daily management on the management board, the monument management board. So Hawaiians have a place. It's important to understand that Hawaiians drove this process, and now have a place at the decision making table uh, and continue to—continue to review other things. Every permit that uh, that is applied for to—to go into Papahānaumokuākea is um, reviewed by native Hawaiians for its applicability, its impacts on uh, Hawaiian cultural and traditional—traditional practices, customary practices. Um, so it's—it's a Hawaiian-driven place and a Hawaiian-monitored place, as it should be...*

*...The area is sacred uh, and there's a s—there's a sanctity about it, because as ... as the—the soul departs the body, and then travels to the various uh ... uh ... leaping grounds, uh, on each island, um, from the traditional and customary religion, these souls then ... depart on a westward journey. And along that westward journey, are these—these kupuna islands which they travel on their journey. So while visitors are there, they have to be very respectful of—of the fact that Hawaiians believe, and rightfully so, that there are these uhane that are—that are there journeying along with them. And—and the need to—to recognize and respect that, just as I would respect anybody else's religion, uh, and their thoughts on angels, or their thoughts on um, their uhane, you know, uh, by giving them that respect. Um ... it's also sacred from the standpoint of ... um, the name.*

*We talk about Papahānaumokuākea; uh, the—the mating of Papahanaumoku and Wakea. Um ... and these islands being present at the time where life was born, uh, honoring ... that sort of ancestral ... history. Um, they're pointed from—and they're—they're sacred from a modern ... standpoint in that if ... we as native Hawaiians, and as people of Hawaii ... cannot manage this place that's remote that has minimal amount of impact on it already, um, what does that say about us? What does it say about our commitment? What does it say about our kuleana, um, our values as—as a people? Yeah. How ... how our ancestors gonna ... judge us when it becomes our turn to join them? So for all of those reasons, that's why these ... these islands and this n—National Marine Monument that has the name Papahānaumokuākea uh, should be afforded the utmost respect. Um ... and we should work the hardest for the continued protection.*

Nihoa and Mokumanamana are the first two islands encountered as you enter from the south to Papahānaumokuākea. These two islands are the only two out of the 10 islands that have retained their Hawaiian names. They are also the only two islands with any evidence of physical human contact. This reason may be rooted in the Hawaiian belief that after one travels pass Mokumanamana, one enters Pō or darkness, the spirit world. Mokumanamana lies on Ke Alanui Polohiwa a Kāne or Tropic of Cancer, which is especially significant because the sun never travels past that point (see figure 5). A dualistic yet complimentary position exists within the archipelago; the islands to the north of Mokumanamana, the portal, the realm of the spirits, the divine, the afterlife, and to the south is the realm of the living, the kanaka (human), called Ao or light. Kekuewa Kikiloa expresses his insight in regards to the significance of Nihoa and Mokumanamana:

*...the name Mokumanamana means, island of—of spiritual power. ...mana—mana being spiritual power, and—and—and manamana being like the—the exponential power, really. ...the next island, Nihoa, the first island, really; Nihoa has a variety of types of sites there which is testimony to the fact that I think people were trying to live there at one time in the past.*

*... to me, I mean, just looking at place names, yeah, like, Mokumanamana; that name itself shows that it was uh, one of the most important places to Hawaiian people in the past. ... the fact that there's so many heiau on one small area of land ... shows that it was valued by our kupuna. The island before, Nihoa in some of the chants, it's referred to Nihoa Kuhikuhipuone. Nihoa, the seer of sacred sites, Kuhikuhipuone, being a type of kahuna that would point out and mark the placement of where heiau should be. So that place name in itself kinda demonstrates that Nihoa was that directional marker to show where Mokumanana was. And I think a lot of the archaeology is even pointing to that too. You know, we've gotten some dates back, in the past year or so from Nihoa from coral dating, coral that was left as ritual offerings on the heiau over there, and all the—all the dates came back in the 1500s, which show that there was one big push of colonization of that island, really as a steppingstone to the construction of Mokumanamana, which might have been the ... arguably, the greatest engineering feat in native Hawaiian history, I would say. I know other scholars have pointed out that Piilani Hale in Maui has—is the largest heiau in the archipelago, but I would argue that*



*Mokumanamana is really the largest heiau. Even though it's made up of thirty-three somewhat features um, the island itself really functions as a heiau, yeah, in itself.*

*Mokumanamana lies on—on the Tropic of Cancer, or what is termed in Hawaiian Ke alanui polohiwa Kane, the dark shining path of Kane. ...its significance, I guess, to our people in the past was that, it really is the northern limit of—of where the sun goes throughout the year. ...on June 21st, which is the longest day of the year, the summer solstice, the sun will rise in the east and set in the west on the trajectory that mono—Mokumanamana is at, um, and it won't go any higher throughout the year, and it'll make its way back down um, throughout the year. ... but that's important because ... one, the sun is usually ... symbolic of the god Kane and life, yeah; the beginning of life and ending of life, the cycle of the sun. And Mokumanamana being on that western end of the archipelago really is the pathway that souls take in the afterlife. So a lot of times, you'll hear references to kealanui polohiwa kane in chants that have to do with death and the journey that the soul takes into the afterlife.*

*... I think, you know, things like, the Tropic of Cancer, kealanui polohiwa kane, give us clues as to how our kupuna saw the archipelago and the geography, and the Hawaiian cultural landscape. ... you know, really, anything past or north of Mokumanamana is places where the sun doesn't really shine overhead. And ... I think our kupuna conceptualized this as Po, or what is referred to as in like the kumu lipo or cosmogonic chants as—as places where we originated from, where creation began in the Hawaiian universe.*

There are references of travel along with traditional names brought to life in many mele (songs), mo'olelo (stories) that have been passed down for generations. Many of the original names of these Islands of Papahānaumokuākea have been replaced by foreign explorers with no research conducted. The names were always there waiting to be uncovered and restored, Kekuwa Kikilo'i has taken on that kuleana. Kikilo'i translated interviews conducted by Lahainaluna students in 1835. These interviews reveal specific names for cultural sites such as a heiau, a kahu, and the guardian of Nihoa:

### ***Beginning with Nihoa***

Ninioa was the heiau at Nihoa located on the western side on a precipice near the sea. The guardian of this heiau was Kahiupewa, a shark and younger sibling of Kamohoalii and Kuhaimoana. When men settled on Kaua'i during the reign of Kapulaukī, he sent Kapu to be its officiating priest for that heiau. He was the first human priest of that heiau (Keo 1835).

Other names associated with Nihoa are Waialoha, a name of a wind, and Waiakanohoaka, a name of a spring (Teva & Keale 1989). There are three known springs found on Nihoa. Another place name is Mauloku "continuous falling" a Leina a ke akua or Leina a ka 'uhane, which is a place where spirits leap back into Pō lit., Leap of the soul (Pukui 1974 & 1986).

Traditionally, Nīhoa is often mentioned with two other smaller islands known as Ka‘ula and Ni‘ihau in many mele. They are often viewed as the triplet islands that were birthed last by Hanaloa in the origin chant, Mele a Paku‘i. Both Hanaloa and her husband, Wanalia, were from Polapola. Other mele mention Nīhoa with Kaulanakalā or the West:

*E ui aku ana au iā ‘oe, aia i hea ka wai a Kāne?  
Aia i Kaulanakalā, i ka pae ‘ōpua i ke kai,  
Ea mai ana ma Nīhoa, ma ka mole mai o Lehua (traditional).*

Nīhoa is often mentioned in Kanikau to refer to the place where one’s Kino Wailua (spirit) will travel towards to return back to the Pō (Tsuha 2007).

Kikiloi continues his quest for ‘ike from his kūpuna as he travels to their ancestral homelands. Below is an insert from a journal entry from NWHI Education Project (NOWRAMP 2002) as he brings to light Holaniku a name mentioned in a chant to be the first Island:

*Recorded in our oral histories is ka mele a Kamahu‘alele, or the chant of Kamahu‘alele, the famous priest of the navigating chief Mo‘ikeha, who recited “Eia Hawai‘i” in the year 1215 A. D. on their return voyage to Hawai‘i. Within the lines of this old chant lie subtle clues to ancient place names and locations of traditional regions across Oceania. In verse twelve and thirteen of this mele, Kamahu‘alele recites this, “Pae like ka moku i lalani, hui aku hui mai me Holani...,” which means “The (Hawaiian) islands lay in sequence, adjoined to Holani...” (Ka mele a Kamahu‘alele in Fornander, APR 2:10-11). Holani is a region that lies due west of the Hawaiian archipelago, and its boundaries are traditionally marked by Holaniku (Holaniku in the East) and Holanimoe (Holaniku in the West) (Ka Mo‘olelo o Aukelenuiaiku in Fornander, Vol. 4: 32-111). These names are so ancient that many of them have been forgotten about, residing in obscurity for many years. Holaniku however, is an ancestral island name we should never forget. It is the island name for the oldest geological island in our homeland, known today as Kure Atoll (Bishop Museum Archives #HI. H.107, folder 2), and she is a reminder of how long our history spans back in time.  
([www.hawaiianatolls.org/research/NOWRAMP2002/journals/kuaihelani.php](http://www.hawaiianatolls.org/research/NOWRAMP2002/journals/kuaihelani.php))*

Below is another excerpt from Kikiloi’s journal as his path takes him to yet another kūpuna island. This island is poetically referenced in genealogical chants as a mythical place he feels that Kuaiheilani is the traditional name for Midway:

*Hidden under layers of deteriorated concrete buildings, broken runways, and abandoned vehicles on Midway Atoll, as a traditional Hawaiian place, is an entity many believe as mythical. Its name is Kuaiheilani and it is real. The history of its name and location is a complicated one, as it stretches back to the beginning of Hawai‘i’s traditions and lore. Described in the legend of Aukelenuiaiku, the origin of this name can be traced to an ancient homeland of the Hawaiian people, located somewhere in central Polynesia (Ka Mo‘olelo o Aukelenuiaiku in Fornander Vol IV: 33-111; Ke Aloha Aina 1893-1894). This name has also been recorded in ko‘ihonua, or genealogical chant as an island name in*

*the Northwestern Hawaiian Islands (Bishop Museum Archives #HI. H.107, folder 2). It is not uncommon for ancestral place names to be appropriated affectionately to newly discovered lands, and this may be the case here. The Legend of Aukelenuiaiku may be an indirect link to how this place name was given to an island in our chain, as Aukelenuiaiku represents a voyaging tradition that makes its way through the Northwest region of our archipelago.*

*In more modern times, the name Kuaihelani has become labeled as mythical to many people who read Hawaiian literature. The immediate problem here is that traditional knowledge of a place like this often gets lost, as primary Hawaiian language sources and history become fabricated into secondary English literature and fables. This island however is not a myth. According to historical sources, this island was used by Native Hawaiians even in the late 1800's as a sailing point for seasonal trips to this area of the archipelago. Noted authority and ethnologist Theodore Kelsey writes, "Back in 1879 and 1880 these old men used navigation gourds for trips to Kuaihelani, which they told me included Nihoa, Necker, and the islets beyond...the old men might be gone on their trips for six months at a time through May to August was the special sailing season." (Johnson and Mahelona 1975).*

*...The story of Kuaihelani is no longer mythical... it is real, and it is one of hope for our people. ([www.hawaiianatolls.org/research/NOWRAMP2002/journals/kuaihelani.php](http://www.hawaiianatolls.org/research/NOWRAMP2002/journals/kuaihelani.php))*

## **6.2 The Continuation of Religious Practices**

In the past many Hawaiians would travel the distance to the kūpuna Islands for religious purposes. One account was shared by Wilma Holi, whose tūtū was the Kahu of Nihoa. Holi stated that her tutu would journey to Nihoa to conduct religious ceremonies. The cultural protocol group Na Kupu'eū Paemoku is perpetuating this practice of reconnecting with their ancestors. They sailed to Papahānaumokuākea and conducted cultural protocol ceremonies on the Summer Solstice, the longest day of the year, June 21st. They conducted cultural research initiatives to better understand the relationship between the wahi kūpuna (ancestral places) and the northern pathway-of-the-sun. A member of the Na Kupu'eū Paemoku chanted this mele as they came upon Nihoa:

*... 'O Nīhoa ka 'āina a mākou i pae mua aku ai  
Lele a'e nei mākou kau i uka o Nīhoa  
'O ka hana nō a ko'u pōki'i o Kāneapua  
'O ka ho'oli ka ihu o ka wa' a nou i ke kai  
Waiho anei 'o Kamohoali'i iā Kāneapua i uka o Nihoa*

### **Translation:**

Nīhoa is the first land that we disembark upon  
We land on the shore of Nīhoa  
Then the charge that was given to my brother Kāneapua  
Was to keep the stern of the canoe positioned towards the sea  
Then Kamohoali'i left Kāneapua in the uplands of Nīhoa (Tsuha 2007).

It is recommended by the group that a proper name be given to the site known as “Needle Rock”. It is thought that the name of the rock should be Kāneapua named after Pele’s brother “*Perhaps the NW Hawaiian Island offices may consider renaming it after Pele’s brother Kāneapua who in the migration chant was left i uka o Nihoa, or in the upland of Nihoa*” (Tsuha 2007). Inspired by the very essence of Nihoa a mele ho’ohanohano was composed by Kalei Tsuha on their 2007 voyage:

### **He Paha no Nihoa Kuhikuhipu‘uone**

#### **Na Kalei Tsuha 6/22/07**

*E Nihoa ē, aloha kāua  
Aloha wale i ko pi‘ina kahakaha  
Kikaha nā manu i nā welelau pali  
E ō mai e Lono Kahakuakea  
E hō mai ka ‘ike o nei moku  
E Nihoa ē, aloha kāua*

*He hea aku kēia i nā kūpuna  
E Kahi‘upewa ka manō kia‘i o Honouli  
E kuhikuhi mai i nā pu‘u one  
O ka heiau kapu o Ninioa.  
E Nihoa ē, aloha kāua*

*E hō‘ike aku iā mākou nā kānaka o Ha‘ae Wale nei  
I nā ala ‘ula o nā Hā‘ena mai ‘ō a ‘ō ē  
E Nihoa ē, aloha kāua*

### **6.3 Mo‘oleo Associated with Fishing**

Papahānaumokuākea National Marine Monument was commonly referred by local fishermen as The Northwestern Hawaiian Islands. This area was frequently visited by many Hawaiian fishermen either for subsistence fishing or commercial use. Over the years many fishermen were interviewed and many attest to the depletion of ocean resources. In this section, additional interviews will be incorporated that were previously recorded in regards to the NWHI over the years, by Kepa Maly (KM) in “Ka Hana Lawai‘a a me Nā Ko‘a o Nā Kai ‘Ewalu Volume II: A History of Fishing Practices and Marine Fisheries of the Hawaiian Islands Compiled From Native Hawaiian Traditions (Maly & Maly 2003). The Kūpuna that are quoted include; the late Elia Ku‘ualoha Kawika Kapahulehua (KK), Eddie Namakani Ka‘anā‘anā (EK) and Louis “Buzzy” Agard (LA). The full transcripts are incorporated in the Appendix of this report.

Kupuna Kapahulehua was raised on the Island of Ni‘ihau. He was blessed to spend time with his kupuna who passed on the traditional seafaring ways of his ancestors. Below he

recalls stories that were traditionally passed on to him by his Kūpuna who sailed from Ni‘ihau to Nihoa:

*KK: If you need something, you go get. If you don't get it, you go without. So that is how they did their fishing and harvesting taro on Kaua‘i. So you have two different groups and they waited till the last week of the month, that's when the south wind is going to change, come from the north, so they can go home. Following the rising stars, and they are back at Kawaihoa. But the people on Moku Manamana, they stay there for six months out of the year. This time of the year, they turn around and get ready, waiting for the wind shift from the north, and they go home.*

*And the fish they catch, there is an overhang reef. All the crabs underneath. What the fellas do is get wana, crack the wana and leave it out. All the crabs can smell the wana, they come out to eat. But they know that the birds are looking for them. But they failed to look in the ocean. The ‘ulua is also waiting for them. But the ‘ulua failed to see this post standing above, it's not a post, it's a man with a spear. He's posed, not making any move, So when the ‘ulua comes out of the water and spits at the crab, to get ‘um loose from the rocks. They fall off and the ‘ulua comes to get the crab. But the man hits it right behind the eye, where the brain is. He puts the spear there, and the ‘ulua stops moving. So all the other ‘ulua kept swimming around. Nut the partner of that spears man, has a stick with a hook [gestures], and he hooks it under the chin and pulls it clear out of the water. The two guys pulling it out. They cut the head off, and then cut, just like your finger [gesturing width of cuts], and fill it up with salt. Put is aside with that coconut panel they made, cover it.*

*Early the next morning they swish it in the water. Their food, the ‘ulua head, coconut, and they drink the water. That's how they lived over there for the whole week. And ‘a‘ā rocks. After eight o'clock, it gets warm. So that is how they dried the ‘ulua meat, on the ‘a‘ā. Two guys catch two ‘ulua, that's about 500 pounds total, just the meat (Maly 1210:2003).*

In the 1940's Kupuna Agard began his journey to the NWHI as a commercial fisherman. He was the captain and owner of a few large fishing boats that supplied the local markets. Below he shares one of his many fishing stories as he surrounds an akule schools at Nihoa (Adam's Bay):

*LA: There is an account in Captain Cook's log book that he was at Kure Island, I think his second trip, 1779. When he encountered a Hawaiian canoe way up there at Kure, and asking the natives... There were ten natives on the double-hulled canoe. What they were doing there? And they said they had come to "collect turtles and bird eggs." It's in his log book. So they had sailed all the way up there. Coconuts for water and so forth. So there is an account in the log book of a double-hulled canoe with ten men in it, catching turtles. And turtles of course, you don't have to do anything with, they survive on their own in the canoe, until you get them back home to Ni‘ihau and Kaua‘i. In fact the fishing ground close to Kalalau and Nu‘alolo. Nu‘alolo, when you sail by there, you can see what you think are round rocks, but they are actually all turtles. It's*

*kind of a place where they go to rest. I don't think there is much sand, so they can't lay their eggs. And in some of the bays over there...I can describe Nihoa, Adam's Bay. It is anywhere from three fathoms and a half to about four fathoms, and these huge schools of akule come inside there. And we'd pass by there on our way, we would leave Kewalo at midnight, thirty three hours later, we would wake up in the morning, and there was Nihoa standing majestically in the distance, and the sun behind our heads.*

*We would go by the bay first and look in. And if we'd see that there was a lot of discoloration, a reddish-blackish kind of color, and you see undulating and moving, we knew that was a school of fish. And generally what happens is, because there are these huge 'ulua in that vicinity, when they charge into this mass of fish, the fish will part and you can see the discoloration in the color of the water. And they go through and the fish come back. And as these big fish go through, they hit several fish, chopping, and they usually injure a few. These fish kind of flutter down to the bottom. It's mostly sand, but there are rocks there too. But there's a lot of sand from over centuries of wave action creating this sand there.*

*The first time we went there (flying), some fisherman had mentioned to me, "You know, I saw fish there." I said, "You sure?" So I went, and "yes, that's a school of fish." So we came back home, got some nets and went back out. [chuckles] So I swam off first by myself, and I swam in and looked, looked at the bottom and set the purse net. You don't want to catch rocks because the net won't hold. Swimming in there, I looked about two or three times, [smiling] and the hair on my head stood up. I said, "Oh my God, what is this?" There is this huge school of fish, flat on the top, like a hanging bee-hive. Thousands of fish in this school, ball, mixing, this is the spawning process. The females casting out roe, and the males casting out the milk. This is how they propagate. And that is the way customarily, when they gather together, that's when you can net them, and that technique is still going on today.*

*But, underneath that [chuckling], was this pack of sharks and giant 'ulua, all intermixing, underneath this ball. When a big kāhala crashed in or a big 'ulua crashed in, the injured fish would fall down, swim down and land on the sand, and these large fish would just swim around and pick them up. And this goes on, this activity, days and days, even weeks. Because there is nobody there to disturb them. They just spawn all the time. Except for guys like me who went over there and disturbed them.*

*So I jumped in the water and signaled to the men, come. I watched and watched, and these top predators are on the bottom of the ocean, in a circle, like a pack of wolves, and the mass of fish over them. They are picking up the injured fish. It took about five minutes, and they would slowly come up from the bottom, and they would circle you and the fish. But, they include you in there, eyeball you. [smiling] It's kind of a harrowing experience. So I look in the back of the boat, and there is one of my fishermen. I picked him up from Kona, a pure Hawaiian boy. He went in the water, I looked in the back, I saw him lower himself, and all the sudden, I saw him leap out and come right inside the boat [chuckling], when he saw what was down there. It is frightening.*



*Then of course, we set the net and then all hell broke loose. The fish got frightened, and they explode to the surface, and they explode down. And they hit the net, and at the corner of their mouth is a little structure that sticks out. It allows them to open their mouth [gestures, wide]. When that catches the net, they struggle on the net. But there is a sound they make—trrrrrr, trrrrrr—as soon as that sound is made in the water, either you jump in the boat, or you jump inside the net. Because that is when the predators start going puni. Bite the net, with the fish and the webbing in their mouth as they swim away. They swallow the fish and the webbing. They go into a feeding frenzy when you surround. In those places, anyway. In town here, you don't have the top predators that circle the schools. But out there you have. And Shark Bay is like that, a huge school of sharks. We would have to stay inside the net, they thought that that was a fish and they bite. Your fin touches the net, they bite. You cannot touch the net. So we learned the hard way and got the nets all torn up, and we ended up with all those big 'ulua. But that was the reason that it was spooky, but it is also destructive, that kind of fishing out there.*

*And I think we still do it here, when you can. We have so many boats that cruise up and down the shoreline, they interrupt the tranquility of the spawning system. So you don't see that too much, at least around this island, you're not going to find that. But you go to the outside islands, where you don't have that many people or that many boats, they can still come in and spawn. But you go out there, the school stay there like perennially, it's always there. When I go by, I fly over, I look and I can see it in the bay, Adam's Bay. I've never gone by there without ever seeing it in there. It's just there permanent, spawning all the time. Same thing in Shark Bay at Necker Island. That's what you're calling Moku Manamana isn't it? Or are you calling French Frigate, Moku Manamana? (Maly & Maly 1211-1212:2003).*

All of the fishermen interviewed saw the depletion, the devastation of this fragile environment. They describe the decline in abundance of the marine life in just a 10 to 20 year span. Below Kupuna Agard shares his revelation as he realizes that he fished himself out of a job:

*I am an original member of the Western Pacific Fishery Management Council, appointed by the Secretary of Commerce, and we had some studies done, when I was working on the Council, 1976, we started. Which was the year after the lobsters were discovered up there. So we had a collapse of the sea-mount fishery, that we had a stop, don't open up the precious coral fishery. We had the black lipped pearl oyster fishery down the tubes. We had the lobster fishery actually collapse three times up there. This is all happening up there. So there is a reason why they cannot replace themselves. Of course the habitat is small, they are little atolls. They are not like these main island that you can go around 100 miles. They are tiny, they might be 100 feet across, and 150 feet long. Something like that. Very tiny, small habitat. That study made when I worked on the Western Pacific Fishery Management Council, showed the nutrients up there were very little. And they came to me, the biologist with DLNR, they said, "You know Buzzy, up there, not too much nutrients." I didn't want to believe them [chuckles]. But now I know. I was wrong plenty times up there in a pristine area. I don't say, "You ought to just shut this whole thing down, nobody can fish." But it has a value for us. There is very little fresh water up there.*

*We don't have what you find here, mountains that cause moisture to fall, that feeds the streams, that makes the estuaries where little nurseries can exist. There is nothing up there like that. There is no water. On many, many islands there is none. On Nihoa, you can go on an overhang ledge, there is a little drip. But you get a few drops in your mouth, you don't want to swallow because it is full of bird droppings. It's in there and it's bitter. We tried [gestures catching drip in mouth], we held our mouth and let it drop in, and wow! What a taste! I would say it doesn't have fresh water, except for the droppings. But those experiences that I'm just trying to hit quickly with you, are very important to learning something about that place.*

*When you first land, as I saw those fish rolling in the sand and surf. Shining bodies, I said, "Oh my God, I know what that is. Let's surround it" So we surrounded it, sent it to Honolulu. I went back the next week, I figured, if it's like here, the next week they'll move from the outside and move into the vacant area to take the food. There is always more scattered around. But you go down there, you take it, the next week you go... Like over here, you say, "next week, I'll go check the ko'a, if has the fish." But we went look, no more. We went the next month, no more. I went back on my boat to Shark Island, go look, no more. Ten years I worked there, I never caught one more fish in that ko'a. Nothing! So I looked to Honolulu, sailed about 90 degrees, didn't look back, and don't go back. And I never went back. If it were worth it, I would probably still be working there. But it is not worth it. So it is a lesson that I learned, and I just want to explain what happened out there. It looks great, but it is not sustainable. The fish are tame, you walk in the water on the reef, up to your hip, and you look behind you, all the fish are following you. They are all tame. But thank goodness for you having this meeting so that we can share. And I can congratulate my buddy over there, Isaac, for going with me and talking to President Clinton. And he said "Yes, if that is what happens in Hawai'i, we should protect it." We put the Executive Order [No. 13178 & 13196], and now we are struggling to keep it in there. I was looking at the map here, 1919. It says there, and it circles it, it's a "Bird Reserve." And that would be great, just keep it that way [chuckling] (Maly & Maly 1206-1207:2003).*

#### **6.4 Voyaging**

Oral traditions of Hawaiian people sailing to the NWHI or Na Moku'Aha, such as Nihoa and Mokumanamana, have been passed down from generation to generation. Many speak of Nihoa being a training area for new navigators. Below Kawika Kapahulehua and Eddie Ka'anā'anā, express oral traditions passed down by their Kūpuna who journeyed by way of the stars and current.

*KK: Growing up on the island of Ni'ihau, at about four years old, I heard two uncle telling stories. One said, "Mōla'ela'e kēia ahiahi. Hiki au ke 'ike i nā hōkū a pau. Nui nā hōkū o kēia ahiahi." This evening is so bright. I am seeing a lot more stars than I am used to. I could see much, much more stars. The other one said, "You see that group of stars overthere?" "Yes, I see that, a group of big stars." "That is called Nāhiku (the Big Dipper), and the Big Dipper is going home towards the west." There was a story about an uncle saying that six months out of the year, during the summer months, they get their*

canoe ready, put a lot of coconut leaves on it. A double canoe. And they wait for that star to come out in the month of April. The third week of April, they have the south wind to take them north to Moku Manamana. That's where they will spend six months out of the year, live on the land. They sleep in and around the canoe, and they use the coconut leaves to keep them from sunburn, because there are no trees on Moku Manamana. They fish, they bring potatoes with them. Or sometimes they stop on Kaua'i, Kalalau. They go pick up taro, a couple of bags of taro and they take that with them. They cook it. They have the water, they take a lot of coconuts. Water untouched by human hands in the coconuts. They catch fish on the way. They substitute the fish and coconut milk. So that's what they live on until they get on the island and then do a lot of fishing. It is cooler on Moku Manamana, being further north, than Ni'ihau. Ni'ihau is so hot. Hardly any rain, hardly any trees at the time, in those days. So they used to live there on Moku Manamana and do a lot of fishing.

Then the other story, the same two uncles saying that another group. That first group, they lived close, right across from the island of Lehua, a cove which is called Nanina. That's where they lived. But another group, started from Kawaihoa on the Kamalino side of the island, the west end of the island. But they picked the month of April also. The first two weeks of the month, the wind is blowing from the northeast. So they have their double hull canoe ready, from the first of the month. They crack the coconuts, let it dry out on the coral. Mainly because they want the coconut meat to turn into oil. Then you know the coconut leaves as they grow, they have the coconut webbing like a net? They gather all those and save it. And when the time comes, and they have enough oil in the coconuts, they wrap it into this coconut webbing. What they do with it is, they used the webbing as a sand paper to rub on the side of the canoe to knock off all the whatever.

...And they put the oil into the wood. So the barnacle and sea worms will not get into the wood. That's how they would prolong the life of the canoe. So that's how they would get the canoe ready. Then they would make coconut baskets to put coconuts into the basket. Then they would weave panels for the trip. They make it because on the island of Nihoa, There is no grass, no trees, no shrubs. But a lot of 'ōpihi, wana, hā'uke'uke, crabs. The 'a'ama crabs, and of course, Mr. Agard forgot to put the bigger 'ulua on that picture there [pointing to poster on wall]. And that's what those guys do, catch 'ulua.

There's eight guys on the canoe. On the way to Nihoa, the steersman keeps the North Star at two o'clock. [gesturing with hand] What they do, twelve o'clock, straight ahead, one o'clock, two o'clock, three o'clock, on the right hand side. But he followed the tail of the Big Dipper. As the Big Dipper is going, he follows that. That's how they navigate, to stay higher than Nihoa. Because the wind and the current is taking them towards Nihoa, so they steer higher. In the mean time, the other guy sitting across from him, looking across his head, to know what star is rising from the east. Because the following week, they are going to go home. So they can follow that rising star to go home. They only have one week to do the 'ulua fishing on Nihoa.

So every hour, the steersman is not only watching Nāhiku, but he also watches for another one, and he measures from the thumb on the horizon, and the index finger

straight up. That's one hour. So he is supposed to be steering only for one hour. Then the two exchange. Then the other guy is doing the same thing. When that second hour is almost up then they trade, the two guys watch, all night long until day break, and they see Nihoa right ahead. They never passed it. So that is how they go fishing. (Maly & Maly 1208-1209:03).

*Kupuna Ka'anā'anā expressed that his ancestors traveled up north not just for fishing but to gain 'ike about navigating, as well as connecting to his ancestor by visiting and showing respect.*

*EK: Then here again, the story comes back. Ho'i mai la ka no'ono'o i ka ha'i mai nā kūpuna o kākou i kēia 'āina. Mana, manamana [holding up his hand], manamana lima, a 'aha, Moku 'aha. So you put that two in place, when you say manamana lima, we have our main islands over here, and these are their finger [indicating the NWHI]. And then we hear today, "we are going to the Line Islands." We forget the word 'aha [line, cordage or rope]. Today we seem to forget what the 'aha means. And there are a lot of stories behind the 'aha. 'Ahahui, kēia, 'ahahui kēlā. Today we forget the 'aha, we just hui this, hui that. That's our pilikia with what's going on today, we want to shorten things, we want to get there quick, and we forget about things in the back. That's why I think about that, we are here to talk about our Line Islands, and then we hear today, mana. And then, when we hear again, people of Ni'ihau, they went up there, they went to Nihoa, they went to Ka'ula. And then here again, the story, lohe au i nā mo'olelo mai ku'u kupuna mai, mai ku'u anakala. Hele lākou i kēia 'āina Manamana, hele lākou i Nihoa. And we figure, from the place I come from, Hawai'i, what, why do they have to go over there? For get this fish or whatever they do over there, when we have all the fish over here. But we don't ask questions. We were not supposed to ask questions. But you hear stories, the did go over there.*

*Well, mai Kapalilua, hele lākou a hui lākou me nā 'ohana o Ni'ihau. A noho lākou i ka 'āina o Ni'ihau, a ma laila hele aku la lākou i laila. Ka po'e holo moana. So the story that you hear of our people, they are seafaring people, our navigators. The sun, the stars, and they go over there, it's just like a training area for them. They join with the families. We have 'ohana all over the mokus. ...Here we figure, fish was so plentiful, when I was growing up, they were so plentiful. Then you wonder, why are they going to go over there to those islands? Training, holo moana. ...Passing on the knowledge, the navigation knowledge. So they go over there. ...You have to eat, holo lawai'a. So that kind of thing, when I listen. Like I say, I am a young kupuna, I need to hear from somebody first, then this connection comes back, and that's why we say Nā Moku 'Aha.*

*...When we talk about pu'uhonua, we get into 'aha. 'Ahahui, what kind of organization are we forming when we are bringing this 'aha together? Why are we pulling them in? To form an 'aha... The 'aha is a big thing when you hear the stories of our kūpuna.*

*...So much, and that's why I see the connection here. It comes back when I hear this story. And why are we hearing this story, they say they are going over there to get fish, when fish is so plentiful in our place?*

*...Part of your traveling, part of your life. It's just like when you want to train warriors, 'oia ka mo'olelo o nā kūpuna o kākou. Mākou 'āina, hele 'oe i Molokai they can train you*

*in certain things over there. That's part of your training to become a warrior, protect your 'āina, protect your ali'i like that. Kēlā ka 'ano. That's what they said. A'ole na'u ke ninau, "No ke 'aha kākou e hele aku i kēlā 'āina ma laila, ki'i aku ka i'a?" ... (Maly & Maly 1218-1219:2003).*

The Polynesian Voyaging Society continues the path of their ancestors of using Nihoa as a training ground for new navigators. Ka'iulani Murphy was trained on this very path as a new navigator "Nihoa is a—a challenging navigational ... learning experience". Murphy stresses the importance of keeping this tradition alive for future generations:

*And it is a living, you know, we have a living culture evolving, ..and ... to continue those and make our own traditions, maybe,...of continuing that connection with that place. ... so I would love to see the canoes going up there for uh, training purpose, for um, spiritual connections. ... and I think it's important to keep that connection. ... So Nihoa is an—an incredible place to sail to, because it's far enough away from the main islands that it's that long voyage condensed into, you know, a one, two-day period, and um, it's so tiny that you have to be totally accurate. You can't be—I mean, thirty miles is half a degree. ...one degree is sixty miles. If you're, you know, ten miles off, you could miss your island. ... and then you know, I'm sure that nervousness would set in. You know, you don't see the island when you think you're going to, did we pass it, you know, are we east or west of it. ...so that the beauty of that kind of a training trip is you have to be, like, dead-on accurate. (Video Interview Na'alehu & Sterling 2008)*

## **6.5 Cultural “Subsistence”: A Way of Life**

There is no word in the Hawaiian language for subsistence because it is a way of life; it is a kuleana (responsibility). The value of lōkahi to live in harmony and total balance with the surrounding environment is practiced in everyday life. It is the deep understanding of stewardship the responsibility of mālama 'āina (take care of the land) the relationship Hawaiians have with the environment, the way they view, managed and balance the natural elements around them. This knowledge of oneness between kanaka and nature, the kuleana to care for it physically and spiritually, was perpetuated generation after generation by their kūpuna.

During the 2003 interviews conducted by Kepa Maly there were two important sections titled “Allow subsistence practices to continue as necessary in the NWHI” and “Cultural “subsistence” related not only to taking what is needed as food, when up in the NWHI, but also, perpetuation of the practices and knowledge associated with travel and visitation to Nā Moku 'Aha”. What prompted this discussion was when William Aila asked all the kupuna what advice would they give their mo'opuna in regard to the Kūpuna Islands. Some of these kūpuna are no longer physically here, but their ka leo and mana'o are still here with us. The Kūpuna and Kama'āina included in this insert are as follows William Aila (WA), Val Ako (VA), Kawika Kapahulehua (KK), Eddie Ka'anā'anā (EK), Isaac Harp (IH):

WA: But it is important to get your mana'ō down. As we are going around the table, what would you tell your mo'opuna, what to do, and what not to do?

VA: Okay, I have two mo'opuna who are fishermen. And the way I taught them, one is a deep sea fisherman. If they were to go to the Northwestern Hawaiian Islands, it is for resources, don't take more than what you can handle, and to respect the ocean. You can catch a hell of a lot of fish, but if you don't know how to preserve it and you don't know how to navigate in that particular area, it would be hazardous for them. And being a former seaman, and I respected the ocean. That's reason that uncle Walter, Eddie and I, came through a lot of large storms, and there were times that we thought we wouldn't return home. But luckily everybody held together...

And when I was in the Merchant Marines, there were times the ocean was so rough, and we were on an LST, you would think the LST would break in half. But we were able to survive. So my experience, and sharing with my mo'opuna, I always tell them that they must respect the ocean, and don't take more than what they can handle. So first of all, get the market. But fishing in the Northwestern Hawaiian Islands, I always told them "It would be better to stay in Hawai'i.

WA: Not go up there?

VA: No. Go up there to visit, but not to fish for commercial purposes. That's my mana'ō.

KM: Mahalo. Uncle Leo Ohai said the exact same thing yesterday. He said he "wants it to benefit Hawaiian people." He wants "Our Hawaiian youth to be... Don't worry about up there, take care down here, work for that."

WA: What about your mana'ō for your mo'opuna, if they should go traveling up north?

KK: Well, Ni'ihau, they stopped doing all that. But I think that all the families now should teach. Like he [Kupuna Ako] said, his mo'opuna going up there to do their fishing. Fine, it's our own people. And teach them not to rape the island, not to bring any kind of chemical that will destroy. Mālama ka 'āina, take care. Because their children of the future will need all of the supplies that we have to preserve it now, not wait until later until they say, "Oh I am sorry, I forgot."

KM: 'Ae.

WA: Uncle Eddie, what advise would you give your mo'opuna?

EK: First of all when we think of what our plan is to do with that 'āina up there, make it a sanctuary, make it a pu'uhonua. We know how people have been going over there and fishing that place out. We heard where they drag that net out. We heard that. We have to try and keep what we have over there now. Some way, we have to do it. Now, we have to find out how we are going to do that. Without having all this pilikia of what people are doing, wanting this and wanting that. Until we know what it's about, and that's where I need to educate my mo'opuna, what that 'āina is going to be for. If it is made for that purpose, you have to learn and understand that. And if you are going to make it the way like we've done it—there's time to go get this fish, and this time it's kapu, and there's that time to go get that one. Then that's where I'm going to have to teach them, you have to prepare yourself. You have to go over there, you have to know the seasons, and you have to prepare your fishing equipment to get that particular fish. What season and what season to go over there, and when this fish is open. Not just have just one type of fishing over there, and it's not season for, but "I'm going there anyway and I can catch it." They have to get that kind of understanding. So that's the conservation of the pu'uhonua, or what ever we plan to do. And then again, when you mentioned about that and what they



are trying to do, and what they will have to do to go get the akule and the 'ōpelu to begin to feed that 'ahi, we are just defeating the purpose. When we let them do that, get them started, let alone what ever it is polluting on the ocean side. Are going to solve that problem by going over to Miloli'i or some place to get the 'ōpelu and start feeding the fish over here? Then when it goes to the market, we can't get it because it's so expensive. Unless like how they do in Kahuku, we can get the shrimps. Is that the same thing that is going to happen? And then we go back to this same thing here, there are many things that our tūtū tell us. They came and they took our stories and everything. Then sometimes the stories are not right, hū hewa ka mo'olelo i ha'i 'ia! Then we find that they tell us they read this story, and they wanted to make the story more exciting, and it came to the competition and wanting more money. Hū a hewa ka hua'ōlelo i kēia mo'olelo! So these are the things I see...this is all we have left. But there is something, there is hope. That's why sometimes our tūtū told us "Ka mea o lo'a ai ka 'ō mokumoku palaoa!" (What's left for us is the crumbs of the bread!) But what little we have, it's there.

KM: That's why your voices, your recollections we still have the opportunity to take care. So it's not just a memory.

EK: To me they are there. It's just like when I sat here this morning, the first thing I heard about, ka manamana.

KM: 'Ae, ka Moku Manamana.

EK: Moku Manamana, Nā Moku 'Aha. I heard that from my tūtū. But today, we hear LineIslands. Poina a'ela ka inoa o kākou.

KM: 'Ae.

Allow subsistence practices to continue as necessary in the NWHI:

EK: But when I sat here, my memory comes back, I heard of that from our tūtūs. I feel that sitting here. Yet, we have to way this balance. That's why, when we speak of 'aumakua, like the honu, we respect them. Because I know it is 'aumakua. Not our 'aumakua, but that doesn't mean that I didn't go and help somebody, and catch that one and give them. If it's not theirs, that's what they are going to feed on. Well, maika'i! If it is to sustain life, ho'ōla kino, ikaika i ke kino, fine! A'ole i pāpā 'ia kēlā.

KM: 'Ae.

KK: Pololei.

EK: Even if you know that is their 'aumakua. But don't disrespect that 'aumakua. Don't disrespect that 'ohana. That's why I say, when we went that first time, and that was what I saw, that kua, that honu back like that. My memory thought of, "whoever the 'ohana of that, the least they could have done..." But they were ignorant.

KM: So respect.

EK: Yes

KM: ...A critical thing in that, is making sure that the people are taken care of, it's the resource first. Healthy resources, healthy land, healthy ocean, and healthy people.

PA: Yes.

KM: And I believe, that if the Hawaiians are healthy, everyone else will be healthy as well. Uncle Leo Ohai brought up this point about the lobster fishery. I think it was back in the mid 1980s. The first year they went out and laid out 100, 200 traps, there were 40, 50, 60 lobster in one trap, in one night. He said that within a year of fishing like that, it dropped down to lucky if they would get four or five lobsters in the trap. And now I understand from Randy and others, that it may be even less. Uncle said, the year after

that, he went to the state Division of Aquatics and told them, “You’ve got to put a cap on this, something is wrong, it’s not coming back up.” That state’s research biologist—which would be in part the reason we are where we are today in the lobster fishery up there—said, “No, no, don’t worry, it will balance off, it’ll level off, and everything will be fine.” Well, what it did, to quote a friend here, “It balances off at just about zero, or point-five lobsters per trap.” It’s unacceptable. So the need to ensure the health and well-being of the resources is critical, and that way, the people can be healthy too.

IH: I just want to share what I believe is the greatest benefit, not only to Hawaiians, but to everybody else here in the Main Hawaiian Islands. The stories and everything I hear from people is that there are a lot of mature, and highly productive fish stocks and species up there. I provided the scientific report to Randy, the science person in the reserve. It’s a surface current report done in 2001. It shows that Hawai‘i has a unique counter-current that flows from that direction to the Main Hawaiian Islands. A lot of the marine fish biologists understand that many of the species let go their larva into the ocean and it floats up into the surface current and drifts along. Some for a few days, and some for a few weeks, others for a few months. If that’s the case, and the current is coming this way, and they release the eggs into the water up there, that stuff may be coming to the main islands and settling out here. So that would be the only real benefit that I see the majority of the Hawaiians getting.

PA: That’s what uncle Buzzy was saying.

KM: Yes.

IH: Yes. Probably less than one percent of the Hawaiians will ever get up there. So I think the great benefit is protecting the area, not letting any exploitation go on up there.

EK: Uh-hmm.

IH: And like uncle Buzzy shared, the recovery is terrible. In ten years, the fish he took never came back...

WA: ...I just wanted to ask uncle to share... For me, one thing that I will take away from this discussion is, uncle Eddie Ka‘anā‘anā and several other of the kūpuna made it a point, and reinforced it, that there is this kuleana to go up there, and to have each succeeding generation up there. To have them experience that very special place, and at the same time, to protect it.

KM: Yes.

WA: So, while being there, to only take what you need to survive, and to use what is there. Uncle, you had mentioned how your kūpuna had stories of how they would leave Miloli‘I and go to Ni‘ihau, and then join up with the Ni‘ihau fishermen...

EK: That’s right.

WA: ...going up there. Could you share that again?

EK: Well, after hearing what was said about the Ni‘ihau people going up there to Moku Mananama, and the way you [Kupuna Kapahulehua] put it in the beginning.

KK: ‘Ae.

Cultural “subsistence” relates not only to taking what is needed as food, when up in the NWHI, but also, perpetuation of the practices and knowledge associated with travel and visitation to Nā Moku ‘Aha:

EK: Seeing that clear night with the stars all out. Then the thought came within, that this is the time to go up. The way has been prepared. Not only just look at it, but understand it. And that’s when they got on their canoes and went up there. Then when I hear that,

and that's why the story connects to me and our tūtūs, and I asked, "Why are we going up there and get all these kālai wa'a?" "We better go get it now, because the time will come when we won't be able to go get this lā'au, the koa." And yet at the same time my thoughts were, "We have all these large canoes in the back over here, and we weren't using them." They said, "We aren't using those wa'a now." But there again was that connection, all those big wa'a, when they wanted to go over to Punalu'u, past South Point, they would pick the time when it was right, and go over there to visit the 'ohana. And the people from the other side would come and visit their 'ohana. The same this, they went all the way back up to Niuli'i. But that was the mana'o, you don't ask questions. But we wonder why would they go way up there (the Northwestern Hawaiian Islands) to get fish, when we have a lot of fish over here? At one point tūtū them sat down, and they realized this was the thought on my mind. It was the question, but I dare not ask the question. But they told me, they knew this was the questions on my mind — "Ai no ka i'a imua o kākou, hele aku la, no ke 'aha?"

KM: 'Ae.

EK: Why are we going over there? Then they began to tell me the reason why.

KM: Holo moana.

EK: Holo moana. And from there, who was chosen to get on that wa'a, you prepare yourself. You prepare the moena and what ever, the moena to sail. You sail, and get to Ni'ihau. And it's from there that you go and take your training from them to go over there. And that was part of the story. And then again, maybe it was the same thing with Ni'ihau.

KK: Could be.

EK: The fish is plentiful, but yet, they had to go. They had to touch these islands. Because, o ka 'aha kēlā. These are the cords that connect. These manamana lima, they are all connected. And if we don't do anything about them, just leave them alone. Then nothing.

KM: Lilo ka mana'o, you lose the knowledge.

EK: Lilo. Kēlā ka 'ano o ka no'ono'o. With that kind of prospect that I have.

KM: So the idea is, you perpetuate the knowledge and the practice. Not just on paper, "Oh they used to."

EK: Yes, they used to.

KM: You are going to perpetuate it and keep it alive by practice.

KK: 'Ae, 'ae.

EK: That's why I am so intrigued with Hōkūle'a. That's what they are doing now.

KK: Yes.

EK: The students, they say, when they ride the Hōkūle'a, they feel the touch of that. And when they first started to build the Hōkūle'a, I heard among our people, "I don't know why they are spending this money for building this canoe, for what? We need the money for something else." But then I felt, we have other people building straw rafts and what, and others sailing from here to there, saying they were the ones who did this. But yet, we heard from our kūpuna that we were the ones who sailed the sea from here to here. So now we are going to build something and prove that we did it. And in my own mind, with my blessings, I hoped they would do it. And uncle Walter and I sailed, we did our part with that wa'a. So that is part of that thing.

*And now, if we are going to send our people up there to touch the islands, how are they going to get up there? Are we going to ask OHA where we get a good yacht, where we can take our mo'opuna up there and see the islands, and put them ashore? To look and understand what it's about, tell the stories on the 'āina. Or do we have to make double hulled canoes and sail them. Like now, Hōkūle'a which is taking them...*

*KM: So you follow the path of the kūpuna.*

*EK: Follow the path of the kūpuna.*

*KM: And all these places, from Kuhaimoana, the traditions of Ke Ala i Kahiki, not just the Kaho'olawe one, but your mo'olelo are rich with stories of the kūpuna traveling to those islands up there, and then down to Kahiki. So we know that there is tradition, so you can follow that path. Ho'omau!*

*KK: Ho'omau!*

*EK: Then again, we will be dealing with people, "What is that all about? Ua hala, forget it!" Never! You don't say those things. Like when you say, "Ua moe a hala." Our kūpuna, a'ole i make.*

*KK: Ua hala lākou.*

*EK: Ua hala lohe ala kākou!*

*KM: 'Ae, a koe no nā pua!*

*EK: Koe no nā pua!*

*(Maly & Maly 1240-1245:2003).*

Many Kūpuna mentioned as they traveled up north that the Island of Nihoa was so abundant in marine life there was no need to bring food. Below Kupuna Kapahulehua talks about gathering on the Island of Nihoa:

*KK: Like Nihoa, has hā'uke'uke, wana, 'ōpihi. They have all of that. So that is why, when the crew goes to Nihoa fishing, they never took anything other than the coconut, because they had all the food there. So why load up the canoe with so many other things that you don't need. They had the panel of coconut leaves that they had slit in half, and wove into a panel. Because the only clothing they had was the malo. And they used the coconut husk to burn it, to get fire, to keep themselves warm. They put the panel of coconut leaves to block the wind away, so they can spend the night comfortably. There are a couple of high plateaus or mountains. One is just slightly over 900 feet and the other one is slightly over 800 feet, and they are on the mauka side of the island so the wind goes over. The guys built a small, little wall on once side so they would be protected. It was from the family that I heard, that they do travel to Nihoa a lot, because it was famous for 'ulua fishing. No other fish. But of course they do a lot of 'a'ama, pāpa'i 'a'ama fishing. So the 'a'ama comes out, when the wana is broken, they can smell it like [thinking – smiling] tuber roses (Maly & Maly 1229:2003).*

Cultural practitioners such as Keone Nunes, a traditional Hawaiian tattoo artist stress their concern for gathering rights in order to perpetuating the path of his Hawaiian ancestors, and Keone feels it is vital to his art. William Aila expresses the importance of perpetuating the traditions of his ancestors in showing respect by conducting ceremonies as they once did. He elaborates on the kuleana to use everything that you gather from nature, and to give back what is not used:

*WA: If I could mention, I like the mana‘o that is coming, because we in effect have been doing some of that already. Since 2001, when the first Makahiki was conducted in Mākuā in about 180 years. In preparation for the Makahiki, we went and got from Fish and Wildlife Service, a ka‘upu, which is the albatross. Because it was new ground that we were breaking, we went to the Bishop Museum. Fish and Wildlife gave the bird to the museum, and the museum loaned it to us. It was prepared in a traditional Hawaiian manner where the na‘au and everything was hemo, and salted, and everything that wasn’t used went to the ocean. Kanu in the ocean. So that bird has been used three times now, two time a year. One time to open, one time to close. But as a consequence of that, the wing bones from that bird have been taken out and have been given to Keone Nunes, who is a traditional Hawaiian tattoo practitioner. Who is tattooing right now with those bones (Maly & Maly 1234:2003).*

Aila continues to elaborate in a video interview on the importance of the process of gathering to honor his ancestors and show respect. To honor the journey from the beginning of the process, the exchange of energy and mana that is involved:

*Well, this idea of separating ... natural resources from cultural resources is—is, again, something that’s ... Western imposed. ...you know, Hawaiians—Hawaiians made use of ... many ... many kino lau of different creatures, yeah? So for example, the koaeula feathers, tail feathers; because there’s not a lot of koaeula in the main Hawaiian Islands right now, and there probably ... weren’t large numbers, otherwise the—the evidence would have indicated that, that these birds, you know ... called home ... the Northwestern Hawaiian Islands more. So it’s this ... this relationship of traveling to places to obtain certain kinds of we’ll call it resources, yeah, but certain time—certain types—filling certain types of needs um, of gathering the koaeula feathers for uh, the creation of thing like kahili. Well, why did you create the kahili? It’s to honor somebody, yeah? So normally, you just don’t make a kahili and say, Oh, I made a kahili. Normally, there’s somebody that’s in mind, and somebody of such stature that you would go out of your way, expend all that energy, to create this object of finery, of—a demonstration of knowledge, a demonstration of workmanship, a demonstration of love for that person that you’re creating this kahili for; and it’s all of those things that add up to the creation of, you know, the collection of the feathers, the idea that you’re honoring somebody, the workmanship, the amount of mana that you put into this project, that ... in the Western world, creates a cultural resource, but in the Hawaiian world, just—you’re creating ... you’re capturing the love that you have for this important person, and symbolizing it in this ... in this form. (Video Interview Na‘alehu & Sterling 2008)*

## **6.6 Advice and Recommendations for Access to the Islands of Papahānaumokuākea**

Many Hawaiians who have traveled to the sacred Kūpuna Islands of Papahānaumokuākea feel it is vital to the sanctity of the area that anyone who transverse this area needs to understand the cultural significance and have the utmost respect. They have voiced there heartfelt concerns and advice as one journey’s to their ancestral homeland:

*The islands and islets after Ni‘ihau are all considered the edges of the Hawaiian universe, but Mokumanamana especially is situated on the edge of Kāne’s realm. In the Hawaiian epistemology, only death grants one entrance onto those lands. Therefore, anyone who is allowed to traverse there and back needed to embark on the voyage through intense ceremony throughout the duration of the expedition.*

*It is also the writer’s recommendation that all individuals who plan to access this portal, its land or the sea surrounding; must participate in some kind of exclusive cultural/spiritual training that prepares them for the Mokumanamana experience. Ua holo a hele a lele wale ka pule. \_ Āmama. Ua noa (Tsuha 2007).*

William Aila was asked the question “How can visitors be respectful to the Monument for the sanctity and spirituality? And what kind of mindset should they have as they enter the Monument?”

*I think the visitors from the very beginning—what is—what is the intent of the trip, yeah? You always judge ... something by what is its intent. So if someone is ... desires to go to the—a place in Papahānaumokuākea National Marine Monument, I always question what is their intent. Is their intent to do research that ... the research will lead to better management, better understanding of ... the area up there, uh, including the spirits that still walk there, including um, the relationship between uh, aumakua which still reside there. ... what is the intent? So if the intent is good, and you go with good intent, then you must have the respect that goes along with that intent. So for example, you’re not gonna conduct any activities in the monument that is gonna be destructive, that is going to be disrespectful. For example, you’re not ... you’re not gonna go and do cultural resource—research at Nihoa or Mokumanamana, and destroy some of the cultural sites that are there. Or, go shishi on some of the cultural sites that are there. I mean, that’s ... that’s just—you know, if you go with good intent, that’s not possible. But if you go with hidden intent or bad intent, then certainly not only is that possible, but it’s also probable; but you better—you make sure if you go up there with intent that is not pono, that you brace yourself for the consequences, yeah? Because there are—there are going to be physical consequences and spiritual consequences for somebody that does that. Oftentimes, Haole researchers can show respect simply by asking to learn about the relationship that Hawaiians have with these islands, relationships that Hawaiians have with uh, the inhabitants. And when I talk about inhabitants, I’m talking about the sharks, I’m talking about the birds, I’m talking about the turtles, uh ... you know, talking about the—the individual coral polyp; what is the relationship um, that they have in this desire to have an understanding, rather than come from a standpoint of, Eh, I get my PhD, I know everything about everything, and uh, you guys cannot tell me nothing, I know what’s best for you guys, I know what’s best for the area. Um, that’s a ... that’s a demonstration of disrespect. It’s actually a demonstration of ignorance. And so somebody with PhD might be very ignorant, because ... you know, they don’t have this concept of respect. They don’t have this concept of ... honoring how someone else thinks about the place. So when I talk about, you know, honoring the birds, honoring the sharks, we have people that are trained in—in Western thinking that go, What the hell is he talking about? You know. They cannot relate to that. But if they take the time to try to understand the relationship, that shows that they are—they’re pono in their intent.*



*So um, a classic—classic example which I still get heat for is, being one of the first guys to um ... one of the first native Hawaiians to express objections to another native Hawaiian who wanted to ... paddle the length of the Northwestern Hawaiian Islands in a—in a six-man canoe. Yeah? So I looked at the application, ... my brain told me that this was an extreme sport, my naau told me that this wasn't cultural. So because Hawaiians are stepping up to take a uh, a more active role in the management of this place, and the integrity that comes along with that, yeah, ... you have to honor that integrity, and even though it was another native Hawaiian that was asking to do something that ... you know, paddling six-man canoe, yeah, is ... sort of Hawaiian, it's sort of cultural, but the application in this instance was more of an extreme sport than ... something that was ... akin to a tradition or custom and practice in that area. So you know ... I still get heat for that decision today, but tough; that's ... that's the level of integrity that Hawaiians, because we're stepping forward and we're saying we ... we are ready to manage, we are ready to be part of this team, we have to maintain that level of integrity...*

*...In the briefings that I've done for groups of scientists that have gone to the Northwestern Hawaiian Islands, I've suggested, yeah—because you know, they can take it, they can leave it; it's up to them. I've suggested that they not only use their consciousness, ... and their intellect to try to gain information, but also use their naau, use that um, that portal to um ... the spiritual resources that are—that are there. I mean, you can see it; you can see it—you can see the hoailona in the clouds, you can see it in the rain, you can see it in the bird flying by and looking at you eye-to-eye, and that connection is there, or underwater when you're snorkeling and a big ulua comes up and goes, Oh, who you think you are, brah, over here? I mean, you can see it if you open yourself up, if you open your naau o—open enough, and you allow that—what they call this ike papalua, this additional deeper ike to come in, um ... you can take away knowledge ... from the Northwestern Hawaiian Islands that you wouldn't ... have been privy to simply by going up there with your—the intellect that's associated with your brain. You know. And you can go one step further; you can honor the spirits that still reside there, or the spirits that are transitioning along their path to po, uh, if you give them the respect. Um, again, there's an additional deeper level of ike that can become available to you. And ... believe it or not, most ... most scientists with PhDs can grasp that. There's only a few that can't; but the majority that I've spoken to, when they've come back from the Northwestern Hawaiian Islands, ... expressed that they've had those experiences. That they've had these connections with the animals either on land, or in the ocean, or been given, you know, some of the hoailona. And it's made their research that much more successful....*

*...It—it turns it from uh, an experience where you're an outside observer, to an experience where you're a participant. And that's the difference between a Western way of looking at resources, where you're an outside observer, you're an outside observer, manipulating the resources, versus an indigenous view where you're a participant, and your participation is based upon what's best for the entire system. (Video Interview Na'alehu & Sterling 2008)*

## **7.0 ASSESSMENT OF CULTURAL IMPACTS**

There are many similarities between the MMP ecosystem-based management approach for the NWHI and the traditional ecological knowledge and practices implemented by Native Hawaiians to manage their natural resources. Both approaches share the view of nature as a holistic and dynamic system of interrelated parts and emphasize the need for long-term sustainability and health of our natural resources.

The Native Hawaiian traditional ecological knowledge and worldview is valued for its rich base of empirical knowledge and practical methods of resource management, developed over hundreds of years of living and interacting with the lands and ocean waters of Hawai'i (Titcomb and Pukui 1952; Kikuchi 1976; Titcomb et. al. 1978; Poepoe et. al 2003; Kikilo'i 2003). Traditional management practices take advantage of understanding seasonal patterns in weather, patterns of biological species, and the designation of ecological zones (Handy et al. 1972; Kelly 1989; Gon 2003).

The significance of the NWHI natural, cultural, and historical resources led to the establishment of the Papahānaumokuākea Marine National Monument to protect these resources. In developing a management framework for the Monument, consultation with the Native Hawaiian community was sought to address how to best conserve cultural sites and practices. Ongoing consultation and engagement with the Native Hawaiian community is an important aspect for the success of the Monument's management through the implementation of the MMP. Protection of cultural resources and access to the NWHI is of high importance to the Native Hawaiian community to maintain traditional practices. Proclamation 8031 recognizes the cultural significance of the NWHI and outlines specific procedures to grant access to the Monument to engage in Native Hawaiian practices. In addition, when prioritizing management objectives for the Monument Management Plan, the MMB developed two action plans within the MMP to specifically address Native Hawaiian cultural practices and involvement in the Monument.

The MMP action plan strategies and activities strengthen the relationship between the Monument Co-Trustees and the Native Hawaiian community, and increase Native Hawaiian participation in the management process. Potential impacts to cultural and historic resources are carefully considered with science and management when assessing the applicability of a project or action. Additionally, cultural assessments by members of the Native Hawaiian community are part of the permit application review process for allowing access to the Monument. All activities proposed in permit applications for cultural access are assessed to determine if the purpose and intent of the activity are appropriate and deemed necessary by traditional standards in the Native Hawaiian culture (pono) and demonstrate an understanding of, and background in, the traditional practice, and its associated values and protocols. All persons entering the Monument pursuant to a Monument permit are required to attend a cultural briefing on the significance of the NWHI resources to Native Hawaiians.

Monument goals as implemented through the MMP reinforce the area's great cultural significance to Native Hawaiians. The implementation of the MMP will have a beneficial cultural impact and will provide increased opportunities for Native Hawaiians to play a significant role in the management of the NWHI, an area of great natural, cultural, and historic importance.

## **8.0 OBSERVATIONS AND CONCERNS YIELDED FROM COMMUNITY CONSULTATION PROCESS AND RESPONSES TO ADDRESS THESE CONCERNS**

**Comment:** The community commends the Office of Hawaiian Affairs (OHA) for facilitating the cultural working group meetings. The community feels it is vital that OHA has an equal seat within the managing board to represent the Hawaiian community in this joint venture. The idea of having mandatory cultural monitors to accompany the scientific expeditions was also expressed by a number of individuals including Auntie Wilma Holi who stated, "...the Office of Hawaiian Affairs needs to empower a body of people that will monitor and not leave it up to other entities..." (Kupuna Holi 2008)

**Response:** The MMB is committed to regular consultation and engagement with the Native Hawaiian community, including the Native Hawaiian Cultural Working Group. The Office of Hawaiian Affairs is a member of the Monument Management Board. Since July 2008, cultural monitors have been on accompanied each of the trips to Nihoa and Mokumanamana. These cultural monitors have been provide by the Office of Hawaiian Affairs, however, in order to provide these experts with adequate compensation for their activities, each agency should provide the funds to support the cultural monitor in the future.

**Comment:** When speaking about Papahānaumokuākea, individuals have referred to the islands as a Pu'uhonua, a Wahi Pana, the Kūpuna Islands, the ancestral Godly realm, and the Stargate or Portal. Papahānaumokuākea is viewed with great respect by all participants, and the understanding that it is very sacred and unique to Kānaka Maoli (Native Hawaiians) was continually expressed throughout the interview process.

According to many of the participants, the islands within Papahāhaumokuākea are the physical manifestations of the Hawaiian ancestral Godly realm. "The islands and islets after Ni'ihau are all considered the edges of the Hawaiian universe..." (Tsuha 2007). This is the place where the Hawaiian ancestors make their westward journey as their soul leaves the physical temple of the human body. "These Islands and waters are the pathway that the spirits of our ancestors take in their afterlife. After the spirit separates from the body after death, they travel in the ocean in a north-west direction past the islet of Lehua on rout to Pō (creation). These Islands, which are remembered as ancestral homelands.." (Kikilo'i 2004) see appendices for full testimony to WESPAC.

**Response:** An acknowledgement of the importance of Papahāhaumokuākea to Native Hawaiians is found throughout the Monument Management Plan (MMP). In addition, a mandatory cultural briefing is required for all who access this special place. The MMP

includes a Native Hawaiian Cultural and History Action Plan, and a Native Hawaiian Community Involvement Action Plan, with the goal to increase the understanding and appreciation of Native Hawaiian cultural values related to Papahānaumokuākea Marine National Monument.

**Comment:** Many of the participants consider Pahānaumokuākea as the “sacred ancestral homeland” which needs to be respected and revered. It is strongly suggested that anyone who ventures into this “sacred ancestral homeland” should intimately understand that “In the Hawaiian epistemology, only death grants one entrance onto those lands. Therefore, anyone who is allowed to traverse there and back needed to embark on the voyage through intense ceremony throughout the duration of the expedition” (Tsuha 2007).

**Response:** An acknowledgement of the importance of Papahānaumokuākea to Native Hawaiians is found throughout the Monument Management Plan (MMP). In addition, a mandatory cultural briefing is required for all who access this special place. The MMP includes a Native Hawaiian Cultural and History Action Plan, and a Native Hawaiian Community Involvement Action Plan, with the goal to increase the understanding and appreciation of Native Hawaiian cultural values related to Papahānaumokuākea Marine National Monument. A key component of the cultural briefing is to stress the how Papahānaumokuākea is considered a sacred place.

**Comment:** All the participants have a great desire to continually perpetuate their culture and reconnect with their seafaring ancestors by respecting this wahi pana. All of these individuals maintain strong cultural ties to the land and sea through hui such as the Polynesian Voyaging Society and Na Kupu‘eu Paemoku. The participants are concerned that people may be ignorant, forgetting that the Hawaiian culture is still alive. Therefore, access is imperative to the continuation of Native Hawaiian cultural practices. Kikiloi confirms this belief by stating, “.in our customs and traditions...There’s the saying, maka hana ka ike, knowledge is in doing...having Native Hawaiians continue to experience and reconnect, with the Northwestern Hawaiian Islands is vital” (Kikiloi 2008).

Research is another avenue some Native Hawaiians have utilized to reconnect and relearn about Panahānaumokuākea. Native Hawaiians, such as Kalie Tsuha, feel it is imperative to conduct their own research “....so that further rediscovery and revelation can transpire to assist with clearing the obscurity and provide understanding...” (Tsuha 2007).

**Response:** An acknowledgement of the importance of Papahānaumokuākea to Native Hawaiians is found throughout the Monument Management Plan (MMP). The MMP includes a Native Hawaiian Cultural and History Action Plan, and a Native Hawaiian Community Involvement Action Plan, with the goal to increase the understanding and appreciation of Native Hawaiian cultural values related to Papahānaumokuākea Marine National Monument. The plan has an entire strategy devoted to conducting, supporting, and facilitating Native Hawaiian practitioners access to the NWHI. During this past summer, six cultural practioners where provided access on research cruises to Papahānaumokuākea.

**Comment:** Many participants feel it's vital to restore original names and when necessary, give appropriate Hawaiian names to the islands that don't currently have one. "There are cultural reasons for that one is when you give a place a name, that adds to the mana of the place and adds to the understanding of the place as it reflex the whole. So every effort should be made to refer to the earliest known name possible to place the mana back" (Alia 2008). Many names are found in mo'olelo and oli so it is recommended that "a committee with various interested parties can be created for this purpose" (Tsuha 2007). Na Kupu'eu Paemoku has recently conducted their own research and implemented the work of Kikiloi in this naming process.

**Response:** The MMB will work with Native Hawaiian groups such as the OHA sponsored Cultural Working Group or Na Kupu'eu Paemoku seek the appropriate place names and to facilitate the process to restore the integrity of places with their Hawaiian names and/or to work towards development of appropriate names for those places without a Hawaiian name. If a traditional Hawaiian name cannot be revealed through research then the group may suggest a new name in relation to the wahi pana. In the MMP, there is a activity devoted to developing a process for Hawaiian naming of places, organisms and the like.

**Comment:** Nihoa and Mokumanamana are both listed on the National Register of Historic Places for their cultural and historical significance. There is great concern for these Hawaiian sites, they should be constantly monitored and cared for. Therefore, it is vital that the recommendations listed in the MMP for a preservation plan be implemented and carried out in a timely manner.

**Response:** As noted, there is a strategy in the Monument Management Plan devoted to this activity.

**Comment:** Several participants are concerned about the military presence in the monument. These participants oppose any further impacts such as war games, bombing and missiles tactics especially near or over Nihoa and Mokumanamana.

**Response:** The military is exempt from the provisions of the Proclamation. Under the Proclamation the military is required to respond if any Monument resources are harmed, lost, are destroyed. The military must operate in a manner that avoids impacts on the Monument resources and qualities, if possible. This is actually a much stronger obligation than is required of the military for its activities in other areas. Furthermore, the military is not exempted from all other applicable laws and regulations including the Endangered Species Act, the Marine Mammal Protection Act, the Wildlife Refuges Act, cultural consultation under the Native American Graves Protection and Repatriation Act, and the Migratory Bird Treaty, to name a few. The Monument Management Board (MMB) is working with representatives of the military to develop a consultation process for military activities in the Monument, which will ensure that resources and qualities of the Monument are not harmed.

**Comment:** Cultural practitioners Keone Nunes and William Aila stress the importance and concern in regards to gathering rights for cultural practices, such as but not limited to, Koa'e 'ula bird feathers for making of kähili and Ka'upu bird bones for the art of Kākau (tattoo).

**Response:** The Proclamation and State law allows for non-commercial subsistence gathering for perpetuation of cultural practices under the Native Hawaiian permit issued by the Monument Management Board.

**Comment:** Several participants—including representatives of Kāheha—voiced concerns about commercial fishing in the waters off the monument. “Opening this area up to the general public and commercial fishing will disrupt the sanctity of this area” (Kikiloi 2004). Interviews conducted prior to this report also voiced similar concerns regarding fishing in Papahānaumokuākea. The following recommendations come from Kepa Maly’s 2004 testimony to WESPAC see appendices for full testimony:

a) Subsistence fishing should be allowed, and will continue. Kūpuna felt strongly that the use of ocean resources in the Nā Moku 'Aha is not only a part of their cultural identity, but it is also their responsibility—their kuleana. In their view subsistence use includes the idea that you take only what you need, and that you also give back. In Nā Moku 'Aha, kuleana obliges you to use, but to also care for and protect the area. This is expressed in the Hawaiian concept “Ho'ohana aku, a hō'ola aku!” (Use it and let it live!) (Kupuna Ka'anā'anā, October 27, 2003).

b) Future commercial use of the waters and resources of Nā Moku 'Aha should not be allowed. It is not culturally appropriate, nor economically or ecologically. Kūpuna saw first-hand that fishing in Nā Moku 'Aha forces the fisher to overexploit resources in order to get some return for their investment. They have seen the over harvesting and exploitation of many species including the armorhead, giant 'ama'ama, black 'ulu, black lipped pearl oyster, weke pueo, small mullet, and the collapse of the lobster fishery three times. The over fishing and collapse have occurred irregardless of the “best science” and determinations of “maximum sustainable yields.”

**Response:** Under the Proclamation, commercial fishing for bottomfishing will be phased out by Dec. 2011. All other types of commercial fishing are no longer allowed.



## 9.0 REFERENCES

- Ayau, H., and T. K. Tengan. 2002. Ka Huaka'i o Na O'iwi – The Journey Home. In *The Dead and Their Possessions: Repatriation in Principle, Policy, and Practice*, eds. Frode et al., pp. 171-189. New York: Routledge Publications.
- Baco-Taylor, A. E. Yam, E. C. Kelley, Smith, J. R., and S. Cairns. 2006. Distribution of Deep-Sea Corals in Relation to Geological Setting in the Northwestern Hawaiian Islands. *Eos Trans. AGU*, 87 (36), Ocean Sci. Meet. Suppl., Abstract OS11E-03
- Beckwith, M., ed. & trans., 1951. *The Kumulipo: A Hawaiian Creation Chant*. Honolulu: University of Hawai'i Press.
- Benoit-Bird, K. J., W. W. L. Au, R. E. Brainard, and M. O. Lammers. 2002. Diel Horizontal Migration of the Hawaiian Mesopelagic Boundary Community Observed Acoustically. *Marine Ecology Progress Series* 217: 1-14.
- Cleghorn, P. 1988. The Settlement and abandonment of Two Hawaiian Outposts: Nihoa and Necker. In: *Bishop Museum Occasional Papers* 28:35-49. Bishop Museum Press, Honolulu.
- DeMartini, E. E., and A.M. Friedlander. 2004. Spatial patterns of endemism in shallow-water reef fish populations of the Northwestern Hawaiian Islands. *Mar. Ecol. Prog. Ser.* 271:281-296
- DeMartini, E. E., and A.M. Friedlander. 2006. Predation, endemism, and related processes structuring shallow-water reef fish assemblages of the NWHI. *Atoll Res. Bull.* 543: 237-256.
- Emory, K. 1928. *The Archaeology of Nihoa and Necker Islands*. Bishop Museum Bulletin 53. Bishop Museum Press, Honolulu Graves, M., and K. Kikiloi. In prep. Preliminary Reconnaissance Report for the Archaeological Sites of Nihoa Islands, February 2006. Prepared for the U.S. Fish and Wildlife Service.
- Friedlander, A.M., Aeby, G., Brainard, R., Clark, A., DeMartini, E., Godwin, S., Kenyon, J., Kosaki, R., Maragos, J., & Vroom, P. (2005). The state of coral reef ecosystems of the Northwestern Hawaiian Islands. pp. 270-311. In J. Waddell (ed.), *The state of coral reef ecosystems of the United States and Pacific Freely Associated States: 2005*. NOAA Technical Memorandum NOS NCCOS 11.
- NOAA/NCCOS Center for Coastal Monitoring and Assessment's Biogeography Team. Silver Springs, MD. 522 pp.

Gon, S. 2003. Application of Traditional Ecological Knowledge and Practices of Indigenous Hawaiians to the Revegetation of Kaho‘olawe. *Ethnobotany Research and Applications* 1:5-20.

Handy, C. E. S., E. G. Handy, and M. K. Pukui. 1972. *Native Planters in Old Hawai‘i: Their Life, Lore, and Environment*. Bishop Museum Bulletin 233. Honolulu: Bishop Museum Press.

Harbottel-Boyd, J. 1886. Report to the Minister of Interior relative to the Annexation of the above or Mokupapapa to the Hawaiian Islands. Interior Dept. of Land, Sept. 1886, Box 87, Hawai‘i State Archives. Honolulu.

Hawai‘i Environmental Impact Statements. Hawai‘i Revised Statutes. Chapter 343, State of Hawai‘i

Hawai‘i Endangered Species. Hawai‘i Revised Statutes, Chapters 183D and 195D, State of Hawai‘i.

Irwin, G. J. 1992. *The Prehistoric Exploration and Colonization of the Pacific*. United Kingdom: Cambridge University Press.

Kamakau, S. 1976. *Na Hana o ka Po‘e Kahiko* [The works of the people of old]. Bernice P. Bishop Museum Special Publication 61. Honolulu: Bishop Museum Press.

Kaunamano. 1862. *Ka Mo‘olelo no Aukelenuiaiku*. *Hk o ka Pakipika*, 6 Nov.-18 Dec.

Keo. 1835. Information on ancient heiaus and famous stones of religious significance. Lahainaluna student composition. Bernice Pauahi Bishop Museum Archives #HI.H.107.

Kelly, M. 1989. Dynamics of production intensification in pre-contact Hawai‘i. *What’s New? a closer look at process of innovation*. London.

Kelley and Ikehara 2006. The impacts of bottomfishing on Raita and West St. Rogatien Banks in the Northwestern Hawaiian Islands. *Atoll Research Bulletin* 543: 305-318.

Kikiloi, K. 2003. A new synthesis in oceanic domestication: the symbiotic development of loko i‘a aquaculture in pre-contact Oceania. In *SPC Traditional Resource Management and Knowledge Information*, Bulletin 15.

Kikiloi, K. 2006. *Reconnecting with Ancestral Islands: Examining Historical Relationships between Kanaka Maoli and the Northwestern Hawaiian Islands*. A Report by the University of Hawai‘i Center for Hawaiian Studies to the National Oceanic Atmospheric Administration and the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve.

Kikuchi, W. 1976. Ancient Hawaiian Fishponds. *Science*, vol. 193. pp. 295-299.

Liller, W., 2000. Necker Island, Hawai'i: Astronomical Implications of an island located on the Tropic of Cancer. *Rapa Nui Journal*, vol. 14 (4).

Lili'uokalani, L., trans. 1978. *The Kumulipo: A Hawaiian Creation Myth*. 2nd ed. California: Pueo Press.

Liller, W. 2000, Necker Island Hawai'i: Astronomical Implications of an Island Located on the Tropic of Cancer. *Rapa Nui Journal* 14:103-105

Mackenzie, M. K., and B. Kaiama. 2003. *Native Hawaiian claims to the Lands and Natural Resources of the Northwestern Hawaiian Islands*. Report to Office of Hawaiian Affairs.

Malo, D. 1951. *Hawaiian Antiquities: Mo'olelo Hawai'i*, translated by N. B. Emerson. Bernice Pauahi Bishop Museum Publication 2. 2nd ed. Bishop Museum Press, Honolulu

Maly, K. 2003. *Ka Hana Lawai'a a me na ko'a o na kai 'ewalu: A history of fishing practices and marine fisheries of the Hawaiian Islands*. Kumu Pono Associates LLC. Prepared for The Nature Conservancy.

Manu, M. 1899. He moolelo kaa Hawai'i no ke kaa nui weliweli mawaena o Pele-Keahialoa me Waka-Keakaikawai. He mau kupua wahine kaaeaa. *Ka Loea Klai'ina*, May 13-December 30.

National Oceanic and Atmospheric Association (NOAA). (2006). *State of the reserve: Northwestern Hawaiian Islands coral reef ecosystem reserve 2000 – 2005*. Silver Springs, MD: National Marine Sanctuary Program.

Office of Hawaiian Affairs. Wahi Pana Database. [www.oha.org/index](http://www.oha.org/index)

Poepoe, K., P. K. Bartram, and A. M. Friedlander. 2003. *The Use of Traditional Hawaiian Knowledge in the Contemporary Management of Marine Resources*. Putting Fishers' Knowledge to Work Conference Proceedings. Fisheries Centre, University of British Columbia, Vancouver, 27-30 August 2001. URL: [http://www.fisheries.ubc.ca/publications/reports/report11\\_1.php](http://www.fisheries.ubc.ca/publications/reports/report11_1.php).

Presidential Proclamation 8031. 15 June 2006. (71 FR 36443) Establishment of the Northwestern Hawaiian Islands Marine National Monument Presidential Proclamation 8112. 6 March 2007. Establishment of the Papahnaumokukea Marine National Monument (72 FR 10031)

Pukui, M. K., and C. Handy. 1950. *The Polynesian Family System in Ka'u Hawai'i*. Polynesian Society, Wellington.

Pukui, Mary Kawana, Samuel H. Elbert 1986 Hawaiian Dictionary; Hawaiian-English, English-Hawaiian, University of Hawaii Press, Honolulu, HI.

Pukui, Mary Kawana, Samuel H. Elbert and Ester T. Mookini 1974. Place Names of Hawai‘I, University of Hawaii Press, Honolulu, HI.

Roark, E. B., T P. Guilderson R B. Dunbar B. L. Ingram. 2006. Radiocarbon-based ages and growth rates of Hawaiian deep-sea corals *Mar. Ecol. Prog. Ser.* 327: 1–14,

State of Hawai‘i et al., (State of Hawai‘i, U.S. Dept. of Interior and U.S. Dept of Commerce). 2006. Memorandum of Agreement among the State of Hawai‘i Department of Land and Natural Resources, and the U.S. Department of Interior U.S. Fish and Wildlife Service, and the Department of Commerce National Oceanic and Atmospheric Administration, promoting the coordinated management of the Northwestern Hawaiian Islands Marine National Monument. Signed 8 December 2006.

Tava, R., and M. Keale. 1989. Niihau: The Traditions of a Hawaiian Island. Mutual Publishing, Honolulu

Titcomb, M., and M. K. Pukui. 1952. Native use of fish in Hawai‘i. Polynesian Society Memoir No.29. Avery Press, Ltd., New Plymouth, N.Z.

Titcomb, M., D. B. Fellows, M. K. Pukui, and D. M. Devaney.1978. Native use of marine invertebrates in old Hawai‘i. *Pacific Science* 32 (4).  
U.S. Public Law 103-150 (Apology Bill). 1993. Pub. L. 103-150, (Presidential and Congressional Resolution).

Tsuha, Kalei. 2007(in press). Draft Analysis & Study of Significant Alignments on Kauai, Haena Ma (Mokumanamana), Nihoa, Kaula, Niihau, & Lehua. A report prepared for Haae Wale Hanauna Lolo. Honolulu

Warther, Francis & Meech, Karen. 1996. Search for Unity – Kilo Lokahi: Astronomy and the Voyage of the Goddess Pele in Ancient Hawai‘i. Conference Paper

Wise, J. 1924. Ka huakai i na mokupuni ma ka akau-komohana [A journey to the islands in the north-west]. *Ka Nupepa Ku‘okoa* 62 (29), July 19.

Ziegler, A. 1990. Search for Evidence of Early Hawaiian Presence on Lisianski Islands, NWHI, Summer 1990. A Report prepared for State of Hawai‘i and Office of Hawaiian Affairs.

## APPENDICES

### Appendix A: Transcripts of Interviews

Transcripts for Wilma Holi and Nolan Holi will be provided at request only.

William Aila (WA), July 16th 2008

Wai`anae Small Boat Harbor

Interviewed by Kēhaulani Souza (KS) for the Department of Land and Natural Resources

---

KS: Do you agree that I can use the interview that you did with Na`alehu and Sterling (OHA) and this is a supplement to that interview?

WA: Yes I do.

KS: So basically what I wanted to add to that interview is do you feel that the NWHI can replenish itself? Do you feel it is okay to fish up there?

WA: Let me answer the first question from a biological commercial fishing standpoint my recollection begins with the kupuna Kapahulehua, uncle Walter Paulo, uncle Buzzy Agard, Ka`anā`anā all those folks that have been there that have fished, tried to commercial fish there. All entertain it's not sustainable there. My feeling is that upon the knowledge of this kupuna that the commercial fishing is something that should not be allowed there. Another, the Western Pacific Fishers Management Council has made overtures and suggestions that commercial fishing is a culturally appropriate activity in the North Western Hawaiian Islands, because Hawaiian's commercial fish. To that I say, I agree Hawaiian's commercial fish in the main Hawaiian Islands and that commercial fishing is out growth of barter in the system and that began post connection with the outside world, by European explorers. Prior to that, our original barter system, the families up mauka, didn't say okay tomorrow were going makai and the going rate for kalo lehua, is five akule, they just never did that. They sat around and talked about okay, today we going makai and aunty so and so this is her favorite, uncle so and so this is his favorite. So we are going to gather those resources and were going makai and were going to pick them and at the same time the folks makai know they were coming. So they would know that aunty up mauka her favorite limu is this, and her favorite crab is this, her favorite fish is this, and they would go and gather so it wasn't a haole perspective of bartering. A Hawaiian perspective of ho`i, ho`i and taking care of the family. This bartering system that sort of the economy was switch on Hawaiians which in the main Hawaiian islands because of our ahupua`a system allowed for that sort of changing from a bartering system to a one on one cash payment. Yes I would say that Hawaiians that live in the main Hawaiian Islands certainly considered commercial fishing an extension of traditional practices because through no fault of their own those families that were fishing families had the economy to change all that. In Northwestern Hawaiian Island especially Nihoa and Mokumanamana there was no ahupua`a system. The distance from shore to mauka is so short that there were no families living up mauka and makai. So the

Western Pacific Fisheries Management theory of fishing commercial fishing should not be allowed in the NWHI it does not fit. The same people who live for several hundred years on Nihoa and Mokumanamana did so by utilizing the resource mostly makai and a little bit mauka. So no commercial fishing in the NWHI! Because the kupuna have said so and because tradition and history says according to traditional practices that there has been no commercial fishing out there prior to captain cook. I am not in favor of commercial fishing!

KS: So basically your main concern is?

WA: Well that was from a biological standpoint! Spiritually I still think that Hawaiians can have already resurrected that relationship with the `āina the kai. The more that we pay attention and pray to and pray with those the stronger the connections come. And for folks who seek `ike the stronger that connection becomes the deeper the `ike will be.

KS: Can you talk about the significance of the repatriation of `iwi kupuna.

WA: the one with Halealoha, Maka them. The idea was as part of the larger re-burial of kupuna reconnected their `uhane on their journey, there was `iwi found in the bishop museum that was from both Mokumanamana and Nihoa. So it is part of the larger process of taking hold of this type of burial and making sure they were re-interred. There maybe other `iwi that were taken from that area that are sitting in other museums outside of the united states so in that case it would be the kuleana of some Hawaiian. Some Hawaiian who would cherish that kuleana to certainly go back there you know given the fact that you have to worry about the birds and the plants freezing this and that. I think that are good protocols because we have a kuleana to both... those that have to take of the eco system the `āina that they area. So that's why we as Hawaiians agree to abide by the protocol. It is in the act of protecting of what is there now to keep it sustainable for future grandchildren.

KS: Are you concerned about the increased human impact on the environment?

WA: Well certainly be responsible for your access to the NWHI Papahānaumokuākea is always is introduced pest. So access has to be one that is good intent and is not going up there to maha`oi and trying to accomplish something that is positive to add to the body of knowledge to honor the `uhane that area there the kupuna that are there the stories that have been passed down honoring those kinds of things would be good reasons to go up there research that could help invasive species that can help the species that are in trouble that can help explain why thing are the way they are up there. To make things better in the main Hawaiian Islands all of that and any research that adds to the body of knowledge that helps. Cannot have too much research the research has to be spread out over a period of time over a large area so that it is not that detrimental to Papahānaumokuākea. Besides research if we had two thousands Hawaiians on the island going every where that would not be good too! First what would there intent be? In the future we are going to work with Fish and Wildlife Fisheries because there are cultural



sites on the island that are being impacted by the birds and that needs to be mitigated so how do we mitigate the action of the endangered species on a cultural site and where is the balance. That is something that native Hawaiians and Fish and Wildlife will have to work out and I am sure it can work out. In a way that it is not harmful to the birds but at the same time prevents the cultural sites. It is not just protecting the pile of rocks it's about honoring the pile of rocks it's about those who put their blood and their sweat who put their tiers into the pile of rocks. So it is going to be a rocky road but certainly one that needs to be traveled. I think Fish and Wildlife has a duty to consult under section 106 of the National Historic Preservations Act. The consultation cannot be like that of the army, they send you a letter to get you opinion and they employ. It has to be one of, we got you opinion and now how can we work things out with the physical, the biological, and the spiritual of Papahānaumokuākea. If we all work together we certainly can accomplish all of these three goals because it the sum of the whole of all of these goals its not ....you cannot have one without the other one.

There is one concern of mine of access by the folks of the pacific missile demar. Currently it looks like from the environmental impact statement that they are proposing-- that there is a possibility of them proposing shooting missiles and missiles coming in that intercepts over both Mokumanamana and Nihoa. Which will then have the potential for either broken pieces of rockets or whole rockets or miss fired rockets landing on not only the cultural sites but the biological sites. Because the rocket fuel is there and it has been known to be hazardous and if it rains down it could have an impact. If broken pieces rained out it could have catastrophic impacts on the cultural sites as well as the biological so the recommendation that the RAC is going or that I will personally make is that the military take a look at changing what the fan of the surfaces dangers are, away from the two islands. So at least when they fire the chances of any impact on the two islands or the water surrounding, are further away. So mitigate the maximum extent possible to the point of not firing. I am not sure of the underground warfare because we didn't get a chance to talk about it a lot in the EIS. But then again if they run a ground if they spill oil that would be an huge impact.

KS: What about the marine archaeology?

WA: Yeah! Many of those ships area predated pre annexation subsequent territory of Hawaii and state of Hawaii from a Hawaiian perspective many of those ships belong to the Kingdom of Hawaii and the nationals of Hawaii. The monument managers and the national managers of the monument need to understand this claim and this affiliation towards those ships and there is should be certain consultation should be a type of recovery or curator ship of "artifacts" of these shipwrecks before they take action. There should be real consultation weather or not the artifact would be removed and if they are removed where are they going to be. So that needs to be done.

I think in the cultural working group- the Hawaiians that I have spoken to is that the desire to go back and recognize the earliest things for parts of, parts of the islands and atolls that comprise of Papahānaumokuākea. So if research determines that through oli or through chant or documentation of annexation place things within this moku the moku of

Nihoa the moku of Manamana that there be a conscious effort to utilize the earliest land claim.

There are cultural reasons for that one is when you give a place a name, that adds to the mana of the place and adds to the understanding of the place as it reflex the whole. So it leads to the deeper understanding of that particular `āina and the whole moku and the events that have accrued at the time of the naming. So it's not a matter of wanting to get rid of the haole names, it's a matter of returning the mana and the respect the first folks that were there who gave its original name and understanding why the original name was there. Often times the original name is there for a reason it is pointing to a resource, its pointing to a reference point in navigation, its pointing to a very special person who did something there or an ancestor from where they come from to honoring that ancestor when they land, thanking that ancestor for guiding them and protection. So every effort should be made to refer to the earliest known name possible to place the mana back.

KS: World Heritage Status?

WA: I am in support of World Heritage Status! For one it brings additional recognition to the special ness to this place not only biological we all know how special it is biologically how-40% of the species there are indigenous that's nice and it is important. But there is another layer to that and the other layer is its special for native Hawaiian history, native Hawaiian genealogy. World Heritage application should treat both sides of that application equally as a significant as a significant biological as well as a significant cultural place. To me there no down side because some people say oh well that would bring extra tourist, the average person cant get there. The only place that the tourism is going to be continued to be aloud is with an increase with a proposed increase from 30 people overnight to 50 people overnight is at Midway. That tourism at Midway helps to supplement the operating cost for the important field station up there as well as the run way open incase there is a mid-pacific flight that needs to land. The down side to World Heritage Status is so minimal compared to the up side. The recognition by other Polynesian as well as international societies of how special this place is for both its biological and cultural. So I am fully in support for the life of me I can't understand why any Hawaiian is not in support of this.

KS: Mahalo for your time!

Louis “Buzzy” Agard (BA)

July 10th 2008

On the Island of O`ahu

Interviewed by Kēhaulani Souza (KS) for Department of Land and Natural Resources

---

KS: Ok so do I have your permission to tape record and use this interview.

BA: Yes.

KS: and your name is?

BA: My name is Louis Buzzy Agard.

KS: I have this interview that Kepa did and I don't want to ask the same questions again. But can you talk a little bit about yourself where you were born and your parents names so that we can acknowledge them and bring them here too?

BA: Ok I was born 1924 February 25, here in Honolulu at Kapi`olani Women Children Hospital. I am actually from the island of Kaua`i. I left there when I was 12 years old-a country boy to go to Kamehameha Schools. My mother's name was Aloie Mariah and Hawaiian name Kahaulo`iahiahiahi. When I ask my mother what that meant she said red hot lovers at sunset in the taro patch.

KS: Wow!

BA: And uh so I was curious! Hawaiians were named after something or in the event of the occurrence of the time of birth so. What does your name mean so that I can understand like kaha and bowl of poi and kaha make and lo`i taro patch meaning an event of some kind in the taro patch. Ahiahi meaning very hot so she explained that was my uncle and aunt making love in the taro patch and they gave me that name. I said but “that is your name it's not your aunty and uncle name, so what does that mean” So she did not explain very well so I had to interpret it. So yeah my mother was Aloie Mariah Kahaulo`iahiahi Prestidge. Her father was an English man.

KS: How many years did you fish up north and when did you realize that the area was fragile?

BA: 10 years because I kept going deeper and deeper. I started with in shore then off shore went into depths then into pelagic and I was catching then I ran out of reef fish first.

KS: What type of reef fish?

BA: Moi, mullet, `āholehole. You have to stop, they don't come back, You have to switch. It became apparent if there was a break down in one of the five things about fishing you have; sick men, bad weather you can't go fishing, broken down boat, wrong season that you fish. You have to have five conditions to make a successful trip. If any one of those five conditions- you cannot go with the limited resources at your disposal to fish your out. So this still happens today if you have a boat and no crew your out! If you are fishing in the wrong season your out!

KS: So 10 years later you realized that you needed to stop fishing?

BA: Yeah! I had to stop. I gave up! I told you I looked ninety degrees to Honolulu, set the compass and never looked back, never turned back. That was the end. After ten years I struggled, tried to make it unique most of the guys fished with me died out there. They lost there lives. It was an unsustainable fragile, you cannot manufacture the fish, I was not in the business of breeding fish.

KS: In another interview, you mentioned a biologist that said that there were no nutrients up north?

BA: Yeah his name was Okumoto. He worked for the DLNR he said "you know Buzzy you know the fish you catch down there we went down there for check the nutrient and you know not enough for sustain the size operation you run". I said, "what you mean there is plenty fish here." He said "no the nutrient to feed that supply which is not there what you are catching is the cream of the standing stock. When you fish you going have nothing" which is true! What he meant was you had to go out deeper and deeper hoping and praying checking every so often and that's what I told the university. I go back the next week and fish, no fish go back the next month no fish, go back the next year no more ball, go back the next ten years, no never saw it again.

KS: Did you see any cultural practices during the time you were up there?

BA: No. After all of this became open I suggested to Nainoa you have been sailing all over to Tahiti and all over why don't you guys sail up to the island.

KS: How important do you think it was for Hawaiians to do that?

BA: Well it gave us a strong cultural impetus too, it was a opportunity of what you know about our culture and to practice it and what you don't know you can implement and put something together that you know about. And say well you can do this type of voyage where it is risky. And you know that some Hawaiian some place, some time have seen those same things you are looking at and what was the wonderment and their idea at that time. You can make a composite of knowledge when you have all of that and you can make it fit.

KS: So do you think it is still important for native Hawaiians to go up there?

BA: I think that they would gather some connection out of it. They can identify to it if they know their history then they look at what other Polynesians have looked at. I think that the ora about that is self sustain you can look and you can see and not all of them ended up here. ...

KS: So earlier, you mentioned you were concerned about the human impact on the monument?

BA: Yup Yup! Yes and Kāhea have adopted it and that means no human footprint! Never mind all the books that says do no harm meaning you are there already but they are telling you do no harm. I don't think that is right if you are letting too many people in. We don't need any body up there what we need is for the place to recover naturally! And then they migrate and get carried down here by the currents like they always have been. Because they area the same DNA because the fish they have tagged up there have been found tagged down here. There is this interchange and if there is only 100 miles across, the fish can swim 100 miles guarantee. But the current itself now we find the counter currents and everybody always thought that the trade winds always went in the direction and that the currents went in that direction but they find that the currents move in all kinds of directions. The Hawaiian 1500 mile chain is like a big strainer, straining everyday. Everyday the sunrises and the current follows the sun -its the closest and it pulls up this mass of water and causes the tide and the tide starts at sunrise close to the eastern region and follows the sun all day till it sets in the western region. But if the sun and the moon are aligned together then you have the double pull then you have the double tide. When the sun and moon are together or getting close together you have this going on every day and this is a massive of water for it to raise for one to two feet. For how many miles this massive thing moving every day with the sun.

KS: Do you feel it is important for Hawaiians to be involved in the management of the monument?

BA: Yeah in the old days that was the primary thing for existence. Everything they did was in tuned with nature to make it possible planting doing all this work they were used to hard work. That's all they ate so they had to know this and Hawaiian society it all revolved around the environment

KS: What is your main concern for Papahānaumokuākea?

BA: Well Kāhea adopted the idea. Mine is no human foot print. If we leave that natural place alone it can continue to reproduce and continue to feed us. Because food is important and I say no human footprint which means no carbon footprint if humans are up there's carbon up there. They are going to be burning oil and put carbon in the atmosphere. They do all kinds of things that you don't need up there you can bring your oil gear and let the fish propagate up there...so I say no human footprint.

KS: Are you talking on a large scale?

BA: Yeah?

KS: Can you define that?

BA: Well when I say no human footprint I mean like guys who want to go up there like tourist guys that want to go up there, who want to go fishing, like charter boats fishing, which they have been doing.

KS: Just to clarify, so you're saying no human footprint means no tourist, no fishing what about cultural practices?

BA: Yes, cultural practices are allowed because they are not going to do anything that is harmful. But when you start talking about new things everything they do is harmful that's why we have problems like warming. You name it that's a big problem burning phosphor fuel. Everything, if you leave it alone up there it can recover but at the same time if you spread that living organism you can enjoy. Cause you know already it travels down here cause it has been tagged. We know that the DNA is the same cause it has been tested. There is always people who are going to want to do research to get their Ph.D. That's the other side and they can always get money out of the government because the government is always looking as if this is a break through then we got more economic impetus. That's what this world is about. One cultural is natural is saying I just want to exist and the other one is I want to make more money. The two psychology is different. When you have enough there is no need for getting more. But the Americans if they got plenty they want more. They have a propensity to make more money. The whole idea is to make money everything they look at is to make money.

KS: Are you confident in the management plan?

BA: So far we have had some problems and the last thing here is wide open. When they dropped out all these revisions and excluded all the things that Kāhea was asking about. I asked that girl Susan White why did you guys drop all the insights into managing the place. I asked why was it all avoided. Her explanation was the proclamation is the strongest implied thing that we have to do that is in the document. Well, that means that we have to go get all the books and go read the proclamation so that we know. What I am saying is why don't you just put it into the permitting process already so nobody has to go find the book and go read it. They have all the money to do this and they want to continue to use this place for defense. It is a great big place out there. I mean God they shoot their missiles back and forth dropping in the water. They shoot their missiles on to Ka`ula Rock the whole thing is collapsing into the ocean. Now you look at it steep like that and you can not even climb up it to go look at the artifacts because that's where they practice. They lost Kaho`olawe now they go out there and they tell the pilot and say you find this target with so and so coordinates and when you get there you are going to fire a rack of rockets and you hit it and you know where you are supposed to be and you do it. That is what they do and no one is out there but I am out there and I see it! So I talk about it. I tell um eh they are out there and they are practicing now, they are practicing shooting



down the missiles. Some place shooting it down over Nihoa letting it fall on the island and killing all the birds. The birds are protected by federal law and here is the federal guys killing them. I have seen the sky filled with bird wing and bird feathers blown to bits, blown to bits! The island straight down like a cliff.

Based on what I know and what I have seen, don't do it. Don't go up there and go fishing! Leave it alone! There is nothing to be gained.

KS: Ok let's hit all of your cultural concerns again

BA: No fishing! No Bombing! No more war games up there anymore! Those islands 1200 miles 1500 miles long is farther apart-or the island that I am worried about is closer to us then that and that is Johnson Island. It is only 700 miles southwest. And they burn all of the poison gas there. You know, they brought it all back from Germany all the World War II stations. And they burned it there and they said that they weren't going to do it and they did.....

World Heritage Yes if you weigh the two sides the practicality of getting up there almost is zero! How can you get up there? You can charter a boat but it is going to cost you an arm and a leg! So you need a permit.

KS: West Pac still wants to fish up there NWHI?

BA: .....If you open the door sure they want the lobsters they are tied in to the big lobsters, the king crab in Alaska. When that season runs out ..in the past they been coming down here. They get thousands of traps and they rape the area. They take all the babies all the female's they don't care! So when you got that attitude the American attitude making money off of resources there is a big difference between indigenous people who take to stay alive and eat. Americans take all to sell and when they do that they take that standing stock that is waiting continually and put in the freezer. That works for the consumer because you can buy it later when that fish is in the freezer that fish does not reproduce, if you leave it there it is reproducing. So lets hope that we can educate them but not that system we have the capitalist system make all the money you can make take um all! Take um all! If you let them go they take everything the hell with the next guy.

KS: Do you remember any old timers talking about any traditional place names for any of the islands?

BA: You know in the last meeting they were asking what should we name these seamounts? Because out here there are more seamounts, the emperor seamounts that the Japanese named because they were fishing them. Because a seamount is `āina it is a place of food. Because at the base of the seamount it slopes that's where all the food gathers. So I suggested that we could name it according to age. I have not run across any Hawaiian that knew or even knew that they were there because an old Hawaiian did not have an dept recorder. It would have been very difficult for him to have found it. You

can do hand sound, I have done that before because I went fishing without an electronic device. I went with a hand sound. You throw the weight over and span it. When you bring it up at so many fathoms you set your hook ...other wise you would be too high in the air and the fish would be too far below to bite the hook so you have to do it that way. So I suggested to name by the old age by the number and the age.

Transcripts from Video Interview Conducted by Sterling Wong and Na‘alehu Anthony  
for the Office of Hawaiian Affairs

**Interview**  
**WILLIAM AILA**

QUESTION: So basically, first, say your name and spell it out.

AILA: Oh, sure. Uh, name is William Johnson Aila, Jr. William, W-I-L-L-I-A-M; Johnson, J-O-H-N-S-O-N; Aila, A-I-L-A; and Junior.

QUESTION: And you’re from ...

AILA: From Waianae.

QUESTION: Born and raised?

AILA: Born and raised.

QUESTION: What do you do for a living?

AILA: To pay the bills, I manage the Waianae Boat Harbor for the State of Hawaii. Uh, this will be my twenty-third year working for the State at the Waianae Boat Harbor. Um ... that’s how—what I pay the bills from. My passion is uh ... making things better for my community. So that’s what I do for the psyche part. [CHUCKLE]

QUESTION: And how do you do that? What kind of things do you do?

AILA: Well, belong to many groups that um ... sort of push the envelope, trying to—trying to ... trying to bring justice to uh, certain groups of people. Um ... Hui Malama O Makua, fighting for the return of Makua Valley. Um ... um, board of directors of Mao Farms, um, bringing organic agriculture, as well as leadership programs within that—that uh, program that ... produces, you know, off of the land. I mean, th—there’s no better way to ... to honor the land than by producing food for people. Um ... belong to Hui Malama I Na Kupuna O Hawaii Nei; you can’t find a more controversial group than that. Um ... just trying to bring peace and ... help our kupuna on their long journey um, after being ripped out of the ground, taken to many parts of the world, studied, abused ... uh ... treated disrespectfully. Um, so bringing them home, uh, showing them respect. I—as I said, putting them on their journey to po, so they can sleep the long sleep. That’s just a few. [CHUCKLE]

QUESTION: Plenty. What cultural practices do you engage in?

AILA: Um ... well ... fishing is the one that comes to mind first. Uh, fishing was a very traditional and customary practice. Of course, today, we used modern materials, um, but the psychology of catching fish, the intent um, uh, by which uh, you wake up in the morning and decide you're gonna go jump into the—the ocean um, to—to obtain resources i—is really the same, yeah? I mean, for sustenance, you know, you're gonna catch fish for food, you're gonna catch for your family. Um, sometimes you catch fish for religious reasons, yeah? If you're going to um ... for example, another practice—uh, this is gonna be our eighth year in Makua doing makahiki. Um, my job, of course, because I'm the fisherman in the group, is to go procure, um, the aweoweo. So ... fishing can be done for many reasons; you know, sustenance. Um, today, fishermen are commercial fishermen because the economy was turned on them. Um, it can be for religious reasons, can be for recreation. You know, there are many reasons to go fishing. My favorite reason is to make my aunties happy, 'cause they like certain kind fish, yeah? Cannot go wrong by making your aunties happy. So that's uh—all you fishermen out there, remember that. Find out what their favorite fish is, and once in a while on the special occasions, their birthdays and stuff ... show up with some of their favorite fish.

QUESTION: How'd you learn how to fish?

AILA: Interesting. Um, I learned how to fish from a few uncles, um, the basics. And then uh ... a lot of it, just ... on my own, being in the ocean ... doing what kupuna would have done. Being very observant about how fish behave, how they react to certain things, uh, what they do when the seasons change, when the water becomes colder. You know, those kinds of things. And then I was fortunate; as I ... as I grew into my teens and uh, my adult years ... I was able to talk to many people who I feel are great fishermen, who took the time to share with me um, techniques, took the time to share with me their philosophies, yeah? Um ... Carl Jellings, uh, not too much older than me, but a very astute, akamai fisherman, born and raised on the Waianae Coast ... um, fishes commercially, but fishes with ethics. And it's hard to find a fisherman who fishes commercially ... in combination with those ethics. Um ... Leslie [INDISTINCT] a good offshore fish—one of the best offshore fishermen that I know of um, took the time to teach me how to catch uku, um, how to catch papio, um ... and many others. I mean, talking to—talking to kupuna, asking them when they were young, what were some of the things that uh, they remember their kupuna doing. Uh, asking them about things like uh, giving hookupu, uh, things like um ... if they ever saw their tutus keep kuul—uh, kuula stones. And you'd be surprised; many of these fishermen that are in their seventies and eighties now, they recall. When you—when you ask

them those questions, and they think backwards, and they go, Oh, yeah, my tutu used to do that. You know. Talking to some of the—the Leslie family on Hawaii Island going, Okay, sometimes the akule schools and the opelu schools, they no come in, they stay outside. What would you guys do? We would take ... you know, Henry Leslie thinks back, and he goes ... Uh, my tutu, they would go get on black pig, and they would kill the black pig, put ‘em in the imu, and then take—as soon as they took it out of the imu, feed everybody down at the beach, whoever was there, everybody would eat. Whatever is left, take ‘em out on the canoe, offer that as hookupu, and then within a matter of a day or two, the schools would come in. So ... triggering those memories in those kupuna, uh, making them ... sort of making them uh, go backward, looking at the lessons or the values that sort of were shared with them from a cultures—cultural perspective, but not something that is in their conscious today because of the need to—to live in a Western world, um ... shows that ... innately, they still have those—they still have the connection to their kupuna and those cultural practices uh, that those kupuna used to do. It’s—it’s still there; you just gotta trigger those memories, and then they will—they will share the things that they saw, that they continue to do today.

**QUESTION:** What do you think is the importance of the culture to you, and to the wellbeing of Hawaiians in general?

**AILA:** I think Hawaiians today, a lot of the problems that Hawaiians face today is because we’re forced to live in a world that’s schizophrenic. And what I mean schizophrenic is that we have to ... we have basic Hawaiian values that are ... based on what is best for ... our families, then our ... extended ohana, then our villages, uh, then our moku. And today’s society, it’s superimposed over that um, has the emphasis on the individual. So what is best for the individual. And it’s—it’s these two culture clashes that cause a lot of the problems, because many Hawaiians can’t figure how to live with their feet in both worlds. And therefore, they get toppled over on one way or the other, often leading to, you know, um, drug abuse, leading to uh, domestic violence, leading to uh, some of the social ills that we have. It’s because their foundation uh, in the Hawaiian world, which is based upon what’s best for—what’s best for me and you, not necessarily what’s best for me, um ... is not solid. If we could teach more of our kids that basic foundation, that it’s really about—not about you the individual, but how ... how you interact with the rest of your family, and how the health—health of the family is the most important thing, um, then the health of the community, and build upon that outward; uh, if they had that solid foundation, they could survive anywhere in the world. And that’s what our kupuna had a hundred years ago. I mean, you ... you think back um ... I always go back to the aunties, yeah? You look at aunties; they’re always making sure everybody get something to eat, they always making sure everybody get enough sleep. They always make sure that um ... uh,

you have enough time for play. You know, always make sure the work is done too, but it's that balance that uh, that the aunties bring um, that really is the core of—of Hawaiian values, yeah? What's ... what's best for everybody around the table, as opposed today what's—I'm the most important thing, yeah? I mean, I see too many Hawaiian kids running around, thinking they Popolo. And it bugs the hell out of me, because they're not Popolo. Popolo is someplace on the mainland in the ghettos. And we don't have ghettos, especially in Waianae. You know, so when you walking around with the hat sideways and your okole sticking out ... it's a void, yeah? We—we're not doing enough as parents, we're not doing enough as makua, we're not doing enough as kupuna to instill those—the—those cultural values on the next generation. And as long as that void is there, it's gonna be filled by the media. And so we gotta make sure that uh, we offer these—this ability for our children to look at the media today, separate what is ... what is fact, what is fiction, what is good. And if they had a good foundation, they'd be able to do that.

[GENERAL CONVERSATION]

QUESTION: [INDISTINCT] your background with the area. What's your experience with the region and ...

AILA: Okay.

QUESTION: [INDISTINCT]

AILA: Well, I—I'm—I've been to Midway once. Um ... and uh, it was a ... it was a very uh ... personal experience for me, because I had heard fishermen talk about three-pound akule, you know. And I, as a young, skeptical fisherman, having not seen any, I thought that they were—you know, the older folks were just pulling my leg, like oftentimes older folks will, yeah? They just like see how much uh ... how much you really know. They'll—they'll feed you a little bit, and just check. So you know, they would talk about akule that were three pounds. So, okay, I—I listened. But I never saw anything bigger than about uh, a pound over here, as I grew up. So when I got to Midway, I jumped in the water and snorkeled. Like I wanted to see the place, I wanted to taste the waters; something that I do, yeah, every place I go. Jump in the water, taste the water. 'Cause the water is—you can actually taste the difference in salinity as you go around the islands, yeah? Um ... was—was snorkeling, looking at the fish; lots of big fish. Um ... but not a lot of ... variety in terms of uh, species. But I was swimming, and I came across this big shadow, and I thought, Oh, no, here comes a big shark. I backed up; and as I backed up, the fish came closer to me, and I saw that it was a school of fish. And as it got closer and I could make out the individual fish, um, I saw akule that were indeed at least three pounds, and maybe even bigger.



And it got me to—into thinking about what they call a sliding um, a sliding base, yeah, a scale, uh, that w—the sizes of fish that we grew up with and we see, and we think is big today, um, really isn't as big as our grandfathers and great-grandfathers saw. So ... kinda like that M&M—M&M commercial; you see the guys go, Hi, then—you know, he's look at Santa, and Santa's looking at them, and he's going, Aha, they do exist. Well, for—it was one of those moments for me, where, yeah, those three-pound akule do exist, and ... why the heck aren't we having three-pound akule in the main Hawaiian Islands, and what can we do to make it happen again. So that's—that's my—my—you know, my ... my take-home message from jumping in the water at Midway. That we have a long way to go in terms of matching the responsibility or the kuleana that our tutus had um, in returning those size fish, yeah? Um, if you read some of the old um ... stories from uh, some of the old fishermen around the turn of the century, eight—1800, they would talk about mullet that were three feet long. You know, they would talk about fish of that kind of size. Uh ... people would talk about lobsters that were twenty pounds. I mean, to—today, if somebody told you, Yeah, I saw a lobster twenty pounds, you would think, Well, what were you on? But the reality is, they do exist. Um ... right now, they exist here, but they exist kinda far off shore, around at three hundred feet. People see 'em, they're there; but they're not up here, and that's the problem, yeah? They used to be up here. And so we need to ... we need to search inward um, get away from the I, me, my, I going take everything that I see before somebody else takes, what am I gonna give up to make sure that my kids get to see something, or my grandkids get to see something better or closer to what ... my tutu saw. Um, that's the lesson that I took back from the ... my first visit to Midway. Um ...

QUESTION: When was that?

AILA: M-m ... was probably about five, six years ago. Yeah. Um ... my experience with the Northwestern Hawaiian Islands began with uh ... even prior to the creation of the ... the nat—what's it called, the—the National Marine uh, the National Coral—Coral Reef Ecosystem Reserve Council. Um, about two years prior to that, I went uh, with a group of folks to the State of Hawaii to try to get them, the Land Board, to create uh, its own reserve in State waters. And while we were undergoing that process, um ... met with other Hawaiians and non-Hawaiians who then began the process on the federal side too. So you had folks like um ... the Harps, Isaac and Tammy, Uncle Buzzy Agard, um ... Auntie Vicky Holt Takamine, you know, who—who went to Washington, DC to sort of promote this idea of creating, at time, in the year 2000, a monument. Um, unfortunately, President Clinton at that time was told by his legal staff that uh, a monument wasn't the best way to go about doing the protection. He also didn't have a favorable Congress at that time, um, to back him up. So

the next best thing that he ... could do was a reserve. And then uh, the deal that he made with Congress was, it was a reserve supposed to transition into a marine sanctuary, yeah? Fast forward to two thousand and um, six, and ... uh ... the Bush administration begin thinking about uh ... added protections for the Northwestern Hawaiian Islands. And it's not all, you know ... it's not all ... beneficial, yeah? It's because um ... there are no mining interests there, there are no logging interests there, so it's kind of a ... kind of a—a no-brainer decision to make; but then um, early in the year creating the Papahānaumokuākea National Marine Monument. This was the—the ultimate um ... uh, evolution of—of this process that had been going on now for more than—for me, more than ten years, for the reserve process more than eight years. I've uh ... was an initial member of the Reserve Advisory Council, continue uh, to sit uh, one uh—as one of three native Hawaiians on that reserve council. You know, advising more on ... on—on management issues for the reserve.

QUESTION: Have you been on any other trips up there?

AILA: No; I missed out on uh ... I missed out on the ... on a trip of a lifetime, which Kekuewa took my place, uh ... to—with Auntie Pua folks to do um, this cultural reconnection. Um ... because I had other commitments, yeah? But I'm glad Kekuewa went, because he came back ... enamored, connected, uh ... you know, forever touched by ... what he saw and what he felt, and what he breathed. So it was a good thing. It wasn't—wasn't my time to go, and it was his time to go. So maikai for him.

QUESTION: Can you talk a little bit about that, like the importance of being able to have Hawaiians to go up there, to make that sort of connection, and what they can bring back [INDISTINCT]?

AILA: Well, the—the area is ... the area ... is important, because it is our ancestral—it is ... it is the physical manifestation of our ancestral connection to all of those islands, yeah, the various um ... migrations that came through. For example, in some of the Pele ... Pele oli, um ... and moolelos, you have Pele coming down from the north ... traveling through these—you know, it's all one island chain, yeah? We—we break it up, but it's all one island chain. That's one of the thi—uh, one—one of the things that's wrong with this Western thinking about, oh, we have to say northwest, and then main Hawaiian Islands. It's all one island chain. Um ... but we have these connections to this place uh, genealogical connections, as well as sort of a geological connection in that these truly are the kupuna islands. They—they are the—the first ones to have risen from the hot spot uh, moving on their journey to the west northwest, um ... being born, and then slowly dying. I mean, it's—it's this symbolism of—of who we are, and what we do, yeah? 'Cause when we—when we make, we go on this journey that is to the west northwest, very similar to

the path that these kupuna islands were taking, yeah, eventually um, ending up as sea mounts under the sea once again. Eventually, ending up as part of the crust that goes in—underneath the—the next shelf which returns to the—the—the mantle uh, of the Earth, yeah? Similar to what Hawaiians believe um, happens to—to them spiritually. So these island are important for us, because number one ... this is our ancestral connections. Number two, um, we're also connected to all of the birds, all of the fish, all the marine mammals, that inhabit those waters. Uh, who are our brothers, sisters, uncles, aunties, cousins, our aumakua. Um, it's a place where kupuna had been left um, and interred. So it's our responsibility to make sure that they're protected, as well as the inhabitants on the land and in the water that's over there. It's our kuleana to make sure that they're protected. Um, that's why it's important for Hawaiians to be at the table, and ... we're very fortunate that the Office of Hawaiian Affairs asserted itself, and then was given a place—a place at the daily management um ... in the daily management on the management board, the monument management board. So Hawaiians have a place. It's important to understand that Hawaiians drove this process, and now have a place at the decision making table uh, and continue to—continue to review other things. Every permit that uh, that is applied for to—to go into Papahānaumokuākea is um, reviewed by native Hawaiians for its applicability, its impacts on uh, Hawaiian cultural and traditional—traditional practices, customary practices. Um, so it's—it's a Hawaiian-driven place and a Hawaiian-monitored place, as it should be.

QUESTION: I just want to talk to you a little bit about the differences between cultural resources and natural resources. What's the difference from a Hawaiian perspective? [INDISTINCT] when we talk to scientists, we see the area under—

[INTERRUPTION]

QUESTION: So back to natural resources and cultural resources, and the differences between them from a Hawaiian perspective, scientific perspective.

AILA: Let's—let's start with the Western view of nat—of—of those categories, the natural resources and cultural resources. Um, I don't understand the need to—to—

[INTERRUPTION/GENERAL CONVERSATION]

QUESTION: So Western perspective uh—

AILA: Oh.

QUESTION: [INDISTINCT]

AILA: I'll—I'll talk about the—the Western perspective first. Um ... and I don't understand the need to categorize everything, because when you categorize it, what you do is you lose the connections, uh, you lose the bonds that are—that are—that exist between the different categories. I mean ... but they do. So cultural, they—they separate the rocks, yeah? The rocks are cultural. Piles of rocks are—are cultural resources, and um ... I think it has to do with Western thinking and archaeology. So piles of rocks are—are uh, archaeology, how people ... interact uh, the societies and those things are sort of anthropology. And to me, it makes no make—it makes no sense, because in the archaeology, if they just look at the rocks ... they don't know how the cupboard was set up. Yeah, so they assume that because one person set up a cupboard in this way, that therefore, all indigenous people set up the cupboard that way. Well, people ... you know, you—your—your wife and my wife may set up the cupboards very differently. And so they lose out on stuff like that. Um ... separating the—the—the fish and the birds, and those kinds of uh, resources from the ... the pile of rocks is—is also something that you lose the connection on, yeah? The fish; well, maybe that pile of rocks was set up to worship a bird, or worship a fish in terms of shark. Um ... and the connection wi—with families. So from an indigenous perspective, or from a Hawaiian perspective, it's all related. There's no such thing as cultural resources and natural resources. There just are ... and you don't even call 'em resources. There are ... there are ... things that we interact with, some of 'em on a level of uh, providing food for us, some of 'em on a level of providing worship for us, some of 'em on a level of um ... forcing us to have respect, and uh, this—this—this reciprocal relationship, yeah? What are we doing for—what are we doing to ensure that our food source remains there for the next generation, what are we doing to make sure—how are we behaving, how are we demonstrating our kuleana to make sure that our kupuna are proud of us, and approve of our behavior. You know, that's—that's the difference with—with breaking things up and classifying everything to the—to the umph degree without looking at the relationships between the two, and then how it all fits together, and how those bonds sort of add this extra energy uh, to make ... to make society work in harmony with the rest of the environment. Yeah, as well as the spirits that still reside here, uh, our—our ancestral relationship to the people that came before us, and to the people who come after us, yeah? 'Cause if you—if you base your decision on the impacts on the future generations, yeah, how is my decision gonna impact them, and then how is it gonna impact me when I have to answer to those guys that came before us. If you make decisions like that, you're not gonna make bad decisions. We gotta teach the Legislature and Congress how to make decisions like that. That'll help make better decisions.

QUESTION: [INDISTINCT]

AILA: Yeah.

QUESTION: Could you talk a little bit about ... still on the same subject, the natural resources ...

[GENERAL CONVERSATION]

QUESTION: Okay; so natural resources, cultural resources. Can you talk a little bit about the kumulipo and how Hawaiians see like ... sort of the natural world as siblings, and you know, all from the same [INDISTINCT].

[GENERAL CONVERSATION]

QUESTION: So start with genealogy that connects, you know ... Hawaiians to the world around them, the natural environment.

AILA: Well, you know, y—you begin the genealogy, really, with yourself and then your relationship to, again, those—those people that are gonna spring from you, and the responsibility that you have to them, as well as the responsibility and the connection that you have to the people that came before you. And in the Hawaiian sort of cosmology, um ... there's this recognition that there were things, there were animals, there were plants, there were um ... there were things that came before us; that you know, we're not ... we're not so—we're not so humancentric that the rest of the world revolves around us. That you know, we have a natural place in the order of things, and a relationship with things, uh, that the first thing to—to come out of um ... the sort of primor—primordial uh, chaos was, of course, light, yeah? Light came out of the darkness first. And then you had um ... the various creatures including coral, which then were birth from this process, and then you know—I mean, uh, the kumulipo talks about wana, and it talks about the uh, the loli, the—the sea cucumbers, and it talks about uh, gradually more sophisticated organisms um, being borne out of—out of this chaos, out of this darkness, po. Um, and then later on, of course, people came along. Um, so i—it—the nice thing about the Hawaiian cosmology is it doesn't place the emphasis on us. In—in the Western world, because of ma—this manifest destiny, yeah, that the Earth was put here for humans, right, ak—God made it for humans to take advantage of. Versus the cosmology, we're part of it, and because we're part of it, um, we're not the most important thing. The harmony of all of—all of the elements, the harmony of putting kupuna back into the ground so they can continue their journey, the harmony of making good land use decisions, the harmony of making sure that the family is balanced, that uh, you know, we uh, evolved hooponopono to make sure to re-instill that balance ... it's—it's this harmony that's the most important thing, and that's what's best for the humans. That's—that's what

separates Hawaiian culture, indigenous culture, from Western culture. Where uh, resources are put there as things that uh—today's world; you know, the fish are put there for you to go out and catch, turn them into cash, and this capital now is then used to create other capital. But ... that capital comes at the expense of somebody else. It comes at the expense of taking advantage of either somebody else's working at a lower ... wage scale, or taking their natural resources, and using it for your benefit, without ... having the—the conscience to think about the impact of what you're having on those people uh, on those—those other creatures. Um, that's the big difference. And again, we go back to how we started the interview. The—the s—the schizophrenic nature of ... where we are today and what's causing us all these problems.

QUESTION: I still want to stay on that a little bit more. Just ... you talked about the fishing and you know, how [INDISTINCT] ahu for fishes and stuff like that, for gods. The Hawaiians see like natural resources as cultural resources too in the sense that we ... like pick flowers for lei. I know you always talk—or I've heard you talk about [INDISTINCT] Northwestern Hawaiian Islands and using the [INDISTINCT]?

AILA: Koaoula [PHONETIC] feathers; yeah.

QUESTION: So can you talk a little bit about how ... that different aspect of the natural resources and cultural resources. We see natural resources and use them in cultural practices.

AILA: Well, uh, this idea of separating ... natural resources from cultural resources is—is, again, something that's ... Western imposed. Um ... you know, Hawaiians—Hawaiians made use of ... many uh ... many kino lau of different creatures, yeah? So for example, the—the—the koaoula feathers, tail feathers; because there's not a lot of koaoula in the main Hawaiian Islands right now, and there probably ... weren't large numbers, otherwise the—the evidence would have indicated that, that these birds, you know ... called home ... the Northwestern Hawaiian Islands more. So it's this ... this relationship of traveling to places to ... to obtain certain kinds of uh ... we'll call it resources, yeah, but certain time—certain types—filling certain types of needs um, of gathering the koaoula feathers for uh, the creation of thing like kahili. Well, why did you create the kahili? It's to honor somebody, yeah? So normally, you just don't make a kahili and say, Oh, I made a kahili. Normally, there's somebody that's in mind, and somebody of such stature that you would go out of your way, expend all that energy, to create this ... this object of um ... of finery, of—a demonstration of knowledge, a demonstration of workmanship, a demonstration of love for that person that you're creating this kahili for; and it's all of those things that um ... that add up to the creation of, you know, the collection of the feathers, the idea that you're honoring



somebody, the worksmanship, the amount of mana that you put into this project, that ... in the Western world, creates a cultural resource, but in the uh ... Hawaiian world, just—you're creating um ... you're capturing the love that you have for this im—important person, and symbolizing it in this ... in this form. Yeah? So oftentimes, we go, Oh, well, that's a—those—that artsmanship is really, really nice; but it's more than art. I mean, it's about the relationship with that person, the love for that person, the ... uh ... the idea that you're gonna create something that's gonna ... last beyond that person's lifetime. Uh, and ... the importance and the—the demonstration of the relationship, yeah, to go to that extreme in order to create this—this implement, this demonstration of ... of love, really, for that person. Yeah? So in the archaeological world, you don't hear them talk about love, you don't hear them talk about um ... honoring, you don't—you never hear—it—it's a pile of rocks. And they only talk about the pile of rocks, without ... the ... without all of the other intrinsic things that make the pile of rocks part of a process of honoring, of loving, that's important, yeah?

QUESTION: How can visitors be respectful to the monument for the sanctity and spirituality of [INDISTINCT]?

AILA: I—I—I think the visitors from the very beginning—what is—what is the intent of the trip, yeah? You always judge ... something by what is its intent. So if someone is ... desires to go to the—a place in Papahānaumokuākea National Marine Monument, I always question what is their intent. Is their intent to do research that ... the research will lead to better management, better understanding of—of ... the area up there, uh, including the—the—the spirits that still walk there, including um, the relationship between uh, aumakua which still reside there. Um ... what is the intent? So if the intent is good, and you go with good intent, then you must have the respect that goes along with that intent. So exa—for example, you're not gonna conduct any activities in the monument that is gonna be destructive, that is going to be disrespectful. For example, you're not ... you're not gonna go and do cultural resource—research at Nihoa or Mokumanamana, and destroy some of the cultural sites that are there. Or, go shishi on some of the cultural sites that are there. I mean, that's ... that's just—you know, if you go with good intent, that's not possible. But if you go with hidden intent or bad intent, then certainly not only is that possible, but it's also probable; but you better—you make sure if you go up there with intent that is not pono, that you brace yourself for the consequences, yeah? Because there are—there are going to be physical consequences and spiritual consequences for somebody that does that. Um, oftentimes, Haole researchers can show respect simply by asking to learn about the relationship that Hawaiians have with these islands, relationships that Hawaiians have with uh, the inhabitants. And when I talk about inhabitants, I'm talking about the sharks, I'm talking

about the birds, I'm talking about the turtles, uh ... you know, talking about the—the individual coral polyp; what is the relationship um, that they have in this desire to have an understanding, rather than come from a standpoint of, Eh, I get my PhD, I know everything about everything, and uh, you guys cannot tell me nothing, I know what's best for you guys, I know what's best for the area. Um, that's a ... that's a demonstration of disrespect. It's actually a demonstration of ignorance. And so somebody with PhD might be very ignorant, because ... you know, they don't have this concept of uh, respect. Uh, they don't have this concept of ... honoring how someone else thinks about the place. So when I talk about, you know, honoring the birds, honoring the sharks, we have people that are trained in—in Western thinking that go, What the hell is he talking about? You know. They cannot relate to that. But if they take the time to try to understand the relationship, that shows that they are—they're pono in their intent. So um, a classic—classic example which I still get heat for is, being one of the first guys to um ... one of the first native Hawaiians to express objections to another native Hawaiian who wanted to ... paddle the length of the Northwestern Hawaiian Islands in a—in a six-man canoe. Yeah? So I looked at the application, um ... my brain told me that this was an extreme sport, my naau told me that this wasn't cultural. So because Hawaiians are stepping up to take a uh, a more active role in the management of this place, and the integrity that comes along with that, yeah, um ... you have to honor that integrity, and even though it was another native Hawaiian that was asking to do something that ... you know, paddling six-man canoe, yeah, is ... sort of Hawaiian, it's sort of cultural, but the application in this instance was more of an extreme sport than ... something that was ... akin to a tradition or custom and practice in that area. So you know ... I still get heat for that decision today, but tough; that's ... that's the level of integrity that Hawaiians, because we're stepping forward and we're saying we ... we are ready to manage, we are ready to be part of this team, we have to maintain that level of integrity.

QUESTION: What sort of mindset should visitors take when they go there? I know [INDISTINCT] talk about how ... scientists tend to think with their brain, and you know—but you were saying how when you looked at this application, your naau—

AILA: Yeah.

QUESTION: --was telling you something too. And—

AILA: Well—

QUESTION: [INDISTINCT]

AILA: In—

QUESTION: [INDISTINCT]

AILA: In the briefings that I've done for groups of scientists that have gone to the Northwestern Hawaiian Islands, I've suggested, yeah—because you know, they can take it, they can leave it; it's up to them. I've suggested that they not only use their consciousness, um ... and their intellect to—to try to gain information, but also use their naau, use that um, that portal to um ... the spiritual resources that are—that are there. I mean, you can see it; you can see it—you can see the hoailona in the—in the clouds, you can see it in the rain, you can see it in the bird flying by and looking at you eye-to-eye, and that connection is there, or underwater when you're—when you're snorkeling and a big ulua comes up and goes, Oh, who you—who you think you are, brah, over here? I mean, you can see it if you open yourself up, if you open your naau o—open enough, and you allow that—what they call this ike papalua, this additional deeper ike to come in, um ... you can take away knowledge ... from the Northwestern Hawaiian Islands that you wouldn't ... have been privy to simply by going up there with your—the intellect that's associated with your brain. You know. And you can go one step further; you can honor the spirits that still reside there, or the spirits that are transitioning along their—their path to po, uh, if you give them the respect. Um, again, there's an additional deeper level of ike that can become available to you. And ... believe it or not, most ... most scientists with PhDs can grasp that. There's—there's only a few that can't; but the majority that I've spoken to, when they've come back from the Northwestern Hawaiian Islands, um ... expressed that they've had those experiences. That they've had these connections with—with the animals either on land, or—or in the ocean, or—or been given, you know, some of the—the hoailona. And it's made their research that much more um ... successful.

QUESTION: It adds additional meaning to the trips too. I mean, it's not just—

AILA: Uh, it—

QUESTION: [INDISTINCT] the scientific trip to a cultural trip too.

AILA: It—it turns it from uh, an experience where you're an outside observer, to an experience where you're a participant. And that's the difference between a Western way of—of looking at resources, where you're an outside observer, you don—you're an outside observer, manipulating the resources, versus an indigenous view where you're a participant, and your participation is—is uh ... based upon what's best for the entire uh ... system.

QUESTION: I guess [INDISTINCT] on the same idea, but you know, there's this Western sort of view that you talked about, about how people go there just to take. You know, people should start thinking about ways to give back. Could you talk about that a little bit?

AILA: Question that uh, often ask—

[INTERRUPTION]

AILA: It—it's question that I often um, ask people. You know, I—I question their intent; Why are you going? Yeah? And if I—if I get an answer that—that makes sense, then I say, Well, what are you ... the next question, the follow up question is, Well, what are you offering ... in terms of a reciprocal relationship with this place that you're asking this information of? And it's not a bartering. It's not like I'm gonna—I'm gonna take one ...uh, corm of kalo up there and expect to get, you know, um ... my PhD thesis answered. It's not that. It's—it's very basic, yeah? It's an idea of being a participant, rather than observer. And a participant in this system is one that gives to the system, the energy that goes along in that system. Versus one that only takes. So you'd be surprised. I mean, I get some very good questions from Haole researchers that go, Well, what is the appropriate hookupu? And it's—it's a hard one to answer, because it depends on where you're going. And if you're going on—on the island, then you've gotta deal with the Fish and Wildlife Service, um, restrictions, and—and they're good restrictions, because they're trying to prevent the introduction of alien species, alien microbes, you know, which would wreak havoc with the ... so it gets them to open up their mind beyond the structural thinking that they're used to. And so you have things that enter, like ... Well, write a poem. You know. Do an oli; uh, sing a song, dance, um, recite your genealogy. Um ... bring water from where you come from, from an important place, you know. 'Cause water—why is water important? Water is important because ... I like see you go three days without drinking water. By the third day, I guarantee you praying for it. That's how you know how sacred it is. And so water from ... where—where you live, water from where you come from is a very symbolic gift and a very universal gift um ... to offer as hookupu. Then it puts the researcher in the mindset of ... not being an observer, outside observer, but actually being a participant in the system. And when they do that, when they plug into the system, and it opens up, and the amount of knowledge that becomes available is much greater than had they been an observer. And believe it or not, most people take to this idea very, very easily, because we all have it. Innately, we all come from ... an indigenous culture. You know. We ca—you—you go back in their history; they all come from indigenous cultures. So it's a matter of accessing um ... their naau, and the genealogical connections that they

have to those ancestors which are often clouded by this thing that we have up here called the brain.

QUESTION: I just ... okay; so it's more of a question sort of ... geared towards the Hawaiians that go up there. I know you were [INDISTINCT] speaking for them too. What's the importance of like Hawaiians, importance of the area, the region to Hawaiians today?

AILA: Uh—

QUESTION: [INDISTINCT]

AILA: Well, I would answer that—that question in sort of the reciprocal way. What is the importance of ... of ... what is the importance of Hawaiians ... visiting that place up there is really this connection that has been ... severed for many, many years uh, being ... reconnected. And our responsibility to malama those uhane, those spirits, to malama those cultural sites, to malama the—the birds, to malama the sharks, to malama the—the—I don't want to call it resources, 'cause that's uh—the system, yeah? The system, the system that's there. Um, this reconnection and this taking of responsibility by native Hawaiians to do it in a pono way. We have native Hawaiians out there that want to use this cultural access as a way to ... put that uh, wedge in the door, so that ... ooh, we can puka behind and do commercial fishing. Well ... go back two hundred years, and commercial fishing was not a traditional and customary practice. Fishing for sustenance, fishing for those uh, religious purposes, fishing for your kupuna and your ohana that lived up mauka ... was—was a way of life. Yeah? Um, uh, I—I ... you know, it was never ... fishermen never sat at Pokai Bay and go, Today, well, the going price for—for the kalo from uh, Pueo is uh, uh, five akule for one corm. They never sat around talking like that. They sat around going, Eh, tomorrow, our tutus and um, uncle them coming down from Pueo, and uh, what we going get for them take home? And if you're in tune with your family, then you know that auntie and that uncle, their special—their favorite fish is this, this, and this. So as a fisherman, your responsibility, your kuleana to the family is to go get, prepare, and having waiting for them when they come down. And the ... the uncles that were up mauka, I'm sure they didn't sit around going, Well, you know, man, this is choice kalo; we gotta get at least five akule for this. It was never like that. It was like, Oh, the guys down there, I know they ono for this; I—I know they need some aho, so we go make some rope for them, because you know, they always using 'em down with their nets and stuff. So it was never uh ... this term bartering that was brought in by Westerners, when they observed this practice going on. It was never bartering; it was more of a uh, what they call a hoihoi or a give-give, yeah? It wasn't like ... we're gonna equate this much to that much. It was, I knew what they needed, we knew what their favorite was; that's

our family, we going provide for them. Yeah? Now, in the main Hawaiian Islands, we have fishermen who had the economy huli'd on them, yeah? So when that ... when that traditional or customary practice of hoihoi sort of ... evolved into uh, uh, a society or an economy where you had to pay money for stuff ... then those fishermen along the shore, as well as the farmers up mauka, had no choice but to uh, survived, and then uh ... evolve into commercial fishermen, commercial farmers. So in the main Hawaiian Islands, you could make the argument that commercial—Hawaiian commercial fishermen, who fished pono by the way, 'cause I wouldn't ... I wouldn't attribute this to fishermen, Hawaiian or non-Hawaiian, who don't fish in a pono way ... are doing a traditional and customary practice. 'Cause they had no choice. The economy was flipped on them, so they took the skills that they had and they continued to provide for their families. In the Northwestern Hawaiian Islands, there was no ahupuaa system. And that's the argument that I use for not allowing commercial fishing under traditional and customary practices. Because the guys that were living on Nihoa and Mokumanamana ... didn't have a mauka-makai relationship with their ohana. The island is so small that there was mauka and makai ... so therefore, commercial fishing was something that ... the economy up there didn't huli them, force them to do. Therefore, it—it was—it's not a traditional and customary practice up there.

QUESTION: What do you think Hawaiians can learn about their culture from [INDISTINCT]?

AILA: I think they can learn how ... how difficult it is to not go to uh, 7-Eleven late at night when you're hungry. That you gotta grow your food or you gotta catch your food. Uh, first of all, you gotta sail up there, um, and sail back successfully, otherwise you die. Um, it teaches ... it teaches—it'll—can teach Hawaiians about uh ... the—the—the mettle of their ancestors, and the pride that comes from um, being able to ... not only survive, but actually to thrive in those kinds of ... under those kinds of circumstances. I mean ... no nails ... no—no steel tools; but they created waa that could sail, you know, to ... Rapa Nui, to Aotearoa, you know. Today, we have kids running around; they no more pride because they think they Popolo; the hat sideways, yeah? They get one culture, they know where they come from; it's a matter of reconnecting to that culture, understanding the—the strengths, the—the ... the can-do attitude of kupuna, yeah? Then ... when I was growing up, I never heard one kupuna say, Oh, we cannot do that. It was always, How we going do that? What do we need to do that? Whereas, you look at the youth today; Oh, no, I no can. Why? Uh, that's too hard work. Yeah? Or um ... It's not worth it. So those—those lessons, those values ... can be symbolized in ... what it takes to survive there, what it takes to honor the resources that are there, what it takes to honor ourselves, yeah? And dem—then demonstrating. People talk about



kuleana, yeah? But what is kuleana? Oh, it's responsibility, it's privilege. But how did you get it? You got kuleana from people who held it; they held the privilege, the kupuna. They gave it to you when you demonstrated to them that you understood the responsibility, and then demonstrated the skills necessary to honor that responsibility. They said, Eh, fine, welcome to the club; here you go, here's the privilege. And then when they gave you that privilege, then it hit you; the level of responsibility that came along with that privilege. Yeah? The weight of now being the next person to sort of keep everything going, to sort of keep this uh, historical knowledge, to keep this um ... to be this watchful eye over whatever area, whether it be hula, whether it be fishing, whether it be farming, to hold the secrets that separated uh ... a fisherman from a master fisherman. It was only after you demonstrated that you understood the responsibility, and that you mastered the techniques, were you given the kuleana, the privilege. And then at the time that you were given this privilege, you sat there and you went, My god ... what an honor it is, and how much work it is to maintain it. Because now you gotta go find someone to train, to replace you. Yeah? So today, we throw kuleana around so much without understanding the full implications of what it really stands for. Yeah? And ... by visiting the Northwestern Hawaiian Islands on a very minimum scale, for a certain amount of ... limited amount of people, is to understand that kuleana, both the responsibility and then the privilege. Yeah? 'Cause we want to bring the place to the people, and not necessarily the people to the place. Because it is such a fragile place, and such a special place. And we get plenty work to do in the main Hawaiian Islands, so before we think we can have—we all should have that privilege to going up there, we better go fix our own back yards. Yeah. We better ... manage the akule fisher, so one day get three-pound akule.

QUESTION: You mentioned [INDISTINCT]. Could you talk a little bit about that, and then [INDISTINCT] the importance of—

AILA: Okay; okay. Well, the Bishop Museum um ... had held some ... native Hawaiian human remains um, that were removed from earlier expeditions. And many of the—the members of Hui Malama I Na Kupuna O Hawaii Nei believe that we, as modern Hawaiians, cannot ... cannot come to agreement on things like sovereignty, on things like um, what's best for management, until all of our kupuna, our iwi kupuna, are placed back into ... uh, back into the ground, uh, and—and put back on their journey. Because so many of them have been ... ripped from that journey um, for whatever reason; um ... development, um, scientists finding the need that they have to study bones, um ... erosion, um, those kinds of things. So the—the inventory that was held at the Bishop Museum, Hui Malama instigated the repatriation um, went through that process, and then you know, found funding, members got on a—on a boat, Hale Aloha, I think

was Kunani. Um ... uh, they brought in um, Uncle um ... Les Kulololio from Maui, and they sailed back up there. And they sailed at the wrong time; they really—they sailed in November, which—and anybody that wants to go ... to—to Nihoa and Mokumanamana, that's the worst time of the year that you can pick. But there was this—there was this need, there was this nagging, there was this urging—this sense of urgency on behalf uh, uh, on behalf of the kupuna that it needed to be done then. And so they sailed, and it was rough going up there, and when they got um, to the islands and actually got on the island and found secure places to—to do the reburials, um ... they were ... rewarded, if you will. You know, they were rewarded for the demonstration of their responsibility by having unseasonably calm weather all the way home. So much so that the captain couldn't believe that uh ... the captain actually told them, Okay, get ready, we going turn the boat around ho—we going head home, and you know, if you guys get seasick, no worry, we understand, everybody gets seasick, this is some of the roughest water you going have, and ... Hale Aloha just told him, No, it's gonna be fine. And when the boat turned around, brah, there was nothing but calm water from Mokumanamana all the way back to Kauai. And that was affirmation, yeah? That was kupuna affirming that what you did was pono, and a big mahalo to you folks. So there are ... or there may be other ... human remains out there in other collections ... possibly in other countries that the—the need may arise to go back on one of these reburial, re-interment trips to some of these islands up there. And that's our kuleana. You know. They've been—maybe somebody else wants to step up besides Hui Malama, but that's the kuleana of every native Hawaiian, whether it be at Mokumanamana or Nihoa, or Nanakuli, or ... at Ward, or any one of those other places, yeah? So we have responsibility to those folks who have been ripped from their journey, um, and are sitting in limbo right now. Yeah. And again, why? Because of this manifest destiny attitude, yeah? In the ... mid-1500s, early 1600s, you had people who believed that skull size determined intelligence. So all of the—the European folks thought they had, you know ... the reason that they had bigger skulls was because God gave them that ... physical ability. But when they came into the Pacific and ... met Polynesians, um, that theory sort of went out the door. And it created this whole demand from universities, uh, from museums all around the world for Polynesian skulls. And ... the hewa that was created by people who went out and cut people's heads off to be sold to museums and universities, and the kaumaha that uh, resulted and still resides today in us, will remain until we bring those last kupuna home and ... put them back on their journey. And most of the museums—about 99.9 percent of the museums in the United States have come to grips with their responsibility, and returned kupuna. But we have kupuna in Germany, in England, in many other places in the world that um ... those museums don't want to give them up, because they're possessions, we paid for 'em. Never mind that that's somebody's uncle, grand-auntie, or somebody's family; we paid for that. So it's this—

this culture clash that's still going on today, trying to bring home these kupuna, finish off them on their journey, and uh ... it's a long road, but it's—it's gotta be done. It has applications to the Papahānaumokuākea, it has applications to your back door, your back yard. But we as native Hawaiians, we have no choice.

QUESTION: Just sort of—I know you touched on this earlier. Just want to make sure we get [INDISTINCT]. Can you talk a little bit more about the sanctity of the area, what makes it so sacred in the Hawaiian culture?

AILA: Well, there are me—there are many reasons why um ... various places along Papahānaumokuākea National Marine Monument are—are sacred to Hawaiians. They could be sacred for ... people who are related to Pele, and all of the—the moololo of Pele uh, as she travels down. The area is sacred uh, and there's a s—there's a sanctity about it, because as ... as the—the soul departs the body, and then travels to the various uh ... uh ... leaping grounds, uh, on each island, um, from the traditional and customary religion, these souls then ... depart on a westward journey. And along that westward journey, are these—these kupuna islands which they travel on their journey. So while visitors are there, they have to be very respectful of—of the fact that Hawaiians believe, and rightfully so, that there are these uhane that are—that are there journeying along with them. And—and the need to—to recognize and respect that, just as I would respect anybody else's religion, uh, and their thoughts on angels, or their thoughts on um, their uhane, you know, uh, by giving them that respect. Um ... it's also sacred from the standpoint of ... um, the name. We talk about Papahānaumokuākea; uh, the—the mating of Papahānaumoku and Wakea. Um ... and these islands being present at the time where life was born, uh, honoring ... that sort of ancestral ... history. Um, they're pointed from—and they're—they're sacred from a modern ... standpoint in that if ... we as native Hawaiians, and as people of Hawaii ... cannot manage this place that's remote that has minimal amount of impact on it already, um, what does that say about us? What does it say about our commitment? What does it say about our kuleana, um, our values as—as a people? Yeah. How ... how our ancestors gonna ... judge us when it becomes our turn to join them? So for all of those reasons, that's why these ... these islands and this n—National Marine Monument that has the name Papahānaumokuākea uh, should be afforded the utmost respect. Um ... and we should work the hardest for the continued protection.

QUESTION: They're gonna ask Auntie Pua about the naming. But there is one aspect to the naming that I've heard you describe [INDISTINCT] the imagery that's in the Hawaiian Islands, Northwest Hawaiians, between Wakea, Papa, and the islands.

AILA: Okay. Uh, I think the imagery that you're referring to is the—the imagery that someone on a—on a canoe or boat gets; uh, this sort of—this mating of uh, Wakea and Papahanaumoku. As you're—as you're traveling, and you see the island emerge from ... uh, and the emergence can be two ways. It can be an emergence from the sea, or it actually could be an emergence from the sky, yeah? But what you visualize, and the symbolism is the—the mating of the sky and the Earth, and then the ... the demonstration of life; as you get closer, you see the seabirds. Um, then as you get closer, you see the fish, the emergence of life ... the—the emergence of life from this mating, which is so clearly visible as you approach from the ocean. So it's the most appropriate name, um ... with the correct symbolism that comes out. And anybody that sees it, immediately knows it.

QUESTION: Okay; so last question. If you could talk to all the visitors, and I guess you do on the briefings, but the visitors that go up there, what's the one thing that you want to know about the culture when they go [INDISTINCT]?

AILA: I want them to know that the culture is alive. That Hawaiians ... it's not just Hawaiians used to do this, or Hawaiians used to do that; that Hawaiians continue to do it today. Um, we don't necessarily go up on canoes every time; sometimes it's big steel ships. But we still go up. Uh, we still go up for the same reasons; to demonstrate the knowledge on how to get there, to demonstrate uh, the reconnection between uh, our ancestors, and really, to demonstrate responsibility for the protection and management of the area. That Hawaiians ... have a role, a major role to play in the management of this very special area.

[GENERAL CONVERSATION]

[END]

**Interview**  
**KEKUEWA KIKILOI**

[GENERAL CONVERSATION]

- KIKILOI: Um ... my name is Kekuewa Kikiloi; K-E-K-U-E-W-A, K-I-K-I-L-O-I. Um, I work at the Kamehameha Schools Land Assets Division uh, as the cultural assets manager. Um, I'm also a student at UH Manoa uh, in the Department of uh, Anthropology; um, PhD student.
- QUESTION: So I guess I want to start off with something about the archaeology of the area, Nihoa and Mokumanamana, or if you could explain where most of the archaeology sites, cultural sites are—
- KIKILOI: M-hm.
- QUESTION: --in the Northwest Hawaiian Islands and what's there.
- KIKILOI: Okay. Um, archaeology uh, as it relates to the study of the material past or the tangible things left on the landscape, uh ... most of the archaeology in the Northwest Hawaiian Islands uh, exists on the first two islands, uh, Nihoa and Mokumanamana. Uh, Nihoa uh, the first island, is a relatively small island uh, one hundred uh, seventy-one acres in size. Uh, there's about eighty-nine cultural sites on the island uh, that span kind of the variation of things that would be found in a place where people tried to reside for at least some period of time. Uh, you have um, residential sites, uh, temporary habitation sites, ceremonial features, uh, agricultural terraces, uh, and even burials are found on—on Nihoa. Uh, Mokumanamana, the—the next island, uh, is even smaller, uh, forty-six acres uh, in size, uh, fifty-two archaeological sites on the island, uh, thirty-three of which are ceremonial sites or heiau. Um ... and um, there's no other types of features other than temporary habitation and ceremonial features on the island.
- QUESTION: So what does the archaeology on those two islands suggest life was, like what were they used for, those two islands, by Hawaiians? And uh ... yeah; what were those islands used for?
- KIKILOI: Um ... well ... I guess the first, uh ... Mokumanamana, um, because there's only really two types of—of—of functions seen in—in the types of sites found there, uh ... other scholars have hypothesized that people didn't live there for any um, extended period of time, that it was just temporary, and that the main function of that—that um, island was uh, ceremonial. Um, the name Mokumanamana means um, island of—of spiritual power. Uh,

mana—mana being spiritual power, and—and—and manamana being like the—the exponential power, really. Uh, the next island, Nihoa—uh, the first island, really; um, Nihoa [CLEARS THROAT] has a variety of types of sites there um, which is testimony to the fact that uh, I think people were trying to live there at one time in the past.

QUESTION: How was--so they were live—

[GENERAL CONVERSATION]

QUESTION: So people lived on Nihoa for ... it was sort of a permanent site, at least for a period. How was life on that island different from what life was on the main Hawaiian Islands at around the same time?

KIKILOI: Um ... I think you know, for—for islands in—like the Northwest Hawaiian Islands, it really pushed uh ... native Hawaiians to their limits uh, where they could colonize an—and settle. Um, these islands being very remote um, and very small and isolated, uh, they had very uh, limited uh ... capacity to carry human life over an extended period of time. So it's difficult to have any large population on these islands for any extended period of time. Um ... this ... in comparison to the main Hawaiian Islands, there's a lot uh, less productivity in the soil, uh, a lot less arable land. Um, but in the case of Nihoa, at least, there's evidence of agricultural terraces being there, and uh, at least some demonstration of an effort to try and um, colonize that island for—for a period of time, at least.

QUESTION: What was the relationship between Nihoa and Mokumanamana? I mean, you've said--I heard you say in the past that Mokumanamana has one of the highest concentrations of ceremonial sites.

KIKILOI: Yeah. Um ... to me, uh, I mean, just looking at place names, yeah, like, Mokumanamana; that name itself shows that it was uh, one of the most important places to Hawaiian people in the past. Um ... the fact that there's so many heiau on one small area of—of land um ... shows that it was valued by our kupuna. Um, the—the island before, Nihoa um, in some of the chants, it's referred to Nihoa Kuhikuhipuone. Uh, Nihoa, the seer of sacred sites, uh, Kuhikuhipuone, being a type of kahuna that would um ... point out and mark the—the—the placement of where heiau should be. So that place name in itself kinda demonstrates that Nihoa was that uh, directional marker to uh, show where Mokumanana was. And I think a lot of the archaeology is even pointing to that too. You know, we've gotten some dates back uh, in the past year or so from Nihoa from uh, coral dating, uh, coral that was left as ritual offerings on the heiau over there, and all the—all the dates came back in the 1500s, uh, which show that there was one big push of colonization of that island, really as a steppingstone to the construction of Mokumanamana, which might have



been the ... arguably, the—the ... the greatest engineering feat in native Hawaiian history, I would say. Um, I know other scholars have pointed out that Piilani Hale in Maui has—is the largest heiau in the archipelago, but I would argue that Mokumanamana is really the largest heiau. Even though it's made up of thirty-three somewhat features um, the island itself really functions as a heiau, yeah, in itself.

QUESTION: Can you talk about—you were talking a little bit about ... how Nihoa and Mokumanamana present sort of the limits of what Hawaiians could do as far as them being so isolated [INDISTINCT]. Could you compare ... I mean, what it took to build these sites, and to live there, compared to building sites on the main Hawaiian Islands, and what—I mean, how that plays into the importance of Mokumanamana?

Um ... sure. I mean, for me, uh, it—it ... that issue is even more real, because when we're trying to do archaeological field work up there, uh ... it really makes an impression on you how much energy it takes to prepare for a voyage, then to go on that voyage, and then to stage from someplace on an island, you know, to get any kinda work done. Uh, for Nihoa and Mokumanamana, it's—it's—uh, it must have been really difficult in the past to—to—to voyage there, to try—attempt to live there for any um, period of time. Um ... in the main Hawaiian Islands, you have uh, a lot of land, a lot of uh, potential for productivity, of resources, water, uh, food; things you take for granted. The basic necessities of life that can be found readily available over here, uh is not so readily available in the Northwest Hawaiian Islands. So when you're out there, it really is about uh, mitigating risk and maximizing survival.

QUESTION: Talk a little bit about ... Mokumanamana's ... significance in that it's located on the Tropic of Cancer, and what you think its role was in ceremonial [INDISTINCT].

KIKILOI: Um ... Mokumanamana lies on—on the Tropic of Cancer, or what is uh, termed in Hawaiian uh, kealanuipolohiwa kane, the dark shining path of Kane. Um ... its significance, I guess, to our people in the past was that, um ... it really is the northern limit of—of where the sun goes throughout the year. Uh, on June 21st, which is the longest day of the year, the summer solstice, the sun will uh, rise in the east and set in the west on the trajectory that mono—Mokumanamana is at, um, and it won't go any higher throughout the year, and it'll make its way back down um, throughout the year. Um ... but that's important because ... um, one, the sun is als—uh, usually ... uh, symbolic of the god Kane and life, yeah; the beginning of life and ending of life, the cycle of the sun. And um ... uh, Mokumanamana being on that western end of the archipelago uh, really is the pathway that souls take in the afterlife. So a lot of times, you'll s—

you'll hear uh, references to kealanuipohiwa kane in chants that have to do with death and the journey that the soul takes into the afterlife.

QUESTION: So in that sense, what does the Northwestern Hawaiian Islands represent, if it's everything above Mokumanamana [INDISTINCT].

KIKILOI: Yeah. Um ... I think, you know, things like, um ... the—the Tropic of Cancer uh, kealanuipohiwa kane, give us clues as to how our—our kupuna saw the—the archipelago and the geography, and the Hawaiian cultural landscape. Um ... you know, really, anything past or north of Mokumanamana is places where the sun doesn't really shine overhead. And ... I think our kupuna conceptualized this as—as Po, or what is referred to as in like the kumu lipo or uh, cosmogonic chants as—as places where we originated from, where creation began in the Hawaiian universe. Um ... yeah. [CHUCKLE]

[GENERAL CONVERSATION]

QUESTION: So the settlements on Nihoa and Mokumanamana—well, [INDISTINCT] have been abandoned. Can you talk a little bit about when they were abandoned, and your theories or what the theories are out there on why they were abandoned?

KIKILOI: Um ... sure. Um ... I guess, you know, the—the anthropological theories of—of—of how the Northwest Hawaiian Islands, or Nihoa and Mokumanamana came to be settled uh, has evolved over the years. Uh, early on, um, you had researchers like Kenneth Emory who thought, um ... the people that colonized uh, Nihoa and Mokumanamana were really, um ... uh, this is—this is kinda hard. [CHUCKLE] I gotta think about this. [CHUCKLE] Um ...

[GENERAL CONVERSATION]

QUESTION: Talk a little bit about Pele and some of—

KIKILOI: Okay.

QUESTION: --the uh, the ... moolelo about the area that we have preserved in chants and ...

KIKILOI: Okay.

QUESTION: --mele.

KIKILOI: Okay. Um ... I guess for a long time, I think a lot of scholars have thought that uh, you know, there's references in—in some of the more

well known Hawaiian uh, sources, like Malo, Kamakau, Fornander, of a place called Kahiki, yeah, um, or the cognate would be Tahiti. And uh, this place wa—was thought to be somewhere in the South Pacific, because Tahiti is in the South Pacific. But from a lot of the—the chants an—and the things that I’ve found in the research concerning the Northwest Hawaiian Islands, Kahiki is really uh, a place uh, conceptualized as the Northwest Hawaiian Islands, a place where—where—where we ... our kupuna perceived it as uh, ancestral homelands, yeah? And ... um, in a lot of our stories, these are places where gods such as Pele uh, migrated from on their way to—the main Hawaiian Islands. So if you look at a lot of the stories, it’s always coming down the chain, and the first island mentioned, really, is uh, Mokumanamana, usually. Sometimes Nihoa, uh, another island called uh, Mokupapapa, which is a small uh, coral atoll right next to Kaula Island, uh, Niihau, and going down the chain. Um, in a lot of the stories from the main Hawaiian Islands, um, mythical heroes often make their way back up the chain, yeah; so there’s this uh, pattern in a lot of the stories of going up and down the chain uh, into the Northwest Hawaiian Islands, and back down uh, into the main Hawaiian Islands.

QUESTION: And what does that sort of—I mean, what message does that send to you, the stories about people going up and down the ... and as far as [INDISTINCT]?

KIKILOI: Um, I think a lot of these stories point to the fact that the Northwest Hawaiian Islands were perceived as ancestral islands, or ... uh, place—places where gods dwelled, yeah? And ... Mokumanamana really being that—that kind of portal between two realms of—of Au and Po, or uh, the divine an—and the—the real—you know, the real day life of—of the main Hawaiian Islands. Um ... you know, in—in a lot of our traditions, there really isn’t uh, uh, a division between natural and supernatural. And um, our kupuna saw—saw the cultural landscape as natural and supernatural, being real rooted in what we see today, and—and uh, also having a supernatural element of um ... being a place of deified gods as well.

QUESTION: And I guess the ... [INDISTINCT] on the islands how people died [INDISTINCT].

KIKILOI: Yeah. I think, you know, in—in a real fundamental way, the Northwest Hawaiian Islands is one-half of—of the life cycle of—of—of what we knew in the past of how the sun rises and the sun sets, an—and people in the main Hawaiian Islands as—uh, when you pass away, uh, your spirit departs from the body and they go to these places where uh, you have leina, um ... which are leaping-off points for the soul uh, to go into the water, to be received by their aumakua or ancestral uh, family gods, and to be taken into the journey into the afterlife up into the northwest.

[GENERAL CONVERSATION]

QUESTION: So the research that's going on now, cultural research ... and a lot more into like [INDISTINCT].

KIKILOI: Into what?

QUESTION: Like your opinions. We're trying to get more—

KIKILOI: Oh. Uh ...

QUESTION: [INDISTINCT]

KIKILOI: Cultural research?

QUESTION: Yeah. Can you talk a little about ... were you the one that worked on the OHA study for that [INDISTINCT] that was contracted [INDISTINCT]?

KIKILOI: Um, behind the scenes, I did, but I wasn't one of the authors in the report. Yeah.

QUESTION: Can you talk a little about the sort of research that's going on right now in the area ... about modern day Hawaiians and our trying to find out what those areas about?

KIKILOI: Sure.

QUESTION: What they were used for.

KIKILOI: Um ... I think there's a lot of different aspects of research. Um ... they can, you know, run the gamut from uh, sitting in the archives and doing uh ... microfilm work, you know, one slide at a time, and looking at old documents, to uh, being on the—the decks of the Hokulea and uh, actually being out and experiencing an—and actually doing the practice. Uh, research covers uh, all those aspects. Yeah. So I think, you know, for researchers like me, uh ... a lot of my work is in the archives, an—and I enjoy that work. Uh, but being able to uh, see that information then be taken and be put in—into action uh, seeing the Hokulea go up there, and the Hoku Alakai an—and uh, Hawaiians being given the opportunity to go up there and to experience these places for themselves is—is—is a real important aspect of research uh, as well. Um, you know, we have that saying, uh, in our—in our customs and traditions; uh, *maka hana ka ike*, yeah; uh, knowledge is in doing. And um ...

[GENERAL CONVERSATION]

QUESTION: Maybe you could also ... compare cultural resources to natural resources. [INDISTINCT] Or maybe you can talk about the research too, about ... the differences between cultural resources and natural resources, and how scientists research—well, talk about first the differences between cultural resources and natural resources.

KIKILOI: Okay. Um ... um, cultural resources is a term that's uh, broadly applied to—to uh ... resources that ... um ... impact the wellbeing of living communities. Uh, in this case, it would be the native Hawaiian community. Um, cultural resources encompasses a number of things, uh, including archaeology, which is uh, the study of the material past or the tangible things left on the landscape by our ancestors. Uh, it also encompasses uh, natural resources, because ... natural resources are resources that ... have—uh, native Hawaiians have a relationship to that uh, impact their wellbeing, their identity. Um ... so ... uh, that wasn't a very good explanation. [CHUCKLE]

QUESTION: Do it again.

KIKILOI: Yeah.

QUESTION: Yeah.

KIKILOI: Okay. Um ... cultural resources uh, is a broad term that applies to uh, a number of different things, uh, including archaeology, for one, which is the study of the material past um ... the tangible things left on the landscape. Ev—everything from um, sites uh, artifacts, um, things of that sort. Uh, it also encompasses what is uh, called natural resources, which is the natural environment. Because the—the natural environment um, gives services to—to living communities, the native Hawaiian community uh, um, for sustenance, uh, for identity, for wellbeing. Um, so it's a broad term that applies to a number of different things. Um ... I think uh, for a lot of researchers uh, that go up to the Northwest Hawaiian Islands, they have to remember that uh, natural resource—natural resources are cultural resources uh, because the—the species that they're studying, the biological species, uh ... do have a connection to native Hawaiian people. Um ... you know, in our—in our ... creation stories, our cosmogonic chants uh, we have uh, like the kumulipo, for instance, which is uh, a v—one of the oldest, longest creation chants in our traditions, um ... in that chant, it highlights the relationship we—we have uh, to—to the natural resources as older siblings, as things that were born before us, and things that are entrusted us—entrusted to us to care for uh, into the future. Um ... yeah.

QUESTION: So talk about like ... like an albatross, for instance.

KIKILOI: Uh-huh.

QUESTION: And researchers doing research, scientists is doing research on an albatross, like ... or any bird in the area or something like that. Compare what they're doing to what like the albatross means for Hawaiians when these birds—not just something to use, right?

KIKILOI: [CLEARS THROAT] Sure. Um ... the albatross, uh ... you know, for—I think for a lot of researchers, is—is a bird or a biological species that they're trying to know more about; um ... their life cycle, their patterns and behaviors, uh, the things they eat, uh, how they live. Um ... for native Hawaiians, I think we're interested in the same types of information, but we don't just see it as—as a—as a biological species, but one that is intimately tied to uh, our cul—our culture and our customs. Um, for us, like the albatross is the body form of the god Lono. Um ... it's a—it's a symbol of uh, reproductivity, uh, because the bird comes uh, and mates during the makahiki season, which is an uh, important time of year for us for uh, for peace, for festivities, for um ... for regrowth and productivity. So the—the bird is really a symbol of all those things for us. And um ... it's tied to an important part of our culture, really.

QUESTION: Can you compare the research that a scientist would do, and someone like yourself that would go up into the Northwest Hawaiian Islands?

KIKILOI: Um, I think I'm a little bit different, because uh ... you know, there's ... different dimensions to my research, yeah? So uh, on one hand, you have like ... um, the things that I learned in anthropology and archaeology, and that being rooted in like a social study—uh, social sciences and humanities. Uh, and then you know, there's—I also have um ... educational background in um, Hawaiian studies, which is a very different approach, um ... one that is somewhat historical, but at the same time, based in um, experience. Um ... so ... for—I think for biological uh, researchers, uh, researchers of the natural environment, they're researching the same thing. They're researching, you know, all the different species and—and—and the environment, and the landscape. Um ... I think for me, though, I'm always trying to look uh, to understand uh, how it ties to Hawaiian culture, how it relates to me as a—as a—as a Hawaiian, and our traditions and customs. Um ... how can I renew those connections and commitments to the environment. And I think those are uh, really fundamental differences between um ... scientists who try to objectify the natural environment and see it as something that they can study or gain knowledge from; where uh, Hawaiians are trying to gain knowledge too, but they're also trying to establish a relationship with that thing, and a commitment to that thing. Um, so those are some ... fundamental differences.



QUESTION: I wondering if you could touch a little bit on ... you know, the settlements, how they ended about the 18<sup>th</sup> century, or I guess before that. But there's always been a connection between the Hawaiians on the main Hawaiian Islands—

[GENERAL CONVERSATION]

QUESTION: Okay; so that link that was never really broken between the main Hawaiian Islands—

KIKILOI: Yeah.

QUESTION: Talk a little bit about that.

KIKILOI: Um ... yeah; I think, you know ... definitely, there was uh ... uh ... uh, what archeolo—what—what archeologists are studying, you know, is like the—the population of people that tried to colonize uh, Nihoa and Mokumanamana in the past—uh, in the remote past, yeah? We're talking about um ... what they believed at one point was uh, 1200, you know, AD up until 700 AD. [CLEARS THROAT] Now some of the dates are pointing to maybe a later period of time, uh, in the 1500s. Um, that population uh, that tried to do that, that—that push, that voyaging push and settlement of those remote islands uh, [CLEARS THROAT] ... has been the focus of what archeologists have been trying to uh, understand an—and—and research, yeah, about the past. But um ... besides that one main push that shows up in the record itself—you know, the evidence that we see today, the sites, the artifacts, and so forth, um, there were native Hawaiians that were still going up there uh, throughout history. Uh, so in the 1800s, there's an account actually from um ... David Kupihea Malo from Sand Island. Uh, and in that account, he talks about how fishermen from that area still go up into the Northwest Hawaiian Islands to fish. And this was in the 1880s. And um, more recently, you know, in the past uh ... couple years or so, um ... we went to interview um, the late uh, Kawika Kapahulehua, uh ... Anakala Kawika Kapahulehua, who uh, talked about some of his family traditions of going up there in—in the 1900s, yeah? So um ... native Hawaiians continued to go up there um, throughout history. Uh, whether it showed up in the archaeological record is a—is a que—is a different uh, question, yeah? Um ... [CLEARS THROAT] but definitely, there was a ongoing uh ... connection with that place uh, with the Niihau people.

QUESTION: A lot of the Marks and [INDISTINCT] from the 19<sup>th</sup> century began going up there and ... trying to reestablish their connections there. Can you talk a little about that, and maybe why they did that?

KIKILOI: Yeah. Um ... yeah; throughout the—the 1800s um ... from the time of Kamehameha, with uh, starting with Kaahumanu, uh, up until uh, eighteen-ninety ... four and five, uh, with the-the Provisional Government and the Republic of Hawaii, um, native Hawaiians w—uh, were interested in going up into the Northwest Hawaiian Islands, and so were uh, the native—the—the government itself, yeah, the Kingdom of Hawaii, and um, their predecessors, the uh, people that uh ... took part in the illegal overthrow. [CLEARS THROAT] And I think people went up there for varying reasons. I think for the uh, the alii, they were interested, just like us today, to—to renew connections with another half of the archipelago that they weren't uh, familiar with uh, growing up. Uh ... Kaahumanu being the first uh, to—alii to go up there, uh, contracted William Sumner, uh, who was a Western ship captain, to take three ships up there. And sh—I—I believe she went with Ka—Kaumualii, according to the um ... Kamakau's text in uh, 1869. Uh, and she claimed uh, Nihoa, the first island, for um ... as territory of—of ... of the Hawaiian Nation, as—as uh, unified by the Kamehameha I. Um ... other monarch uh, went up uh, including uh, Alexander Liholiho, uh, in 1857. On the ship, um ... he contracted a ship called Manuokawai with um ... uh, Captain John Paty. And uh, they went up there and they rendezvoused uh, at Nihoa. Uh, Paty went on to try and uh, relocate all the islands up into the Northwest, uh, but Kamehameha IV, uh, Alexander Liholiho, um, only went to Nihoa, and he came back. Um ... other royalty that went up were uh, Queen Liliuokalani in 1885, uh, on a ship called the Iwalani. It's a steamer that uh, took a—a large party of uh, government officials up to Nihoa. And um ... the purpose was scientific research, to try and map the island, to try and um, take notes on its uh ... its natural resources, its uh, biological species, and so forth. Um, so she was able to uh, go up there and see those islands for herself. Um ... and the last uh, expedition uh, related to, at least to Hawaiian royalty, was um ... uh, the steamer called the Waialeale, who went up in 1886, one year later, uh, to rescue some uh, people that were stranded on Kiri Atoll. And at the time, uh, King Kalakaua contracted uh, the steamer to go up and uh, sent onboard um ... uh, one of the special commissioners, um ... Commissioner uh, Harbottle Boyd, to go up there and to claim uh, Kiri under the—the Kingdom of Hawaii. Um ... so there were some really important historical events that took place in the 1800s that are—are tied to uh ... not just our cultural relationship to the place, but our—our uh, political relationship to the Northwest Hawaiian Islands, as they were trying to incorporate these—these islands into the territory of the Kingdom.

QUESTION: What did the alii know about the islands in the 19<sup>th</sup> century? Did they know a lot?

KIKILOI: Um, I think they were trying to—the alii were trying to rediscover these places for themselves too, you know. I mean, uh, in Kamakau's text in

1869, he writes about how Kaahumanu was um ... interested in—in finding this place, kind of like a storied place of her ancestors that was only mentioned in chants at the time. And um ... Moke Manu in 1899 relates back to that story of Kaahumanu, and talks about how, you know, she was so moved by the experience, she came back and she named the—the waterfront area by Aloha Tower uh, Nihoa. So it still has that name ‘til this day, in commemoration of her voyage up there. Um ... other types of information that I found was um ... some reference to Kalakaua and his board of genealogists trying to understand how those islands were related uh, in terms of island name and genealogy, much like how we’re doing today, uh, to the Hawaiian people at that time. Uh, they were trying to, you know, relocate the old names and trying to figure out which island name corresponded to which group. Um ... I think ... you know, in—in that timefra—in that time period in the 1800s, though, there—there’s somewhat of a limitation. Even though they’re closer to um, our kupuna, you know, that lived in a traditional manner and that there was um, generational uh, ties and—and ... and passing of knowledge uh, from one person to another, um ... I still think, you know, today we have a greater opportunity to research and to implement some of these things. Because we have technology now that can uh, digitalize all the oral traditions, all the newspapers, you know, and we can search and query them in a manner that um ... people back then didn’t have the opportunity to do so. So you know, they were trying to uh, use written documents and go one at a time, you know, to try and find these types of information; where today, we’re having information come at a much higher rate um, and um ... we’re able to try and gather and synthesize those things a lot better than um ... what they were uh—the opportunities they were provided with at that time.

QUESTION: I want to try to get ... your opinion on broader things. What about [INDISTINCT] captured your attention? And ... what made you want to get so involved with the area?

KIKILOI: Um ... well, my relationship with that place actually started in the archives, you know. I had heard about the project, then I got hired as an intern at the Bishop Museum in um ... I think it was 2001. And I did a lot of the legwork for that initial report that they did on the relationship um, native Hawaiians have uh, with the Northwest Hawaiian Islands. Um, so from that, like, my interest really uh, was stirred. And uh, in 2002, um ... uh, Dr. Lilikala Kame—Kameeleihiwa gave me the opportunity to go up there. Um ... uh, then working with uh, Center for Hawaiian Studies to go on the [INDISTINCT] 2002 expedition. And um ... you know, that was actually—for me, it was a uh, eye-opening experience. I mean, I’ve been to a lot of places and a lot of cultural sites in the main Hawaiian Islands, but um ... one, I really had to conquer my fear of water, you know. Like I—I thought—uh, you know, being on a ship for thirty days; I’ve never been on a ship even for one day. [CHUCKLE] So I was trying to go up

there, uh, a boat uh, on a large research vessel, um ... was a little nerve wracking for me. And um ... but once I conquered that fear, uh, and realized what an opportunity it was, uh, going up there was—was uh ... was an incredible experience. I mean ... um, I don't think, you know, even as a researcher, like we always look at the documents an—and y—you try to understand things from—from a paper perspective; you're reading about it, trying to envision it. But it's not until you really go up there that it really starts to make sense, yeah, that um ... it gets really paa in your naau. Um, because the experience uh ... kinda locks you to a memory of that place. So for me, um ... it was really spiritual. I mean, it changed my life. It did. Because uh ... I guess prior to—really, prior to going up there, I didn't have a lot of focus. You know, I was kind of all over the place in terms of school, uh, my personal life; and—and going up there really locked me in, and um ... the element of spirituality, reconnecting with uh, a landscape that is uh, still in its most pristine condition, seeing things that our ancestors saw, and being in a place where it all began for us, uh, was really moving. Um ... for me, I really think it's—it's important for native Hawaiians to have that experience too, yeah? Because um, it's something about that place that'll—that'll change you, forever, pretty much. And when you go up there, um ... it re-centers you on what's important, makes you more grounded, uh, brings you closer to our ancestors. So um ... it was one of the most important experiences, if not the most important experience of my life so far.

QUESTION: [INDISTINCT] Hawaiians ... you know, some people may question why Hawaiians should be allowed to access the area for their practices or whatever. You kinda touched on it a little bit, but [INDISTINCT].

KIKILOI: Sure. Um ... I think for, you know, our people, like ... there's a uh, a high value put on experience, you know. There's the saying, uh, *maka hana ka ike*, knowledge is in doing. So it's only in doing something, actually doing it yourself uh ... experiencing it yourself, uh, does true knowledge stem—stem from, you know. So ... I think on a more uh ... uh ... important, you know, level ... native Hawaiians need to be connected to the environment. Because there's a reciprocal—reciprocal relationship that goes on uh, between people and place, yeah? And um ... it's tied to uh, identity, it's tied to wellbeing. And uh, to sever that connection impacts the people. So ... the continuation of practices up in the Northwest Hawaiian Islands uh, having access for traditional cultural practices, and uh, having native Hawaiians continue to experience and reconnect uh, with the Northwest Hawaiian Islands is—is—is vital. Not just for the—the wellbeing of the people, but for the wellbeing of the place.

QUESTION: So the place benefits too?

KIKILOI: The place does benefit.

QUESTION: Why?

KIKILOI: Um ... it goes back to that idea of, you know, natural resources or cultural resources, yeah? Like uh, what people see as biological species, we see as our ancestors. And ... it's about a family history and a family connection, and ... when you go up there, you're visiting family, and you're trying to reestablish ties which—with your family. And um ... I think if you um ... simplify it in those terms, uh ... all people can understand that, yeah?

QUESTION: I was gonna ask a broad question; you kinda answered it. What do you think the Northwestern Hawaiian Islands mean to Hawaiians today? What's the significance of them?

KIKILOI: M-m—

QUESTION: Why should like, you know ... [INDISTINCT].

KIKILOI: Um ... I think for most Hawaiians, uh ... you know, places like the Northwest Hawaiian Islands are really important to uh ... to preserve and keep protected, because there isn't a lot of places in our homeland left that are in a pristine condition, yeah? So—as you know, cultural practitioners, people that are trying to um ... connect with the environment, um ... the integrity of the environment is really important. Uh, there's not too many places that you can go that uh ... you have unobstructed views of—of the mountains and the ocean, uh, that it's not somehow impacted by buildings, noise, uh, and other types of visual effects. Uh, when you go up there, it ... that landscape really is uh, how it was hundreds of years ago, if not thousands of years ago. So how you see it, is how your ancestors saw it. And ... it's really about the quality of experience when you go up there. Um ...

QUESTION: Talk a little bit about how people today see, you know ... it's starting to change now, but the general perception is that, you know, there's the main Hawaiian Islands, the Northwestern Hawaiian Islands; they're kind of separate [INDISTINCT]. But if you could talk a little bit about how our ancestors maybe didn't see it that way, and that's not how it should be.

KIKILOI: Um ... yeah; I think, you know, today, because of the way um ... our lands are—and territories are divided up under different jurisdiction or agencies, and—and—and owners uh, we see these place as disconnected, yeah; the Northwest Hawaiian Islands being a separate place, and the main Hawaiian Islands being a separate place. And I mean, we even call it by that, right; Northwest Hawaiian Islands and main Hawaiian Islands. But in the past, uh, these were just islands, and they were all part of Hawaii.

And I think we need to kind of return to those uh, ideas of uh, interconnections and relationships. Um, I really like the—the idea of the canoe as the metaphor or the thing that links it all together, you know. Uh

...

[GENERAL CONVERSATION]

KIKILOI: Um ... yeah. I guess in the past, we were talking about um ... how the main Hawaiian Islands and the Northwest Hawaiian Islands today are conceived as two very separate areas. Um ... I think—wait. [CHUCKLE] I'm not in a flow, so it's kinda hard to just like jump into it, yeah? [CHUCKLE]

[GENERAL CONVERSATION]

QUESTION: So you don't think they should be separate; they should be connected?

KIKILOI: Right. I mean, they aren't separate. You know. [CHUCKLE] It's just uh, imaginary boundaries that we—we place upon uh ... areas, geographic areas, you know. Uh, much like how the—the Pacific is—is broken up into all these different areas; Polynesia, Melanesia, Micronesia. In the past, uh, I don't think anyone in the Pacific conceived these as—as separates areas, but all interconnected through ocean and um ... and canoes. Uh, the Hokulea really is uh, a powerful metaphor of uh, linking these islands up again. You know, some of the voyages up there uh ... was about reconnection, about going uh, up the chain to uh ... rediscovery these places, and trying to understand them from a perspective of—of ocean voyages. And I think that's really important, you know; like seeing it from ... from that perspective. Because like for me, uh, it was a very different experience being in a research vessel, than being on Hokulea, yeah? Uh, being on the canoe is uh ... you're totally immersed in—in the natural environment; the waves, the wind, the sun. Um ... and you get a better idea of what ... what—what it takes for uh, people to uh, have the perseverance of going up there, and trying to survive. Um ... if you think about it, it's a pretty amazing feat that people can—can go all the way up to the Northwest Hawaiian Islands. I mean, these islands are little specks of land in the middle of a vast ocean. And um ... you know, on the Nihoa trip, uh, Nainoa was saying that if you're off one degree, that you would miss the island. And um, there's no room for error in—in that kind of uh ... that kinda calculations. So it took really uh ... keen uh, observers and—and a whole system of knowledge that was developed over generations to uh, utilize the stars, the wind, the sun, the waves, to try and find uh ... little specks of land in the middle of the ocean.

QUESTION: Do you want to talk about ... abandonment questions?



KIKILOI: Um, what's the question again?

QUESTION: What are some of the theories about why native Hawaiians abandoned the settlement [INDISTINCT]. What's your theory?

KIKILOI: Okay. Um ... I think early on, um ... you know, a lot of uh, of the theories uh, on colonization and settlement of Nihoa and Mokumanamana was influenced by general anthropological theory about how the Pacific was uh, settled. Um ... you know, early on in—in the history of—of the discipline, um ... oftentimes Pacific Islanders and—and Hawaiians were discredited as not being uh, capable voyagers, yeah, uh, to find these—these remote island, and to navigate them purposefully. Um ... but over the years, um, those ideas have evolved, yeah, with um, Ben Finney being a proponent uh, of um ... Polynesians and other Pacific Islanders being very capable and very skilled in navigation, and very seaworthy people. Um, the creation of the Hokulea proved a lot of these—these theories, because uh, how can you discredit people actually going on the canoe and doing it in—in modern times, and—and actually uh, sailing two thousand miles and finding dots of land in the middle—middle of the ocean. Um, so for Nihoa and Mokumanamana, a lot of the early theories uh, were based on um ... those preconceived notions that Pacific Islanders weren't capable navigators. Uh, oftentimes, uh ... relegating ... you know, the ... the answer of, you know, who—who were the people that—that actually settled and discovered Nihoa and Mokumanamana, saying that it was either Tahitians or—or Marquesans, you know, drifting on a log or—or—and then shipwrecking on the island, and then kind of like living out their last days in kind of like a uh, castaway scenario. Um ... I think today, we know—we know better. Um ... we know that ... uh ... the—the likelihood of people voyaging from Marquesas an—and Tahiti in kind of a random kind of way, an—and landing on Nihoa and Mokumanamana and getting stuck there, and then dying their last days is—is probably not what happened. Um ... a more uh, likely uh ... answer to that question probably lies in—in the history of the Hawaiian Islands, because of its proximity um, because it—it—those islands are in a linear trajectory, you know, going in the same direction of—of how people could have voyaged from one island to the next. Um ... other uh, scholars later on, like uh, Paul Cleghorn in the eighty—uh, 1980s; uh, he did some uh, fieldwork on Nihoa and Mokumanamana, and got it on the uh, National and State Register for Historic Places. Uh, he had a lot of ... I think, better um ... hypotheses and conclusions that, you know, it's likely that there was um ... ongoing interaction with that area from the main Hawaiian Islands uh, for some period of time. Um, a lot of the research I'm doing is trying to really fine tune those ideas, and a lot of is linked to uh ... our ability to get dates from the areas. So for archaeology, we—we use exact dating methods, like um ... radio carbon dates, and more recently, the development of um, thorium 230 dating, which is coral dating. Um, those

are two ways that we're—we're hoping to kind of fine tune the ... the chronology of settlement for those two islands. And also using um, other relative chronology methods, like uh, seriation, which is the stylistic comparison of um ... different architectural features on ceremonial sites and residential sites, with the main Hawaiian Islands and other places in the Pacific.

QUESTION: So why were the islands abandoned?

KIKILOI: Um ... well, the um, Northwest Hawaiian Islands um ... are in a category of islands um ... with other Pacific Isl—a score of other Pacific islands um, that have been labeled uh, in anthropological discussions as mystery islands. Because uh, in the past um, there's evidence of settlement of those areas, but at the time of European contact, um, nobody was found living on those islands. So the Northwest Hawaiian Islands are considered mystery islands, and it was mystery as to why those places were abandoned in the past. I think it's um ... somewhat common sense, though, that ... you know, as—as you move up into the north uh, northwest direction of the main Hawaiian Islands uh, into the Northwest Hawaiian Islands, the islands get smaller, um, there's less uh, land for uh, agriculture, there's less biodiversity found on the islands; so um, human survival is really pushed to its uh, to its limit. And um ... you know, oftentimes ... people say that uh, islands is a microcosm—microcosm of the—the world, yeah, that we have to learn how to live sustainably within our island environment, and the lessons uh, taught here uh, are lessons for the planet. Well, if the lessons taught here are lessons for the planet, then the lessons on an atoll is lessons for uh, the universe. [CHUCKLE] You know, really. Because uh, the ... atolls really are a microcosm of the microcosm, which is the island, and—and um ... these atolls and—and low-lying islands are really susceptible to weather patterns, um, any diff—uh ... any little [INDISTINCT] from—from the natural environment, species introductions, uh, little things that we take for granted that can be buffered by uh, geographical space here and in larger continents um ... are magnified on a small, tiny, little island. So uh, resources are limited, and ... um ... the ability to support populations over time is—is severely limited uh, as you get smaller land area.

QUESTION: So I remember one time you were telling me that ... there's a sort of theory that ... as voyaging throughout the Pacific decreased or declined—

KIKILOI: Yeah.

QUESTION: --that [INDISTINCT] small islands [INDISTINCT].

KIKILOI: Yeah.

QUESTION: What's the correlation, or is there a correlation?

KIKILOI: Yeah; there was um ... ideas like that put forth by a ... a guy name Jeff Irwin, who wrote a book um ... on—well, a—a chapter section on the Mystery Islands. And he ... he showed how um ... he thought that there was a correlation between the abandonment of islands and the decline in voyaging throughout the Pacific. And I think that makes sense, you know. I mean ... um, definitely, there's a period in time when uh ... voyaging declines because ... a lot of the uh ... islands throughout the Pacific are settled and colonized. And people are gonna go to the best islands first, yeah, so the larger, more productive islands with good soil, high mountains, a lot of water; those are places that people want to live. And as they become domesticated and invest more in agriculture and uh, domesticated activities, um, exploration uh ... marginal islands uh ... become less of importance to um, native people throughout the Pacific. And um ... especially when you have, like, small islands like Nihoa and Mokumanamana; I mean, they're so susceptible to any little kind of effect from, you know, the changes in—in—in rainfall, wind, uh, and so forth, that um ... there's so much risk in living in those places, that people probably didn't want to live there after a period of time. Or, they might have even died out.

QUESTION: [INDISTINCT]

KIKILOI: It's a possibility. Yeah. [CHUCKLE]

[GENERAL CONVERSATION]

KIKILOI: Um, I think that ties into the question of abandonment too, you know. [CHUCKLE] Like uh, talking about places of risk. Um ... you know, I—I stayed on—well, let's see. I—I've been to Nihoa a number of times. Um ... but in 2005 and 2006 was two of the—the field ses—seasons that we actually um ... actually lived on the island for about two to three weeks at a time. And um ... I think living there, and again, you know, relating back to maka hana ka ike, yeah, uh, knowledge is in—in actual—in the experience of doing things; uh, living on the island ... and um, forming a more intimate relationship, and seeing every nook and cranny of the island, uh, really gave me a different perspective on what it took for our ancestors to try and colonize places like that. Um ... it's—it's a very difficult place to live for an extended period of time. Um ... so you kind of get an idea of some of the—the problems and constraints I think people had to deal with. Um, Nihoa Island is one hundred seventy-one acres in size; it's—it's somewhat small, but the real problem is that the entire island is on a—a slope from—anywhere from thirty to seventy degrees at any given point, you know. Uh, if not ninety degrees, uh, you know, the back—the back cliff. [CHUCKLE] So ... um ... trying to live on that

island um, there really is a premium on ... uh, level, flat space.

[CHUCKLE] 'Cause you know, half the time, your ankles are twisted in one way, trying to either climb up or climb down the thing. And um ... it's very crumbly, the soil; so uh ... you know, a lot of the archaeology kinda reflects their adaptation to the environment, yeah? So uh, one of the things I noticed is that uh—well, obviously, for one, um, everything has a uh, a front face, a retaining wall, you know, that's trying to, you know, hold uh ... hold back the—the—the—the slope, and to uh, level out the—the surface, yeah? So you have um ... retaining walls for terraces, for platform—living platforms, uh, enclosures, and so forth. Um, another thing they tried to do was, they—they—they strategically built sites on certain areas. So um, one of the things you'll notice is that when you go to the island, you can see these dike stones that run through the island, yeah? They're—um, I don't know what, exactly, they are in—in geologic terms, but they're—they're harder rock than the—the regular soil. So you have these, like, veins of uh, of um ... dike stones that run uh, vertically through the island. And they'll try and build the retaining wall on top of that face, because that's one area that won't collapse, you know. Uh, if you try to build it on any other kind of surface or—or ground, there's—it's so rubbly and so crumbly that um, there's a good chance that the retaining face will collapse, yeah, over time. So they were very strategic in the way they um, they built things and—and how they—they planned out the—the settlement of that area. Um ... being there for two to three weeks, uh, it's—it's just murder on your ankles and your feet. By the end, I felt like my—my feet has—had bruised all the way through, because they're constantly pounding on rocks and—and hard—hard pavement, you know, of—of uh, of rock, you know, over an extended period of time. Um ... and—and it just requires a lot of energy. I think, you know, when you're on a vessel and you see that place, it looks—it looks kinda small, actually, you know, even on a map an—and when y—you're on the vessel looking—looking onto shore. But uh, when you're on the island, you know, it takes about two hours to get from one side to the other. And um ... you're pretty exhausted by then, and you have no water, you know.

[CHUCKLE] So you only take the water that you bring onto shore, an—and you realize that um, beside ... you know, if—if you didn't have the water that we brought, uh, the only water available were those seeps that come out at the bottom, and um ... it's rough. It's rough to live there. It's about survival. I mean, those kinds of things go into your mind. I mean, when I'm at home, I never think about, you know, like, do I have enough water to make it through the day. When I'm over there, I'm thinking about trying to live and trying to survive, and everything becomes more real to me. And um ... it's really going back to the basics of—of—of living when you're—when you're on that island.

QUESTION: And I guess it speaks to like the commitment that it took to live on that island, and ... you gotta want to live there for a reason; there has to be a reason.

KIKILOI: Yeah. I think it's uh ... the commitment isn't just on living on the island; it's also ... the recognition that there's so limited resources um ... on the island, that ... uh, no one island in the Northwest Hawaiian Islands might have enough resources for you to actually have all the things you need to survive. So again, that's where the canoe comes in, you know. Having um ... canoe as the vehicle that interlocks the islands and creates um ... systems or uh ... uh ... what do you call ... shoot; my mind's going blank. Um ... just having inter—interrelated networks, yeah, in between islands uh, in order to um, survive, yeah, to buffer the—the effects of—of uh, limited size and resources. Um, linking them up together gives you uh, a more variety of resources to live and subsist over a longer period of time.

[GENERAL CONVERSATION/AMBIENT]

[END]

**Interview**  
**KAIULANI MURPHY**

QUESTION: Can you say your name, and spell it?

MURPHY: Kaiulani, K-A, okina, I-U-L-A-N-I, Murphy, M-U-R-P-H-Y.

QUESTION: And where do you work, and what do you do?

MURPHY: My position? Okay; I work with uh, Honolulu Community College, and I'm an instructor. Um, we're trying to develop a ocean studies voyaging program. Yeah. [CHUCKLE]

QUESTION: Um—

MURPHY: I never know what to call it.

QUESTION: Okay. So first question; just some general background about yourself. Well, talk a little about why or how you got into voyaging, and what pulled you in.

MURPHY: M-m—

QUESTION: [INDISTINCT]

MURPHY: Uh, the first ... actually, the first time I got on the canoe, on Hokulea, was when I was in elementary school. And I was just in total awe of this beautiful canoe; it seemed so big. Um, but I hadn't really seen or touched her again si—until I got into um, UH Manoa. And [CLEARS THROAT] ... I listened to Nainoa Thompson give a presentation at the Center for Hawaiian Studies, and I was just so inspired by his—by his talk, and—and what he was saying about how the canoes um ... you know, symbolizes hope and—and—and pride, in—in our people. And so I enrolled in a voyaging course, thinking he was gonna teach it. Um ... of course, he didn't teach the course, but I did get involved with the canoe by um ... being part of that class. So since that time—that was about eleven years ago, um ... I've been ... fortunate enough to have been able to go on um ... on some voyages with the canoe, and—and share what I've been able to learn um, through that.

QUESTION: So eleven years; what's kept you in it? What's kept your drive going [INDISTINCT]?



MURPHY: Um ... I can't—I don't know; I can't see myself not sailing. It's just um ... I think it's a lifestyle. It's something that um, those of us that have been sailing—you know, there's many people that have been sailing longer than I have, but you just—there's this draw from the canoe, and—and we just love the ... connections, I think, with the canoe, with the ocean, uh, with nature, and especially with each other, with other people. Um, and those of us that um, have that love for—for voyaging, um ... I think ... can't really see the canoes not being in our lives. At least that's—that's kinda how I feel.

QUESTION: What role did like reconnecting with your culture play, or [INDISTINCT] or ...

MURPHY: M-m ... um, I definitely feel like I've been learning plenty. Um, and I've ... you know, learned that I've a lot more to learn. But um, it's—[CLEARS THROAT]—I think I never really learned about, like, more depth of—of our culture, Hawaiian culture, um, until I was at UH. Which is um ... kinda was old already. [CHUCKLE] But um, not to say I didn't have a good foundation when I was growing up, but I learned a lot more um, by taking classes about Hawaiian culture, Hawaiian history. And so realizing that there's kind of a ... um ... there's a disconnect in our education system of our—with our culture, uh, at least when I was, you know, like in elementary school and stuff. And I think the voyaging canoes are such an important um ... an impors—an important aspect of our culture and uh, they're a great way to uh, reconnect with that um, educating of young people. Um, I think the canoes [CLEARS THROAT] have—have ... inspired me to want to learn more about us, our place, um, the relationship that our kupuna had with nature, and the relationship that I'd like to develop, and I'm learning to develop. Um, and just, you know, being ... being close with our surroundings, um, learning about, you know, the ocean, the—the land, and um, how the ocean connects all of us, you know, our larger ohana outside of Hawaii. Um ... and how much more similar we are than we are different. But um, that ... the more I learn about our culture and our kupuna, the more proud I am to be from here and—and—and from them, and the more I'd like to share that um ...the values, I guess, or those experiences that I've had with young people, so they have—uh, for me, it's given me a good um, sense of direction too in life. You know, I mean, I don't know what I'd be doing if I wasn't voyaging. Um, fortunate that our um, university system is you know, embracing the fact that voyaging is such an important part of ... of us and of this place that um, there's actually um, support for education programs, you know, to uh, use the canoes as classrooms. [CLEARS THROAT] So I know that wasn't really your question; I forget what your original question was. [CHUCKLE]

QUESTION: Um—

MURPHY: Sorry. [CHUCKLE]

QUESTION: No; that was great. So talk about your history with voyaging, like what kind of places have you been on—

MURPHY: M-m—

QUESTION: --or to with the canoe.

MURPHY: M-hm.

QUESTION: [INDISTINCT]

MURPHY: Yeah. Uh, I've mostly been—uh, been able to sail with Hokulea. Um, Hawaii Loa, a little bit, just coastal sails while she was um ... uh, while she was still in the water. Now she's being um, repaired. But um ... so from the time I started um ... with Hokulea, you know, trained um, around Oahu and throughout the main Hawaiian Islands. And um, the first voyage I—I got to be a part of was um, coming home from Tahiti, back here. Uh, that was back in 2000, part of the Rapa Nui voyage. Um, and then [CLEARS THROAT] the next longer voyage I'd um, been a part of was to the Kupuna Islands, and that was back in 2004. Um, I was able to go up to Kiri and—and come back with the canoe. And then um, just last year, going through um—from—from here, from Hawaii through Micronesia, and Ja—and Japan.

QUESTION: Can you talk a little bit about that trip you guys made to the Northwest—well, to Nihoa, the one you navigated on?

MURPHY: M-m. Okay; that was actually part of that um ... that full voyage to Kure. And um, I got that leg from Kauai to Nihoa. Uh, my kuleana was to um ... to navigate the canoe there. Um, but I was very fortunate to have two great mentors and navigators onboard, Nainoa Thompson and Bruce Blankenfeld. Um ... it's ... it's kinda nerve wracking and—and uh ... it's a big kuleana. [CHUCKLE] And you never—like I never really felt, even leading up to departing from Hanalei, I never thought that I was ready. You know, and it's—you know, it's—it's only an—like an overnight sail, really, but it really made me realize um ... how much I didn't know, how much I wanted to learn, um ... how lucky I was that two navigators were onboard. Um, but it's a—I guess a ... a short [CLEARS THROAT] version of what a long voyage would be. I mean, you learn everything that um, you would need to learn for a long voyage, but it's condensed into, you know, a twenty-four-hour period or so. Um, but yeah; I was really ... really nervous, um ... just trying to study, study, study up until the day we left. And uh ... once we saw Nihoa, um ... I went to sleep.

[CHUCKLE] I was so exhausted. [CHUCKLE] Just from trying to study, and then trying to stay awake, and—I mean, I was really lucky, ‘cause along the way, Nainoa would ask me questions and—and get me to look at things in, you know, the ocean and the—and the sky that I should be paying attention to. And so it was uh, a great learning process for me. And um ... yeah; still learning. [CHUCKLE]

QUESTION: What kind of—how do you prepare for it? What goes into ...

MURPHY: The preparations?

QUESTION: This was your first trip you navigated.

MURPHY: Yeah. The—the very first voyage I was part of, um, I was like learning the navigation, so we were kind of on a team an—and there were two of us that were supporting or assistants to the main navigator. Um, so this was the first time that, yeah, you know, I was supposed—that was kind of my kuleana. Um ... and ... to prep for that, um, it’s [CLEARS THROAT]—there’s the academic stuff, which is kinda the easier stuff. You know, just the memor—memorizing stars, um ... looking at, I guess [CLEARS THROAT]—to me, the hard part is—is the—the—the changing things. You know, just having to um, have that experience of being out on the ocean for longer periods of time, an—and you know, learning how to um ... how to read the surface of the ocean, the swells that are coming, read the wind, you know, how the clou—how you can read wind in the clouds. Um ... you know, real—realizing ... or reading signs, I guess, when ... you know, just the colors in the sky when the sun rises or sets. Um, to me, that’s ... that’s a bigger part of the preparation, is actually um, having that experience to um ... to fall back on when you’re—when you’re actually out there an—and doing it. Um, the academic stuff, like I said, the memorizing stars and things like that, rising and setting points, that’s a little easier, because the stars are ... the stars are more constant. You know where you should see them. Uh, whereas the weather and—and the ocean is always changing. Um ... so those are kind of the—some of the physical, maybe, um, learning preparations. And then there’s just like, you know [CLEARS THROAT] ... um, mentally and—and spiritually um, preparing yourself for a trip like that.

QUESTION: So you’re studying the environment; things that you said were shifting a lot [INDISTINCT].

MURPHY: M-m.

QUESTION: How do you do that? Do you stay on land, or just kind of ...

MURPHY: Um, ideally—ideally, um, you would be uh, get out there on the ocean. And ideally, on the canoe that you're gonna be sailing for the voyage, so on Hokulea. Um, but even if it's just, you know, on ... uh ...  
[CHUCKLE] good one, Naalehu.

[GENERAL CONVERSATION]

QUESTION: So you ideally want to be on the canoe.

MURPHY: You'd want to be on the canoe training out there in the elements. Um, but if you can't do that, because Hokulea does take a lot of resources to get out there, um, you know, whether you go on a one-man canoe or kayak, or six-man canoe; just being out there on the ocean, and just you know, feeling the wind and feeling the swells, um ... even on a boat if you can get out, you know, ou—outside of the island, more in the channel, or away from um, away from land for a little bit, and just kind of develop that relationship with the ocean and ... and the weather.

QUESTION: Did you spend a lot of time on Kauai, or in that area before?

MURPHY: Um, actually, leading up to that voyage, we ... I think we were delayed for two or three weeks, yeah; so we got to spend a lot of time on Kauai. But um ... [CLEARS THROAT] before then, um, I had—yeah; we had um, sailed Hokulea around throughout the main islands, and we spent some time over there. Um ... but mostly the ... the purpose, I guess, of getting the canoe there was for um, for education and sharing with—with—with people of—of that island. Um, so I never really went beyond Kauai, or just got out off—offshore to go sailing out there. So um, actually, when we did leave for Nihoa from Hanalei, um ... we were a little—well, I was a little surprised that the—the ... um, the weather conditions, I guess, the fact that we kind of ran out of wind when we were on the north side of—of Kauai. So we had to kinda change course. I mean, that--[CHUCKLE]-  
-I was like, Oh, my god, I want to go there. [CHUCKLE] I have to get there before we turn. You know, it was like [GASP] kinda nerve wracking. Just gotta adjust again. [CHUCKLE]

QUESTION: So that was during the trip?

MURPHY: Yeah; during the trip.

QUESTION: To Nihoa?

MURPHY: Yeah. Yeah.

QUESTION: So what's it like trying to—I mean, trying to ... I guess for me, it's kinda odd that you go to an area, you're supposed to get to an island that you've never been to and—

MURPHY: M-m.

QUESTION: --go on a route that you've never been on.

MURPHY: M-hm.

QUESTION: And then having to just sort of get the [INDISTINCT]. What—

MURPHY: Yeah.

QUESTION: What's that like? And then what's it like when you actually accomplish it?

MURPHY: Um [CLEARS THROAT], you know, another part of the preparations, I guess, is the—the actual sail planning, the physical sail plan. So you use uh, nautical charts. So you see the—this little speck of land on the chart, um ... and you draw ... you draw a course line. And so [CLEARS THROAT] ... even though you'd never gone there before, you have this um, imaginary path over the ocean that you're trying to stay on, um, and constantly keeping track of ... where you are relative to that—that course line. Um, and that's—that goes for, you know, from Kauai to Nihoa, or from Hawaii to Tahiti, all the voyages that—that we've done. Um [CLEARS THROAT] ... so to ... to actually see the island come up from the ocean is um ... I don't really have words for it. But it's—it's—it's pretty awesome; it's—it's amazing. You ... um ... I didn't really know what to expect. I mean, you—you see pictures and everything, but uh, when you actually see it, you know, far off on the horizon and you have it grow and grow as you get up close to it, um ... it's something that y—you gotta do to—to know that feeling, I guess. But I would hope that ... everybody can do that, to get that feeling.

QUESTION: Can you talk a little bit about doing something that your ancestors did?

MURPHY: M-m.

QUESTION: That they probably felt that exact, same—had that exact, same experience when they went to Nihoa [INDISTINCT].

MURPHY: M-m.

QUESTION: I know I've talked to you before about this. You mentioned that, you know, [INDISTINCT] footsteps of your ancestors.

MURPHY: M-hm. Yeah.

QUESTION: [INDISTINCT]

MURPHY: Yeah. Um, definitely, I think we hear that a lot, sailing in the wake of our ancestors, and um ... knowing that, you know, we come from incredible explorers. And um ... and to know that they were there, I mean, lived in Nihoa, you know, for so many years, um, voyaged back and forth uh, between the main islands and there. Um ... it seems—it's—it's like we're—we're crossing uh, a familiar path, but um, it hadn't been traveled, you know, for so many years. Um ... so it was—it was al—it was like ... kind of like going back in time, or reconnecting with that time. Um ... you just really feel that—you feel the mana of—of those places. And when you're out on the ocean, just this um ... can imagine, maybe, what ... um ... what it was like to sail back then, or how it was to sail. Uh, I mean, I have incredible admiration and respect for them. You know, we have a lot of modern amenities, I guess, even—even on the canoe now, that—that we have, that [CLEARS THROAT] you know, they wouldn't have. I mean, just for example um, the clothes that we have, you know. And it gets—it can get really cold at night, and to—to think that, you know, if they only had, you know, natural fiber kind clothing, and ... and to um ... to have that physical stamina of—of um, enduring harsh weather or—or what not, and uh ... that they just—I mean, even beyond Nihoa, you know, traveling probably around the world, um ... it just ... makes—again, just kinda makes me feel more proud of—of who we come from. Yeah.

QUESTION: Do you have—I know you were just talking about how, you know, [INDISTINCT] how they sailed a lot between those—

MURPHY: M-m.

QUESTION: --islands. Do you have any idea of what ... the role Nihoa played in voyaging—or the role Nihoa played in [INDISTINCT] voyaging traditions, whether—I know—and I'll talk about this [INDISTINCT]. But there's been talk about using the area as a training ground [INDISTINCT].

MURPHY: M-m.

QUESTION: Was that traditional, you think, from your experience or ...

MURPHY: Um, I think ... I—I'm not sh—uh, I'm not for sure, but I think it would serve a great um, uh, training ground for young navigators, or even um, testing navigators, maybe. Um ... we did try uh, to sail to Nihoa again with some high school students. Um, that was two years ago in 2006.



Um, the weather ... the weather didn't allow for us to—to get all the way there, but what we were trying to do is—was teach this group of young people um ... again, you know, the basics, what you need to learn to be able to voyage far, to navigate far. And um, after all the learning and training that they had done, that was kind of like the—the test for them, you know, can they find Nihoa. Um ... and uh ... although we didn't get to Nihoa, we did sail uh, to—we had them find Kaula. And um ... and they did really good. I mean, they were—we kept track of their estimates and the escort boat we had kept track of um, our actual positions. And the—the match ups were amazing, and it's um ... I guess it just—it shows ... that, you know, the—the training that we're doing, you know, is—is of value to young people, and um, it is teachable and learnable, I guess, an—and I would think that, you know, that's probably a—that would—would—would have been a good place too for ... you know, our kupuna to have done their training. Because you can't see the—the island, so you're ... you know, you have to sail overnight and um ... yeah; I think that'd be a—that would be a great training ground. Yeah.

QUESTION: What are some of the other advantages to using Nihoa as a training ground? Is it just the distance or ...

MURPHY: Um, the distance, the fact that it's tiny—tiny, little island. I mean, compared to these—these large ones that we live on. Um ... and ... I mean, for me, once we sailed up close to the island, you—you know, it's just—it's a beautiful island. You see um ... at least for us in—in our times, you know, nobody um ... no people living there, but just you know, the amount of birds, and—and animals, and the plant life that just, you know ... dominate that—that place. It's just a—a place of beauty and mana, and um ... awesome to pull it out and watch it grow from the sea.

QUESTION: So can you talk a little bit about ... what your ... hopes are for voyaging in the future to the Northwestern Hawaiian Islands?

MURPHY: Uh, I do hope that we can continue on um ... you know, regular voyages out there, um, so that it's something that's happening either at least once a year or every other year. Um ... because this whole idea of—especially now, I mean, we have—last year um, Mau Pialug recognized five navigators from Hawaii. This—earlier this year, he recognized another uh, group of men from the South Pacific. And um ... you know, to think in thirty-something years, we have nine pwo navigators now, or at least recognized by the um ... by their um ... first teacher from Micronesia. And the idea that, you know, in the next thirty years how many more navigators uh, will we have. And their kuleana, part of their kuleana is to—to teach and um, keep that knowledge alive. And—and it is a living—uh, you know, we have a living culture evolving, an—and um ... to continue those and make our own traditions, maybe, um, of—of

continuing that connection with that place. Um ... so I would—I—I would love to see the canoes going up there for uh, training purpose, for um, spir—spiritual connections. Um ... and I think it's important to keep that connection.

QUESTION: Is there discussions going on with any of the other—

[INTERRUPTION]

QUESTION: Okay; so same question. So have the other canoes been talking about going up there? Has there been discussions about regular trips up there?

MURPHY: Um, yeah; I think as uh, ohana waa throughout, you know, all the—the main islands, all the—the waa organizations that have been born since the time of Hokulea, um, I think everybody [CLEARS THROAT] you know, realizes the importance of—of teaching and um ... and at least one canoe has—um, besides Hokulea, you know, Hokualakai, um, had gone up there in 2005. And um ... I'm sure, you know, we're more and more trying to do things together with—with all the waa, as much as we can. Uh, so I—I mean, I'd love to see that as a trip, you know, just uh, a fleet of waa sailing up to our kupuna islands and—and honoring that place and uh, you know, so much can happen on—on ... on those kinds of huakai. So I think that would be awesome.

QUESTION: So there's Hokulea and Hokualakai; those are the only two Hawaiian voyaging canoes that have been in the area [INDISTINCT]?

MURPHY: Uh, as far as I know, yeah. M-hm.

QUESTION: What was Hokualakai's—what was the reason for them going up there?

MURPHY: Um, in 2005, Hokulea and Hokuala—Hokualakai together sailed um, with the um ... with that group—uh, what is it now, Kupueo Kaimoku, I think is their name. Um, and ... they went up there—I think it was—was it around the solstice? Around now? They went up there to—to both Nihoa and Mokumanamana um, observed the solstice, um [CLEARS THROAT], so it was—I didn't um, I wasn't able to go on that particular trip. But um, it was part of—we did a—Hokulea was doing an island wide educational sail, voyaging program, and um ... Hokualakai joined part of that. And in Kauai—from Kauai, they left together to go up to Nihoa. So I think it was not only—it was a continuation of that island wide, you know, connecting all the—all the mokupunis um, including Nihoa and Mokumanamana. And um ... going up there to do some—some ceremonies and observing the uh, the longest day of the year.

[GENERAL CONVERSATION]

QUESTION: It's often said that canoes are sustainable floating islands. And the Northwest Islands are some of the most desolate and remote islands—

MURPHY: M-hm.

QUESTION: --around. What can conservationists and research scientists going to the Northwest Hawaiian Islands learn from canoe culture and from your ancestors who sailed there and lived up there?

MURPHY: Uh, I think [CLEARS THROAT] the waa have so much um ... so much lessons can come from—from the waa. And uh, one thing we say is, He waa he moku, he moku he waa. So the canoe is an island, an island is a canoe. And um, when we go on these voyages where we're out of the sight of land for, you know, more than a day, um, you really ... you really realize the—the importance of taking care of that waa that you're on. Um, you know, the—the food and water we bring on the waa will last us for the duration of that trip. Um, the people that we're on the waa with, you know, that's ... that's ohana. You know, you—you have to get along; you don't really have a choice, there's no—uh, not a lot of privacy, you know, it's small. It can be small spaces if you um ... think of it that way, uh, or it can be totally comfortable and—and just [CLEARS THROAT] needing to work together as that ohana, as that team to get to your destination. Um ... listening—you know, having the leadership onboard, the—Mau says that the—the navigator is your father, and the canoe is your mother. And so again, that kinda reaffirms or um ... has you look at it in terms of a family. You know, your—the crew members are the—the children, you listen to your parents and you'll get to where you need to go. Um, take care of the waa; before you go on these voyages, you know, making sure that—that she is seaworthy and safe. [CLEARS THROAT] And so when you're out on the ocean, you can, you know, you can um, rest easy, maybe, knowing that the canoe is in good shape. Um, and so all of those—an—and just the values of—especially of malama to me is the—the main one. They all translate back to the bigger waa that we live on. Um, and ... you know, we do have um, limited resources. It's not as—um, you don't realize it as quickly, maybe, as you do on a waa, because you know, that's like survival. You know, if you run out of water ... um ... can't survive without water. But you know, having ... having those kinds of lessons brought back to the—the bigger islands, and how do you take care of those uh, resources, the food and water, taking care of each other, um, of yourselves too, and um, and the islands so that you know that it will be healthy and it will um, take care of you throughout not just your life, um, but ... for um, until forever, you know. And so ... I think the—the waa is a really awesome ... um ... island uh, for us to learn from how to live better on the main islands, I guess. And I think that's something that maybe um ... uh ... maybe—I don't know about easier, but it's—it's

a good way to—to—to teach people, young people, older people. I mean, I learned plenty from being on the waa, you know, just—just realizing that. You know, how um ... how sensitive our environment is, and—and especially you know, having that relationship with nature. Again, you know, being able to um, understand weather and the ocean, and how everything works, and the---cycle of life and how we're all connected. And um ... um ... yeah. I forget where I was going with that, but ... [CHUCKLE].

QUESTION: Great.

MURPHY: It's just a good classroom.

[GENERAL CONVERSATION]

QUESTION: Scientists and visitors who go up to the Northwest Islands might not know too much about the culture, but they know—I mean, [INDISTINCT] reasons why they're going to the Northwest Islands is the environment.

MURPHY: M-m.

QUESTION: What would you want them to know about the Northwestern Hawaiian Islands and what it means to the Hawaiians and [INDISTINCT]. What would you want to tell them?

MURPHY: Um ... h-m ... I guess I would—I would hope that, you know, people going up there, anybody would um ... would know that, you know, um ... our kupuna had this awesome relationship with um, with their honua, with the ocean, with the land, um ... and had an understanding of how everything ... was connected, how everything worked. Um, and us living as people, living with you know, with the land, with the ocean, um ... and as—as caretakers of—of this place. And I think um ... you know, that ... idea that, you know, everything in nature has—you know, has a spirit, has an essence, and um ... you know, because it—everything has life, um, our kupuna and us, I think, have that respect for, you know, these places, an—and that um ... I guess uh ... part of us is to ... or part of our kuleana being here is to take care of—of those islands. And um ... although we who live on the main islands cannot always go up there—I mean, it's ... awesome [INDISTINCT] protect the place, but it's still our kuleana to take care of. Um, so I think looking at the ways that our kupuna knew how to manage their resources um, is something that we should all look at uh, when we think about, you know, how should we malama the—those places. Uh, so just—I guess mostly that, just um ... maybe learning from or knowing that—that point of view that our kupuna had when they—you know, when they go to these places or um ... even on our main islands, you know, just that value of malama. And um, going to these places with

respect and aloha, and um ... knowing that we do have plenty to learn about—about all of these places, the—those islands up there, um, the ocean surrounding them. Uh ... yeah; and just I think we can learn a lot from ... from the ike of our—of our kupuna.

QUESTION: What [INDISTINCT]. You know, you were talking [INDISTINCT]. Let's go to—you know, having voyaged a lot and you know, actually—

MURPHY: M-m.

QUESTION: --navigated to an island, and having those experiences and understanding [INDISTINCT] do that. After experiencing all that, how does that make you appreciate more, or what does that make you think about what your ancestors did when they first, you know—

MURPHY: M-m.

QUESTION: --launched off from the Eastern Pacific and Western Pacific and made their way across [INDISTINCT] the Pacific.

MURPHY: M-m.

QUESTION: Sometimes just kinda exploring, sometimes ...

MURPHY: Yeah. It just—I guess um ... I'm more and more, I guess um, realize how, you know, how brave they were, how courageous um, they were, um, to—to leave—especially leaving an island, maybe not knowing if you're gonna get to wherever you're trying to go, or not knowing what you're gonna find. Um ... I think ... it just, you know, reaffirms to me that they were the—the greatest explorers of—of their time, of that time. And um ... again, just appreciating that relationship, I guess, they had with nature. And um, you know, I don't know exactly why they—you know. How did they know they would get to land? You know, a lot of people ask, you know, how—how did they know. Um, and I'm not sure, but I mean, again, because they had this relationship with nature, you know, they realized migratory patterns of birds or you know, certain um ... sea life. So I think um ... for me, it—it ... it uh ... it does make me very proud of—of coming from that kind of that legacy, having that seafaring heritage, and really wanting to um ... keep that alive and—and growing, and—and I think for—for us as people to—to know how akamai our kupuna are, where um ... and how akamai we are and can be in—in learning from them. Um ... I think it's uh ... it helps—it helps all of us, you know, our self esteem, health, um ... it's ... I guess um ... gives hope, I think, not just to young people, but older people like me. [CHUCKLE] Um ... but I don't know; it just—it just makes me really proud to be, you know, who I am and from here. And I think if—if every ... everyone here

lives in Hawaii has—you know, has that um, ancestry um, could be proud of—of the people we come from and where we come from. Um, by knowing that, that they set off, you know, on these ... uh, expeditions and um ... had that ... that relationship um, with the world, um, the understanding, I think um, it's something for all of us to be—to be proud of and that we can all learn from.

QUESTION: So now kinda looking forward. You're the first time, fulltime, the first fulltime voyaging instructor at a university?

MURPHY: Um ... I guess; I don't know. I didn't think of it that way. Um ... we're trying to ... at—at Honolulu Community College, um, and then—and there have been other voyaging courses offered, um, still happening at UH Manoa and at Windward. Um, and just [CLEARS THROAT] uh, at HCC, what we're trying to do, at Honolulu Community College, is expand on that. So ... already in place—I mean, I took that voyaging course at Manoa ten, eleven years ago, you know. And so um ... now ... at HCC, uh, I think the ... the university system is uh, is realizing the importance of—of that kind of learning, of experiential learning, um, and the ... the value of the—the waa as a classroom. Um, and it's not just learning voyaging, but through voyaging you learn about your world and—and everything. I mean, so this—this kind of Hawaii ocean studies uh, kind of a program is something that, you know, um ... we're hoping uh, young kids—I mean, most people that live here love the ocean. Um, so why wouldn't you want to learn on the ocean. Uh, if school every day could be going on a waa and—or you know, just being on the water, um, I think more keiki would go to school [CHUCKLE] every day. But um, so I think anyway, the university sees that—that importance of—of—of um ... an ocean ... related program an—and the waa being a perfect uh, kind of a classroom. So we're just trying to expand on that now at—at the community college, and hoping that you know, it's something that can be um ... translated to other you know, system wide um ... programs and—and just build on the—the voyaging knowledge that has been learned and what we're continuing to learn.

[GENERAL CONVERSATION]

QUESTION: Explain just maybe a little bit about the usefulness of Nihoa. You kinda touched on it, but you kinda slid by it. The idea that you can get—because Nihoa is so small, that your accuracy has to be good enough. Even though it's only twenty-four hours—

MURPHY: M-m.

QUESTION: --you still have to be dead-on, and how that multiplier works for like a month-long voyage—



MURPHY: Ah.

QUESTION: --versus the twenty-four-hour voyage, because of the expanded land target being so much smaller.

MURPHY: Yeah.

QUESTION: You can answer to him.

MURPHY: [CHUCKLE]

QUESTION: Like how you would utilize Nihoa as a training base.

MURPHY: Okay.

QUESTION: Based on the expanded land target.

MURPHY: Okay. Okay. [CHUCKLE]

QUESTION: Okay.

MURPHY: Okay. Okay; so how do I start a question with that. Um, so mostly ... I'm answering why Nihoa is so important for the training—

QUESTION: As a training—

MURPHY: Expand on that training.

QUESTION: Yeah.

MURPHY: Okay. Uh, how big is Nihoa, again?

QUESTION: [INDISTINCT]

MURPHY: Hundred seventy-one acres.

[GENERAL CONVERSATION]

MURPHY: Okay; so [CLEARS THROAT] ... I guess the importance of Nihoa as an—an island to train navigators to—to navigate to, um, it is a tiny island. Um ... it's only ... it's only an—an overnight, twenty-four to thirty-hour voyage, maybe, from Kauai. Um, but ... you see—when we saw Nihoa, we saw it from maybe thirty miles away. Um, the cliffs are about, I think, nine hundred feet tall. Um ... so ... in the preparation for, you know, navigating a trip like that, you—okay, you study the island, how big is it,

how tall is the island, how far away might you see it from. Um ... and you take in all the—uh, you account for current drift, things like that uh, when you're making that course line. So for that thirty hours or you know, between twenty-four, thirty hours, um, you're trying to ... maintain the canoe on that course. Um, if you ... get off that course and you're maybe forty miles away from the island, you could sail right by it and not even know. Um, so it's ... again, a really good testing grounds. Um ... it kinda reminds me of uh, a story one of the aunties from—or kupuna from the Big Island told about um ... when they train navigators, if the navigator didn't ... you know, accomplish um, what he or she had set out to do, they would come home and be farmers. [CHUCKLE] So if you miss that island [CHUCKLE], it's um ... back then, at least, I'm sure it was, you know, Okay, well, y—you're not gonna be a navigator, you know. Um, so that's uh ... now—nowadays, I think we have a little bit more—you know, we're trying to expand that knowledge, we're trying to teach it. So Nihoa is an—an incredible place to sail to, because it's far enough away from the main islands that it's that long voyage condensed into, you know, a one, two-day period, and um, it's so tiny that you have to be totally accurate. You can't be—I mean, thirty miles is half a degree. Uh, one degree is sixty miles. If you're, you know, ten miles off, you could miss your island. Um, and then you know, I'm sure that nervousness would set in. You know, you don't see the island when you think you're going to, did we pass it, you know, are we east or west of it. Um, so that ... um, the beauty of that kind of a training trip is you have to be, like, dead-on accurate. Um, versus if you were gonna sail a voyage to someplace like Tahiti from here, um, it may be thirty days away, but um, you have like a screen of islands. So you're not just aiming for a tiny rock in the middle of the ocean, but you're—you're—you're sailing south heading towards a screen of—you got Tuamotu Islands, and you've got the Society Islands. So you're bound to see something. [CHUCKLE] I mean, not to say that a navigator can't—doesn't have to be on it, but you're not just sailing for one pinpoint rock in the middle of the ocean, you're sailing for an expanded target or expanded landfall. Um, so you ... as a navigator, you would sail um—you know, keep track of, again, like on the way to Tahiti, um, keep track of the—the waa on the course of that reference line, um, but you're—you're aiming for a big um—again, like a big back—big screen of islands. Um ... so Nihoa is ... uh, you have to be totally accurate in that short amount of time. And ... um ... that's a good training for being that accurate on the long voyages, but then you have to—you have that thirty days or so of—of kind of cushioning or buffering. If you're ten miles off, you know, you—you won't be—it won't be tragic. You know, it's um ... it's a little more ... uh ... I don't know what's the word, but yeah. Nihoa is a—a challenging navigational ... learning experience. [CHUCKLE]

[GENERAL CONVERSATION]

QUESTION: There's this idea that when we sail there, there's this reconnection—

MURPHY: M-m.

QUESTION: --because of the fact that Hawaiians lived there in hundreds of years, and canoes haven't gone there traditionally in a long time, except for maybe some of the oral traditions.

MURPHY: M-m.

QUESTION: Niihau; but what were your feelings seeing not only Nihoa, but the whole archipelago and how pristine it was, versus what's here, and what—

MURPHY: M-hm.

QUESTION: --is degraded here, and what—can you compare it and contrast it a little bit and talk about what your reaction was to the place [INDISTINCT]?

MURPHY: M-m.

QUESTION: As opposed to—

MURPHY: Okay.

QUESTION: --other vessels.

[GENERAL CONVERSATION]

MURPHY: But um, I guess—okay; so part of that—that um, voyage when Hokulea sailed throughout the kupuna islands all the up to Kure, um, it was to kind of um, allow ... Hawaii and whoever else wanted to follow um, the voyage, but to see those islands, and to be able to learn from that kind of voyage and going up there. And um ... and to see the ... how healthy or unhealthy it is there, and comparing them to places um, that we have back here um [CLEARS THROAT], on the main islands that we live on. Um, comparing maybe the abundance of whether it's reef fish or the predators, you know, the ulua and the—and the mano, the sharks, um, to the abundance that we have in our main islands, and why is there that difference. So [CLEARS THROAT] the—the kinda theme of that—that particular voyage was navigating change, and changing people's maybe um ... perspectives or um, attitudes and—and—and behaviors towards what we do in our main islands. Um, so you know, why is there—why are there so many more ulua an—and sharks there, maybe, than you know, some people go diving here and you don't see much. Uh, maybe one or two sharks or something, but [CLEARS THROAT] you know, is—is that

because the food chain there is—is a lot healthier than it is here, you know. Um, being protected, um, people can't just go and—and fish out everything until it's gone. You know, it's um ... places here ... um, how—how do people um, manage what they take, you know. Uh, I hear—I'm not—I'm not a lawaia myself, but I do hear some um ... stories from friends who say, Oh, you know ... you know, guys just—they'll take fish, even if they don't need it, because there's that mindset that, Oh, if I don't take it, somebody else will, the next guy will. Um, but again, going back to that—that ike of our kupuna that, um, you know, take what you need to feed yourself, your family, or you know, what you're gonna share uh, with the—with the community or what not, um ... and ... how can we ... kind of um, look at those kinda management values um, and apply them here, even if they're not you know, maybe law or regulated, but just within the lawaia community, you know. Um [CLEARS THROAT] ... you know what; I think I'm going off from what the original question was. But um, I think going to those places, I was—it really opened my eyes and I was happy to see um, the amount of honu or—or um ... birds that lived on those islands, and um ... although they did go through—those islands did go through a lot of change with um, people being on those islands, there was uh, some devastating human impact. But seeing how um, things can come back. Um, for example, at Laysan, we were able to go on land um, on the island and help with some things. So you see one, um [CLEARS THROAT]--I mean, one thing is, it's—it's awesome that you see this abundance of life and um, you see the—the turtles at French Frigate Shoals, um, that we know continue to—to come to the main islands and go back there. But [CLEARS THROAT] you also see the—the devastation of—of plastics and nets, and you know, this marine debris that pile up on those islands, because they are a screen across the Pacific. Um, so even though we can't go up there [CLEARS THROAT]--you know, people can't go up there all the time now, we still affect it by um, what we do in our oceans and coastlines, and um ... so it was ... uh ... see, my question's going longer than your—your—I mean, my answer's going longer than your question. [CHUCKLE] Um ...

QUESTION: I guess for you, like, what did you see? Describe to us what it felt like to be there in the context of the pristineness [INDISTINCT].

MURPHY: M-m. [CLEARS THROAT] The pristineness on the canoe?

QUESTION: Well, from the platform of [INDISTINCT].

MURPHY: Uh, yeah, yeah; okay, okay. Um [CLEARS THROAT] ...

[GENERAL CONVERSATION]

MURPHY: Okay; so that reconnection. Being um, being up there in the kupuna islands and voyaging there from the uh ... from a waa, um, and feeling that, you know, this is the way that our kupuna traveled, this is um, probably the way they saw the islands for the first time was from the platform of a—of a voyaging canoe, of a waa, um ... it's just ... I don't know. There's—it just invokes so much feeling than just um ... you know, something that in your naau, you just feel connected again, maybe. Uh ... um ... I don't know how to describe it. But ... um ... it's—maybe it's that feeling in the naau that makes me keep wanting to voyage; you know, to keep feeling that, to um, feel that reconnection with our kupuna, um ... and that desire to see through their eyes, maybe, um ... and understanding the world, and—and ... and the importance of taking care of it. Um ... I guess that's .... [CHUCKLE] I don't know. [CHUCKLE]

QUESTION: I have one more question.

MURPHY: Yeah.

QUESTION: Sorry; it's one that I skipped over. It's sort of a broad look at, you know ... voyaging was a big part of the peopling and the entire culture of Polynesia and the Pacific for a long time, but there was a demise—

MURPHY: M-m.

QUESTION: Now there's a resurgence. I was wondering if you could talk a little bit about like what's the state of voyaging today in your mind, across the Pacific—

MURPHY: M-m.

QUESTION: --and what can the other—I mean, you said there's Mau, just ...

MURPHY: Oh, rec—recognize the other—

QUESTION: --five navigators in Hawaii and—

MURPHY: Yeah.

QUESTION: --five ...

MURPHY: I think—was it four of them?

[GENERAL CONVERSATION]

MURPHY: Yeah; well, they're um ... see, back in—I wasn't around yet, but in ninety ... before the ninety—before ... the 1995 voyage, when Hokulea, Makalii,

Hawaii Loa, sailed from here to Tahiti, um ... they trained a bunch of um ... Polynesians. So there was a big training here in Hawaii. Um, since the time the Hokulea had, for example, gone to Aotearoa, they built a voyaging canoe there, Te Aurere. And so they had this big training here in Hawaii with Mau an—and ... his students, um, so that ... these—these um, extensions or—our ohana in the South Pacific could learn how to navigate their canoes. So before that '95 trip, there was a big um, navigation training. And so canoes from Tahiti, from Rarotonga, from Aotearoa, joined the canoes from Hawaii in Raiatea at Taputapuata. So that um ... that was ki—I think there hasn't been one big one like that since then, but so there was that um ... need to train navigators from the South Pacific. And the—the reason, really, they got pwo this past year was so that, you know, they're all ... were all equal, so the Hawaii and the—the polyne—the rest of the Polynesians, you know, that ohana stays um ... you know, keeps that kuleana of needing to continue to teach and recognizing the—the accomplishments of everybody.

QUESTION: Keeping that in mind, like—

MURPHY: M-m.

QUESTION: What do these [INDISTINCT] cultures that are now experiencing a resurgence; what can they or what are they offering each other, and how is their relationship with each other helping voyaging tradition to stay alive—

MURPHY: M-m.

QUESTION: --and prosper?

MURPHY: Uh, I think more and more um ... all the ohana waa are realizing the importance of—of um, doing things together and supporting each other, because um, you know, thirty-three years ago, there was one voyaging canoe. Um, over that ... thirty years um ... canoes have come up in other islands in Polynesian, um, other of our main Hawaiian Islands; so ... you know, that nee—that—that realization that these waa are um ... are great tools to—to relearn an—and kind of reawaken that—that ike, that knowledge that may have been sleeping for a while, um, but there's ... [CLEARS THROAT] um ... there's a big—I guess one of the big things is—is funding with all the canoes. I mean, once you build a canoe, the hard part is maintaining it, and—and having the leadership to sail them. So there's that need to um, continue to train leadership, but also to continue to support each other so that the canoes can continue to voyage. And that's, you know, having the support—financial support and—and community and people support to keep them sailing. So rather than um ... uh ... you know, going after the same ... um, or—I should say, rather than



competing for those kinds of resources, the ohana waa you know, not just Hawaii but you know, the—the Pacific ohana waa um ... realizes that need to stick together to um ... help each other get those kinds of resources, so that the waa can continue.

[GENERAL CONVERSATION]

QUESTION: How are they working together [INDISTINCT]. I mean ...

MURPHY: M-m.

QUESTION: Is it like ... I guess ...

MURPHY: Well, I mean, like with this—the next voyages coming up, there's uh ... talk about—like Aotearoa is building another canoe. And so their waa—their waka will be launched in August. And um, with Hokulea's upcoming voyaging plans, whether it's to Aotearoa, to Pacific wide, or um, to wherever, um—I don't know if I can say that. [CHUCKLE] Uh, the canoe from Aotearoa, for example, wants to join Hokulea at, say, Rapa Nui. So this idea of the voyaging canoes, you know, coming together at another ... at an island um, somewhere in Polynesia, just to reconnect um ... uh ... yeah; just—yeah, realize the good work that everybody's been doing. I think that's ... there's an importance for the canoes to—to maintain the connections with each other, and um ... and continue to voyage throughout Polynesia.

[END]

---

---

**APPENDIX B**  
**CATEGORICAL EXCLUSIONS**

**Summary of Co-Trustee Agency Categorical Exclusions Related to the Monument Management Plan**

The Monument Management Plan contains numerous strategies and activities that are routine program administrative functions with no potential for causing environmental impacts. Such proposed actions within the Monument Management Plan individually and cumulatively will have no significant effect on the environment and are therefore categorically excluded from further analysis under a categorical exclusion by one or more of the Co-Trustee agencies. Categorical exclusions are defined as a group of actions that would have no significant individual or cumulative effect on the quality of the human environment and for which, in the absence of extraordinary circumstances, require neither an environmental assessment nor an environmental impact statement.

Summary of Co-Trustee Agency Categorical Exclusions Related to the Monument Management Plan
<b>National Oceanic and Atmospheric Administration<sup>1</sup></b>
<p><b>Research Programs.</b> Programs or projects of limited size and magnitude or with only short-term effects on the environment and for which any cumulative effects are negligible.. Examples include natural resource inventories and environmental monitoring programs conducted with a variety of gear (for example, satellite and ground-based sensors and fish nets) in water, air, or land environs. Such projects may be conducted in a wide geographic area without need for an environmental document, provided related environmental consequences are limited or short term.</p> <p><b>Financial and Planning Grants.</b> Financial support services, such as a Saltonstall-Kennedy grant, a fishery loan or grant disbursement under the Fishermen's Contingency Fund or Fisheries Obligation Guarantee Program, or a grant under the CZMA where the environmental effects are minor or negligible. New financial support services and programs should undergo an EA or EIS at the time of conception to determine if a CE could apply to subsequent actions.</p> <p><b>Minor Project Activities.</b> Projects where the proposal is for a minor amelioration action such as planting dune grass or for minor project changes or minor improvements to an existing site (e.g., fences, roads, or picnic facilities), unless such projects in conjunction with other related actions may result in a cumulative impact (40 CFR 1508.7).</p> <p><b>Administrative or Routine Program Functions.</b> The following NOAA programmatic functions that hold no potential for significant environmental impacts qualify for a categorical exclusion: program planning and budgeting, including strategic planning and operational planning; mapping, charting, and surveying services; ship support; ship and aircraft operations; fishery financial support services; grants for fishery data collection; basic and applied research and research grants, except as provided in Section 6.03b. of this order; enforcement operations; basic environmental services and monitoring, such as weather observations, communications, analyses, and predictions; environmental satellite services; environmental data and information services; air quality observations and analyses; support of national and international atmospheric and Great Lakes research programs; executive direction; administrative services; and administrative support advisory bodies.</p> <p><b>Real Estate Actions.</b> The following NOAA real estate actions with no potential for significant environmental impacts are categorically excluded from preparation of an EA or EIS: repair, or replacement in kind, of equipment and components of NOAA-owned facilities; weatherization of NOAA facilities; environmental monitoring; procurement contracts for NEPA documents; architectural and engineering studies and supplies; routine facility maintenance and repair and groundskeeping activities; acquisitions of space within a previously occupied structure, either by purchase or lease, where no change in the general type of use and minimal change from previous occupancy level is proposed; acquisition of less than 5,000 square feet of occupiable space by means of federal construction, lease construction, or a new lease for a structure substantially completed before solicitation for offers and not previously occupied; lease extensions, renewals, or succeeding leases; relocation of employees into existing federally owned or commercially leased office space within the same metropolitan area not involving a substantial number of employees or a substantial increase in the number of motor vehicles at a facility; out-lease or license of government-controlled space or sublease of government-leased space to a nonfederal tenant when the use will remain substantially the same; various easement</p>

**Summary of Co-Trustee Agency Categorical Exclusions Related to the Monument Management Plan**

acquisitions; acquisition of land which is not in a floodplain or other environmentally sensitive area and does not result in condemnation; and installment of antennas as part of site plan of the property.

**Construction Activities.** Minor construction conducted in accordance with approved facility master plans and construction projects on the interiors of nonhistoric NOAA-owned and leased buildings, including safety and fire deficiencies, air quality, interior renovation, expansion or improvement of a facility where the gross square footage is not increased by more than 10 percent and the site size is not increased substantially, and minor repair/replacement of piers or floats not exceeding 80 feet in length.

**Facility Improvement or Addition.** Minor facility improvement or addition where ground disturbance is limited to previously disturbed areas (i.e., previously paved or cleared areas).

**Restoration Action.** Restoration actions that do not individually or cumulatively have significant impacts on the human environment (e.g., actions with limited degree, geographic extent, and duration) may be eligible for categorical exclusion (40 CFR 1508.4), provided such actions meet all of the following criteria: a) are intended to restore an ecosystem, habitat, biotic community, or population of living resources to a determinable pre-impact condition; b) use for transplant only organisms currently or formerly present at the site or in its immediate vicinity; c) do not require substantial dredging, excavation, or placement of fill; and d) do not involve a significant added risk of human or environmental exposure to toxic or hazardous substances.

Restoration actions likely to meet all of the above criteria and therefore be eligible for Categorical Exclusions include on-site, in-kind restoration actions (actions in response to a specific injury) such as: 1) revegetation of habitats or topographical features, e.g., planting or restoration of seagrass meadows, mangrove swamps, salt marshes, coastal dunes, streambanks, or other wetland, coastal, or riparian areas; 2) restoration of submerged, riparian, intertidal, or wetland substrates; 3) replacement or restoration of shellfish beds through transplant or restocking; and 4) structural or biological repair or restoration of coral reefs.

**Other Categories of Actions Not Having Significant Environmental Impacts.** These actions include routine operations and maintenance, preparation of regulations, orders, manuals, or other guidance that implement, but do not substantially change these documents, or other guidance; policy directives, regulations and guidelines of an administrative, financial, legal, technical or procedural nature, or whose environmental effects are too broad, speculative, or conjectural to lend themselves to meaningful analysis and will be subject later to the NEPA process, either collectively or case-by-case; activities that are educational, informational, advisory, or consultative to other agencies, public and private entities, visitors, individuals, or the general public; actions with short-term effects or actions of limited size or magnitude.

**Fish and Wildlife Service<sup>2</sup>**

**General.** Changes or amendments to an approved action, when such changes have no or minor potential environmental impact.

- Personnel training, environmental interpretation, public safety efforts, and other educational activities, which do not involve new construction or major additions to existing facilities.
- The issuance and modification of procedures, including manuals, orders, guidelines, and field instructions, when the impacts are limited to administrative effects.
- The acquisition of real property obtained either through discretionary acts or when acquired by law, whether by way of condemnation, donation, escheat, right-of-entry, escrow, exchange, lapse, purchase, or transfer and that will be under the jurisdiction or control of the United States. Such acquisition of real property will be in accordance with 602 DM 2 and the Service's procedures, when the acquisition is from a willing seller, continuance of or minor modification to the existing land use is planned, and the acquisition planning process has been performed in coordination with the affected public.

**Resource Management.** Before carrying out these actions, the Service should coordinate with affected federal agencies and state, tribal, and local governments.

- Researching, inventorying, and collecting information directly related to the conservation of fish and wildlife resources and that involve negligible animal mortality or habitat

### Summary of Co-Trustee Agency Categorical Exclusions Related to the Monument Management Plan

destruction, no introduction of contaminants, and no introduction of organisms not indigenous to the affected ecosystem.

- The operation, maintenance, and management of facilities and routine recurring management activities and improvements, including renovations and replacements that result in no or only minor changes in the use and have no or negligible environmental effects on the site or in the vicinity of the site.
- The construction or the addition of small structures or improvements, including structures and improvements to restore wetland, riparian, instream, or native habitats, which result in no or only minor changes in the use of the affected local area.
- The development of limited access for routine maintenance and management.
- The use of prescribed burning for habitat improvement, when conducted in accordance with local and state ordinances and laws.
- Fire management, including prevention and restoration measures, when conducted in accordance with Departmental and Service procedures.
- Reintroducing or stocking native, formerly native, or established species into suitable habitat within their historic or established range, where no or negligible environmental disturbances are anticipated.
- Minor changes in the amounts or types of public use on Service- or state-managed lands, in accordance with regulations, management plans, and procedures.
- Consultation and technical assistance activities directly related to the conservation of fish and wildlife resources.
- Minor changes in master plans, comprehensive conservation plans, or operations, when no or minor effects are anticipated. Examples include minor changes in the type and location of compatible public use activities and land management practices.
- The issuance of new or revised site-, unit-, or activity-specific management plans for public use, land use, or other management activities when only minor changes are planned. Examples include an amended public use or fire management plan.
- Natural resource damage assessment restoration plans, prepared under Sections 107, 111, and 122(j) of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA); Section 311(f)(4) of the Clean Water Act; and the Oil Pollution Act; when only minor or negligible change in the use of the affected areas is planned.

**Permit and Regulatory Functions.** The issuance, denial, suspension, and revocation of permits for activities involving fish, wildlife, or plants regulated under 50 CFR Chapter 1, Subsection B, when such permits cause no or negligible environmental disturbance. These permits involve endangered and threatened species, species listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), marine mammals, exotic birds, migratory birds, eagles, and injurious wildlife.

- The issuance of ESA Section 10(a)(1)(B) “low effect” incidental take permits that, individually or cumulatively, have a minor or negligible effect on the species covered in the habitat conservation plan.
- The issuance of special regulations for public use of Service-managed land, which maintain essentially the permitted level of use and do not continue a level of use that has resulted in adverse environmental effects.
- The issuance or reissuance of permits for limited additional use of an existing right-of-way for underground or aboveground power, telephone, or pipelines, where no new facilities or major improvements to those facilities are required; and for permitting a new right-of-way, where no or negligible environmental disturbances are anticipated.
- The issuance or reissuance of special use permits for the administration of specialized uses, including agricultural uses, or other economic uses for management purposes, when such uses are compatible, contribute to the purposes of the refuge system unit, and result in no or negligible environmental effects.
- The denial of special use permit applications, either initially or when permits are reviewed for renewal, when the proposed action is determined not compatible with the purposes of the refuge system unit.
- Activities directly related to the enforcement of fish and wildlife laws, not included in 516 DM 2, Appendix 1.4. These activities include assessment of civil penalties, forfeiture of property seized or subject to forfeiture, issuance or reissuance of rules, procedures, standards, and permits for the designation of ports, inspection, clearance, marking, and license requirements pertaining to wildlife and wildlife products, and for the humane and healthful transportation of wildlife.
- Actions where the Service has concurrence or coapproval with another agency and the action is a categorical exclusion for that agency. This would normally involve one

## Summary of Co-Trustee Agency Categorical Exclusions Related to the Monument Management Plan

federal action or connected actions where the Service is a cooperating agency.

**Recovery Plans.** Issuance of recovery plans under section 4(f) of the ESA.

**Financial Assistance.** State, local, or private financial assistance (grants or cooperative agreements), including State planning grants and private land restorations, where the environmental effects are minor or negligible. Grants for categorically excluded actions in paragraphs A, B, and C, above; and categorically excluded actions in Appendix 1 of 516 DM 2.

### Appendix 1. Department of Interior Categorical Exclusions.

- Personnel actions and investigations and personnel services contracts.
- Internal organizational changes and facility and office reductions and closings.
- Routine financial transactions, such as salaries and expenses, procurement contracts (in accordance with applicable procedures and Executive Orders for sustainable or green procurement), guarantees, financial assistance, income transfers, audits, fees, bonds, and royalties.
- Departmental legal activities, such as arrests, investigations, patents, claims, and legal opinions. This does not include bringing judicial or administrative civil or criminal enforcement actions that are outside the scope of NEPA, in accordance with 40 CFR 1508.18(a).
- Nondestructive data collection, inventory (including field, aerial, and satellite surveying and mapping), study, research, and monitoring.
- Routine and continuing government business, such as supervision, administration, operations, maintenance, renovations, and replacement activities having limited context and intensity (e.g., limited size and magnitude or short-term effects).
- Management, formulation, allocation, transfer, and reprogramming of the Department's budget at all levels. (This does not exclude the preparation of environmental documents for proposals included in the budget when otherwise required.)
- Legislative proposals of an administrative or technical nature (such as changes in authorizations for appropriations and minor boundary changes and land title transactions) or having primarily economic, social, individual, or institutional effects; and comments and reports on referrals of legislative proposals.
- Policies, directives, regulations, and guidelines that are administrative, financial, legal, technical, or procedural and whose environmental effects are too broad, speculative, or conjectural to lend themselves to meaningful analysis and will later be subject to the NEPA process, either collectively or case-by-case.
- Activities that are educational, informational, advisory, or consultative to other agencies, public and private entities, visitors, individuals, or the general public.
- Hazardous fuels reduction activities, using prescribed fire not to exceed 4,500 acres, and mechanical methods for crushing, piling, thinning, pruning, cutting, chipping, mulching, and mowing, not to exceed 1,000 acres. Such activities: Shall be limited to areas in wildland-urban interface and Condition Classes 2 or 3 in Fire Regime Groups I, II, or III, outside the wildland-urban interface; Shall be identified through a collaborative framework as described in "A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan"; Shall be conducted consistent with agency and Departmental procedures and applicable land and resource management plans; Shall not be conducted in wilderness areas or impair the suitability of wilderness study areas for preservation as wilderness; Shall not include the use of herbicides or pesticides or the construction of new permanent roads or other new permanent infrastructure; and may include the sale of vegetative material, if the primary purpose of the activity is hazardous fuels reduction. (Refer to the Environmental Statement Memoranda Series for additional required guidance.)
- Post-fire rehabilitation activities not to exceed 4,200 acres (such as tree planting, fence replacement, habitat restoration, heritage site restoration, repair of roads and trails repair, and minor facilities damage repair, such as campgrounds) to repair or improve lands unlikely to recover to a management-approved condition from wildland fire damage, or to repair or replace minor facilities damaged by fire. Such activities: Shall be conducted consistent with agency and Departmental procedures and applicable land and resource management plans; Shall not include the use of herbicides or pesticides or the construction of permanent roads or other permanent infrastructure, and Shall be completed within three years following a wildland fire.



Summary of Co-Trustee Agency Categorical Exclusions Related to the Monument Management Plan

**Appendix 2. Categorical Exclusions—Extraordinary Circumstances.**

- Have significant impacts on public health or safety.
- Have significant impacts on such natural resources and unique geographic characteristics as historic or cultural resources; park, recreation, or refuge lands; wilderness areas; wild or scenic rivers; national natural landmarks; sole or principal drinking water aquifers; prime farmlands; wetlands (Executive Order 11990); floodplains (Executive Order 11988); national monuments; migratory birds; and other ecologically significant or critical areas.
- Have highly controversial environmental effects or unresolved conflicts concerning alternative uses of available resources (NEPA Section 102[2][E]).
- Have highly uncertain and potentially significant environmental effects or involve unique or unknown environmental risks.
- Establish a precedent for future action or represent a decision in principle about future actions with potentially significant environmental effects.
- Have a direct relationship to other actions with individually insignificant but cumulatively significant environmental effects.
- Have significant impacts on properties listed, or eligible for listing on, the National Register of Historic Places, as determined by either the bureau or office.
- Have significant impacts on species listed, or proposed to be listed, on the List of Endangered or Threatened Species, or have significant impacts on designated critical habitat for these species.
- Violate a federal law, or a state, local, or tribal law or requirement imposed for the protection of the environment.
- Have a disproportionately high and adverse effect on low-income or minority populations (Executive Order 12898).
- Limit access to and ceremonial use of Indian sacred sites on federal lands by Indian religious practitioners or significantly adversely affect the physical integrity of such sacred sites (Executive Order 13007).
- Contribute to the introduction, continued existence, or spread of noxious weeds or nonnative invasive species known to occur in the area or actions that may promote the introduction, growth, or expansion of the range of such species (Federal Noxious Weed Control Act and Executive Order 13112).

**State of Hawai‘i<sup>3</sup>**

- Class 1:** Operations, repairs, or maintenance of structures, facilities, equipment or topographical features involving negligible or no expansion or change of use beyond that previously existing.
- Trail maintenance on DOFAW Program areas<sup>1</sup>, using hand tools and small motorized equipment, such as chainsaws and motorized weeders; involves clearing spaces 4 feet wide and 10 feet high from grade on trails.
  - Repair and maintenance paved, unpaved, dirt, cinder, and gravel roads, concrete fords, cattle guards, gates and wash-out ditches in DOFAW program areas; involves grading, patching, and resurfacing roads, removing encroaching vegetation, and manually cleaning or repairing ditches, fords, and culverts.
  - Repair and maintenance of DOFAW program area fences; includes boundary, enclosure, and exclosure fences, wildlife water units, checking stations, water pumps, nesting areas, aviaries, and yards.
  - Repair and maintenance of signs in DOFAW program areas; includes fire prevention, instructional, regulatory, enforcement, safety, boundary, location, and toxicant or plant and animal control signs.
  - Repair and maintenance of cabins, resident workers’ quarters, warehouse workshops, mobile camping structures, weather stations, checking stations (single room structures with porches or small boxes on legs) for hunters, hikers, and campers; meat safes, viewing kiosks, and platforms, wildlife observation towers, sanitary facilities, trail shelters, equipment shelters, fire equipment caches, plant nurseries, captive propagation facility buildings, established arboretum areas, baseyards, and biological survey transect lines.
  - Repair and maintenance of covered and open fence areas for endangered species (waterfowl, waterbirds, forest birds), game birds (pheasants, quail, partridges) and mammals (pigs, sheep, goats, deer); auxiliary buildings for food and equipment storage, incubators, and brooders; open-top breeding and release pens, field aviaries, and hacking boxes. Repair and maintenance of water tanks, pipelines, water catchment basins (capacity of 300 to 10,000 gallons), wildlife water units, pumps and controls, pipes and channels; fences, dikes, and moats in waterbird sanctuaries for the purposes of maintaining water levels, providing water, and precluding predators.

### Summary of Co-Trustee Agency Categorical Exclusions Related to the Monument Management Plan

- Weed, brush, and noxious tree control using hand tools, small motorized equipment (chainsaws and motorized weeders), and approved herbicides on DOFAW program areas, campsites, picnic grounds, viewpoints, baseyards, wildlife water units, trails, captive propagation facilities, arboreta, plant nurseries, checking stations, and public use facilities.
- Routine pruning, trimming, and thinning of trees, excluding commercial logging.
- Gathering minor forest products for noncommercial purposes.
- Gathering plant seed for commercial and noncommercial propagation.
- Cultivating, fertilizing, mowing, and harvesting wildlife food plots.
- Routine operation, repair, and maintenance of DOFAW program facilities, arboreta, baseyards, and captive propagation facilities.
- Maintenance of previously established game habitat improvement sites and lawn areas with mechanized equipment.
- The award of grants under H.R.S., Chapter 173A, for the acquisition of interests in land, provided that the acquisition does not cause any material change of use of land or resources beyond that previously existing.
- The acquisition of land or interests in land for conservation, provided that the acquisition does not cause any material change of land use or resources beyond that previously existing.

**Class 2:** Replacement or reconstruction of structures and facilities where the new structure will be located generally on the same site and will have substantially the same purpose, capacity, density, height, and dimensions as the structure replaced.

- Replacement of signs in DOFAW program areas; includes signs for fire prevention, instruction, regulatory, enforcement, safety, boundary, location, and toxicant or plant and animal control.
- Repair and maintenance of cabins, resident workers' quarters, warehouse workshops, mobile camping structures, weather stations, checking stations (single-room structures with porches or small boxes on legs) for hunters, hikers, and campers; meat safes, viewing kiosks and platforms, wildlife observation towers, sanitary facilities, trail shelters, equipment shelters, fire equipment caches, established arboretum areas, plant nursery operations, and captive propagation facility buildings.
- Replacement of covered or open fenced areas for endangered species (waterfowl, waterbirds, forest birds), game birds (pheasants, quail, partridges), and mammals (pigs, sheep, goats, and deer); auxiliary buildings for food storage, equipment storage, incubators and brooders; open-top breeding and release pens, field aviaries, and hacking boxes.
- Replacement of water tanks, pipelines, water catchment basins (capacity 300 to 10,000 gallons), wildlife water units, pumps and controls, pipes and channels; fences, dikes, and moats in waterbird sanctuaries for purposes of maintaining water levels, providing water, and precluding predators.
- Replacement of paved, unpaved, dirt, cinder, and gravel roads, concrete fords, cattle guards, gates, wash-out ditches and biological survey transect lines in DOFAW program areas.
- Revegetating burned areas to encourage the succession of selected plant species to prevent soil erosion and promote the goals of the Division.

**Class 3:** Construction and location of single, new, small facilities or structures and the alteration and modification of same and installation of new small equipment and facilities and the alteration and modification of same single-family residences less than 3,500 square feet not in conjunction with the building of two or more such units; multi-unit structures designed for not more than four dwelling units if not in conjunction with the building of two or more structures; stores, offices, and restaurants designed for total occupant load of twenty persons or fewer, if not in conjunction with the building of two or more such structures; and water, sewage, electrical, gas, telephone, and other essential public utility services extensions to serve such structures or facilities; and accessory or appurtenant structures, including garages, carports, patios, swimming pools, and fences; and acquisition of utility easements.

- Fences to include areas no greater than 10 acres around individual or small colonies of rare, threatened, or endangered plants, covered and open areas for endangered species

### Summary of Co-Trustee Agency Categorical Exclusions Related to the Monument Management Plan

(waterfowl, waterbirds, forest birds), game birds (pheasants, quail, partridges), and mammals (pigs, sheep, goats, deer); auxiliary buildings for food storage, equipment storage, incubators and brooders; open-top breeding and release pens, field aviaries, and hacking boxes.

- Cabins, resident workers' quarters, warehouse workshops, mobile camping structures, weather stations, checking stations (single-room structures with porches or small boxes on legs) for hunters, hikers, and campers; meat safes, viewing kiosks, and platforms, wildlife viewing towers, sanitary facilities, trail shelters, equipment shelters, fire equipment caches, arboreta, and plant nurseries.
- Fencing to include areas no greater than one acre for ecosystem management research.

**Class 4:** Minor alteration in the conditions of land, water, or vegetation.

- Establishment of helispots for fire control and rescue.
- Clearing of fuel breaks on grass and brush on DOFAW program areas necessary to protect enclosures, exclosures, facilities, and colonies of rare threatened and endangered plants or animals, where a thorough biological survey has determined that the species will not be adversely impacted by such clearing. The definition of a fuel break is the reduction of ground fuel without significant modification of the soil.
- Minor alterations to wildlife or plant sanctuaries, including construction of pumps and controls, pipes and channels, and dikes and moats for the purposes of maintaining water levels, providing constant water supplies, and precluding predators. Also includes minor alterations to biological transects, campsites, fertilizing and mowing, maintaining new pastures, weed control, outplanting native plants, transplanting, clearing mist net lines, and trap sites.
- Construction of reservoirs of 0.1 acre or less to collect runoff for wildlife or to redistribute water for water units or plantings if done at sites where nonnative vegetative cover constitutes greater than 75 percent of the area.
- Controlled burning of vegetation less than five acres in size to improve wildlife habitat where nonnative vegetative cover constitutes greater than 75 percent of the area.
- Mowing nonnative vegetation where dense mature stands form impenetrable cover.
- Establish temporary or permanent vegetative cover, including trees, shrubs, and grasses for landscaping, reforestation, soil stabilization, and wildlife habitat, provided, however, that this exemption should not apply to tree plantings for which harvesting is planned or reasonably foreseeable.

**Class 5:** Basic data collection, research, experimental management, and resource evaluation activities that do not result in a serious or major disturbance to an environmental resource.

- Implanting transponders and affixing transmitters or markers (bands, collars, ear tags) to birds and mammals to record movement, longevity; taking disease and blood samples; placing remote monitoring devices to determine animal movement, cameras, equipment, and feeders; removal of nonnative avian competitors, predator control (including placement of approved toxic baits, kill traps, live traps, snares), and using approved herbicides.
- Game and nongame wildlife surveys, inventory studies, new transect lines, photographing, recording, sampling, collection, and captive propagation (involves walking, driving, and flying in the field in helicopters or light aircraft), use of nets and firearms, temporary traps, including snares, mist nets, corral traps, drop-door traps, or leg hold traps.
- Releases and recoveries of wildlife. On approved releases of game and nongame wildlife (after EA or EIS preparation and acceptance), actual release of animals and follow-up surveys, translocation within the range, or rearing in captivity and releasing to the wild.
- Captive propagation of birds or mammals. Housing, care, feeding, veterinarian examination, breeding (pairing, hatching, brooding, fledgling, rearing), cross fostering, double clutching nests, experimental studies of native species (including those that are rare, threatened, or endangered), game birds and game mammals; may involve hybridization of game birds or mammals.
- Wildlife management actions, including predator control, insect control, snail control, nonnative bird control, controlled grazing or burning as a management tool, and use of toxicants or herbicides. All use of chemicals follows label instructions or restrictions.

**Class 6:** Construction or placement of minor structures accessory to facilities.

Summary of Co-Trustee Agency Categorical Exclusions Related to the Monument Management Plan

- Fencing around minor facilities, such as game water units, checking stations, animal pens, water pumps, aviaries, fire caches, and plant enclosures.
- Driveways.
- Exterior lights in already developed areas for security.
- Water tanks with less than 10,000-gallon capacity.
- Water catchments, lines, and faucets next to hunter checking stations for domestic or public use or game water units.

<sup>1</sup>Summary of NOAA’s Categorical Exclusions based on Administrative Management and Executive Secretariat, NAO 216-6, Environmental Review Procedures for Implementing the National Environmental Policy Act, Issued 06/03/99; Effective 05/20/99 [http://www.corporateservices.noaa.gov/~ames/NAOs/Chap\\_216/naos\\_216\\_6.html#section\\_8](http://www.corporateservices.noaa.gov/~ames/NAOs/Chap_216/naos_216_6.html#section_8). Note: The list of NOAA’s Categorical Exclusions presented in the table is not all-inclusive, but are listed because they are most likely to be used for Monument Management actions.

<sup>2</sup>Summary of FWS Categorical Exclusions in the Department of Interior’s Departmental Manual at 516 DM2 and DM8

<sup>3</sup>Summary of the State of Hawai’i Categorical Exemptions based on Exemption List of the Division of Forestry and Wildlife of the Department of Land and Natural Resources, State of Hawai’i, reviewed and concurred upon by the Environmental Council on June 12, 2008.

---

---

**APPENDIX C**  
**STATE AND FEDERAL**  
**FINDING OF NO SIGNIFICANT IMPACT**

## Finding of No Significant Impact

### Papahānaumokuākea Marine National Monument Management Plan Midway Atoll and Hawaiian Islands National Wildlife Refuges

The U.S. Fish and Wildlife Service (Service) has completed the Monument Management Plan (MMP) and Environmental Assessment (EA) for Papahānaumokuākea Marine National Monument which includes Midway Atoll and Hawaiian Islands National Wildlife Refuges (Refuges). The MMP will guide management of the Refuges for the next 15 years. The MMP, EA, and supporting documents describe the Service's proposals for managing the Refuges and their effects on the human environment under 2 alternatives, including the no action alternative.

#### Decision

Following comprehensive review and analysis, the Service selected Alternative B for implementation because it is the alternative that best meets the following criteria:

- Achieves the mission of the National Wildlife Refuge System.
- Achieves the purposes of the Refuges.
- Will be able to achieve the vision and goals for the Refuges.
- Maintains and restores the ecological integrity of the habitats and populations on the Refuges.
- Addresses the important issues identified during the scoping process.
- Addresses the legal mandates of the Service and the Refuges.
- Is consistent with the scientific principles of sound wildlife management and endangered species recovery.
- Facilitates priority public uses compatible with the Refuges' purposes and the Refuge System mission.

As described in detail in the MMP, EA, and supporting documents, implementing the selected alternative will have no significant impacts on any of the environmental resources identified with the Papahānaumokuākea Marine National Monument.

#### Public Review

The planning process incorporated a variety of public involvement techniques in developing and reviewing the MMP. This included 10 public workshops, planning updates, numerous meetings with partners, elected officials, and neighbors, and public review and comment on the planning documents. The details of the Service's public involvement program are described in the MMP.

#### Conclusions

Based on review and evaluation of the information contained in the supporting references, I have determined that implementing Alternative B as the MMP for management of Midway Atoll and Hawaiian Islands National Wildlife Refuges is not a major Federal action that would significantly affect the quality of the human environment within the meaning of section 102(2) (C) of the National Environmental Policy Act of 1969. Accordingly, the Service is not required to prepare an environmental impact statement.

This Finding of No Significant Impact and supporting references are on file at the Papahānaumokuākea Marine National Monument - USFWS, 300 Ala Moana Blvd. Room 5-231, Honolulu, HI, 96850 and U.S. Fish and Wildlife Service, Division of Planning and Visitor Services, 911 NE 11<sup>th</sup> Avenue, Portland, Oregon, 97232. These documents can also be found on

U.S. Fish and Wildlife Service  
Papahānaumokuākea Marine National Monument Management Plan

Finding of No Significant Impact



the Internet at <http://papahānaumokuākea.gov>. These documents are available for public inspection. Interested and affected parties are being notified of our decision.

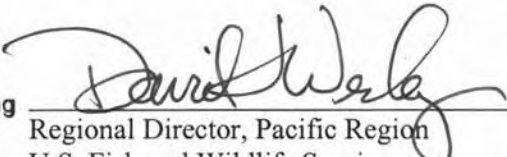
**Supporting References**

U.S. Fish and Wildlife Service. December 2008. *Papahānaumokuākea Marine National Monument, Final Environmental Assessment*.

U.S. Fish and Wildlife Service. December 2008. *Papahānaumokuākea Marine National Monument Management Plan*.

U.S. Fish and Wildlife Service. December 2008. *Statement of Compliance for Implementation of the Papahānaumokuākea Marine National Monument Management Plan*.

U.S. Fish and Wildlife Service. December 2008. *Appropriate Use Findings and Compatibility Determinations for Implementation of the Papahānaumokuākea Marine National Monument Management Plan*.

Acting   
Regional Director, Pacific Region  
U.S. Fish and Wildlife Service

12/12/08  
Date



## **FINDING OF NO SIGNIFICANT IMPACT**

### **Environmental Assessment on the Papahānaumokuākea Marine National Monument Proposed Final Monument Management Plan**

The National Oceanic and Atmospheric Administration, National Ocean Service, Office of National Marine Sanctuaries, Papahānaumokuākea Marine National Monument (PMNM) have completed a joint environmental assessment (EA) dated December 2008 with the U.S. Fish and Wildlife Service and the State of Hawaii Department of Land and Natural Resources to evaluate the potential environmental effects associated with implementing the proposed final Monument Management Plan (MMP). The EA is the basis for NOAA's Office of National Marine Sanctuaries finding of no significant impact for implementing the proposed MMP.

NOAA Administrative Order (NAO) 216-6 (revised May 20, 1999) provides eleven criteria for determining the significance of the impacts of a proposed action. These criteria are discussed below with respect to the proposed action. Based on the analysis in the environmental assessment, the ONMS finds that:

*1. Are there both beneficial and adverse impacts of the proposed action that when combined result in a net benefit?*

The purpose of the proposed action, the implementation of the MMP, is to protect and manage the PMNM in a manner that satisfies legal mandates set forth in the Presidential Proclamation 8031 and priority management needs identified by the Co-Trustee agencies. The Proposed Action to implement the MMP would result in net beneficial effects to the Monument resources as compared to the No Action alternative. These beneficial impacts would not be significant. Implementation of the MMP would result in no significant negative effects, while only a few activities had short-term minor effects on resource areas.

The MMP will improve coordinated agency management and overall protection for the natural, historical and cultural resources of the Northwestern Hawaiian Islands. Beneficial effects of the Proposed Action on the ecosystem would result from improved planning and coordination of research, education, monitoring, and management actions by the Co-Trustees, compared to the No Action alternative. Although it is expected that plan implementation will result in overall beneficial effects to the human environment, these beneficial effects do not represent a significant impact. This is because the magnitude of benefits expected to result from plan implementation will be incrementally modest within the context of the essentially uninhabited pristine lands and waters of the Monument.

Short-term negative effects could occur when conducting activities that involve the restoration, enhancement or protection of organisms and ecosystems, or the rehabilitation of structures. These effects are inherently of short duration and are limited to the site where the activities occur. Affected resources are expected to return to predisturbance conditions shortly after activity ceases, so this does not constitute a significant effect. In addition, these negative





effects are minimized through the use of the best management practices and strict permit conditions placed on conducting limited human activities in the Monument. Therefore, while there may be short-term negative effects as a result of some activities, the long-term beneficial effects almost always offset the negative effects, and cumulatively the net effect of implementing the management plan is beneficial.

The Proposed Action's environmental effects are summarized in the EA in the following tables: natural resources, (Table 3.2.1), cultural and historic resources (Table 3.3.1), socioeconomic resources (Table 3.4.1) and other resources (water quality, transportation and communications, infrastructure and utilities (Table 3.5.1).

*2. What is the degree to which public health or safety is affected by the proposed action?*

The proposed action contains several action plans (Central Operations, Coordinated Field Operations) and documents (Midway Atoll Conceptual Site Plan, Midway Atoll Visitor Services Plan, Operational Protocols and Best Management Practices) that help provide consistent guidance and protocols for the conduct of human activities in a safe manner and that protects both humans and wildlife in the Monument. The proposed action would therefore have modest beneficial effects on public health and safety.

*3. Are there unique characteristics of the geographic area in which the proposed action is to take place?*

As one of the world's largest marine protected areas, the Papahānaumokuākea Marine National Monument encompasses a vast area of the Pacific. Extending for a distance of roughly 1,200 statute miles by 115 statute miles, the Monument covers an area of approximately 140,000 square miles and includes a rich, varied, and unique natural, cultural, and historic legacy. The Monument includes the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, State of Hawai'i Northwestern Hawaiian Islands Marine Refuge, State Seabird Sanctuary at Kure Atoll, the Midway National Wildlife Refuge (NWR), the Hawaiian Islands NWR, and the Battle of Midway National Memorial.

The Monument supports a diverse and unique array of both marine and terrestrial flora and fauna. With a spectrum of bathymetry and topography ranging from abyssal basins at depths greater than 15,000 feet below sea level to rugged hillslopes and clifftops on Nihoa and Mokumanamana (Necker) islands at up to 903 feet above sea level, the Monument represents a complete cross section of a Pacific archipelagic ecosystem. Habitats contained within the Monument include deep pelagic basins, abyssal plains, submarine escarpments, deep and shallow coral reefs, shallow lagoons, littoral shores, dunes, and dry coastal grasslands and shrublands. Relatively high percentages of most taxonomic groups in the NWHI are found nowhere else on earth. The Monument supports over 14 million seabirds and contains habitat for 23 species listed as threatened or endangered under the Endangered Species Act, including the Hawaiian monk seal, leatherback and hawksbill sea turtles, and the Laysan duck. In addition, this area has great cultural significance to Native Hawaiians and a connection to Polynesian culture worthy of protection and understanding, as noted in Presidential Proclamation 8031.



*4. What is the degree to which effects on the human environment are likely to be highly controversial?*

Presidential Proclamation 8031 designated the PMNM and established limits on access and regulated specific human activities. FWS and NOAA promulgated joint implementing regulations on August 29, 2006 (71 FR 51134, 50 CFR Part 404). The MMP protects and manages the PMNM in a manner that satisfies legal mandates set forth in the designation of the Monument and priority management needs identified by the Co-Trustee agencies. No additional regulations or restrictions beyond status quo were added by the management plan.

None of the effects of implementation of the MMP on the quality of the human environment are particularly controversial. However, several descriptions in the MMP and EA were improved and clarified in response to public comment. The MMP represents a collection of activities that when implemented will allow the Co-Trustees to coordinate their actions and provide a safe and environmentally friendly environment for the agencies and their partners to conduct resource protection, research, monitoring, education, enforcement and visitor service programs. Over 6,000 comments were received on the draft management plan; many of these comments were actually geared towards the protections listed in the Proclamation and the final rule, versus the activities proposed by the management plan or EA.

*5. What is the degree to which effects are highly uncertain or involve unique or unknown risks?*

The proposed action involves implementing a management plan designed to protect sanctuary natural, historic and cultural resources. The proposed action is not highly uncertain and does not involve unique or unknown risks. However, the plan does identify the need to initiate several step-down planning efforts and envision eventual implementation of the Midway Atoll Conceptual Site Plan. If these activities are developed beyond the conceptual stage, they may require additional assessment under NEPA (such as a supplemental EA or an environmental impact statement), as well as HRS Chapter 343 compliance.

Furthermore, although all human activities and actions may not be known as this time, any and all future human activities in the Monument may only be allowed if granted a joint permit by the Monument Management Board. These permits are subject to further NEPA review, which would detail any unknown or specific risks of the project.

*6. What is the degree to which the action establishes a precedent for future actions with significant effects or represents a decision in principle about a future consideration?*

The proposed MMP establishes a framework to allow resource managers to plan and execute current and future management activities in a manner that satisfies legal mandates set forth in the designation of the Monument and priority management needs identified by the Co-Trustee agencies. Any future management activities beyond the scope of this management plan or that could result in significant effects would undergo further NEPA and HRS Chapter 343 analysis on a case-by-case basis. The proposed action will help inform Monument managers about the conduct of human activities in the Monument, which will help contribute toward the understanding of existing impacts and the prevention of future impacts.



*7. Does the proposed action have individually insignificant but cumulatively significant impacts?*

Implementation of all the activities in the MMP will result in overall beneficial impacts to the Monument. While there are some activities that may individually result in minor impacts, there are no cumulatively significant adverse or beneficial impacts to natural, cultural, or historical impacts are anticipated as a result of the proposed action.

The Proposed Action's environmental effects are summarized in the EA in the following tables: natural resources, (Table 3.2.1), cultural and historic resources (Table 3.3.1), socioeconomic resources (Table 3.4.1) and other resources (water quality, transportation and communications, infrastructure and utilities (Table 3.5.1). The cumulative effects are summarized in Table 4-2 (Summary of Potential Contribution of the No Action and Proposed Action Alternatives to Cumulative Effects).

*8. What is the degree to which the action adversely affects entities listed in or eligible for listing in the National Register of Historic Places, or may cause loss or destruction of significant scientific, cultural, or historic resources?*

The proposed action would not adversely affect areas listed in or eligible for listing in the National Register of Historic Places, or cause loss or destruction of significant scientific, cultural or historic places. Implementation of the proposed action would have beneficial impacts on archaeological, social, or cultural resources, as there are specific action plans to locate, identify and protect such resources and minimize human activities that could impact them.

*9. What is the degree to which endangered or threatened species, or their critical habitat as defined under the Endangered Species Act of 1973, are adversely affected?*

The proposed action would beneficially affect endangered or threatened species, or their critical habitat as defined under the Endangered Species Act of 1973. The "Threatened and Endangered Species Action Plan" (Section 3.2.1) provides specific activities aimed at helping coordinate the implementation of the recovery plans for threatened and endangered species such as the Hawaiian monk seal, green sea turtles, short-tailed albatross, Laysan duck, Laysan finch, Nihoa finch, Nihoa millerbird and other plants and invertebrates. Other action plans help to protect and, when appropriate, restore marine, coastal and terrestrial habitats.

*10. Is a violation of Federal, state, or local law for environmental protection threatened?*

The proposed action does not threaten a violation of federal, state, or local law requirements imposed for the protection of the environment. In fact, implementation of the MMP will help strengthen existing environmental protection laws in the Monument.

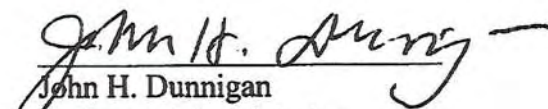
*11. Will the proposed action result in the introduction or spread of a nonindigenous species?*

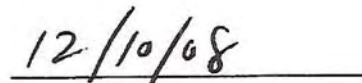
The proposed action would not result in the introduction or spread of a nonindigenous species. The MMP contains an "Alien Species" Action Plan (Section 3.3.2) that will help identify, contain, remove and prevent alien or nonindigenous species from being established in the

Monument. Further, the Monument permit conditions require permittees to adhere to a “Disease and Introduced Species Prevention Protocol” and “Special Conditions and Rules for Moving Between Islands and Atolls” to reduce and prevent the spread of nonindigenous species.

**FONSI Statement**

In view of the analysis presented in this document, the Environmental Assessment on the Proposed Final Monument Management Plan for the Papahānaumokuākea Marine National Monument (dated December 2008), the proposed action will not significantly affect the quality of the human environment with specific reference to the criteria contained in Section 6.01 of NAO 216-6, Environmental Review Procedures for Implementing the National Environmental Policy Act (NEPA). Accordingly, the preparation of an environmental impact statement for the proposed action of implementing the proposed final Monument Management Plan is not necessary.

  
John H. Dunnigan  
Assistant Administrator

  
Date



## **State Evaluation and Notice of Expected Determination of No Significant Impact Under Hawai'i Administrative Rules, Section 11-200-12 for Papahānaumokuākea Marine National Monument Management Plan and Environmental Assessment.**

The Department of Land and Natural Resources (DLNR) is the proposing agency and accepting authority for the above project for the State of Hawai'i. DLNR has reviewed the comments received during the 30 day state public comment period which began on June 8, 2008. The corresponding 90 day federal public comment period began May 22, 2008 and ran through July 23, 2008. As a policy call, the State was willing to respond to and consider all public comment received during the 90-day period. The State of Hawai'i Environmental Council gives 13 criteria (in italics below) for defining significant project impacts (Hawai'i Administrative Rules, Section 11-200-12). These criteria are summarized in the Hawai'i Health Department's Office of Environmental Quality Control (OEQC) guidebook. As discussed below, this project does not trigger any of the criteria for significance and thus, under State law, does not require preparation of an environmental impact statement (EIS). Accordingly, the agency expects that a finding of no significant impact will be issued and published in the Office of Environmental Quality Control (OEQC) Environmental Notice.

### Description of Proposed Action

The proposed Monument Management Plan is the Monument Co-Trustee agencies' overall guiding framework for their mission to carry out seamless integrated management to ensure ecological integrity and achieve strong, long-term protection and perpetuation of Northwestern Hawaiian Islands (NWHI) ecosystems, Native Hawaiian culture, and heritage resources for current and future generations. Management of the Monument is the responsibility of three Co-Trustees: the State of Hawai'i, through the Department of Land and Natural Resources (DLNR); the U.S. Department of the Interior, through the Fish and Wildlife Service (FWS), and the Department of Commerce, through the National Oceanic and Atmospheric Administration (NOAA). The Monument Management Plan was developed in part to carry out Presidential Proclamation 8031 (Establishment of the Northwestern Hawaiian Islands Marine National Monument, June 15, 2006) to develop a joint management plan for the Monument, an effort that the State of Hawai'i joined through a Memorandum of Agreement (MOA) signed by the Governor and the Secretary of Commerce and the Secretary of the Interior in December 2006. The EA was developed in accordance with the National Environmental Policy Act (NEPA) of 1969 and Hawai'i Revised Statutes (HRS) Chapter 343 Environmental Impact Statement Law. The purpose of the EA is to inform the relevant State and Federal agencies and the public of the likely environmental consequences of the activities contained in the Monument Management Plan. It focuses on site specific issues within the boundaries of the Monument and the socioeconomic effects on the State of Hawai'i.

## Findings

The National Oceanic and Atmospheric Administration, National Ocean Service, Office of National Marine Sanctuaries, Papahānaumokuākea Marine National Monument (PMNM) drafted a joint environmental assessment (dated December 2008) with the U.S. Fish and Wildlife Service and the State of Hawaii Department of Land and Natural Resources (Co-Trustee Agencies) to evaluate the potential environmental effects associated with implementing the final Monument Management Plan.

The environmental assessment is the basis for Department of Land and Natural Resources finding of no significant impact for implementing the final Monument Management Plan (MMP). Findings of No Significant Impact (FONSI) documents prepared by NOAA and USFWS provide the rationale, from the perspective of Federal guidelines and regulations, for justifying the decision not to prepare an EIS. Federal and State criteria for significance are similar but not identical.

Based on the analysis in the environmental assessment, the DLNR finds that:

1. *The proposed actions do not involve an irrevocable commitment to loss or destruction of any natural or cultural resource.*

The MMMP will improve coordinated agency management and overall protection for the natural, historical and cultural resources of the Northwestern Hawaiian Islands. The beneficial effects of the proposed action on the PMNM will result from improved planning and coordination of research, education, monitoring, and management actions by the Co-Trustee agencies. The proposed action would not adversely affect or cause loss or destruction of significant cultural or historic places. The PMNM has great cultural significance to Native Hawaiians and a connection to Polynesian culture worthy of protection as is noted in Presidential Proclamation 8031 and in the Cultural Impact Assessment (CIA) attached to this EA. Implementation of the proposed action would have beneficial impacts on archaeological, social, or cultural resources, as there are specific action plans to locate, identify and protect such resources and minimize human activities that could impact them. The proposed actions effects on natural resources are summarized in the EA in Table 3.2.1 (natural resources) and Table 3.3.1 (cultural and historic resources).

2. *The proposed actions will not curtail the range of beneficial uses of the environment.*

The proposed action, which is the implementation of the MMP, is to protect and manage the PMNM in a manner that satisfies both the legal mandates set forth in the Presidential Proclamation 8031 which established the Monument, all other legal authorities under State and federal law, and the priority management needs identified by the Co-Trustee agencies. Implementation of the management plan would result in an overall beneficial impact to the

PMNM and its resources and will not curtail the range of beneficial uses of the PMNM environment.

Short-term negative effects could occur when conducting activities that involve the restoration, enhancement or protection of organisms and ecosystems, or the rehabilitation of structures. These effects are inherently of short duration and are limited to the site where the activities occur. Affected resources are expected to return to pre-disturbance conditions after activities are completed. In addition, these negative effects are minimized through the use of the best management practices and strict permit conditions placed on conducting limited human activities in the Monument.

3. *The proposed actions will not conflict with the State's long-term environmental policies.*

The proposed actions will not conflict with the environmental policies set forth in Chapter 344, HRS, and other statutes and regulations, since the implementation of the MMP will not damage sensitive natural resources nor emit excessive noise or contaminants. Instead, it will improve and provide additional protection for the PMNM environment.

Within the Monument, the DLNR has stewardship responsibility for managing, administering, and exercising control over the coastal and submerged lands, ocean waters, and marine resources, around each of the Northwestern Hawaiian Islands, except at Midway Atoll under Title 12, Section 171.-3 Hawaii Revised Statutes. In 2005, Hawai'i Governor Linda Lingle established the Northwestern Hawaiian Islands Marine Refuge (0 to 3 nautical miles) around all emergent lands, except Midway Atoll) under Sections 187A-5 and 188-53(a), Hawaii revised Statutes (implemented as ch. 60.5, Hawaii Administrative Rules). The State is the lead agency for management of the emergent lands at Kure Atoll, a State Wildlife Sanctuary. DLNR's Division of Conservation and Resources Enforcement (DOCARE) maintains full police powers, including the power of arrest, within all lands and waters within the State's jurisdiction. Unless otherwise authorized by law, it is unlawful for any person to enter the refuge without a permit except for freedom of navigation, innocent passage, interstate commerce, and activities related to national defense, enforcement, or foreign affairs and in response to emergencies.

4. *The proposed actions will not substantially adversely affect the economic and social welfare of the community.*

The Proposed Action would provide an integrated framework for Monument management among the Co-Trustees. While this coordination should save money, it is anticipated that activities needed to address priority management needs will never be fully funded. A few additional jobs would be generated as a result of the Proposed Action, such as facilities repair and construction at Midway. An integrated approach presented in the Monument Management Plan could result in increased funding for research and management.

The overall, the total level of funding would still be subject to annual budgetary process and would likely experience increases or decreases, depending on overall federal spending. The cost of implementing the Proposed Action is estimated to average \$23 million a year over 15 years, but because funding is subject to federal and State budget and appropriations and private donations, it is not possible to determine in advance what level of funding may be available in any given year, or over the life of the plan. Overall, the proposed alternative is not expected to have a significant effect on population, employment, industry, income or the broader Hawai'i economy. The proposed actions effects on socioeconomic resources are summarized in the EA in Table 3.4.1. (natural resources) and Table 3.3.1 (cultural and historic resources).

5. *The proposed actions will not substantially adversely affect the public health of the community.*

The MMP contains several action plans (Central Operations, Coordinated Field Operations) and documents (Midway Atoll Conceptual Site Plan, Midway Atoll Visitor Services Plan, Operational Protocols and Best Management Practices) that help provide consistent guidance and protocols for the conduct of human activities in a safe manner and that protects both humans and wildlife in the Monument. The proposed action will have beneficial effect on public health and safety.

6. *The proposed actions will not involve substantial secondary impacts, such as population changes or effects on public facilities.*

Table 3.5-1 in the EA summarizes the proposed actions effects on water quality, transportation and communications, infrastructure and utilities in the PMNM, including water quality, transportation, communications infrastructure and utilities. Minor negative effects are expected from increased demands on utilities but this would be offset by rehabilitation and replacement of existing infrastructure with more sustainable and efficient systems, having beneficial effects overall. Implementation of the proposed action will not induce permanent population growth beyond that which is necessary for effective Monument operations.

7. *The proposed actions will not involve a substantial degradation of environmental quality.*

The Proposed Action to implement the Monument Management Plan would result, overall, in beneficial effects or no effects on the environmental quality of the PMNM. Short-term negative effects could occur when animals or vegetation are being restored, protected, or enhanced. These effects are inherently of short duration and are limited to the site where the activities occur. Affected resources are expected to return to pre-disturbance conditions shortly after activity ceases, so this does not constitute a significant effect. In addition,

negative effects are minimized through the use of the best management practices described in Volume III, Appendix G of the MMP.

8. *The proposed actions will not have cumulative impacts or involve a commitment for larger actions.*

Implementation of all the activities in the MMP will result in overall beneficial impacts to the Monument. While there are some activities that may individually result in minor impacts, there are no cumulative significant adverse impacts to natural, cultural, or historical impacts are anticipated as a result of the proposed action. The cumulative effects are summarized in Table 4-2 (Summary of Potential Contribution of the No Action and Proposed Action Alternatives to Cumulative Effects).

The MMP allows resource managers to plan and execute current and future management activities in a manner that satisfies legal mandates set forth in the designation of the Monument and priority management needs identified by the Co-Trustee agencies. Any future management activities beyond the scope of this management plan or that could result in significant effects would undergo a NEPA and HRS Chapter 343 analysis on a case-by-case basis. The proposed action will help inform Monument managers about the conduct of human activities in the Monument, which will help contribute toward the understanding of existing impacts and the prevention of future impacts.

9. *The proposed actions will not affect a rare, threatened, or endangered species or its habitat.*

The proposed action would beneficially affect endangered or threatened species, or their critical habitat as defined under the federal Endangered Species Act of 1973 and HRS §195D-4. The “Threatened and Endangered Species Action Plan” (Section 3.2.1) provides specific activities aimed at helping coordinate the implementation of the recovery plans for threatened and endangered species such as the Hawaiian monk seal, green sea turtles, short-tailed albatross, Laysan duck, Laysan finch, Nihoa finch, Nihoa millerbird and other plans and invertebrates. Other action plans are also considered and approaches integrated to help to protect and when appropriate restore marine, coastal and terrestrial habitats.

10. *The proposed actions will not substantially affect air or water quality or ambient noise levels.*

There will be no significant effect on air or water quality, or on ambient noise levels given the limited scale of the project and use of good management practices. Table 3.5-1 summarizes the effects of MMP implementation on other resources including water quality. The EA examined the impacts to water quality conditions that could be associated with marine, terrestrial and potable water resources; sources of marine pollution; vessel and aircraft activity; potable water supply protection; wastewater management; storm water

management; solid waste management; and management of fueling facilities in the PMNM. Implementation of the proposed action will could have a primarily beneficial water impact on water quality. Any negative impact on water quality or impact associated with change in ambient noise levels will be minimized through the use of the best management practices described in the EA and in Volume III, Appendix G of the MMP. There will be no impact on air quality.

11. *The proposed action will not have a substantial negative effect on those portions of the PMNM that may be located within an environmentally sensitive area.*

As is discussed in greater detail above the purpose of the proposed action is to protect and manage the PMNM in a manner that results in an overall beneficial impact to the PMNM and its resources. While short-term negative effects could occur when conducting activities that involve the restoration, enhancement or protection of organisms and ecosystems, or the rehabilitation of structures could occur, these effects are inherently of short duration and are limited to the site where the activities occur. Affected resources are expected to return to pre-disturbance conditions after activities are completed and the final overall effect of the activity will be an environmentally beneficial one. In addition, negative effects will be minimized through the use of the best management practices and strict permit conditions placed on conducting limited human activities in the Monument.

12. *The proposed actions will not substantially affect scenic vistas and view planes identified or State plans or studies.*

Any Monument related activity that may involve the construction of a permanent structure or the alteration of landscapes will not occur on state of Hawaii lands or on state lands covered by view plans or studies.

13. *The proposed project will not require substantial energy consumption.*

Activities occurring within the PMNM will not require consumption of substantial amounts of energy, and any energy that is expended will be directly related to monument operations. The affected area is not on a local power grid. Additionally, Co-Trustees will work together to develop alternative energy systems and waste reduction strategies including evaluating biodiesel fuel capacity or sustainable fuel types to meet future fuel requirements of aircraft, vessel, facilities and equipment that will be operating within the Monument.



---

---

**APPENDIX D**

**SCOPING AND CONSULTATION SUMMARY**

## **Summary of Seven Year Agency, Citizen Group and Individual Consultation and Public Comment and Response Processes Leading To the Development of the Papahānaumokuākea Marine National Monument Management Plan and Environmental Assessment**

On May 26, 2000 President Clinton announced his intention to provide “strong and lasting protection for the coral reef ecosystem of the Northwestern Hawaiian Islands.” He directed the Secretaries of the Departments of Commerce and the Interior, working cooperatively with the State of Hawaii and in consultation with the Western Pacific Regional Fishery Management Council to develop recommendations within 90 days for a new, coordinate management regime to increase protection of the ecosystem for sustainable use. The Departments were directed to conduct ‘visioning’ sessions, which would provide opportunities for the public to comment and help to shape the final recommendations.

Over 1,400 public comments were received in writing and at seven public meetings. The public visioning sessions accomplished three main objectives: 1) They communicated the intent of the President’s directive regarding the coral reef ecosystems of the Northwestern Hawaiian Islands; 2) They provided excellent opportunities for public participation, dialog, discussion, and interactions; and 3) they produced a substantial amount of information for the Secretaries of the Interior and Commerce to use in making their recommendations to the President.

In December 2000, President Bill Clinton issued an inter-agency memo to the Secretaries of Commerce and the Interior directing them to hold public meetings to assess the Executive Order 13178 (as amended by Executive Order 13196), establishing the NWHI Coral Reef Ecosystem Reserve (Reserve), with the purpose “to ensure the comprehensive, strong, and lasting protection of the coral reef ecosystem and related marine resources and species of the Northwestern Hawaiian Islands.” Executive Order 13178 also directed NOAA, in consultation with federal and State partners, to initiate a process to designate the Reserve as a National Marine Sanctuary pursuant to sections 303 and 304 of the National Marine Sanctuaries Act of 2000. A Reserve Advisory Council (RAC) was established to provide advice and recommendations on the designation and management of any Sanctuary and to develop a Reserve Operations Plan for managing the Reserve. With these actions began the initial general consultation and public outreach process that would; some seven years later; culminate in the identification of the issues that would be addressed in the development of Papahānaumokuākea Marine National Monument Management Plan and Environmental Assessment.

Interested State and federal agencies, the public, citizens groups and other stakeholders were engaged to seek input and gather information toward developing a unified plan for Reserve operations and the proposed sanctuary. Between 2000 and 2005, NOAA conducted an extensive

information gathering process, including over 100 meetings with jurisdictional agency partners, the RAC and associated RAC subcommittee meetings, the Western Pacific Fishery Management Council, non-governmental organizations, fishing and other stakeholder groups, and the public.

The aim of these information gathering efforts was to identify concerns related to Sanctuary designation and development of the range of alternatives considered. A series of ten public scoping meetings were hosted in Hawai‘i and Washington, D C., with more than 13,000 comments received during the initial scoping period. Throughout the designation process, additional input was collected from the public, stakeholder groups, and interagency and RAC and associated subcommittees meetings. In total, close to 52,000 public comments were received that guided the direction and development of a draft sanctuary management plan to direct management of the anticipated sanctuary upon its designation.

Simultaneously, a Reserve Operations Plan (ROP) was drafted and finalized with extensive consultation with partner agencies and the RAC. The ROP guided the management of the Reserve and was the foundational document from which the draft sanctuary management plan was developed. The draft Sanctuary Management Plan had several companion documents packaged into the draft designation proposal, including a draft environmental impact statement and draft implementing regulations. When the Monument was designated in June 15, 2006 by Presidential Proclamation 8031, the processing of these documents was halted. However, the Proclamation recognized the extensive public input and the relevancy of the NMSP public processes and resulting draft Sanctuary documents, and directed the Co-Trustees to modify, as appropriate, the draft Sanctuary Management Plan as the basis for the creation of the management plan for the newly designated Monument.

The Proclamation marked the point where the State of Hawai‘i, through the Department of Land and Natural Resources joined with the U.S. Department of the Interior, through the Fish and Wildlife Service and the U.S. Department of Commerce, through the National Oceanic and Atmospheric Administration to become one of the three Co-Trustees responsible for management of the monument. A Memorandum of Agreement to establish roles and responsibilities of the three Co-Trustees was signed on December 8, 2006. The Co-Trustees then began to develop the new Monument’s management plan.

Public information meetings were again held on all main Hawaiian Islands to inform the public of the establishment of the Monument and its implementing regulations. Overall, establishment of the Monument and joint Co-Trustee management program were well received by the public, most of whom supported strong protection of the ecosystem of the Monument. On April 4, 2007, formal notice was given of the preparation of the MMP and associated EA for the Monument. Given the extensive six-year informational gathering process that lead up to the development of the draft Sanctuary Plan; the Co-Trustees asked for specific input on changed circumstances or new environmental issues that were not identified in the draft Sanctuary planning effort or in previously held public meetings.

Instead of summarizing specific public comments obtained at these meetings, the management agencies developed a table to consolidate and summarize issues and initial responses to all public and agency comments received during outreach efforts leading up to the development of the MMP and associated EA. This summary table, which is reproduced below, was posted on the Monument web site, and notices were sent via a list-serve to the over 780 interested parties on this list, all RAC members, and relevant local agencies requesting input on any additional issues that needed to be resolved. Issues are organized by topic and location (Monument-wide and Midway-specific).

**Table 1. Summary of Monument-wide Issues Identified and Addressed in MMP and EA**

Topic	Monument-wide Issues
Monument Management Plan Development	<ul style="list-style-type: none"> <li>• The primary purpose is conservation and protection of the natural and cultural resources of the Monument. These original goals need to be reincorporated, and further development of the plan should occur through an open process that includes a Citizen Advisory Council based on the RAC model.</li> <li>• The MMP should provide specific mechanisms for partnerships among government agencies and between government and the public.</li> </ul>
Permitting	<ul style="list-style-type: none"> <li>▪ The permitting process should provide for the maximum transparency; include a 90-day public review; employ independent expert panel reviews; and in unifying the permit system, adopt conditions, terms, and instructions based on the State's permitting system. The system should be structured to allow for cumulative impact analyses.</li> <li>▪ The MMP should facilitate multiple public and private uses.</li> <li>▪ As per State NWHI rules, permit violators should not be granted additional permits and, in the case of a permit violation, a long-term permit should be revoked.</li> </ul>
Extractive Activities	<ul style="list-style-type: none"> <li>▪ The impacts on this ecosystem from sustenance fishing, bioprospecting, and bottomfishing are poorly understood and inconsistent with the primary purpose of the Monument; these should be prohibited in all forms immediately.</li> <li>▪ Commercial bottomfishing and sustenance fishing should be overseen by rigorous monitoring programs.</li> </ul>
Research	<ul style="list-style-type: none"> <li>▪ Research activities in the NWHI have dramatically increased, primarily in sensitive nearshore and land habitats as a result of increased funding. Research activities should require a risk assessment analysis, followed by implementation of an ongoing risk monitoring protocol.</li> <li>▪ Monitoring and research of the ecosystem and cultural resources are needed.</li> </ul>
Military Activities	<ul style="list-style-type: none"> <li>▪ Military activities and their impacts were not discussed in the draft SMP and should be addressed in MMP and associated EA.</li> <li>▪ Interagency coordination should include, as appropriate, the interests and activities of the Navy and MDA.</li> </ul>
Education and Outreach	<ul style="list-style-type: none"> <li>▪ Increased emphasis should be placed on building public understanding and appreciation of the NWHI through education and outreach.</li> </ul>
Habitat and Ecosystem Impacts	<ul style="list-style-type: none"> <li>▪ Impacts of marine debris, vessel groundings, pollution, alien species introduction, and general human presence in the Monument, collectively, are an ongoing concern because of effects on species and habitats in the NWHI.</li> <li>▪ The MMP should focus on the restoration and enhancement of natural habitats, populations, and ecological processes.</li> <li>▪ The economic cost of these threats should be calculated and planned for.</li> </ul>
Funding Allocation	<ul style="list-style-type: none"> <li>▪ Allocation of funds should reflect the primary purpose of the Monument, with substantial percentages of the overall budget going to enforcement, ecosystem protection, and Native Hawaiian activities.</li> <li>▪ Overhead and research should not dominate the budget allocation.</li> </ul>
Enforcement	<ul style="list-style-type: none"> <li>▪ A greater enforcement presence is needed to ensure compliance with regulations and permit conditions. Resources need to be protected through enforcement, education, policy, and management.</li> </ul>
Native Hawaiian Management Concepts and Access	<ul style="list-style-type: none"> <li>▪ Native Hawaiian management concepts should be employed in managing resources of the Monument.</li> <li>▪ Access to Native Hawaiians must be ensured.</li> </ul>

**Table 2. Summary of Midway-specific Issues Identified and Addressed in the MMP and EA**

<b>Topic</b>	<b>Issues</b>
Enforcement of Rules	Specific enforcement protocols need to be developed.
Visitor Carrying Capacity	The established cap should be critically analyzed and realistically based on staffing levels and potential impacts to resources.
Visitor Impacts on Wildlife	Monitoring measures need to be implemented to detect and evaluate possible visitor impacts on monk seals and other wildlife; these measures should derive from NMFS and FWS consultations, and perhaps should enact recommendations from the Gilmartin and Antonelis study (1998).  The impact of lead paint on the Midway's wildlife is disturbing, and the recently appropriated money should be spent removing or cleaning all structures at Midway covered with lead paint, as well as the soil around them, before hiring new staff or developing outreach materials.
Interpretation	Historic artifacts and records of Midway veterans should be prominent in interpretive materials and overall preservation of Midway's resources.  Consider and reference Kilauea Point NWR as a logical offsite exhibit and program site.
Means of Transportation	The use of larger aircraft to Midway could reduce cost to visitors.
Lead Contamination	FWS should fund and complete the removal of lead-based paint from buildings and the soil before funding the visitor services program.



**Table 3. Issues Statements and Responses Identified for the Monument Management Plan and Environmental Assessment**

Topic	Issue	Response
Access and Permitted Activities	<i>What decisions will be made in the MMP regarding Monument access and permitting of activities?</i>	The types of activities allowed and requirements for access are regulated through a permitting process detailed in 50 CFR 404. The MMP's Permitting Action Plan will identify strategies to develop a streamlined and effective permit approval and issuance process and describe how data obtained from permits will be used to assess cumulative impacts and improve long-term monitoring and protection of Monument resources. Other action plans will identify strategies and activities related to human access, types of activities allowed, limits and controls.
	<i>Will commercial fishing be permitted?</i>	Commercial Bottomfishing will be permitted by NOAA Fisheries for the eight active vessels grandfathered until June 15, 2011 through Presidential Proclamation 8031. The Proclamation also includes regulations that restrict fishing in Ecological Reserves and Special Preservation Areas, set an annual catch limit and require the fishing vessels to comply with the same rules as other Monument permit holders.
Management Capacity and Operations	<i>What facilities, vessels and levels of staffing and funding are needed to effectively operate and protect the resources of the Monument?</i>	Each action plan will identify the specific needs required to accomplish the goals and objectives of that plan. The MMP will also identify areas where needs overlap and resources can be shared while still accomplishing the goals of each action plan. In these cases, references will be made to other action plans, providing a more accurate overall need assessment.
	<i>What decisions will be made in the MMP regarding how the Co-Trustee agencies will operate as a management body and how they will coordinate with other agencies and the public?</i>	The coordinated management regime creating the MMB was outlined in a Memorandum of Agreement and signed by the Co-Trustees in December 2006. It will be the basis for further defining roles and responsibilities in carrying-out the operational and management activities of the MMP. Several mechanisms for future coordination with other agencies, community organizations, and the public will also be identified in the plan.
	<i>How will law enforcement needs for Monument management be addressed?</i>	The Enforcement Action Plan will outline the shared and coordinated responsibilities among the MMB enforcement agencies and the U.S. Coast Guard, and identify barriers to and opportunities for effective law enforcement. It will also address improving compliance through effective outreach and education.
	<i>How will military activities be managed in the MMP?</i>	Activities of the Armed Forces that could occur within the Monument are beyond the scope of MMB management activities.
Research and Monitoring	<i>What type of research programs will be established and how will they be coordinated and directed to ensure we gather information that will help to protect and manage Monument resources while minimizing damage to the ecosystem?</i>	The MMP will have action plans as well as a separate Monument Science Plan that requires research to be management-driven – by furthering an ecosystem-level understanding of the Monument or improving detection of and response to human-created threats and restoration of damaged ecosystems. Scientists must comply with the findings outlined in the Proclamation in designing their projects, while the MMP will establish a process to identify criteria and assess impacts for evaluating all proposed research and monitoring activities in the Monument.

**Table 3. Issues Statements for the Monument Management Plan and Environmental Assessment (continued)**

<b>Topic</b>	<b>Issue</b>	<b>Response</b>
Outreach, Education, and Visitation	<i>How will the MMP address public use, interpretation, and environmental education opportunities for the Monument?</i>	Midway Atoll, with its existing infrastructure and history of human activity, will serve as the on-site “window to the Monument,” and visitation opportunities will be described in the Midway Interim Visitor Services Plan of the MMP. The Mokuāpāpapa: Discovery Center in Hilo, the National Marine Sanctuaries office in Honolulu, and lectures and other types of outreach from Monument staff and trained volunteers will provide opportunities to “bring the place to the people rather than the people to the place” and will be discussed in the Ecosystem Literacy Action Plan.
Public Involvement	<i>How can the public be involved in managing and conserving the Monument?</i>	The Constituency Building and Outreach Action Plan will explore strategies for involving the public in promoting protection and awareness of Monument resources, which could include public meetings, workshops, establishing citizen advisory groups, volunteering opportunities, and other possibilities.
Habitat and Ecosystem Impacts	<i>How will terrestrial and marine habitats, fish and wildlife be managed in the Monument?</i>	The MMP will identify a range of proposed strategies and activities to address local threats (e.g., spread of alien species, contaminant spills) as well as global threats (e.g., sea level, temperature and chemistry changes) to understand and protect Monument resources. Management actions will be aimed at maintaining biological integrity, diversity, and ecosystem health and will be performed in a manner that does not cause any significant impacts to Monument natural and cultural resources.
	<i>What type of information and direction will be provided in the MMP regarding global climate change and sea level rise?</i>	The MMP and Monument Science Plan will present activities specific to the threat of global climate change, including new research models to help predict sea level rise and the possible impacts to Monument species and habitats, and will consider options for monitoring climate change and sea level rise as a part of a global network of information.
	<i>How will the MMP address threats to the Monument’s ecosystem?</i>	The MMP will identify known threats to the ecosystems of the Monument, such as marine debris, environmental contaminants, and invasive species, and propose actions and activities that can reduce or potentially eliminate damage to marine and terrestrial resources.
	<i>How will the MMB prevent the discharge of contaminants into the Monument and respond to unforeseen incidents?</i>	The Presidential Proclamation established strict standards to prevent pollution from vessels while operating in the Monument. The MMP will establish procedures for coordinated emergency response in event of an accidental or negligent pollution event and will identify a process to assess natural resource damages and implement compensatory restoration projects.
	<i>What will the MMB do to cleanup contamination caused by past human activities in the Monument?</i>	Contamination hazards exist across the NWHI, with particular issues at Midway that are known to impact the health of the Laysan Albatross. The Restoration Action Plan will identify and assess known hazards, and provide cleanup strategies, funding requirements and detail other relevant factors to remediate hazards at the most critical of these sites.
Native Hawaiian Culture	<i>How will the MMB take care of Native Hawaiian cultural resources?</i>	The MMP will outline a range of strategies and activities for cultural resource protection, identification, documentation, preservation, traditional use, interpretation, and education that will implement Native Hawaiian cultural and historic resource preservation, protection and perpetuation methods. Through the Office of Hawaiian Affairs, Native Hawaiian Working Group, and Action Plans specific to Native Hawaiian interests, the MMB will incorporate Native Hawaiian resource management skills and knowledge across all programs.

<b>Table 3. Issues Statements for the Monument Management Plan and Environmental Assessment (continued)</b>		
<b>Topic</b>	<b>Issue</b>	<b>Response</b>
Historic Preservation Issues	<i>How will the Monument manage post-contact (historic period) cultural resources?</i>	The MMP will outline a range of strategies and activities to identify, document, preserve, reuse, and interpret post-contact historic resources 1) from Midway Atoll, 2) submerged under the ocean, and 3) from exploration, commerce, war, and conservation throughout the Monument. Many of these activities, particularly for structures and buildings at Midway and sunken ships, are currently ongoing.
Midway Atoll NWR – Access and Permitting	<i>What is the appropriate total number of people (to visit, work and volunteer) that Midway Atoll can support?</i>	Midway’s Interim Visitor Services Plan has identified up to 40 overnight visitors at one time and at least 300 visitors per year as appropriate given the current staffing and infrastructure. NOAA has identified Midway as a potential operational hub and location for new programs and staff, which would cause more waste generated, more electricity required, additional infrastructure built, more water and food consumed, and potentially more disturbance to wildlife. The MMP will propose a maximum number of people on Midway, a site plan for the allocation of land uses, and facilities needed to balance people and wildlife.
Midway Atoll NWR – Management Capacity and Operations	<i>How will the Management needs of Co-Trustees be incorporated into Midway operations without negative consequences to the natural and historic resources?</i>	The MMP will present strategies and activities in a Site and Operations Action Plan that address facility and operational needs throughout the Monument, including at Midway. Conserving natural resources, preserving historic resources, and incorporating cultural considerations are all components of the action plan.
Midway Atoll NWR – Interpretation	<i>How will visitors be provided information to introduce and sensitize them to the fragile Midway Atoll ecosystem and history? To what extent should new interpretive and educational exhibits be placed at Midway?</i>	The Midway Interim Visitor Service Plan will offer several opportunities to interpret the natural and cultural features of the Monument, including guided tours, self-guided interpretive walks, guided boat trips, interpretive exhibits and signs, and programs and presentations, focusing on wildlife, historic structures, artifacts, memorials, and key sites. The MMP will address expanding the current visitor program at Midway to represent the entire Monument.
	<i>To what extent should historic structures be preserved and restored for interpretation on Midway?</i>	Decisions to preserve, restore, reuse or demolish buildings will be determined on a case-by-case basis, as the state of each building, its relative historic importance, interpretive opportunities, and the cost to restore and maintain vary widely. An appropriate balance of on-island and off-island interpretation is needed and will be further addressed in the MMP.



# Papahānaumokuākea

MARINE NATIONAL MONUMENT



## Management Plan Appendices: Supporting Documents & References

U.S. FISH AND WILDLIFE SERVICE • NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION • STATE OF HAWAII



VOL. III



# Papahānaumokuākea Marine National Monument

## Management Plan

### Volume III: Appendices

*Supporting Documents and References*

December 2008

Prepared by:

Papahānaumokuākea Marine National Monument

United States Fish and  
Wildlife Service  
300 Ala Moana Blvd., Room 5-231  
Honolulu, Hawaii 96850



National Oceanic and Atmospheric  
Administration  
6600 Kalanianaʻole Highway, Suite 300  
Honolulu, Hawaii 96825



Hawai'i Department of Land and  
Natural Resources  
1151 Punchbowl Street, Room 130  
Honolulu, Hawai'i 96813



## **Volume III: Appendices** *Supporting Documents and References*

---

- Appendix A: Permitting Process**
  - Appendix B: Midway Atoll Visitor Services Plan**
  - Appendix C: Presidential Proclamations 8031 and 8112**
  - Appendix D: Monument Regulations**
  - Appendix E: Monument Memorandum of Agreement**
  - Appendix F: Operational Protocols and Best Management Practices**
  - Appendix G: IMO Particularly Sensitive Sea Area Designation and Associated Protective Measures**
-



---

## **APPENDIX A:** **Permitting Process**

---

**Papahānaumokuākea Marine National Monument  
Monument Permit Application Unified Public Notification Policy**

Effective 02/01/08

**Background**

A permit is required for most activities allowed in the Papahānaumokuākea Marine National Monument (Monument), including Hawaiian Islands National Wildlife Refuge, the Midway Atoll National Wildlife Refuge, Battle of Midway National Memorial, Northwestern Hawaiian Islands State Marine Refuge, Kure Atoll Hawaii State Seabird Sanctuary, and the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve. Permit applications are accepted:

- February 1: For activities occurring between June 1 and August 31
- May 1: For activities occurring between September 1 and December 31
- September 1: For activities occurring between January 1 and May 31

Permit applications received after the deadline dates are not guaranteed to be processed before the associated activity period commences.

The following unified public notification policy will engage and inform the public of activities proposed to occur within the Monument. Posting of a permit application does not equate to permit approval. After posting, each application is thoroughly reviewed. Final permitted activities may differ from the proposed activities.

**Policy**

- Within 10 calendar days of receipt of application, a summary of the applicant's proposed activities will be posted on an agency web site for public viewing.
- Within 40 calendar days of receipt of application, full permit applications will be posted on an agency website for public viewing. A full application is one from which reviewers are able to evaluate the merits of the proposed activity.
- The permit application will be posted for a minimum of 30 calendar days prior to agency determination.
- Proposed activities that respond to urgencies, meet a high management priority, and are exigent in either opportunity or need for execution shall be considered separately. Examples of such occasions from the 2007 field season include providing twin monk seal captive care, as well as an unanticipated opportunity to gather critical mapping data.

It is noted that there are additional opportunities for public notification and input:

- Monument Regulations (50 CFR Part 404.11) require Monument permit applications for Special Ocean Use be posted for public notice and comment 30 days prior to the issuance of a Monument permit.
- Appropriate regulatory and environmental reviews (e.g. Environmental Impact Statements, Environmental Assessments, and Compatibility Determinations) related to Monument permit applications are posted for public comment.
- Monument permit applications that include proposed activities within the Northwestern Hawaiian Islands State Marine Refuge are posted to the Board of Land and Natural Resources (BLNR)

website for 7 days prior to the scheduled BLNR meeting as part of the overall Land Board submittal.

This policy provides guidance to the Co-Trustee representatives for public notification of permit applications for proposed activities in the Monument.

It is also important to note that the permit application that is posted may not include some of the detailed logistical and compliance information being considered prior to permit issuance. An activity may be provisionally approved based on the posted full application, but a permit will only be issued after the receipt of all required information (e.g. final crew/team roster, hull inspection certification, etc.).

Note to Readers:

In accordance with Presidential Proclamation 8031, which established Papahānaumokuākea Marine National Monument, applicants may seek one of six different Monument permits depending upon the type of activity they wish to pursue. Each permit type has a separate application and instructions. To reduce the size of this document, only one application and instructions—the one for research permits—is included in this Appendix. Applications and instructions for the other permit types are available at:

[http://www.hawaiireef.noaa.gov/resource/permit\\_apply.html](http://www.hawaiireef.noaa.gov/resource/permit_apply.html)

**Papahānaumokuākea Marine National Monument**  
**Research Permit Application Instructions**  
**January 2008**

**Introduction**

On June 15, 2006, President Bush established the Papahānaumokuākea Marine National Monument (Presidential Proclamation 8031, 71 FR36443, June 26, 2006) under the authority of the Antiquities Act (Act) (16 U.S.C. 431). The Proclamation reserves all lands and interests in lands owned or controlled by the Government of the United States in the Northwestern Hawaiian Islands (NWHI), including emergent lands and submerged lands and waters, out to a distance of approximately 50 nautical miles (nmi) from the islands. The outer boundary of the Monument is approximately 950nmi long by 100nmi wide, extending around coral islands, seamounts, banks, and shoals. The area includes the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, the Midway Atoll National Wildlife Refuge/Battle of Midway National Memorial, and the Hawaiian Islands National Wildlife Refuge and the Northwestern Hawaiian Islands State Marine Refuge.

The three principals with responsibility for managing lands and waters of the Monument, the Department of Commerce, Department of the Interior, and the State of Hawaii (collectively the Co-Trustees), work cooperatively to administer the Monument. This relationship is further described in the Memorandum of Agreement among the Co-Trustees signed on December 8, 2006.

**Permit Application Deadlines**

Permit applications must be received by:

- February 1: For activities occurring between June 1 and Aug 31
- May 1: For activities occurring between September 1 and December 31
- September 1: For activities occurring between January 1 and May 31

NOTE: Issuance of a Monument permit is dependent upon the completion and review of the application and Compliance Information Sheet.

**Confidential Information**

The Co-Trustees intend to post completed permit applications on the Internet for public review. Applicants are requested to indicate any information that is considered proprietary business information. Such information is typically exempt from disclosure to anyone requesting information pursuant to the Freedom of Information Act (FOIA) and all applicable State law. NOAA, the U.S. Fish and Wildlife Service and the State of Hawaii attempt to protect such proprietary information, consistent with all applicable FOIA exemptions in 5 U.S.C. 552(b) and applicable State law. Typically exempt information includes trade secrets, commercial and financial information (5U.S.C. 552(b) (4)). Personal information affecting an individual's privacy, such as personal telephone numbers and addresses will also be kept confidential

consistent with 5 U.S.C. 552(b) (6) and applicable State law. Unless such information is so identified, the application may be made available to the public in its entirety.

### **Intellectual Property**

The permittee retains ownership of any data, derivative analyses or other work product, or any photographic or video material, or other copyrightable works, but the Federal Government and the State of Hawaii retain a lifetime, non-exclusive, worldwide, royalty-free license to use the same for government purposes, including copying and redissemination, and making derivative works.

### **Indemnification**

The permittee and any person participating in any activity authorized by this permit shall release, indemnify, and hold harmless National Oceanic and Atmospheric Administration, the Department of Commerce, the U.S. Fish and Wildlife Service, the Department of the Interior, the United States Government, the State of Hawaii, and their respective employees acting within the scope of their duties from and against any claims, demands, actions, liens, rights, subrogated or contribution interests, debts, liabilities, judgments, costs, and attorney's fees, arising out of, claimed on account of, or in any manner predicated upon the issuance of this permit or the entry into or habitation upon the Papahānaumokuākea Marine National Monument or as the result of any action of the permittee or persons participating in the activity authorized by this permit.

### **Reporting Burden**

Submittal of the information requested in these guidelines is required to obtain a permit pursuant to Monument regulations (50 CFR Part 404). This data is to evaluate the potential benefits of the activity, determine whether the proposed methods will achieve the proposed results, evaluate any possible detrimental environmental impacts, and determine if issuance of a permit is appropriate. It is through this evaluation that the Co-trustees are able to use permitting as one of the management tools to protect Monument resources and qualities.

Public reporting burden for this collection of information, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information is estimated as:

- A. Twenty-four (24) hours per response for Special Ocean Use permits;
- B. Five (5) hours per response for General (Research, Conservation and Management, and Education), Native Hawaiian Practices, and Recreation permits;
- C. Four (4) hours per response for VMS installation and maintenance;
- D. Five (5) minutes per response for entry and exit notices and VMS certification;
- E. Five (5) seconds per response for hourly VMS reports.

Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Papahānaumokuākea Marine National Monument Permit Coordinator, 6600 Kalaniana'ole Hwy. # 300, Honolulu, HI 96825.



Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

**Directions for filling out the Monument Permit Application**

1. Download the Research permit application. If you are unsure of the category for your proposed project, contact the Monument Permit Coordinator (contact information below).
2. Click on the document to open.
3. You will now be able to type in all the gray text field boxes and check boxes.
4. You will not be able to alter, copy, delete or modify the permit application questions and cover page in any way.

If you have difficulty filling out the application, contact the PMNM Permit Coordinator at (808) 397-2660 OR [nwhipermit@noaa.gov](mailto:nwhipermit@noaa.gov).

**Send Permit Applications to:**

Papahānaumokuākea Marine National Monument Permit Coordinator  
6600 Kalaniana'ole Hwy. # 300  
Honolulu, HI 96825  
[nwhipermit@noaa.gov](mailto:nwhipermit@noaa.gov)  
PHONE: (808) 397-2660      FAX: (808) 397-2662

**NOTE: SUBMITTAL VIA ELECTRONIC MAIL IS PREFERRED BUT NOT REQUIRED. YOU ARE ALSO REQUIRED TO SEND ONE SIGNED ORIGINAL APPLICATION VIA MAIL TO THE MONUMENT OFFICE ABOVE:**

## Papahānaumokuākea Marine National Monument RESEARCH Permit Application Instructions

**NOTE:** *This Permit Application (and associated Instructions) are to propose activities to be conducted in the Papahānaumokuākea Marine National Monument. The Co-Trustees are required to determine that issuing the requested permit is compatible with the findings of Presidential Proclamation 8031. Within this Application, provide all information that you believe will assist the Co-Trustees in determining how your proposed activities are compatible with the conservation and management of the natural, historic and cultural resources of the Papahānaumokuākea Marine National Monument (Monument).*

### **Permit Application Cover Sheet Summary Information**

NOTE: The permit application cover sheet is intended to provide summary information on permit applications for activities proposed to occur in the Papahānaumokuākea Marine National Monument. Information submitted in this section will be posted on the Monument website to inform the public regarding projects proposed to occur in the Monument.

**Applicant Name:** Enter the name of the person who is in charge of the proposed activity and who will be responsible for all the personnel and actions under the authority of the requested Monument permit.

**Affiliation:** Specify the Applicant’s affiliation, if any, in relation to the proposed project.

**Proposed Activity Dates:** Specify the dates of your activities.

**Proposed Method of Entry:** Specify whether you will enter the Monument via vessel or aircraft.

**Proposed Locations:** Provide a brief summary of the location(s) for proposed activities (e.g. French Frigate Shoals, or 300-1500 meters depth east of Twin Banks, etc.). NOTE: Specific GPS and other location information are requested in the Monument Compliance Information Sheet.

**Estimated number of individuals to be covered under this permit:** Provide an ESTIMATE of the number of individuals (including Applicant) to be covered under this permit.

**Estimated number of days in the Monument:** Provide the ESTIMATED number of days in the Monument.

**Description of proposed activities:** Include a brief description of the proposed activities, including the following:

- Define the objective of the proposed activity (*The proposed activity will. . .*)
- Identify what the action will entail (*To accomplish this activity we would. . .*)
- Explain the benefit of the activity to the Monument (*This activity would help the Monument by. . .*)

**Other information or Background:** Include any other information relevant to your proposed activity summary.

### **Section A: Applicant Information**

1. State the name and title of the Applicant. The Applicant is the individual who is in charge of the proposed activity and, therefore, responsible for all the personnel and actions undertaken under the authority of the any Monument Permit issued pursuant to this application. Attach the Applicant's CV, resume or biography if applicable.

1a. If you will not be present in the Monument for the proposed activities in your application, provide the full name(s), affiliation(s) and contact information of the person or persons responsible for ensuring the permit conditions are followed in the Monument. Attach their respective CV, resume, or biography if applicable.

2. State the Applicant's mailing address, phone number, fax number, and email address. If the Applicant is a student, state the Major Professor's contact information in addition to his/her own.

3. Specify the Applicant's affiliation, if any, in relation to the proposed project.

4. List all personnel roles and/or names. Include first and last name, position (Research Diver, Field Technician, Medical Assistant, etc.), affiliation, telephone number, and email address for each individual. If specific names of all participants are not known at the time this form is submitted, then specific roles must be provided as placeholders for numbers of persons requested to enter the Monument. The Application Review Committee may request resumes, biographies, or CVs for any personnel listed, at a later date. Attach additional information if necessary.

It is the Applicant's responsibility to keep Monument staff apprised of any proposed personnel changes. Full names of personnel and roles will be required in the Monument Compliance Information Sheet prior to issuance of a permit.

### **Section B: Project Information**

5a. Project Location: Check the boxes of all applicable locations where the proposed activities will occur. Indicate whether your project will occur on land, in the ocean, or both. Also indicate whether your project will occur in deep water or shallow water, or both. Shallow water is defined by water less than 100 meters in depth. NOTE: Include alternate locations if appropriate.

\* Location Description: Provide a description of the location of the proposed activity that includes sufficient detail. Refer to the Monument Compliance Information Sheet for information on including specific site and collection location(s).

5b. Check all applicable regulated activities proposed to be conducted in the Monument by the Applicant at any of the locations mentioned in 5a.

\*Removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging, or attempting to remove, move, take, harvest, possess, injure, disturb, or damage any living or nonliving Monument resource.

\*Drilling into, dredging, or otherwise altering the submerged lands other than by anchoring a vessel; or constructing, placing, or abandoning any structure, material, or other matter on the submerged lands.

\*Anchoring means dropping anything on to the ocean bottom with the intention of holding something fast to the bottom. Generally an anchor secures a vessel, but it may also be used for a mooring or any other item.

\*Deserting a vessel aground, at anchor, or adrift.

\*Discharging or depositing any material into Special Preservation Areas or the Midway Atoll Special Management Area except vessel engine cooling water, weather deck runoff, and vessel engine exhaust.

OR

\*Discharging or depositing any material or other matter into the Monument, or discharging or depositing any material or other matter outside of the Monument that subsequently enters the Monument and injures any resources of the Monument, except fish parts (i.e. chumming material or bait) used in and during authorized fishing operations, or discharges incidental to vessel use such as deck wash, approved marine sanitation device effluent, cooling water, and engine exhaust.

\*Touching any coral, living or dead.

\*Possessing fishing gear except when stowed and not available for immediate use during passage without interruption through the Monument.

\*Attracting any living Monument resources.

\*Sustenance Fishing means fishing for bottomfish or pelagic species within Federal waters, but outside of Special Preservation Areas, Ecological Reserves and the Midway Atoll Special Management Area, in which all catch is consumed within the Monument, and that is incidental to another activity permitted under Presidential Proclamation 8031.

\*Subsistence Fishing means fishing for bottomfish or pelagic species in State waters in which all catch is for direct personal consumption within the Monument, and that is incidental to another activity permitted under Presidential Proclamation 8031.

\*Swimming means entering the water and propelling oneself by movements of the limbs, without special equipment of any kind.

\*Snorkeling means entering the water and swimming with the aid of a mask, snorkel, and fins, or any combination of the aforementioned equipment.

\*SCUBA Diving means entering the water and submerging oneself with the aid of self-contained underwater breathing apparatus.

6. State the purpose of the proposed activities, including the goals and objectives of the activities.

7. The Secretaries of Commerce and Interior are required to determine that issuing the requested permit is compatible with the Findings of Presidential Proclamation 8031. Answer the Monument findings below and provide information that you believe will assist the Co-Trustees in determining your proposed activities are compatible with the conservation and management of the natural, historic and cultural resources of the Monument:

The Findings are as follows:

a. How can the activity be conducted with adequate safeguards for the cultural, natural and historic resources and ecological integrity of the Monument?

b. How will the activity be conducted in a manner compatible with the management direction of the proclamation, considering the extent to which the conduct of the activity may diminish or enhance Monument cultural, natural and historic resources, qualities, and ecological integrity, any indirect, secondary, or cumulative effects of the activity, and the duration of such effects?

c. Is there a practicable alternative to conducting the activity within the Monument? If not, explain why your activities must be conducted in the Monument.

d. How does the end value of the activity outweigh its adverse impacts on Monument cultural, natural and historic resources, qualities, and ecological integrity?

e. Explain how the duration of the activity is no longer than necessary to achieve its stated purpose.

f. Provide information demonstrating that you are qualified to conduct and complete the activity and mitigate any potential impacts resulting from its conduct.

g. Provide information demonstrating that you have adequate financial resources available to conduct and complete the activity and mitigate any potential impacts resulting from its conduct.

h. Explain how the methods and procedures proposed by the applicant are appropriate to achieve the proposed activity's goals in relation to their impacts to Monument cultural, natural and historic resources, qualities, and ecological integrity.

i. Has your vessel has been outfitted with a mobile transceiver unit approved by OLE and complies with the requirements of Presidential Proclamation 8031?

j. Demonstrate that there are no other factors that would make the issuance of a permit for the activity inappropriate.

8. Describe the procedures and methods you will use in performing the proposed activity while within the Monument.

Describe in detail how you will get to your work locations and specific sites (walking, climbing, wading, swimming, snorkeling, diving, boating, etc.). Will you need to enter a seabird colony? Will you need access to beaches? Will you work at night?

Will you request assistance from Monument staff to maintain the equipment or collect data or samples in association with the proposed activity in your absence or presence? If so, describe procedures for doing so including how often it is to occur and how long it will take per maintenance/data/sample collection event. Describe how you plan to compensate volunteers for the maintenance or data/sample collection work.

**NOTE:** If you will not collect specimens, you may enter “N/A” for questions 9-11 and skip to question 12a.

9a. List all specimens (organisms or objects) you plan to collect. If applicable, list each species common name, scientific name, number to be collected, maximum size of specimens to be collected, amount taken and the size of the organism from which you will take any sample(s), and general collection location requested in #5a. Also indicate whether you will take the whole organism or a subsample thereof.

9b. List the post project disposition of specimens. What will be done with the parts of samples that are not used in your initial analysis?

9c. Check the appropriate box to indicate if the organisms will be kept alive after collection. If the organisms are to be kept alive, state where will they be housed. (Provide the general site and/or location.) Also check the appropriate box to indicate if there is an open or closed-system for maintaining living organisms and if there is an outfall or discharge. If applicable, note whether the organisms will be kept with other species and if so, the species names of the other organisms. Will any organisms be released? If so, where?

10. How will the collected samples be transported out of the Monument? Will samples be transported by vessel or aircraft? Will samples be transported frozen, in formalin, in alcohol, or other media?

11. Describe whether you are collaborating with others to reduce duplicative activities in the Monument or elsewhere in the State of Hawaii or other Pacific Remote Island National Wildlife Refuges. If you are collecting samples for someone else, stipulate to whom the samples will be



provided and give their Monument permit number. Also, list State of Hawaii and United States Fish and Wildlife Service permit numbers for any relevant collaborations or research related to this project, including projects in the main Hawaiian Islands and Pacific Remote Island National Wildlife Refuges. Provide information on permit applications for related research that are under review at any of the above agencies.

12a. Provide a complete itemized list of work related gear/equipment/supplies, including collecting equipment, radio isotopes, dive equipment, etc. that will be taken into and removed from the Monument. If you wish to store any items on any island between field seasons, request so here. Indicate how and where you propose the stored items be kept. If you propose to take any work or personal items ashore that will require use of resources (electrical, power, water, or other resources) also describe that in this section.

12b. For any Hazardous Materials also include the following information:

\*List all hazardous materials by common name, proper shipping name, hazard class, and amount to be taken into the Monument. Provide a Material Safety Data Sheet for each hazardous material.

\*Describe how each hazardous material will be contained and stored while in the Monument.

\*Describe how each hazardous material will be used for the proposed activity. Describe how and when each hazardous material will be removed from the Monument.

NOTE: The Principal Investigator (Applicant) is responsible for disposal of, storage or unauthorized use of any left-over hazardous materials from any permitted activity.

13. If applicable, indicate the types of permanent or semi-permanent installments you would like to install in the Monument, and answer the following questions:

\*What is it made of?

\*What will be installed?

\*How will it be installed?

\*Where will it be installed?

\*How long will it be installed?

\*Will the installation require maintenance? If so, who will conduct the maintenance and how often?

\*How and when will the installation be removed?

14. Provide information regarding the projected completion dates of the following: sample analysis, write-up and publication of information gathered within the Monument.

15. List all publications directly related to the proposed project:

**Papahānaumokuākea Marine National Monument**  
RESEARCH Permit Application

**NOTE: *This Permit Application (and associated Instructions) are to propose activities to be conducted in the Papahānaumokuākea Marine National Monument. The Co-Trustees are required to determine that issuing the requested permit is compatible with the findings of Presidential Proclamation 8031. Within this Application, provide all information that you believe will assist the Co-Trustees in determining how your proposed activities are compatible with the conservation and management of the natural, historic, and cultural resources of the Papahānaumokuākea Marine National Monument (Monument).***

**ADDITIONAL IMPORTANT INFORMATION:**

- Any or all of the information within this application may be posted to the Monument website informing the public on projects proposed to occur in the Monument.
- In addition to the permit application, the Applicant must either download the Monument Compliance Information Sheet from the Monument website OR request a hard copy from the Monument Permit Coordinator (contact information below). The Monument Compliance Information Sheet must be submitted to the Monument Permit Coordinator after initial application consultation.
- Issuance of a Monument permit is dependent upon the completion and review of the application and Compliance Information Sheet.

**INCOMPLETE APPLICATIONS WILL NOT BE CONSIDERED**

Send Permit Applications to:

Papahānaumokuākea Marine National Monument Permit Coordinator

6600 Kalaniana'ole Hwy. # 300

Honolulu, HI 96825

[nwhipermit@noaa.gov](mailto:nwhipermit@noaa.gov)

PHONE: (808) 397-2660      FAX: (808) 397-2662

**SUBMITTAL VIA ELECTRONIC MAIL IS PREFERRED BUT NOT REQUIRED. FOR ADDITIONAL SUBMITTAL INSTRUCTIONS, SEE THE LAST PAGE.**

## **Papahānaumokuākea Marine National Monument Permit Application Cover Sheet**

This Permit Application Cover Sheet is intended to provide summary information and status to the public on permit applications for activities proposed to be conducted in the Papahānaumokuākea Marine National Monument. While a permit application has been received, it has not been fully reviewed nor approved by the Monument Management Board to date. The Monument permit process also ensures that all environmental reviews are conducted prior to the issuance of a Monument permit.

### **Summary Information**

**Applicant Name:**

**Affiliation:**

**Permit Category:** Research

**Proposed Activity Dates:**

**Proposed Method of Entry (Vessel/Plane):**

**Proposed Locations:**

**Estimated number of individuals (including Applicant) to be covered under this permit:**

**Estimated number of days in the Monument:**

**Description of proposed activities:** (complete these sentences):

- a.) The proposed activity would...
  
  
  
  
  
  
  
  
  
  
- b.) To accomplish this activity we would ....
  
  
  
  
  
  
  
  
  
  
- c.) This activity would help the Monument by ...

**Other information or background:**

## **Section A - Applicant Information**

### **1. Applicant**

Name (last, first, middle initial):

Title:

#### **1a. Intended field Principal Investigator (See instructions for more information):**

### **2. Mailing address (street/P.O. box, city, state, country, zip):**

Phone:

Fax:

Email:

For students, major professor's name, telephone and email address:

### **3. Affiliation (institution/agency/organization directly related to the proposed project):**

### **4. Additional persons to be covered by permit. List all personnel roles and names (if known at time of application) here (e.g. John Doe, Research Diver; Jane Doe, Field Technician):**

**Section B: Project Information**

**5a. Project location(s):**

<input type="checkbox"/> Nihoa Island	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Necker Island (Mokumanamana)	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> French Frigate Shoals	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Gardner Pinnacles	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Maro Reef			
<input type="checkbox"/> Laysan Island	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Lisianski Island, Neva Shoal	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Pearl and Hermes Atoll	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Midway Atoll	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Kure Atoll	<input type="checkbox"/> Land-based	<input type="checkbox"/> Shallow water	<input type="checkbox"/> Deep water
<input type="checkbox"/> Other			

**Ocean Based**

NOTE: There is a fee schedule for people visiting Midway Atoll National Wildlife Refuge via vessel and aircraft.

Location Description:

**5b. Check all applicable regulated activities proposed to be conducted in the Monument:**

- Removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging any living or nonliving Monument resource
- Drilling into, dredging, or otherwise altering the submerged lands other than by anchoring a vessel; or constructing, placing, or abandoning any structure, material, or other matter on the submerged lands
- Anchoring a vessel
- Deserting a vessel aground, at anchor, or adrift
- Discharging or depositing any material or matter into the Monument
- Touching coral, living or dead
- Possessing fishing gear except when stowed and not available for immediate use during passage without interruption through the Monument
- Attracting any living Monument resource
- Sustenance fishing (Federal waters only, outside of Special Preservation Areas, Ecological Reserves and Special Management Areas)
- Subsistence fishing (State waters only)
- Swimming, snorkeling, or closed or open circuit SCUBA diving within any Special Preservation Area or Midway Atoll Special Management Area

**6 Purpose/Need/Scope *State purpose of proposed activities:***

**7. Answer the Findings below by providing information that you believe will assist the Co-Trustees in determining how your proposed activities are compatible with the conservation and management of the natural, historic, and cultural resources of the Monument:**

The Findings are as follows:

a. How can the activity be conducted with adequate safeguards for the cultural, natural and historic resources and ecological integrity of the Monument?

b. How will the activity be conducted in a manner compatible with the management direction of this proclamation, considering the extent to which the conduct of the activity may diminish or enhance Monument cultural, natural and historic resources, qualities, and ecological integrity, any indirect, secondary, or cumulative effects of the activity, and the duration of such effects?

c. Is there a practicable alternative to conducting the activity within the Monument? If not, explain why your activities must be conducted in the Monument.

d. How does the end value of the activity outweigh its adverse impacts on Monument cultural, natural and historic resources, qualities, and ecological integrity?

e. Explain how the duration of the activity is no longer than necessary to achieve its stated purpose.

f. Provide information demonstrating that you are qualified to conduct and complete the activity and mitigate any potential impacts resulting from its conduct.

g. Provide information demonstrating that you have adequate financial resources available to conduct and complete the activity and mitigate any potential impacts resulting from its conduct.



h. Explain how your methods and procedures are appropriate to achieve the proposed activity's goals in relation to their impacts to Monument cultural, natural and historic resources, qualities, and ecological integrity.

i. Has your vessel has been outfitted with a mobile transceiver unit approved by OLE and complies with the requirements of Presidential Proclamation 8031?

j. Demonstrate that there are no other factors that would make the issuance of a permit for the activity inappropriate.

### **8. Procedures/Methods:**

**NOTE: If land or marine archeological activities are involved, contact the Monument Permit Coordinator at the address on the general application form before proceeding, as a customized application will be needed. For more information, contact the Monument office on the first page of this application.**

#### **9a. Collection of specimens - collecting activities (would apply to any activity): organisms or objects (List of species, if applicable, attach additional sheets if necessary):**

Common name:

Scientific name:

# & size of specimens:

Collection location:

Whole Organism     Partial Organism

**9b. What will be done with the specimens after the project has ended?**

**9c. Will the organisms be kept alive after collection?**  Yes  No

• General site/location for collections:

• Is it an open or closed system?  Open  Closed

• Is there an outfall?  Yes  No

• Will these organisms be housed with other organisms? If so, what are the other organisms?

• Will organisms be released?

**10. If applicable, how will the collected samples or specimens be transported out of the Monument?**

**11. Describe collaborative activities to share samples, reduce duplicative sampling, or duplicative research:**

**12a. List all specialized gear and materials to be used in this activity:**

**12b. List all Hazardous Materials you propose to take to and use within the Monument:**

**13. Describe any fixed installations and instrumentation proposed to be set in the Monument:**

**14. Provide a time line for sample analysis, data analysis, write-up and publication of information:**

**15. List all Applicants' publications directly related to the proposed project:**

With knowledge of the penalties for false or incomplete statements, as provided by 18 U.S.C. 1001, and for perjury, as provided by 18 U.S.C. 1621, I hereby certify to the best of my abilities under penalty of perjury of that the information I have provided on this application form is true and correct. I agree that the Co-Trustees may post this application in its entirety on the Internet. I understand that the Co-Trustees will consider deleting all information that I have identified as "confidential" prior to posting the application.

---

Signature

Date

**SEND ONE SIGNED APPLICATION VIA MAIL TO THE MONUMENT OFFICE BELOW:**

Papahānaumokuākea Marine National Monument Permit Coordinator  
6600 Kalaniana'ole Hwy. # 300  
Honolulu, HI 96825  
FAX: (808) 397-2662

**DID YOU INCLUDE THESE?**

- Applicant CV/Resume/Biography
- Intended field Principal Investigator CV/Resume/Biography
- Electronic and Hard Copy of Application with Signature
- Statement of information you wish to be kept confidential
- Material Safety Data Sheets for Hazardous Materials

**Papahānaumokuākea Marine National Monument  
Compliance Information Sheet  
Instructions**

*NOTE: Issuance of a Monument permit is dependent upon the completion and review of the application and Compliance Information Sheet.*

1. Updated list of participating personnel. List all personnel participating in the proposed activity. Include first and last name, position (John Doe, Diver; Jane Doe, Field Technician; Jerry Doe, Medical Assistant, etc.), affiliation, telephone number, and email address for each individual. If specific names of all participants are not known at the time this form is submitted, then specific positions must be provided as placeholders for numbers of persons requested to enter the Monument. The Application Review Committee may request resumes, biographies, or CVs for any personnel listed, at a later date. Attach additional information if necessary.

It is the Applicant's responsibility to keep Monument staff apprised of any proposed personnel changes. Full names of personnel and roles will be required in the Monument Compliance Information Sheet prior to issuance of a permit.

2. Provide additional detail on site locations here. Additional detail may include, but is not limited to: specific lat/long coordinates, habitat type, water depth, substrate type, etc. If appropriate, attach an Excel spreadsheet or Shape file to this sheet. Contact the Monument Permit Coordinator for additional instructions.

3. List permit numbers for all other related Federal or State Permits for which you have applied or received. These may include, but are not limited to, a Bird Banding Lab Migratory Bird Banding Permit, State of Hawaii Department of Land and Natural Resources Division of Forestry and Wildlife Permit, State Conservation District Use Permit, Endangered Species Act consultations, Marine Mammal Protection Act Permit, International Animal Care and Use Committee, or any University permits. Attach copies of permits already received. You will be required to provide copies of all required permits to the Monument permit coordination personnel prior to departure for the Monument.

List all permits you have received for the same or similar activities from any State or Federal entity.

3a. For each of the permits listed, identify any permit violations or any permit that was suspended, amended, modified, or revoked. Explain the circumstances surrounding the violation or permit suspension, amendment, modification or revocation.

4. Include a budget and funding sources specific to the proposed activities. **Salary information and detailed program budgets are not necessary.** List any in-kind contributions awarded for the proposed activities.

5. The “Activity start” and “Activity completion” must include the entire span of the proposed activity. In other words, these dates must specify if the proposed activity is a multi-year activity and if so, the duration the proposed activity is expected to be conducted in the Monument.

NOTE: Multi-year projects do NOT guarantee the issuance of additional permits in subsequent years.

If specific dates cannot be determined at the time of application, explain the reasons dates are pending (e.g., ship schedules, flight schedules). At minimum, describe the intervals of time you propose to visit the Monument, e.g. during a specific nesting season or quarterly, and the proposed duration of the proposal.

For Personnel Schedule, list those who will be in the Monument (specific locations) and for what periods of time. Attach additional documentation if necessary.

6. All persons covered under the permit are responsible for the cost of removing themselves from the Monument at the conclusion of the term of the permit, revocation, or other enforcement matters. Additionally, persons covered under the permit are responsible for the cost of removing themselves from the Monument in the event of a necessary medical evacuation, emergency evacuation, including weather, or for the cost of any necessary search and rescue operation. Demonstrate that all persons covered under the permit have either insurance coverage, adequate bond, or have other financial resources to pay Monument Co-Trustees for the cost of their necessary search and rescue and/or removal from the Monument.

NOTE: The State of Hawaii requires permittees to carry general liability insurance.

7. Check the appropriate box to indicate how personnel will enter the Monument. Note which vessel(s) or aircraft(s) will be used to transport personnel. If entering by a vessel which is not already permitted to enter the Monument in support of your proposed activity, you must include that respective vessel and its crew on this permit application. If entering by a vessel which is already permitted to enter the Monument in support of your proposed activity, state the vessel’s Monument Permit number here.

8. Check the relevant inspections that you will conduct prior to departure for the Monument. Include the dates of scheduled inspections. Upon completion of the inspections and any required cleaning operations, you will be required to provide proof of approved inspections and cleaning to Monument Permit coordination personnel.

All vessels must have at a minimum a Rodent Free Inspection, Hull Inspection, and Ballast Water Record Inspection no more than 14 days prior to departure for the Monument. If any small boat operations are proposed to occur within the Monument, then a Tender Vessel Fouling Inspection must occur in this time frame as well. If any gear will be placed or used in the water or on land, you must schedule an inspection of these items before departing for the Monument. For more information on arranging these inspections contact the Monument Permit Coordinator at (808) 397-2660, or [nwhipermit@noaa.gov](mailto:nwhipermit@noaa.gov).

NOTE: Results of inspections may require cleaning operations such as rodent eradication, hull cleaning, or ballast water maintenance at your own cost before departing for the Monument. If proposed gear or materials are found to be contaminated with alien species you may be required to conduct specific cleaning measures or complete replacement of contaminated items at your own cost before departing for the Monument. Re-inspection may be required.

9. List all vessel information: Vessel name, owner, captain's name, vessel type, length, gross tonnage and vessel identification number. List vessel International Maritime Organization Number (if applicable), flag of origin, call sign, port of embarkation, total ballast water capacity volume (m<sup>3</sup>), total number of fuel tanks on ship, total number of ballast water tanks on ship, total fuel capacity and last port.

Indicate whether the vessel has a Marine Sanitation Device (MSD) and its type. Explain in detail how you will comply with the regulations regarding discharge in the Monument. If applicable, attach schematics of the vessel's discharge and treatment systems.

List all types and amounts of hazardous materials to be carried on board for vessel or tender vessel use.

Indicate that the vessel has a NOAA Office of Law Enforcement (OLE)-approved Vessel Monitoring System (VMS). Provide the name and contact information of the contractor responsible for installing the VMS system. For more information on NOAA OLE-approved VMS systems, refer to 50 CFR 407.11 (e) (f). This information can be located at: <http://hawaiiireef.noaa.gov/PDFs/VMSfdreg.pdf>

List the make and model of the VMS to be used while conducting activities in the Monument.

NOTE: All vessels entering the Monument MUST have an NOAA OLE-approved VMS System installed PRIOR to entering the Monument, "An owner or operator of a vessel that has been issued a permit for accessing the Monument must ensure that such a vessel has an operating vessel monitoring system (VMS) on board, approved by the OLE in the National Oceanic and Atmospheric Administration in the Department of Commerce when voyaging within the Monument" (50 CFR 404.5).

\* NOTE: This question is not required if you are traveling aboard a NOAA vessel.\*

10. List all workboats (tenders) which will be use to transport personnel, gear and materials within the Monument. Include information on the number of tenders/skiffs aboard the vessel and the specific types of motors on each tender/skiff.



## **Additional Information for Land Based Operations**

ANSWER QUESTIONS IN THIS SECTION IF YOU WISH TO CONDUCT ACTIVITIES ON LAND

11. Answer the following questions:

\*If personnel, gear and materials are to be transported to the Monument by vessel, how will personnel, gear and materials be transported between ship and shore?

\*If applicable, how will personnel be transported between islands within any one atoll?

\*Provide a time line of all significant transportation events for arrivals and departures.

12. Describe where personnel will sleep/eat/bathe while on the island(s). Note how many personnel will be using U.S. Fish and Wildlife Service and/or State of Hawaii supplied accommodations and for how long.

13. Describe office/desk/workbench/workshop/lab space you expect to use during the proposed activity on the island(s). Describe all electrical and water needs you expect to use during the proposed activity on the island(s). Describe what disposal route all of the water and hazardous materials will take (e.g., laboratory sink, drains, flow-through aquaria) and where these materials will ultimately end up.

NOTE: charging batteries, rinsing gear, cleaning tools, painting and maintaining equipment, etc., all take space and resources. Requesting use of these resources should be done in this section.

## **Papahānaumokuākea Marine National Monument Compliance Information Sheet**

**1. Updated list of personnel to be covered by permit. List all personnel names and their roles here (e.g. John Doe, Diver; Jane Doe, Field Technician, Jerry Doe, Medical Assistant):**

**2. Specific Site Location(s): (Attach copies of specific collection locations):**

**3. Other permits (list and attach documentation of all other related Federal or State permits):**

**3a. For each of the permits listed, identify any permit violations or any permit that was suspended, amended, modified or revoked for cause. Explain the circumstances surrounding the violation or permit suspension, amendment, modification or revocation.**

**4. Funding sources (Attach copies of your budget, specific to proposed activities under this permit and include funding sources. See instructions for more information):**

**5. Time frame:**

Activity start:

Activity completion:

Dates actively inside the Monument:

From:

To:

Describe any limiting factors in declaring specific dates of the proposed activity at the time of application:

Personnel schedule in the Monument:

**6. Indicate (with attached documentation) what insurance policies, bonding coverage, and/or financial resources are in place to pay for or reimburse the Monument trustees for**

**the necessary search and rescue, evacuation, and/or removal of any or all persons covered by the permit from the Monument:**

**7. Check the appropriate box to indicate how personnel will enter the Monument:**

- Vessel  
 Aircraft

Provide Vessel and Aircraft information:

**8. The certifications/inspections (below) must be completed prior to departure for vessels (and associated tenders) entering the Monument. Fill in scheduled date (attach documentation):**

- Rodent free, Date:  
 Tender vessel, Date:  
 Ballast water, Date:  
 Gear/equipment, Date:  
 Hull inspection, Date:

**9. Vessel information (NOTE: if you are traveling aboard a National Oceanic and Atmospheric Administration vessel, skip this question):**

Vessel name:

Vessel owner:

Captain's name:

IMO#:

Vessel ID#:

Flag:

Vessel type:

Call sign:

Embarkation port:

Last port vessel will have been at prior to this embarkation:

Length:

Gross tonnage:

Total ballast water capacity volume (m3):

Total number of ballast water tanks on ship:

Total fuel capacity:

Total number of fuel tanks on ship:

Marine Sanitation Device:

Type:

Explain in detail how you will comply with the regulations regarding discharge in the Monument. Describe in detail. If applicable, attach schematics of the vessel's discharge and treatment systems:

Other fuel/hazardous materials to be carried on board and amounts:

Provide proof of a National Oceanic and Atmospheric Administration (NOAA) Office of Law Enforcement-approved Vessel Monitoring System (VMS). Provide the name and contact information of the contractor responsible for installing the VMS system. Also describe VMS unit name and type:

VMS Email:  
Inmarsat ID#:

### **10. Tender information:**

On what workboats (tenders) will personnel, gear and materials be transported within the Monument? List the number of tenders/skiffs aboard and specific types of motors:

## **Additional Information for Land Based Operations**

**11. Proposed movement of personnel, gear, materials, and, if applicable, samples:**

**12. Room and board requirements on island:**

**13. Work space needs:**

DID YOU INCLUDE THESE?

- Map(s) or GPS point(s) of Project Location(s), if applicable
- Funding Proposal(s)
- Funding and Award Documentation, if already received
- Documentation of Insurance, if already received
- Documentation of Inspections
- Documentation of all required Federal and State Permits or applications for permits

**PAPAHĀNAUMOKUĀKEA  
MARINE NATIONAL MONUMENT  
PERMIT TEMPLATE**



**Permittee:** \_\_\_\_\_

**Permit Number:** PMNM-200x-xxx

**Effective Date:** \_\_\_\_\_

**Expiration Date:** \_\_\_\_\_

**Project Title:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

This permit is issued for activities in accordance with Proclamation 8031 (“Proclamation”) establishing the Papahānaumokuākea Marine National Monument (“Monument”) under the Antiquities Act of 1906, 16 USC §§ 431-433 (“Antiquities Act”) and implementing regulations (50 CFR Part 404). All activities must be conducted in accordance with the Proclamation and the regulations (attached). No activity prohibited by the Proclamation or 50 CFR Part 404 is allowed except as specified below. Chapter 13-60.5, Hawaii Administrative Rules remains in effect for proposed activities in State waters.

Subject to the terms and conditions of this permit, the National Oceanic and Atmospheric Administration (NOAA), the State of Hawai‘i, and the U.S. Fish and Wildlife Service (collectively, the Co-Trustees) hereby authorize the permittee listed above to conduct \_\_\_\_\_ activities within the Monument. All activities are to be conducted in accordance with this permit. The permit application is incorporated into this permit and made a part hereof; provided, however, that if there are any conflicts between the permit application and the terms and conditions of this permit, the terms and conditions of this permit shall be controlling.

**PERMITTED ACTIVITY DESCRIPTION:**

The following activities are authorized by this permit:

- 1.

No further disturbance of the cultural or natural resources of the Monument is allowed.

**Papahānaumokuākea  
Marine National Monument**  
6600 Kalaniana‘ole Hwy  
Suite 300  
Honolulu, HI 96825

**PERMITTED ACTIVITY LOCATION:**

Other than entrance into the Monument, the permitted activities listed above are allowed at the following locations:

- 1.

**GENERAL TERMS AND CONDITIONS:**

In accordance with the Proclamation and applicable regulations, the permitted activities listed above are subject to the following general terms and conditions:

1. The permittee must sign and date this permit on the appropriate line below. Once signed and dated, the permittee must provide a signed original copy to the Monument official identified below. The permit becomes valid on the date the last Monument official signs the permit and shall remain valid for not more than one (1) year from that date.

Permit Coordinator  
Papahānaumokuākea  
Marine National Monument  
6600 Kalanianaʻole Hwy. Suite 300  
Honolulu, HI 96825

2. This permit is neither transferable nor assignable and must be carried by the permittee while engaging in any activity authorized by this permit. All other persons entering the Monument under the authority of this permit must provide the name of the permittee or the permit number to any authorized enforcement or management personnel upon request.
3. This permit may only be modified by written amendment approved by the Co-Trustees. Modifications to this permit must be requested in the same manner as the original request was made. Any modifications requested by the permittee, such as adding or changing personnel to be covered by the permit or to change the activities that are allowed, must be made in writing.
4. This permit is subject to suspension, modification, non-renewal, or revocation for violation of the Proclamation, implementing regulations, or any term or condition of the permit. Any verbal notification of a violation from an authorized Monument representative may require immediate cessation of activities within the Monument. The issuance of a permit shall not constitute a vested or property right to receive additional or future permits. This permit may, in the sole discretion of the Co-Trustees, be renewed or reissued. However, there is no right to a renewal or re-issuance of a permit. Failure to fulfill permit requirements may affect consideration of future permit applications.



5. Permit terms and conditions shall be treated as severable from all other terms and conditions contained in this or any other ancillary permit. In the event that any provision of this permit is found or declared to be invalid or unenforceable, such invalidity or unenforceability shall not affect the validity or enforceability of the remaining terms or conditions of this permit.
6. This permit does not relieve the permittee of responsibility to comply with all federal, state and local laws and regulations. Activities under this permit may be conducted only after any other permits or authorizations necessary to conduct the activities have been obtained.
7. The permittee may be held liable for the actions of all persons entering the Monument under the authority of this permit.
8. All persons entering the Monument under the authority of this permit are considered under the supervision of the permittee and may be liable in addition to the permittee for any violation of this permit, the Proclamation and implementing regulations in conjunction with this permit. The permittee must ensure that all such persons have been fully informed of the permit terms and conditions prior to entry into the Monument. Each such person must provide written acknowledgment to the permittee, prior to entry into the Monument, that he/she has received a copy of the permit, agrees to abide by all applicable terms and conditions, and may be liable for violations of the permit. The permittee shall maintain all signed acknowledgments and submit them with the summary report described in General Condition #22.b.
9. Notification of entry into the Monument must be provided at least 72 hours, but no longer than one month, prior to the entry date. Any updates to the list of personnel must also be provided at least 72 hours before entering the Monument. Notification of departure from the Monument must be provided within 12 hours of leaving the Monument. Notification may be made via e-mail, or telephone by contacting: E-mail: [nwhi.notifications@noaa.gov](mailto:nwhi.notifications@noaa.gov); Telephone: 1-866-478-6944; or 1-808-395-6944. No other methods of notification will be considered valid.
10. The permittee and any person entering the Monument under the authority of this permit shall, before entering the Monument, attend a cultural briefing or view designated cultural informational materials on Papahānaumokuākea regarding the region's cultural significance and Native Hawaiians' spiritual and genealogical connection to the natural and cultural resources. Persons entering the Monument at Midway Atoll may satisfy this requirement upon arrival.
11. All vessels (including tenders and dive boats), engines and anchor lines shall be free of introduced species prior to entry into the Monument. To ensure this, all vessels, engines and anchor lines shall be inspected for potential introduced species prior to departing the last port before entering the Monument. No later than 24 hours prior to entry, the permittee shall provide the Monument Permit Coordinator with a report prepared by the individual conducting the inspection that: a) sets forth when and where the inspection

occurred; b) identifies any introduced species observed, including where found; c) summarizes efforts to remove any species observed; and d) certifies the vessel as free of all introduced species. The Monument Permit Coordinator shall review the report and, based on the review, may delay the entry into the Monument until all concerns identified by the Monument Permit Coordinator have been addressed.

12. All hazardous materials, biohazards and sharps, must be pre-approved by the Co-Trustees. For purposes of this permit, “hazardous material” has the same meaning as the definition found at 49 CFR §105.5 (U.S. Department of Transportation). All hazardous materials, biohazards and sharps must be stored, used, and disposed of according to applicable laws and Monument-approved protocols. The permittee, or a designated individual entering the Monument under the authority of this permit must be properly trained in the use and disposal of all such materials proposed. Proof of appropriate training may be required by the Co-Trustees. No such material may be left in the Monument after the departure of the permittee unless it has been previously approved by Monument staff. Immediately after the project is complete the permittee must remove all such materials from the Monument. The permittee will be responsible for all costs associated with use, storage, transport, training, disposal, or HazMat response for these materials.
13. All equipment or supplies brought into the Monument, or structures of any kind built in the Monument by the permittee are the responsibility of the permittee. All materials that are brought to the Monument by the permittee must be removed by the permittee except as otherwise permitted. Any permanent structures, equipment, or supplies that require maintenance, are determined to be unserviceable, or are a safety hazard, must be immediately repaired or removed from the Monument by the permittee. No structures, equipment, or supplies may be left in the Monument following the completion of the project except as listed in the permit.
14. If Monument staff are present at the field site, the permittee must meet with them before beginning permitted activities. Even with a valid permit, authorized Monument staff may prohibit entry into any location(s) within the Monument as they may deem appropriate to conserve or manage resources, particularly in areas where cumulative impacts of permitted activities are concentrated.
15. In order to facilitate monitoring and compliance, any person entering the Monument under the authority of this permit, including assistants and ship’s crew shall, upon request by authorized Monument enforcement personnel, promptly: a) allow access to and inspection of any vessel or facility used to carry out permit activities; b) produce for inspection any sample, record, or document related to permit activities, including data, logs, photos, and other documentation obtained under, or required by, this permit; and c) allow inspection on board the vessel or at the permittee’s premises of all organisms, parts of organisms, and other samples collected under this permit.
16. It is prohibited to possess or consume alcohol in the Hawaiian Islands National Wildlife Refuge in accordance with refuge regulations. Any violations will result in immediate

removal of the offender from the Monument at the individual's own cost. Offenders may not be readmitted to the Monument.

17. All persons entering the Monument under the authority of this permit are responsible for the cost of removing themselves from the Monument at the conclusion of the term of the permit or upon revocation or suspension of the permit. All such persons are also responsible for the cost of removing themselves from the Monument in the event of a necessary medical evacuation, emergency evacuation, including weather, or for the cost of any necessary search and rescue operation.
18. Except as expressly required by applicable law, the Co-Trustees are not liable for any damages to equipment or injuries to the permittee and persons entering the Monument under the authority of this permit. The permittee and any person entering the Monument under the authority of this permit shall release, indemnify, and hold harmless the National Oceanic and Atmospheric Administration, the Department of Commerce, the U.S. Fish and Wildlife Service, the Department of the Interior, the United States Government, the State of Hawai'i, and their respective employees and agents acting within the scope of their duties from and against any claims, demands, actions, liens, rights, subrogated or contribution interests, debts, liabilities, judgments, costs, and attorney's fees, arising out of, claimed on account of, or in any manner predicated upon the issuance of this permit or the entry into or habitation upon the Monument or as the result of any action of the permittee or persons participating in the activity authorized by this permit. In the event that a government employee, acting in his official capacity, is the permittee, or is entering the Monument under the authority of this permit, then he shall be subject to all applicable federal and State laws that pertain to claims by or against him predicated upon the issuance of this permit or entry into or habitation upon the Monument.
19. Monument managers or their designees may verbally require the permittee to modify or cease activities not identified in this permit if, in the opinion of the managers or designees, such action is necessary to limit disturbance to or protect Monument resources, to protect government equipment, or to ensure the safety of personnel. After providing such verbal instructions, the managers or designees will provide the permittee with a written modification, suspension or revocation to this permit at the earliest practicable opportunity. The failure to follow verbal instructions or modified permit terms, or to cease activities upon suspension or revocation of this permit, may constitute a violation of this permit, the Proclamation, the regulations, or other applicable law.
20. Disturbance of any cultural or historic property, including but not limited to Native Hawaiian cultural sites, burials, archaeological deposits, and WWII structures and features, such as stone walls and mounds, stone uprights, bunkers, batteries, camp sites, hospitals, housing areas, and radio towers; or the disturbance or collection of any historic or cultural materials and artifacts, including but not limited to bottles, dishes, cartridges, hospital materials, carvings, human remains, or Native Hawaiian bone or stone implements, found within the Monument, including the sale or trade in such items, is prohibited.

21. All Monument resources within the jurisdiction of the State of Hawai‘i are held in trust under the Hawai‘i State Constitution, Article XI, Sec. 1. The State of Hawai‘i and the Government of the United States reserve ownership or control, as the case may be, of Monument resources, both living and nonliving, that may be taken or derived from those found in the Monument.
22. The permittee must satisfy the following reporting requirements:
- a. For activities on State lands or within State waters, the permittee must submit a monthly report on the specified form.
  - b. The permittee must maintain a cruise log including, but not limited to: anchoring locations and small boat dive locations. The log must contain a description of cruise activities and the geographic locations of those activities. Within thirty (30) days after the end of the cruise or the expiration date of this permit, the permittee must submit the cruise log and a summary report of activities conducted under this permit. The permittee having authority over the vessel must maintain a vessel discharge log, which must be submitted with the cruise log.
  - c. Annual Report. The comprehensive annual report is a summary of all activities undertaken, including but not limited to: dates of all arrivals and departures from islands and atolls within the Monument, names of all persons involved in permitted activities, details of all specimens collected, handled, etc., any other pertinent information, GPS locations of all samples collected, transects, etc., results of work to date, copy of all data collected, and a proposed schedule of publication or production of final work. The report shall include a concise summary or abstract for use in Monument reports. Two hard copies and one electronic copy (Microsoft Word preferred, but not required), must be submitted to the Co-Trustees. The annual report is due by the end of the second week of January of the calendar year that follows the year that the permit was in effect or before a new permit is issued, whichever comes first. Subsequent annual reports are required each year until all data collected under research permits are fully analyzed.
  - d. The permittee must debrief the Co-Trustees following the completion of all activities in the Monument covered under this permit. The permittee must schedule the debriefing upon submitting the annual report.
  - e. The permittee must submit two copies of any article, publication, or other product created as a result of the information gained or work completed under this permit, including materials generated at any time in the future following expiration of this permit.
  - f. Any publications and/or reports resulting from activities conducted under the authority of this permit must include the notation that the activity was conducted

under permit number PMNM-200x-xxx. This requirement does not apply to publications or reports produced by the news media.

- g. All required submissions (including plans, logs, reports, and publications) shall be provided to the Monument official at the address indicated in General Condition #1.
  
- 23. All data acquired or created in conjunction with this permit will be submitted with the summary report, and annual report. Photographic and video material is considered data. The permittee retains ownership of any data, (including but not limited to any photographic or video material), derivative analyses, or other work product, or other copyrightable works, but the Federal Government and the State of Hawai'i retain a lifetime, non-exclusive, worldwide, royalty-free license to use the same for government purposes, including copying and dissemination, and making derivative works. The permittee will receive acknowledgment as to its ownership of the data in all future use. This requirement does not apply to data acquired or created by the news media.
  
- 24. Because photographic or video material that is created for personal use (i.e., not specifically acquired or created in conjunction with this permit) could unintentionally collect data that is also valuable for management purposes, the Co-Trustees reserve the right to request copies of any such material and the permittee agrees to provide a copy of such material within a reasonable time. The Co-Trustees may use such material for management purposes.
  
- 25. Any question of interpretation of any term or condition of this permit will be resolved by the Co-Trustees.

Your signature below, as permittee, indicates that you accept and agree to comply with all terms and conditions of this permit. This permit authorized only those activities listed above. This permit becomes valid on the date when signed by the last Monument Official. Please note that the expiration date on this permit will not be extended by a delay in your signing below.

---

PERMITTEE

Date

Attachments (3):

- 1. Proclamation 8031, June 15, 2006
- 2. 50 CFR Part 404
- 3. Maps of the Papahānaumokuākea Marine National Monument

---

XX	Date
Chairperson	
Department of Land and Natural Resources	
State of Hawaii	

---

XX	Date
Superintendent	
U.S. Fish and Wildlife Service	
Papahānaumokuākea Marine National Monument	

---

XX	Date
Superintendent	
NOAA	
Papahānaumokuākea Marine National Monument	



---

**APPENDIX B:**  
**Midway Atoll Visitor Services Plan**

---



# *Visitor Services Plan*

for

**Midway Atoll National Wildlife Refuge,  
the Battle of Midway National Memorial,**

and

**Papahānaumokuākea  
Marine National Monument's  
Midway Atoll Special Management Area**



*Pete Leary/USFWS*

*December 2008*

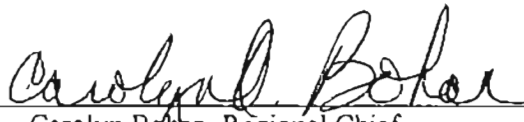
**Visitor Services Plan**  
for  
**Midway Atoll National Wildlife Refuge,**  
**Battle of Midway National Memorial,**  
and  
**Papahānaumokuākea Marine National Monument's**  
**Midway Atoll Special Management Area**

Prepared by:

U.S. Fish and Wildlife Service  
Midway Atoll National Wildlife Refuge and  
Pacific Islands Division of External Affairs and Visitor Services  
Box 50167  
Honolulu, Hawai'i 96850

in consultation with the  
National Oceanic and Atmospheric Administration  
and the  
State of Hawai'i

Approved: \_\_\_\_\_

  
Carolyn Bohan, Regional Chief  
National Wildlife Refuge System  
Pacific Region

Date: \_\_\_\_\_

*12/10/08*

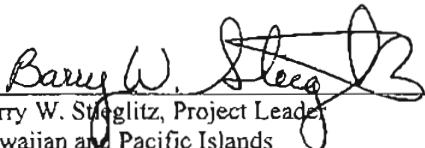
Midway Atoll National Wildlife Refuge, Battle of Midway National Memorial,  
and Midway Atoll Special Management Area  
Visitor Services Plan  
Approval Submission  
U.S. Fish and Wildlife Service, Pacific Region

In accordance with the National Wildlife Refuge System Administration Act of 1966, as amended, (16 U.S.C. 668dd-668ee) and Fish and Wildlife Service Manual Section 605, this visitor services plan has been prepared for Midway Atoll National Wildlife Refuge and the Battle of Midway National Memorial. In addition, it is incorporated into the Papahānaumokuākea Marine National Monument Management Plan to guide visitor activities within the Midway Atoll Special Management Area. This visitor services plan is compliant with Presidential Proclamation 8031 and was prepared in consultation with the Secretary of Commerce by Honolulu-based National Oceanic and Atmospheric Administration staff, the State of Hawai'i's Department of Land and Natural Resources, and the Office of Hawaiian Affairs. This visitor services plan is submitted for approval by the Regional Chief of the National Wildlife Refuge System for the Pacific Region.

Submitted by:

  
\_\_\_\_\_  
Susan White, FWS Superintendent  
Papahānaumokuākea Marine National Monument

11/21/08  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Barry W. Steglitz, Project Leader  
Hawaiian and Pacific Islands  
National Wildlife Refuge Complex

11/21/2008  
\_\_\_\_\_  
Date

## Table of Contents

<b>Executive Summary</b> .....	<b>v</b>
<b>Chapter 1 Introduction and Background</b> .....	<b>1</b>
<b>1.1 Introduction</b> .....	<b>1</b>
<b>1.2 Human History</b> .....	<b>1</b>
<b>1.3 Monument and Refuge History</b> .....	<b>2</b>
1.3.1 Establishment of the Refuge, Memorial, and Monument .....	2
1.3.2 Monument Vision, Mission, Guiding Principles, and Management Goals.....	3
<b>1.4 Purpose and Need for the Visitor Services Plan</b> .....	<b>4</b>
<b>1.5 Internal/External Issues</b> .....	<b>5</b>
<b>1.6 Local Setting</b> .....	<b>6</b>
1.6.1 Community Description.....	6
1.6.2 Travel Links.....	7
1.6.3 Visitor Services Opportunities (Beyond Midway).....	7
<b>Chapter 2 Significant Features</b> .....	<b>9</b>
<b>2.1 Terrestrial Resources</b> .....	<b>9</b>
<b>2.2 Marine Resources</b> .....	<b>9</b>
<b>2.3 Historic Resources</b> .....	<b>11</b>
2.3.1 Early Cultural Resources Investigations .....	11
2.3.2 Programmatic Agreement and Treatment of Midway’s Historic Properties.....	12
2.3.3 Historic Preservation Plan .....	12
<b>Chapter 3 Limitations on the Visitor Program</b> .....	<b>13</b>
<b>3.1 Visitor Access</b> .....	<b>13</b>
<b>3.2 Visitor Capacity and Scheduling</b> .....	<b>16</b>
<b>3.3 Monitoring Visitor Impacts</b> .....	<b>17</b>
<b>3.4 Midway Atoll Law Enforcement Activities</b> .....	<b>17</b>
<b>Chapter 4 Visitor Services Standards</b> .....	<b>19</b>
<b>4.1 Welcome and Orient Visitors</b> .....	<b>19</b>
<b>4.3 Provide Quality Hunting Opportunities</b> .....	<b>23</b>
<b>4.4 Provide Quality Fishing Opportunities</b> .....	<b>23</b>
<b>4.5 Provide Quality Wildlife Observation and Photographic Opportunities</b> .....	<b>24</b>
<b>4.6 Develop and Implement Quality Environmental Education Programs</b> .....	<b>26</b>
<b>4.7 Provide Quality Interpretation of Key Resources</b> .....	<b>28</b>
<b>4.8 Manage for Other Recreational Use Opportunities</b> .....	<b>32</b>
<b>4.9 Communicate Key Issues with Off-Site Audiences</b> .....	<b>33</b>
<b>4.10 Build Volunteer Programs and Partnerships with Midway Atoll Support Groups</b> .....	<b>35</b>

<b>4.11</b>	<b>Refuge Law Enforcement .....</b>	<b>37</b>
<b>4.12</b>	<b>Concession Operations .....</b>	<b>37</b>
<b>4.13</b>	<b>Fee Programs .....</b>	<b>37</b>
<b>4.14</b>	<b>Permitting.....</b>	<b>38</b>
<b>4.15</b>	<b>Cooperating Association/Friends Groups .....</b>	<b>42</b>
<b>Chapter 5</b>	<b><i>Implementing the Plan.....</i></b>	<b>43</b>
<b>5.1</b>	<b>Proposed Staffing.....</b>	<b>43</b>
<b>5.2</b>	<b>Table of Projects .....</b>	<b>43</b>
<b>5.3</b>	<b>Partnership Funding and Resources.....</b>	<b>44</b>



## **Executive Summary**

In 1996, the Fish and Wildlife Service (FWS) prepared a public use plan to guide visitor services on Midway Atoll National Wildlife Refuge. Since then, new laws and policies regarding wildlife-dependent recreation in the National Wildlife Refuge System have been promulgated, and a new visitor services plan is required to ensure recreational uses at Midway Atoll are compatible with the Refuge System mission and the purposes of the refuge and the Battle of Midway National Memorial. In addition, all recreational and special ocean use activities must be compliant with the requirements of Papahānaumokuākea Marine National Monument (Monument), designated in 2006.

This document was based on an interim plan to guide visitor activities on Midway Atoll until such time as the broader Monument Management Plan that meets the applicable requirements of a refuge comprehensive conservation plan and visitor services plan was completed. Although substantially the same as the Interim Visitor Services Plan for Midway Atoll, this plan is now a step-down plan to the overall Monument Management Plan. It was developed during initial implementation of the interim plan, and, therefore, evaluation and adaptive management of the visitor program is a key element of the Monument Management Plan's Midway Atoll Visitor Services Action Plan. FWS will continue to work closely with its Co-Trustees in the Monument, the National Oceanic and Atmospheric Administration (NOAA) and State of Hawai'i, as this visitor services plan is implemented.

This plan documents approved recreational activities at Midway Atoll and identifies the structure of the visitor services program. Special ocean uses that support recreational activities within the Midway Atoll Special Management Area are also addressed. The plan also outlines activities that honor and interpret the World War II history at Midway Atoll in recognition of its status as the Battle of Midway National Memorial, as well as opportunities to share the cultural significance of Papahānaumokuākea Marine National Monument to Native Hawaiians. It discusses operational limitations, biological constraints, and partnership opportunities beyond Midway Atoll.

Since 1995, FWS has been strongly committed to welcoming visitors to Midway Atoll. This is the first and only remote island national wildlife refuge in the Pacific – and the only place within Papahānaumokuākea Marine National Monument – to provide the general public with an opportunity to learn about and experience these unique ecosystems. A regularly scheduled visitor program operated on Midway Atoll until early in 2002 but ended when our cooperator left the atoll. Since then, visitors have arrived almost exclusively by the occasional cruise ship or sailboat, or for a Battle of Midway commemorative event. Through this visitor services plan, we will begin to offer limited opportunities to expand the visitor program to allow more people to experience Midway's wildlife and historic treasury.

The following wildlife-dependent recreational uses have been determined to be compatible at Midway Atoll Special Management Area and National Wildlife Refuge: wildlife observation and photography, environmental education and interpretation, and participatory research. Hunting and fishing, two recreational uses normally given priority on national wildlife refuges when compatible, will not take place at Midway Atoll. All animal species are protected by law or occur in numbers too low for harvest to allow hunting opportunities. Recreational fishing is precluded under Presidential Proclamation 8031, which designated the Monument.

Additional compatibility determinations allow for beach use activities such as swimming and volleyball, nonadministrative airport operations, limited outdoor sports such as bicycling and jogging, and amateur radio use. Each compatibility determination includes stipulations necessary to ensure protection of Midway's natural and historic resources. Any additional activities that may be proposed within Midway

Atoll National Wildlife Refuge would need to be evaluated through the compatibility determination process with formal public review. Activities that are determined to be compatible are authorized through the issuance of Monument permits, which fall within six permit types: conservation and management, research, education, Native Hawaiian practices, special ocean uses, and recreation.

Goals, objectives, and strategies for the visitor program are discussed in Chapter 4 of this plan. FWS will encourage individual visitors as well as organized groups to come to Midway. Opportunities for educator workshops in environmental education, formal classes, and distance learning will be implemented as funding permits. Improvements to trails and installation of blinds will benefit wildlife observation and photography opportunities, as will snorkeling and guided kayaking tours. Although not expected to be available in the early years of the visitor program, a dive program will be instituted as soon as practicable. Onsite and offsite interpretation of Midway Atoll's historic and wildlife resources will be enhanced.

In order to ensure a high quality visitor experience using the limited infrastructure currently available, the total number of overnight visitors that would be allowed on Midway Atoll at any one time will be limited to 50 people as long as this visitor services plan is effective. This number of visitors may be exceeded for short duration (less than a day) prearranged visits by ocean vessels or aircraft. In these cases, visitor activities are closely supervised and primarily consist of guided tours or participation in commemorative events.

For the next 4 years (2008-2011), visitor programs will operate from November through July, which coincides with the albatross season on Midway. The months of August through October are reserved primarily for planned construction and major maintenance activities.

With no additional FWS funding available to support a visitor program, visitation at Midway Atoll must be financially self-sustaining. Fees reflecting current actual costs for transportation, lodging, food services, and visitor services staffing are included in this plan. Additional permitting requirements also are discussed.

For the initial stage of the visitor program, FWS intends to operate primarily with its own staffing and with help from Monument Co-Trustees and volunteers. Outside entities may be needed to provide assistance with marketing the program and to establish a dive program at Midway; these options will be evaluated over the coming 2 years. In the longer term, and based on the results of the evaluation required in the Monument Management Plan's Midway Atoll Visitor Services Action Plan, other operational designs may be instituted.

## **Chapter 1 Introduction and Background**

### **1.1 Introduction**

On June 15, 2006, President George W. Bush established the Papahānaumokuākea Marine National Monument (Monument) by Proclamation 8031. The Monument incorporates the Hawaiian Islands National Wildlife Refuge, the Midway Atoll National Wildlife Refuge/Battle of Midway National Memorial, the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, and State of Hawai‘i Northwestern Hawaiian Islands Marine Refuge and Seabird Sanctuary at Kure Atoll.

The Monument was established to protect the historic and scientific features of the Northwestern Hawaiian Islands and to enhance visitation in a special area around Midway Atoll (through the establishment of the Midway Atoll Special Management Area), provide for carefully regulated educational and scientific activities, preserve access for Native Hawaiian cultural activities, prohibit unauthorized access to the Monument, phase out commercial fishing over a 5-year period, and ban other types of resource extraction and dumping of waste.

Midway Atoll is located about 1,250 miles (2,012 km) northwest of Honolulu. It includes three small islands (Sand Island, 1,117 acres (452 ha); Eastern Island, 336 acres (136 ha); and Spit Island, 15 acres (6 ha)), an encircling protective coral reef, and submerged lands and waters out to the 12-nautical mile territorial seas (581,864 acres; 235,473 ha).

Midway Atoll is an unincorporated territory of the United States and is the only atoll/island in the Hawaiian archipelago not part of the State of Hawai‘i. Midway Atoll National Wildlife Refuge is owned and administered by the U.S. Fish and Wildlife Service (FWS) on behalf of the American people and has international significance for both its historic and natural resources.

### **1.2 Human History**

Like on many of the low islands and atolls in the Northwestern Hawaiian Islands, the first visitors to what is now called Midway Atoll may have been Polynesians/Hawaiians exploring the Pacific in voyaging canoes. Unfortunately, no physical evidence of their visits remains, but oral histories and chants refer to distant low-lying islands with abundant birds and turtles. Native Hawaiians named the atoll “Pihemanu,” which means “the loud din of birds.”

Midway Atoll’s central location in the midst of the Pacific Ocean has made it a vital link in modern-day communication, transportation, and military history. The first recorded landing at Midway Atoll was made in 1859 by Captain N. C. Brooks. In 1867, the Secretary of the Navy sent Captain Reynolds to take possession of the islands for the United States. Efforts in the 1870s to open a channel in the reef were unsuccessful, and for the next 30 years visits to the atoll were limited to shipwreck survivors and bird feather collectors, who sought to satisfy the significant demand for feathers in the millinery trade. In January 1903, President Theodore Roosevelt placed the Midway Islands and environs “under the jurisdiction and control of the Navy Department” by Executive Order 199–A to stop the “wanton destruction of birds that breed on Midway.”

Midway’s role as an important communications link was established in 1903, when the Commercial Pacific Cable Company chose Sand Island for one of its relay stations. The cable link between Honolulu and Guam was completed on July 4, 1903, in time for President Roosevelt to send the first round-the-

world message wishing Americans a happy Independence Day. In 1905, the U.S. Lighthouse Service established a lighthouse on Sand Island.

In 1935, Pan American Airways established a seaplane base in the harbor and a small (but relatively luxurious) hotel on Sand Island. Midway became a regular fuel stop on a transpacific route that also included Honolulu, Wake Island, Guam, and Manila. The short-lived era of the “Clipper” seaplanes was an important chapter in aviation history.

Midway’s most significant historic role was as a military base. Military interest in Midway accelerated as World War II started in Europe. In 1941, the Naval Air Station was commissioned, altering the civilian character of Midway. On December 7, 1941, not only Pearl Harbor but Midway was attacked by the Japanese, who landed a direct hit on the power plant. First Lieutenant George Cannon was fatally wounded in the attack and became the first Medal of Honor recipient for the U.S. Marine Corps in World War II. On June 4, 1942, the atoll was again attacked, but the men stationed on the atoll played a significant role in the ensuing Battle of Midway, credited with turning the tide of the war in the Pacific. In July 1942, the Midway Submarine Advanced Base was formally established and operated until the end of World War II.

Though relatively quiet as a military base for several years after World War II, Midway’s importance returned in 1953 with the Cold War and the construction of the Distant Early Warning (DEW) Line. By 1958, Midway was an important part of the “Pacific Barrier,” which extended North America’s early warning system from Alaska to the mid-Pacific, and a significant construction program to support operations was underway. “Willy Victor” radar planes flew night and day as part of the DEW Line, and antenna fields covered the islands, part of an intricate chain of radar defenses. During the Vietnam War, Midway was one of the main aircraft and ship refueling stations, and it also hosted classified missile and submarine monitoring missions.

By the early 1990s, military activities significantly declined, replaced by new technologies and centralized operations. On October 1, 1993, Naval Air Facility Midway was operationally closed under the Base Realignment and Closure Act of 1990. Prior to the Navy’s departure in 1997, a massive cleanup effort removed all buildings and structures from Eastern Island, and many of the Cold War era buildings from Sand Island. A significant effort was made to remove the environmental contaminants left by more than 90 years of military operations. In transferring Midway to the FWS, the Secretary of the Navy remarked that Americans are “trading guns for goonies,” and a new era began.

### **1.3 Monument and Refuge History**

#### **1.3.1 Establishment of the Refuge, Memorial, and Monument**

FWS staff have been conducting research and/or assisting the Navy with wildlife management issues on Midway Atoll for almost 50 years. Cooperative projects increased in the 1970s, addressing issues such as rodent control and lead poisoning in seabirds. A cooperative management plan developed by the Navy and FWS in the early 1980s further defined responsibilities and eventually led to establishment of an “overlay” national wildlife refuge on Midway in 1988. As on other military bases with similar arrangements, the Navy retained primary jurisdiction, while FWS staff provided wildlife management assistance.

When Naval Air Facility Midway was identified for closure in 1993, the Navy began planning to transfer the atoll to the FWS. On October 31, 1996, President William Clinton signed Executive Order 13022, directing the Secretary of the Interior, through the FWS, to administer Midway Atoll National Wildlife Refuge. The purposes of the refuge, as defined in the Executive order, are to maintain natural biological

diversity; conserve fish and wildlife and their habitats; fulfill international wildlife treaty obligations; provide opportunities for research, education, and compatible wildlife-dependent recreation; and recognize and maintain the atoll's historic significance.

On September 13, 2000, in accordance with language in the Fiscal Year 2000 Interior Appropriations Act, Secretary of the Interior Bruce Babbitt signed Secretary's Order 3217 designating the lands and waters of Midway Atoll National Wildlife Refuge as the Battle of Midway National Memorial "so that the heroic courage and sacrifice of those who fought against overwhelming odds to win an incredible victory will never be forgotten."

On June 15, 2006, President George W. Bush established the Papahānaumokuākea Marine National Monument (Monument) by signing Proclamation 8031. The Monument provides immediate and permanent protection for the lands and waters associated with the Northwestern Hawaiian Islands (NWHI), including Midway Atoll National Wildlife Refuge. According to the Proclamation:

The Secretary of Commerce, through the National Oceanic and Atmospheric Administration (NOAA), will have the primary responsibility regarding management of the marine areas, in consultation with the Secretary of the Interior. The Secretary of the Interior, through the Fish and Wildlife Service (FWS), will have sole responsibility for management of the areas of the Monument that overlay the Midway Atoll National Wildlife Refuge, the Battle of Midway National Memorial, and the Hawaiian Islands National Wildlife Refuge, in consultation with the Secretary of Commerce.

As the only atoll currently open to public visitation in the Monument, Midway Atoll provides a window to the Monument.

### **1.3.2 Monument Vision, Mission, Guiding Principles, and Management Goals**

#### ***Vision:***

To forever protect and perpetuate ecosystem health and diversity and the Native Hawaiian cultural significance of Papahānaumokuākea.

#### ***Mission:***

To carry out seamless integrated management to ensure ecological integrity and achieve strong, long-term protection and perpetuation of NWHI ecosystems, Native Hawaiian culture, and heritage resources for current and future generations.

#### ***Guiding Principles:***

The Monument shall be managed in a manner that:

- is consistent with the Vision and Mission;
- recognizes that the resources of the Northwestern Hawaiian Islands are administered by the Co-Trustees for the benefit of present and future generations;
- affirms that the NWHI and its wildlife are important, unique, and irreplaceable;
- honors the significance of the region for Native Hawaiians;
- honors the historic importance of the region;
- incorporates best practices, scientific principles, traditional knowledge, and an adaptive management approach;
- errs on the side of resource protection when there is uncertainty in available information on the impacts of an activity;
- enhances public appreciation of the unique character and environment of the NWHI;
- authorizes only uses consistent with Presidential Proclamation 8031 and applicable laws;

- coordinates with federal, state, and local governments, Native Hawaiians, relevant organizations, and the public; and
- carries out effective outreach, monitoring, and enforcement to promote compliance.

**Goals:**

- Goal 1. Protect, preserve, maintain, and where appropriate restore the physical environment and the natural biological communities and their associated biodiversity, habitats, populations, native species, and ecological integrity.
- Goal 2. Support, promote, and coordinate research, ecosystem characterization, and monitoring that increases understanding of the NWHI, improves management decisionmaking, and is consistent with conservation and protection.
- Goal 3. Manage and only allow human activities consistent with Proclamation 8031 to maintain ecological integrity and prevent or minimize negative impacts for long-term protection.
- Goal 4. Provide for cooperative conservation, including community involvement, that achieves effective Monument operations and ecosystem-based management.
- Goal 5. Enhance public understanding, appreciation, and support for protection of the Monument’s natural, cultural and historic resources.
- Goal 6. Support Native Hawaiian practices consistent with long-term conservation and protection.
- Goal 7. Identify, interpret, and protect Monument historic and cultural resources.
- Goal 8. Offer visitor opportunities at Midway Atoll to discover and appreciate the wildlife and beauty of the NWHI, enhance conservation, and honor its unique human history.

**1.4 Purpose and Need for the Visitor Services Plan**

This Visitor Services Plan is incorporated as Appendix C of the Papahānaumokuākea Marine National Monument Management Plan to provide additional detail to implement the Midway Atoll Visitor Services Action Plan. It is based primarily on the Interim Visitor Services Plan approved on May 23, 2007, and incorporates the same compatibility determinations that were approved on that date (see Appendix D of the Monument Management Plan).

In 1996, FWS prepared a public use plan to guide visitor services on Midway Atoll National Wildlife Refuge. Since then, the National Wildlife Refuge System Improvement Act of 1997 (an amendment to the National Wildlife Refuge System Administration Act of 1966) set new standards for visitor programs on refuges, and in 2006, new guidance was issued in the form of FWS Manual chapters regarding wildlife-dependent recreation. In accordance with the National Wildlife Refuge System Administration Act of 1966, as amended, and FWS guidance, this visitor services plan is required to ensure recreational uses are compatible with the Refuge System mission and the purposes, goals, and objectives of the refuge and national memorial. In addition, all recreational activities must be in compliance with Proclamation 8031 and its codifying regulations at 50 CFR Part 404.

This plan documents approved recreational activities at Midway Atoll and identifies the structure of the visitor services program. Special ocean uses that support recreational activities within the Midway Atoll Special Management Area are also addressed. The plan also outlines activities that honor and interpret the World War II history at Midway Atoll in recognition of its status as the Battle of Midway National Memorial, as well as opportunities to share the significance of Papahānaumokuākea Marine National Monument to Native Hawaiian culture. It discusses operational limitations, biological constraints, and partnership opportunities beyond Midway Atoll.



This plan is partially based on experiences with Midway visitors since 1996, but also reflects new information and new requirements. In 2005, a *Midway Atoll National Wildlife Refuge Visitor Program Market Analysis and Feasibility Study* was completed by Pandion Systems, Inc., of Gainesville, Florida, under contract to FWS. The complete study is available on the FWS Website at <http://www.fws.gov/midway>. This visitor services plan also reflects insights gained from their study.

Furthermore, Proclamation 8031 reinforced the importance of Midway as a vital link to the Northwestern Hawaiian Islands ecosystem, especially as an opportunity for visitors to experience, learn about, and appreciate the area. This visitor services plan not only addresses various FWS policy requirements, but goes beyond those requirements and looks at Midway Atoll as a “window to the Monument.” Here visitors may learn about the broader Monument, and the interrelationships among the islands and the wildlife moving on, between, and among them, and the significance of the area to Native Hawaiian culture.

Since 1995, the FWS has been strongly committed to welcoming visitors to Midway Atoll. This is the first and only remote island national wildlife refuge in the Pacific to provide the general public with an opportunity to learn about and experience these unique ecosystems. With this visitor services plan, we rededicate our efforts to share the atoll’s wildlife and historic resources with the world.

### **1.5 Internal/External Issues**

In August 2007, as part of the Monument management planning process, the following issues were identified related to visitor use at Midway Atoll. These issues will all be addressed in the appropriate sections below and within pertinent sections of the Monument Management Plan.

<b>Midway Atoll NWR – Access and Permitting</b>	<i>What is the appropriate total number of people to visit, work, and volunteer on Midway?</i>	The Interim Visitor Services Plan identified up to 40 overnight visitors at one time and at least 300 visitors per year as appropriate given the current staffing and infrastructure. The proposed Co-Trustee operational hub at Midway Atoll, including new programs and staff, would further strain the island’s operational infrastructure and potentially increase wildlife disturbance. The MMP will propose establishing a carrying capacity and maximum number of people on Midway, a site plan for the allocation of land uses, and facilities needed to balance people and wildlife.
<b>Midway Atoll NWR – Interpretation</b>	<i>How will visitors be provided information to introduce and sensitize them to the fragile Midway atoll ecosystem and history? To what extent should new interpretive and educational exhibits be placed at Midway?</i>	The Midway Interim Visitor Service Plan offers several opportunities to interpret the natural and cultural features of the Monument, including guided tours, self-guided interpretive walks, guided boat trips, interpretive exhibits and signs, and programs and presentations focusing on wildlife, historic structures, artifacts, memorials, and key sites. The MMP will address expanding the current visitor program to represent the entire Monument.

	<i>To what extent should historic structures be preserved and restored for interpretation on Midway?</i>	The determination to preserve, restore, reuse, or demolish a given building has to be done case by case, as the state of each building, its relative historic importance, interpretive opportunities, and the cost to restore and maintain varies widely. Decisions will likely be controversial, as Midway means different things to different people. An appropriate balance of on-island and off-island interpretation is needed and will be further addressed in the MMP.
--	--	---

During development of the Interim Visitor Services Plan, issues raised included the fee structure, natural resource protection, historical recognition, authorized uses, cruise ship impacts, visitor capacity, length of visits offered, and type of facilities offered, infrastructure capacity, and transportation. These issues and comments included within 6,282 letters, e-mails, or telephone calls were addressed in the final Interim Visitor Services Plan.

In April 2008, the Draft Visitor Services Plan was released for public review and comment as part of the Draft Papahānaumokuākea Marine National Monument Management Plan. Some of the concerns raised in the 6,458 public comments on the draft plan focused on the visitor program, including potential human impacts and the biological carrying capacity of Midway Atoll, cumulative impacts over time, visitor program costs, incorporating education regarding the Monument’s significance to Native Hawaiians, preventing the introduction of alien species, expanding recreational activities, monitoring visitor impacts, and closing Midway to all tourism activities. These concerns are addressed within this final Visitor Services Plan and in Volume IV of the Monument Management Plan.

## **1.6 Local Setting**

### **1.6.1 Community Description**

Midway Atoll is so remote (about 1,250 miles from Honolulu, its nearest major city) that it must operate independently as its own small town. It provides its own power system, water treatment and distribution, facilities maintenance, sewage treatment, waste management systems, communications systems, and all the other operational necessities found in a small municipality.

The refuge is currently staffed by nine full-time FWS employees, one of whom is stationed in Honolulu. A few volunteers (normally one to four) assist the refuge staff in biological and habitat management activities. The atoll also hosts transient<sup>1</sup> researchers, other FWS employees, or U.S. Coast Guard personnel on an occasional basis. During “construction season,” from August through October, as many as 30 additional workers may be on the island. NOAA and the State of Hawai‘i will also base a small number of staff (8-10 people) on Midway, as outlined in the Monument Management Plan, 3.6.3, Coordinated Field Operations Action Plan and the Midway Conceptual Site Plan (Volume IV). The refuge has contracted with a private entity to operate the infrastructure of the atoll. The contractor currently has approximately 50 employees on Midway.

Island residents live in renovated Navy housing, including single family homes, duplexes, and Bachelor Officers Quarters (BOQ). One BOQ (known as Charlie Barracks), which contains 36 rooms, has been set aside for transient and visitor use. Almost all of the residents and transients eat at the “Clipper House,”

---

<sup>1</sup> Transients include those coming to Midway Atoll for official duties, e.g., refuge employees, Co-Trustee staff, Coast Guard or other law enforcement entities, contractors, researchers, other federal or state employees, or other permitted personnel.

where three meals a day are served buffet style. Most supplies, particularly foodstuffs, are flown to the island on chartered aircraft. Approximately once a year, a barge brings in equipment, food, and supplies too large or heavy for the aircraft. Fuel to operate the generators and small vehicles and to refill chartered aircraft is brought by fuel barge about once a year. All fuel deliveries operate in compliance with FWS regulations and the Midway Atoll Spill Prevention Control and Countermeasure Plan.

Current funding to operate Midway Atoll comes from FWS, supplemented by Federal Aviation Administration funding that fully covers airport operations costs and a share of infrastructure operations costs. A small amount of funding is generated by other users of the atoll, such as other federal agencies conducting activities on Midway.

### **1.6.2 Travel Links**

The only means of accessing Midway Atoll are by air or vessel. Midway has a fully certified airport known as Henderson Airfield, maintained to standards specified in Federal Aviation Administration Title 14 Code of Federal Regulations, Part 139. Midway is used as a required emergency landing site for extended twin-engine operations (ETOPS) flights across the Pacific Ocean. Under current regulations, twin-engine aircraft must be within a maximum of 180 minutes from a Part 139 certified airfield in case of an emergency. Midway's 7,900-foot runway is capable of handling almost any type of aircraft.

As a Navy base, numerous facilities were built to support a variety of vessel types. Small boats can enter the inner harbor and moor dockside or in the harbor. Larger vessels resupplying the island and research vessels generally come into the cargo pier, inside Midway's lagoon but outside the inner harbor. Large passenger vessels are required to remain outside the reef and shuttle their passengers in via tenders due to port security requirements.

### **1.6.3 Visitor Services Opportunities (Beyond Midway)**

When Midway Atoll was opened to the public in 1995, it became the first and only remote refuge in the Pacific open to public visitation. The other islands in the Northwestern Hawaiian Islands are protected within the Hawaiian Islands National Wildlife Refuge (from Nihoa to Pearl and Hermes Atoll) or in the State of Hawai'i's Seabird Sanctuary at Kure Atoll. Because of their fragility and sensitive wildlife, these other islands and atolls are all closed to public use.

The Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve was established adjacent to and seaward of the seaward boundaries of the State of Hawai'i and Midway Atoll National Wildlife Refuge in 2001, and is administered by NOAA. The area was under consideration for designation as a national marine sanctuary until the entire region was set aside as a Marine National Monument. As required in the Presidential proclamation establishing the Monument, special ocean uses such as ecotourism may be permitted outside the Midway Atoll Special Management Area if:

- the activity will directly benefit the conservation and management of the Monument;
- the activity is for research or education related to the resources or qualities of the Monument;
- the public is provided an opportunity to review the application for a special ocean use permit at least 30 days before the permit is issued; and
- the activity does not involve the use of a commercial passenger vessel.

The State of Hawai'i also administers submerged lands and waters out to 3 nautical miles from the islands and atolls except at Midway. In 2005, the State created a marine refuge in those waters with regulations prohibiting commercial and recreational fishing. Other uses (such as research, education, and Native Hawaiian cultural practices and subsistence fishing) are regulated by Monument permit.

Although numerous visitor opportunities exist in the main Hawaiian Islands or at other islands in the Pacific, none offer the unique combination of natural and historic resources found at Midway Atoll.

## **Chapter 2 Significant Features**

### **2.1 Terrestrial Resources**

Humans have greatly changed Midway Atoll from its original form. Only Spit Island has the general terrestrial habitat characteristics of an undisturbed atoll island, though it probably formed as an unintended result of channel dredging. Although the combined effects of dredging and filling, seawall construction, and importation of soil and many nonnative plant species has greatly expanded and altered the original acreage of Midway, it is still a wildlife habitat of worldwide importance.

The earliest botanical descriptions of Midway were made in 1902. Since then, 222 different plant species have been identified. Twenty-eight species are native and 2 are questionably indigenous to Hawai'i. One plant species, *Cenchrus agriminoides* var. *laysanensis*, is listed as endangered, but it has not been observed on Midway since the early 1900s. More than 190 exotic species are found on Midway, including some that are invasive and affect wildlife habitat. Ecological restoration efforts are underway to eradicate the worst invasive plants, control others, and revegetate with native species.

Since the first insect (a moth) was described from Midway in 1894, more than 300 species of arthropods and land snails have been found on Midway, most introduced aliens.

Almost 2 million breeding seabirds of 19 species make Midway one of the most important breeding areas of seabird conservation in the Pacific. Midway hosts the world's largest populations of both the Laysan albatross (452,609 nesting pairs in 2007) and black-footed albatross (25,320 nesting pairs). Midway's breeding populations of white terns, black noddies, and red-tailed tropicbirds constitute the largest colonies in the Hawaiian archipelago. After eradication of rats in the mid-1990s, the Bonin petrel colony at Midway has rebounded to more than 32,000 pairs. One or two endangered short-tailed albatrosses generally visit Midway each year, although none have nested since the 1960s.

In 2004, 20 endangered Laysan ducks were transported to Midway from their home at Laysan Island in the Hawaiian Islands National Wildlife Refuge. Biologists hope to establish a second "insurance" population of this endemic duck. The birds adapted well to the seeps created on Sand Island and surprised biologists by breeding during their first year, with 12 ducklings successfully fledging. An additional 22 ducks were transported to Midway in 2005, most of which were introduced to Eastern Island. By the end of 2007, almost 200 Laysan ducks were living on Midway Atoll.

Midway also serves as an overwintering area for several arctic migrant shorebirds, including the rare bristle-thighed curlew. The availability of predator-free islands on which this large shorebird can spend its nonbreeding season is essential, because they become flightless during their molt. Many other migratory birds also visit Midway, some regularly and some rarely.

### **2.2 Marine Resources**

Midway Atoll is one of the northernmost coral atolls in the world, presenting a unique opportunity to study the effect of colder waters on the growth, development, and ecology of coral reefs. Its neighbor, Kure Atoll, is the northernmost atoll in the world. Midway Atoll drops off steeply outside the barrier reefs, making it possible to observe in a relatively small area the different organisms and communities associated with pelagic, reef crest, ocean facing reef slope, deep reef, and lagoon habitats.

The lagoon is filled with dense networks of linear reticulated and circular reefs that trap sand washed over the northeastern reef rim. As in many atoll lagoons, sediments limit coral growth at Midway except in the

deeper central lagoon where a modest amount of finger coral gardens still exists. Meadows of seagrass are common in the lagoon, as are rock-boring urchins, calcareous green algae, and brown turban algae. The deep southern ship channel between the ocean and lagoon was dredged during the World War II era and has substantially modified circulation and lowered lagoon water levels. Together with lagoon reefs, these changes reduced or blocked water circulation in much of the lagoon and created higher levels of turbidity. Coral bleaching episodes were reported in 2000 and 2004 at Midway and the neighboring atolls of Kure and Pearl and Hermes. Lagoon lobe and finger corals have declined during the past decade, although blue encrusting coral continues to thrive.

Massive spurs and grooves consisting mostly of coralline algae face the open ocean along the northwest to southwest perimeter reefs and protect the atoll from heavy wave action common during the winter months. These massive reefs offer evidence of the importance of coralline algae as a major reef builder in the far end of the Northwestern Hawaiian Islands. Corals on ocean facing reef habitats are generally not as abundant compared to neighboring atolls to the southeast, but are common in a few sheltered reefs and especially on shallow back-reefs and lagoon pinnacles. High concentrations of the rock-boring urchin *Echinometra* are presently eroding much of the shallow perimeter reef crests dominated by coralline algae. Although not grazing corals directly, the sea urchins are hollowing out the dead interior skeletons of living lobe corals and undermining other attached corals.

A total of 32 species of stony coral have been recorded at Midway, mostly *Pocillopora*, *Porites*, and *Montipora*, plus one zoanthid soft coral, *Palythoa*. Blue encrusting coral tentatively identified as *Montipora* cf. *turgecens* occurs in spectacular formations in the lagoon and back reef habitats and may be endemic to the Northwestern Hawaiian Islands.

The first systematic marine invertebrate survey was conducted at Midway in 1997. It documented 316 invertebrate species, 250 of which had not been previously recorded at Midway. Crustaceans were the dominant macroinvertebrates, composing 46 percent of the total species.

More than 100 species of algae are known from Midway, including 35 previously unrecorded species at Midway and 1 seaweed species new to science, *Dudresnaya babbittiana*. One alien algae, one alien fish (blueline snapper), and four alien marine invertebrate species are established at Midway as found in 2000-2003 surveys. Incidental observations of two other introduced species, blacktail snapper and bluespotted grouper, have occurred at Midway in the last decade.

A total of 266 species of fish, including 7 pelagic species, have been recorded at Midway. Some of these species are either not found in the main Hawaiian Islands or are very rare. Despite its low species diversity, Midway's reef fish biomass is higher than in the main Hawaiian Islands, largely due to lower fishing pressures. Midway and its neighboring atolls have the highest rates of endemic reef fishes within the archipelago, with up to 52% of all fish observed being endemic species.

Many Midway species grow to larger than average size. All trophic levels are well represented, including jacks and four species of sharks. Several species of fish found elsewhere only in deep waters are found at shallow diving depths at Midway, including the endemic Hawaiian black grouper (hapu'upu'u).

Threatened Hawaiian green turtles are frequently seen inside the lagoon and basking on beaches. No turtle nesting had been documented until successfully hatched eggs were discovered on Spit Islet in July 2006. High surf uncovered the eggs, which probably hatched in 2005. In 2007, a successful sea turtle nest was documented on Sand Island. Endangered hawksbill sea turtles are infrequently seen in the lagoon. About 65 endangered Hawaiian monk seals are usually present at Midway at any one time, and pupping levels have increased significantly since 1996, with a record number of 17 in 2004. However, as



is common throughout the Hawaiian Islands, survivorship of juveniles is low and contributes to the endangered status of the species. In an effort to increase survivorship, NOAA-Fisheries established a captive care program on Sand Island in 2006. Six females were released in March 2007.

Approximately 200-300 Hawaiian spinner dolphins rest within Midway's lagoon and forage outside the atoll. Bottlenosed, striped, spotted, and rough-toothed dolphins may occasionally be seen in the open ocean, as well as beaked, pilot, and endangered humpback whales.

## **2.3 Historic Resources**

### **2.3.1 Early Cultural Resources Investigations**

Study of Midway's heritage resources was initiated in 1986 by the National Park Service when it conducted a survey of World War II-era properties eligible for designation as a National Historic Landmark. Nine structures, all defensive positions on the west side of Sand Island, were identified on Midway that convey a close association with the pivotal Battle of Midway, including ammunition magazines (ARMCO huts), a pillbox, and gun emplacements. Later that year, the nine defensive positions on Sand Island identified as eligible by the National Park Service and surrounding buffer areas were designated as a landmark.

Between 1992 and 1994, the Navy sponsored studies of the Naval Air Facility on Midway, including archival research, interviews, and field surveys. The initial field effort consisted of an architectural history survey of the structures, buildings, and objects located on Sand and Eastern Islands.

The study of Cold War Resources was conducted in 1993-94 by contractors hired by the Department of the Navy in order to identify the most important Cold War-era resources, even though they were less than 50 years old, as part of the Base Closure process. The historian hired to conduct the inventory, research, and make recommendations regarding the significance of the buildings on Midway was a specialist in the Cold War period. The Cold War-era buildings were constructed on Midway between 1957 and 1969. The recommendation accepted by the Navy was that the Cold War-era buildings and structures on Midway lacked architectural merit, were not directly associated with President Nixon's visit, and do not convey a direct link to the events that occurred during the Cold War. The Navy subsequently demolished many of the Cold War-era buildings and structures prior to the transfer to the FWS.

In addition to the landmark structures, 69 buildings, structures, and objects associated with the 1903-1945 historic period on Sand and Eastern Islands were determined to be eligible according to criteria established for the National Register. The properties evaluated as significant are associated with three major themes: colonization, initial years of base construction and the Battle of Midway, and 1942-1945 base construction.

Archaeological surveys of Sand and Eastern Islands were conducted in 1992 and 1994. Surface inspections, 68 subsurface core samples, and 5 shovel-test units revealed no evidence of Polynesian/Hawaiian or pre-1900 historic period cultural remains. A literature review of Hawaiian legends found numerous references to distant low-lying islands with abundant birds and turtles but no clear tie to Midway. However, like many low islands and atolls in the Northwestern Hawaiian Islands, Midway may have been visited by Polynesians/Hawaiians in their extended travels. Prior to extensive military-era construction, these islands were periodically scoured by storms and high winds that may have removed or buried evidence of use.

### **2.3.2 Programmatic Agreement and Treatment of Midway’s Historic Properties**

In 1996, the Navy’s Pacific Division, Naval Facilities Engineering Command; the Advisory Council on Historic Preservation; and FWS signed a programmatic agreement directing how Midway Atoll’s historic properties were to be treated during the closure of Naval Air Facility Midway. These properties were assigned to one of six categories of preservation treatment: reuse and maintain, secure and abandon in place, abandon in place and leave as is, fill or cover, relocate, or demolish. FWS was required to prepare a long-term Historic Preservation Plan, which it completed in 1999.

### **2.3.3 Historic Preservation Plan**

The June 1999 *Midway Atoll National Wildlife Refuge Historic Preservation Plan* defines a program to integrate historic preservation planning with the wildlife conservation mission of FWS at Midway Atoll. The plan focuses on the long-term management conditions and goals for preserving and stabilizing historic properties. It also recommends procedures for treating new discoveries, caring for museum collections, and implementing a visitor program that includes historic preservation work. The plan will be revised and updated over the coming year. In the future, the Co-Trustees will incorporate submerged cultural resource protection into such plans.

## **Chapter 3 Limitations on the Visitor Program**

### **3.1 Visitor Access**

The wildlife treasury that makes Midway Atoll so special for visitors also requires certain restrictions be placed on visitors for the protection of plants and animals. As on all national wildlife refuges, wildlife takes priority. Albatross nesting within the main housing areas of Sand Island continues successfully, even in the presence of human residents, but management measures are necessary to control human access to the nesting habitat of more sensitive bird species and the beach areas frequented by monk seals and sea turtles.

To maximize visitor safety and minimize wildlife disturbance and habitat degradation, land-based visitor activities (other than walking, bicycling, and refuge manager-approved interpretive programs) will be restricted to daylight hours (legal sunrise to legal sunset), and water-based to ½-hour after legal sunrise to ½-hour before legal sunset. Vessels involved in the visitor program must return to dock at least 1 hour before sunset to allow sufficient time for search and rescue operations if necessary.

To prevent disturbance of petrel and shearwater burrows, visitors and residents will be required during their initial orientation and through appropriate handout material to remain on paved or gravel roads and designated trails. The trails that are open for visitor use will be clearly marked on maps (see Figure 3.1.1). North Beach from Rusty Bucket to the old fuel farm is considered a ‘trail.’

All of the beaches on the western half of Sand Island are closed to public access to protect Hawaiian monk seals from disturbance, although there will be opportunities for beach viewing access from a primitive walking trail to designated viewing sites. “Turtle Beach,” located on the eastern side of Sand Island from the old seaplane ramp to Cross Point and several wetlands inhabited by endangered Laysan ducks are also closed to visitors. For visitor safety, the fuel farm and active airport runways are closed to the public, except for designated crossing points on the runways.

Spit Island is closed to all public access, and Eastern Island is open only to visitors with FWS or FWS-trained escorts on scheduled trips. Since 1988, all beach areas (including all beach crest vegetation to its deepest extent inland), lagoon waters, and ocean waters to a depth of 20 fathoms – except on Sand Island and its harbor – have been designated critical habitat for Hawaiian monk seals. Power boats engaged in recreational activities are not allowed within buffer areas of at least 500 feet around Eastern, Spit, and most of Sand Island (see Figure 3.1.2), although they may transit to the pier on Eastern Island for interpretive tours and volunteer work. No visitors will be allowed to come in contact with coral reefs. Water activities will avoid preferred monk seal and sea turtle resting habitat areas on these reefs.

To protect threatened and endangered species, visitors are required to remain at least 150 feet away from Hawaiian monk seals, short-tailed albatrosses, and sea turtles on land or in the water. This distance is recommended under Watchable Wildlife guidelines. Disturbance or harassment of these species is a violation of the Endangered Species Act. Collection of live or dead wildlife, including feathers, bones, eggs, shells, and coral, also is prohibited under 50 CFR 27.61. Objects of antiquity are similarly protected from removal under 50 CFR 27.62, and military shipwrecks and aircraft wrecks are also protected under the Sunken Military Craft Act of 2005 and other statutes.

All visitor activities allowed under this visitor services plan, as authorized by compatibility determinations, will occur within the Midway Atoll Special Management Area. No excursions beyond that boundary will occur.





Refuge staff and volunteers are working diligently to remove invasive species from Midway Atoll. Although the battle is far from won, we want to ensure no additional invasive species – particularly plants and insects – are inadvertently introduced to the atoll, or conversely, taken from Midway and introduced into Hawai‘i or elsewhere. To help prevent this, an inspection program will be implemented both before departure from Honolulu and before departure from Midway. In addition, visitors going to Eastern Island will be asked to check their gear for mice before departure to prevent accidental introductions. Prior to returning to Sand Island, they will be asked to clean their shoes, clothing, and gear to prevent spread of the invasive black mustard onto Sand Island.

Passengers arriving by vessel are required to clean their footwear before coming ashore. Sailboats are inspected by FWS staff upon arrival and before docking to ensure they are rat free.

In addition, all permitted vessels must have their hulls inspected and cleaned when required, including the visual inspection of anchors and tender vessels. Proclamation 8031 prohibits the release of ballast water within the Special Management Area. Protocols have also been developed and will be enforced for the treating of snorkel and dive gear to prevent the inadvertent introduction or transmission of alien species.

To minimize conflicts between aircraft and birds in flight, all visitor flights from November through July will be scheduled to arrive and depart Midway at night, unless specifically authorized by the refuge manager.

### **3.2 Visitor Capacity and Scheduling**

Many of Midway’s infrastructure systems (i.e., water, sewer, power generation) were originally designed to service a population of up to 5,000 individuals. However, Sand Island’s current population of FWS employees and volunteers, contractors, etc., is fewer than 100 people. FWS is concluding several millions of dollars of construction downsizing the primary infrastructure systems in order to create long-term efficiencies. These new, more economical and efficient systems are designed to support a population of no more than 200 individuals, including interagency personnel, volunteers, researchers, and visitors engaged in any activity. In addition, the infrastructure downsizing will be done in a manner that incorporates the latest in environmentally sustainable technologies.

In order to ensure a quality visitor experience using the limited infrastructure currently available, the total number of overnight visitors allowed on Midway Atoll at any one time will be limited to no more than 50 people. At the time of writing, a maximum of 24 rooms are available for visitors, which may be more restrictive than the 50 person limit depending on multiple occupancies of the same rooms. All visitors must stay in existing facilities; the policy to disallow camping continues due to potential impacts on wildlife habitat and the species themselves. Although visitors arriving by sailboat will not require rooms, they will still be counted toward the total number of overnight visitors since they may require other infrastructure support such as fresh water and food. In addition to lodging, other factors such as the number of visitors who can be accommodated on the aircraft and in our dining facility limit the total number of visitors.

Due to other infrastructure or visitor safety limitations, all visitors may not be able to engage in the same activity at one time (e.g., snorkel boat capacity, a limited number of approved guides, etc.). Children are welcome at Midway, though parents are cautioned that limited medical facilities are available in this remote location. Parents will be responsible for monitoring their children’s activities.

The 50-visitor limit may be exceeded for short duration (less than a day) prearranged visits by ocean vessels or aircraft. In these cases, visitor activities are closely supervised and primarily consist of guided tours or participation in commemorative events.



For the next 4 years (2008-2011), visitor programs will operate from November through July, which coincides with the albatross season on Midway. To ensure the safety of visitors and enhance their experience on Midway, visitor programs will be concentrated in this 9-month timeframe. The months of August through October are reserved for planned construction and major maintenance activities. Very few rooms will be available during these months due to the number of contractors on island, and aircraft capacity will be needed both for contractors and supplies.

### **3.3 Monitoring Visitor Impacts**

Midway Atoll Monument staff will monitor the impacts of visitors and other users on wildlife and historic resources to ensure continuing compatibility, as required by Monument and FWS policies. Monitoring methodology to assess impacts on seabirds, Hawaiian monk seals, sea turtles, corals, and fishes has been developed by the refuge biologist based on previous work on other refuges and protected areas, in consultation with the Co-Trustees. The visitor program supervisor, in consultation with the FWS and NOAA cultural resources program staffs, will monitor impacts on historic resources. Impact monitoring of marine resources will be conducted in partnership with NOAA using the multiagency monitoring protocols developed collaboratively since 2000.

Based on FWS experience from 1996-2002, when up to 100 overnight visitors were allowed on Midway at any one time, we anticipate few impacts as long as visitors comply with refuge and Monument rules and regulations. A refuge officer has been hired to enforce these rules and regulations, as well as to assist with coordinated law enforcement throughout the Monument. Additional refuge officers may be detailed to Midway for special events or activities. Under the National Wildlife Refuge System Administration Act, the refuge manager has the authority to close areas, halt activities, or restructure visitor programs if necessary to protect wildlife or historic resources or to ensure a quality visitor program.

### **3.4 Midway Atoll Law Enforcement Activities**

Lands within the National Wildlife Refuge System are generally considered strict liability lands, where the visitor is responsible for knowing the rules. Because of the “closed until open” concept of the National Wildlife Refuge System Administration Act of 1966, as amended, everything is initially prohibited. Because activities conducted in the Monument are prohibited without an appropriate permit, this same concept applies. A refuge may be opened to particular uses or a suite of uses through a finding of appropriateness, when required, and approved compatibility determinations. The public may then be notified of this opening through one of several mechanisms found in Title 50 of the Code of Federal Regulations 25.31: conspicuously posted signs, special regulations published in 50 CFR 26.33, maps, or other appropriate methods that give the public actual or constructive notice of the permitted activity.

At Midway, the public review and comment period associated with development of the interim visitor services plan, as well as issuance of this plan, serve as constructive notice to the visitor under the strict liability standard. Additionally, the mandatory visitor orientation presentation within 24 hours of arrival; visitor access maps provided at that orientation, posted throughout the island, and contained in information notebooks in each room; signs; and other information found within the information notebooks located in each hotel room provide the visitor with additional actual or constructive notice.

A visitor found in violation of these rules may be issued a Notice of Violation, or arrested in the most serious cases. A Notice of Violation usually includes an option for paying a fine under an established Forfeiture of Collateral Schedule or appearing in court before a Magistrate Judge. In addition, depending on the violation, other applicable laws and penalties will apply.

Monument permits will incorporate all applicable requirements, and the signed Monument permit also serves as actual notice of these requirements.

## Chapter 4 Visitor Services Standards

### 4.1 Welcome and Orient Visitors

“We will assure that refuges are welcoming, safe, and accessible. We will provide visitors with clear information so they can easily determine where they can go, what they can do, and how to safely and ethically engage in recreational and educational activities. Facilities will meet the quality criteria defined in [policy]. We will treat visitors with courtesy and in a professional manner.”  
*Fish and Wildlife Service Manual, 605 FW 1*

*Goal 8. Offer visitor opportunities at Midway Atoll to discover and appreciate the wildlife and beauty of the NWHI, enhance conservation, and honor its unique human history.*

**Objective 1 Provide visitor opportunities for at least 500 overnight visitors annually, with no more than 50 overnight visitors at any one time.**

*Strategy 1.1* By June 2009 and based on a completed Midway Conceptual Site Plan, seek funding to establish additional housing opportunities for individuals and groups.

*Strategy 1.2* By December 2010, seek larger capacity aircraft to service Midway Atoll on a regular basis.

*Strategy 1.3* Limit the total number of overnight visitors to no more than 50 at any one time to match the existing infrastructure, ensure a quality program, and limit impacts to wildlife.

*Strategy 1.4* Work with private and educational groups to arrange facilitated visits to Midway.

*Strategy 1.5* Offer a minimum of four 3- to 7-day visits annually for independent travelers to come to Midway on less structured visits.

*Discussion:* The limit of no more than 50 overnight visitors on Midway at any one time reflects the limited capacity of our means of transportation and island infrastructure. While Strategy 1.2 is to continue to seek a larger capacity aircraft to service Midway Atoll, our Fiscal Year 2008 aircraft charter company operates a Gulfstream G-1 aircraft with 19 seats and a weight capacity of 3,200 pounds. Therefore, it is likely that no more than 15 seats will be available on any flight. In general, visitor groups will be transported on separate charter flights from those that bring food; mail; supplies; repair parts; and FWS, contractor, and Co-Trustee staff to and from the atoll. Most visits will be for one week at a time, although occasionally a shorter-term visit may be offered.

Of the 36 rooms in our guest lodging facility (Charlie Barracks), 24 rooms generally will be available for overnight guests at any one time (except from August through October). The remaining rooms may occasionally be available, but often will be occupied by off-island staff, Co-Trustee staff, and contractors. The seating capacity at Midway’s dining facility is likewise limited. Although meal times can be staggered to accommodate larger numbers of people on island, aircraft seating and lodging still limit the size of the program.

FWS Monument staff, in coordination with NOAA, will evaluate other types of aircraft that could safely and more cost-effectively transport visitors to Midway Atoll. We will work with the Department of the Interior's Office of Aircraft Services and NOAA's Marine and Aviation Operations office to identify suitable potential bidders for an aircraft charter service. Our goal would be to be able to transport 25-30 visitors to and from Midway per flight. We also continue to evaluate the island infrastructure to identify additional needs for visitor housing, food services facilities, etc., for future planning and budget development purposes.

Since 2002, various private groups have inquired about the possibility of bringing structured groups of people to Midway for 2 to 7-day visits. FWS will encourage such visits, working with the organizers to arrange trips in the most cost-efficient manner possible. These groups will be led by a FWS-approved guide who has been thoroughly briefed in refuge and Monument rules and regulations, and all proposed activities on Midway Atoll will be approved in advance by the refuge manager in compliance with Monument regulations and necessary permit conditions.

Although most visits would be part of structured programs, we intend to offer at least four 3- to 7-day periods annually when individuals may come to Midway to enjoy the atoll's historic and wildlife resources in a less structured manner. Such visitors would participate in available guided activities but would not be with an organized group. All of the rules and restrictions that apply to other visitors would apply to independent travelers. These independent travelers would require more oversight by Monument employees than organized groups, but still deserve the opportunity to visit their public lands.

***Objective 2*** On an annual basis, provide up to three day-long visitor opportunities for larger groups of people to learn about and enjoy Midway Atoll's distinctive wildlife and historic resources.

*Strategy 2.1* Continue to allow up to three opportunities each year for groups of 50-800 visitors to participate in day-long special events and walking tours.

*Discussion:* For the past several years, Midway has hosted from one to four large groups of visitors to learn about the atoll's wildlife and historic resources. In addition, visitors have the opportunity to learn about the Monument's Native Hawaiian cultural significance. These groups have ranged in size from 250 to 1,800 people. These groups may arrive via aircraft or passenger vessels. All groups must meet all Monument findings and requirements as specified in Presidential Proclamation 8031 and 50 CFR 404.11, including obtaining the appropriate (usually Special Ocean Use) Monument permit. In order to protect Midway's natural and historic resources, while still providing limited opportunities for group visitation, the Monument Management Board will approve no more than three permits for large groups (ranging in size from 50 to 800), and as in the past, all visits will be related to the atoll's wildlife and historic resources. In addition, no more than 400 visitors will be allowed to come ashore at any one time, unless refuge management has approved a higher number (e.g., for very limited and special circumstances such as to participate in a ceremony commemorating the anniversary of the Battle of Midway).

These large-group visits are generally scheduled months in advance of the visit. In order to ensure these short-term visits do not conflict with overnight visitors, we will make every effort to avoid scheduling overnight visitor trips at times when large day-long groups will be present.

Because Midway does not have the infrastructure to support such large groups overnight, they typically arrive after sunrise and spend from 8 to 12 hours on Sand Island. Group sponsors provide water and food for their passengers and remove all trash generated by the visit from the atoll upon departure. Prior to arrival, passengers participate in an orientation session to ensure a safe visit for both humans and wildlife.

They also learn during these orientations about the natural and historic resources of Midway Atoll as well as of the broader Monument, and about the cultural significance of the NWHI to Native Hawaiians.

Passenger vessels bringing large groups of visitors to Midway remain outside of the southern reef at the channel entrance and offload their passengers in groups of up to 100 in the ships' tenders. These small boats come into the inner harbor, where the passengers disembark and are divided into groups for a 2-3 hour interpretive walking tour along existing roads and trails to specific sites where Monument staff, National Park Service, or volunteer interpreters provide informative talks. Tour guides from the ship accompany each group to ensure the passengers remain on the clearly marked guided tour route. Visitors return to the vessel at the end of their tours. No more than 400 passengers will be allowed ashore at any one time, unless refuge management has approved a larger number to participate in a special event (e.g., a special ceremony commemorating the Battle of Midway).

In addition to Monument permit conditions such as hull inspections, specific vessel monitoring systems, and discharge limitations, the refuge requires specific conditions be met by passenger vessels. These passenger vessel requirements are included in Appendix I (Operational Protocols) of the Monument Management Plan and include such conditions as arrival and departure times, port security requirements, and additional staff requirement costs at Midway Atoll that must be covered by the vessel company.

Monument staff who assist in providing interpretation for the visitors and monitor their activities while on Midway typically accompany passengers arriving by aircraft. Groups of approximately 25 people each are guided along existing roads and trails from one interpretive station to the next through maps and signage. During albatross season, aircraft are not permitted to depart until after sunset to reduce the potential risk to albatross and humans.

***Objective 3 Provide visitor opportunities for private sailboat crews.***

*Strategy 3.1* Continue to allow private sailboat crews with prior approval to stop at Midway Atoll and moor in the inner harbor. All sailboats must obtain a Monument permit and meet Monument requirements during their voyage.

*Discussion:* Although the number of sailboats visiting Midway Atoll varies from year to year, the average number seeking prior permission to land is about five per year. Midway Atoll is not en route to normal sailboat destinations in the Pacific, and due to prevailing winds and currents, it is difficult to sail from Midway back to Honolulu. Those that do come to Midway generally stay only a few days, remaining overnight on their vessels. Occasionally they eat some of their meals at the Clipper House dining facility.

***Objective 4 Ensure all visitors feel welcome, enjoy a safe experience, and understand refuge and Monument rules and regulations during their stay on Midway Atoll.***

*Strategy 4.1* Ensure visitors with disabilities feel welcome at Midway and enjoy a quality experience. Opportunities to improve existing facilities for the disabled will be evaluated within 1 year and funding for improvements will be sought thereafter.

*Strategy 4.2* Ensure all visitors arriving at Midway Atoll receive advance materials regarding the sensitivity of Midway's resources and participate in a mandatory orientation briefing within 12 hours after their arrival.

*Strategy 4.3* On an ongoing basis, maintain notebooks in each visitor room with maps and information on safety, wildlife viewing etiquette, regulations, and emergency contacts.

*Strategy 4.4* Staff the visitor center at least 4 regularly scheduled hours a day during workweeks so that visitors can ask questions and seek additional information.

*Strategy 4.5* By June 2015, complete installation of directional, regulatory, and interpretive signage as proposed in the Midway interpretive plan and sign plan.

*Strategy 4.6* Continue monitoring visitor satisfaction surveys on a weekly basis, adjusting the visitor program, visitor facilities, and maintenance schedules as appropriate.

*Strategy 4.7* By March 2009 and biennially thereafter, assess the results of monitoring visitor activities for impacts to wildlife and historic resources, level of visitor satisfaction, financial stability of the program, level of staffing, and program structure resulting in recommendations for improvement.

*Strategy 4.8* Based on the assessment above, seek funding, authority, or other needs to implement the recommendations.

*Discussion:* Opportunities to enhance accessibility for all visitors will be sought throughout implementation of the visitor program. Wheelchair-accessible lodging is currently available for visitors in Bravo Barracks on Sand Island. The boardwalk leading to the dining facility also is accessible. Due to Sand Island's mostly flat terrain, most of the roads are passable for all visitors. A review of Midway's facilities with particular attention to their accessibility was completed in 1997 and another will be conducted within the next year.

Advance materials will be provided to registered visitors with helpful hints about what to bring to Midway, how to avoid introducing new invasive species, how to avoid disturbing wildlife, and what to expect on the atoll. Since 1995, all visitors arriving at Midway Atoll have been required to attend a mandatory orientation session led by FWS personnel, even those who may have participated in a pre-trip briefing. During this time, visitors learn about some of the natural and historic resources of Midway Atoll, cultural resources of Papahānaumokuākea Marine National Monument, rules and regulations that protect wildlife, and personal safety information. They are provided maps and other information to make their visit more enjoyable and educational. The schedule of the briefing varies by the time the aircraft/vessel arrives on Midway, but it always occurs within 12 hours. As a helpful reference, each guest room will have a notebook containing this information. These notebooks will be updated on a regular basis. Information on natural, military, and other hazards will be included in both the orientation and the reference notebooks. Staffing the visitor center at least 4 hours per day will allow visitors the opportunity to seek answers to any questions.

For passenger vessels, briefings are either given on board the ship prior to arrival or, if no FWS-approved guides are on board, via written materials developed by the vessel company in coordination with FWS and Monument Co-Trustees. For larger groups arriving by aircraft, the orientation is conducted either at the airport prior to departure or during the flight. Since all large-group visitors are guided in small groups from one site to another along existing roads, these methods of orientation suffice.

We try to minimize the number of signs on Midway both to reduce impacts on wildlife and to allow visitors to have a more natural experience. Street signs have been lowered to minimize collisions by birds in flight. During 2009, refuge staff will analyze the need for additional signage and complete a sign plan in consultation with Co-Trustee staff.



Because of the age of Midway’s infrastructure, the atoll’s harsh climate, and the difficulty of getting materials and supplies to the atoll, maintenance of visitor facilities is a major and expensive endeavor. Efforts will be made to improve these facilities during 2008-2011. However, to ensure a minimal level of funding is available, visitor program fees will be structured to cover maintenance costs for lodging and dining facilities, on-island means of transportation (e.g., golf carts and bicycles), and at least some of the interpretive facilities. FWS will also work with its other partners on Midway to seek funding for island infrastructure maintenance and repair.

FWS’ contractor will seek feedback regarding visitor satisfaction. A previous questionnaire distributed by a private partner at Midway provided valuable insight into how we could improve our visitor program. FWS, contractor, and Co-Trustee staff will work together to make appropriate changes to enhance the visitor experience based on this feedback.

After 1 year of operation, FWS will evaluate the visitor program and work with the Co-Trustees to form recommendations for its improvement. As feasible, these recommendations will be implemented. Such assessments will continue on at least a biennial basis.

#### **4.3 Provide Quality Hunting Opportunities**

“Hunting is a wildlife-dependent recreational use and, when compatible, an appropriate use of resources in the Refuge System. Hunting programs will meet the quality criteria defined in [policy] and, to the extent practicable, be carried out consistent with State laws, regulations, and management plans.”

*Fish and Wildlife Service Manual, 605 FW 1*

Midway Atoll has no available hunting opportunities because all of its animal species are protected by law as either nongame species or threatened or endangered species, or they occur in numbers too low for harvest (e.g., migratory waterfowl).

#### **4.4 Provide Quality Fishing Opportunities**

“Fishing is a wildlife-dependent recreational use and, when compatible, an appropriate use of resources in the Refuge System. Fishing programs will meet the quality criteria defined in [policy] and, to the extent practicable, be carried out consistent with State laws, regulations, and management plans.”

*Fish and Wildlife Service Manual, 605 FW 1*

Consistent with relevant law, FWS grants wildlife-dependent public uses, including fishing, special consideration on national wildlife refuges. When determined compatible, wildlife-dependent public uses receive priority consideration over all other uses of a refuge. In this instance however, Midway Atoll is managed not just as a national wildlife refuge but as part of the Monument. In accordance with Proclamation 8031 “[r]emoving, moving, taking, harvesting, possessing, injuring, disturbing, or damaging; or attempting to remove, move, take, harvest, possess, injure, disturb, or damage any living or nonliving Monument resource” is prohibited without a permit, and recreational permits cannot be issued

for activities that result in the extraction of Monument resources. Therefore, sportfishing at Midway Atoll is not allowed.

#### **4.5 Provide Quality Wildlife Observation and Photographic Opportunities**

“Visitors of all ages and abilities will have an opportunity to observe and photograph key wildlife and habitat on the refuge when it is compatible with refuge purpose(s). Viewing and photographing wildlife in natural or managed environments should foster a connection between visitors and natural resources . . .

*Fish and Wildlife Service Manual, 605 FW 1*

*Goal 5. Enhance public understanding, appreciation, and support for protection of the Monument’s natural, cultural, and historic resources.*

*Goal 8. Offer visitor opportunities at Midway Atoll to discover and appreciate the wildlife and beauty of the NWHI, enhance conservation, and honor its unique human history.*

**Objective 5 Within 3 years, improve wildlife viewing and photography opportunities for all visitors to Midway Atoll.**

*Strategy 5.1* Maintain and monitor use of the West Beach trail to provide visitors an opportunity to view wildlife on West Beach without disturbance.

*Strategy 5.2* Construct a migratory bird/Laysan duck observation blind by March 2009.

*Strategy 5.3* Working with Monument Co-Trustees, re-establish an active dive program for visitors on Midway by May 2011.

*Strategy 5.4* In Fiscal Year 2010, seek funding for two new boats to support the visitor program, one capable of carrying at least 25 visitors to Eastern Island, the other to support the dive program.

*Strategy 5.5* By 2011, establish remote viewing cameras to transmit live video of terrestrial and marine species and their habitats to the visitor center and other locations beyond Midway Atoll.

*Discussion:* At few other places in the world can visitors be so totally surrounded by wildlife. Midway’s seabirds have little fear of humans, and visitors are offered opportunities to observe and photograph them from the time they arrive until they leave. To enhance their experience and ensure their expectations are met, a wildlife calendar has been developed showing what species are present at Midway during each month of the year. Existing bird and fish checklists have been reviewed and updated, then printed for distribution. A wildlife map of Midway Atoll shows visitors where they might have the best opportunity to see specific wildlife species. These documents will also be available on the Midway Atoll website and Monument’s web sites.

In 1997, West Beach – wrapping all the way from Rusty Bucket around Frigate Point – was closed to protect Hawaiian monk seals that use the beach for resting and pupping. To continue to allow visitors to reach historic resources in that area and to expand their opportunities to see the wildlife resources of Midway, FWS constructed a trail through the ironwood forest adjacent to West Beach, in consultation

with NOAA-Fisheries. At several locations along the trail, spur trails leading to overlooks were marked and native vegetation planted to create natural wildlife viewing blinds. That trail was renovated in 2008 to ensure visitor safety and to ensure the viewing blinds are effective in screening visitors from resting monk seals. Maintenance of the trail will be ongoing, and visitor use will be monitored to ensure wildlife resting on the beach are not disturbed.

Unlike the albatrosses and some other seabird species, Laysan ducks are frequently secretive and wary of humans. To increase opportunities for visitors to see this highly endangered species, an accessible observation/photography blind will be constructed at the water catchment basin in 2009. If needed, a spotting scope may be added to the blind to enhance viewing opportunities.

A limited water-based wildlife observation program began in 2008, using existing refuge boats. FWS and its partners will seek additional resources to expand the program. Because of the inherent safety concerns of any water-based activities, particularly in such a remote location, strict standards and rules will be established and enforced before any visitors are allowed to engage in these activities.

Snorkeling and guided kayaking opportunities are offered during daylight hours only (one-half hour after sunrise to one hour before sunset) to learn about and enjoy Midway's marine resources. Small groups of up to eight snorkelers per guide are taken by FWS-approved guides to specified locations within the lagoon to enjoy snorkeling within the lagoon and adjacent to the reef (except within the 500-foot buffer zone identified in Figure 3.1.2). Snorkeling sites are rotated to reduce marine impacts and avoid preferred monk seal and sea turtle haulout sites. Visitors are also allowed to snorkel near the cargo pier as long as no monk seals are in the vicinity. Use of the "buddy system" is required.

Guided kayaking tours of the lagoon will also be offered in groups of no more than six kayakers. All participants will be carefully instructed in kayak safety and wildlife/marine resource viewing etiquette before launching the boats. Kayakers will launch from Sand Island and may tour only from the cargo pier across the northern beach, around Rusty Bucket to Frigate Point. All kayak tours must remain at least 150 feet from shore to avoid disturbing resting monk seals on the beach. Kayaker tours will remain at least 500 feet from shore at West Beach if a monk seal mother and pup are present. FWS or FWS-approved kayak guides will be trained in kayak operation and in radio contact with employees on Sand Island. Individuals may not take kayakers out on their own. Kayaking tours will not be allowed to head toward Eastern Island or Spit Island, or to approach the reef. No snorkeling will be conducted from kayakers.

Visitors may also want to explore the coral reefs in waters inside and outside the lagoon through SCUBA diving. Monument staff will work toward re-establishing a dive program by May 2011, through the use of a concessionaire. As a preliminary step toward a dive program, the refuge manager has determined guided dive tours focused on wildlife observation and photography would be a compatible wildlife-dependent use. Divers would be accompanied by a certified master diver, with a maximum of six divers per one dive master. The dives would be specialized for divers interested in marine life and underwater photography, and all NOAA-Fisheries guidelines for viewing marine mammals and sea turtles would be met. No night diving would be allowed due to increased shark activity. Typically, this would be a seasonal activity, generally from May through September when the seas are calmer. Specific Monument protocols to ensure invasive species and disease are not transmitted through snorkel and dive gear will be implemented.

Although live-aboard dive cruises are offered on the Island of Hawai'i and many other areas of the Pacific, Midway's remote location would mean vessels would need to be in transit for many days before reaching the atoll to dive, and that they would need to transit the waters of the Monument. It is highly unlikely such a vessel could meet the environmental standards required of vessels within the Monument.

Any request for such use at Midway Atoll would require the approval of the Co-Trustees through the permitting process under a Special Ocean Uses permit. Large group day visitors are only onsite for sufficient time to allow terrestrial tours and occasionally the opportunity to swim off the North Beach. No other alternatives (e.g., snorkeling or diving) will be allowed. All requirements outlined in the compatibility determinations for wildlife observation and nonwildlife-dependent recreational activities would apply.

As technology improves and funding becomes available, we will work with our Co-Trustees to provide opportunities to broadcast live images of sensitive species such as the short-tailed albatross, Hawaiian monk seal, and Laysan duck and coral reef habitats to the visitor center on Sand Island and perhaps to the main Hawaiian Islands (such as at the Mokuapāpapa Discovery Center in Hilo) and beyond through the National Marine Sanctuary Program’s web portal (<http://www.oceanslive.org/portal/>).

**Objective 6 Work with and encourage qualified groups or individuals to develop specialized wildlife-dependent programs such as wildlife monitoring, photography, and art in 2009 and beyond.**

*Strategy 6.1* Continue to seek new vendors who would be interested in bringing groups to Midway.

*Discussion:* In the *Midway Atoll National Wildlife Refuge Visitor Program Market Analysis and Feasibility Study*, Pandion Systems, Inc., recommended several target audiences within the broad category of sustainable ecotourism, including specialized programs such as service learning activities, photography tours, writing and artist workshops, and educational tours. The FWS and Monument Co-Trustees agree and will continue to explore opportunities to reach such vendors. Since these programs generally bring a leader/guide/instructor with them, we need only ensure their understanding and compliance with rules and regulations and provide local expertise as needed. Proposed activities that would generate revenue or profits would require Monument Special Ocean Use permits.

**4.6 Develop and Implement Quality Environmental Education Programs**

<p>“Through curriculum-based environmental education packages based on national and State education standards, we will advance public awareness, understanding, appreciation, and knowledge of key fish, wildlife, plant, and resource issues. Each refuge will assess its potential to work with schools to provide an appropriate level of environmental education. We may support environmental education through the use of facilities, equipment, educational materials, teacher workshops, and study sites that are safe, accessible, and conducive to learning.”</p> <p style="text-align: right;"><i>Fish and Wildlife Service Manual, 605 FW 1</i></p>
---

*Goal 5. Enhance public understanding, appreciation, and support for protection of the Monument’s natural, cultural, and historic resources.*

**Objective 7 Beginning in 2008, develop and provide annual wildlife-dependent educator and conservation leader workshops at Midway Atoll targeting a mix of formal and informal educators and community and conservation leaders and building upon Navigating Change curricula and vision.**

*Strategy 7.1* Working with the Navigating Change Educational Partnership, conduct annual, week-long educator, conservation, and community leader workshops on Midway, based on the program developed by the educator focus group in 2008.

*Strategy 7.2* By 2012, hold one educator workshop on expanding Navigating Change curricula to meet the needs of intermediate and high school classrooms.

*Discussion:* One goal of these educator and conservation leader workshops is to inspire a new group of educators to use environmental education as a method of connecting students and lifelong learners to Hawai‘i’s wildlife and culture. Another goal is to have participants in these workshops actually propose and implement an environmental stewardship program in their community, utilizing their experience at Midway as inspiration. Over the past 5 years, the partners have joined together to create Navigating Change, a project conceived by the Polynesian Voyaging Society and focused on raising awareness and ultimately motivating people to change their attitudes and behaviors to better care for our islands and ocean resources. A standards-based educational curriculum for fourth and fifth graders was released by the partnership in 2005, and more than 15 workshops have been conducted on the main Hawaiian Islands to introduce the curriculum to local teachers. The major themes included within the curriculum could provide the stepping stones for future development of educational activities such as telepresence and distance learning projects.

The target date for the first workshop on Midway would be summer 2009. Agency planning began in 2007, and the members of an educator focus group held a planning workshop in January 2008. Co-Trustee education staff will be coordinating and conducting these workshops with input from previous classes of workshop attendees, collectively referred to as Alaka‘i. By 2012, a workshop will focus on designing upper grade level curriculum components as an extension of Navigating Change. Each workshop could take approximately 15 participants.

***Objective 8* Beginning in 2009, facilitate at least two opportunities per year for educational groups or private/nonprofit environmental or historical organizations to conduct wildlife dependent or history courses or administer informal educational camps.**

*Strategy 8.1* During 2009, seek partners who may be interested in offering educational programs on Midway Atoll and set schedules for trial courses or camps in 2010.

*Strategy 8.2* By March 2010, Monument staff will develop, design, and offer a mandatory 1-day orientation that all guides and instructors must attend before hosting a class on Midway for the first time.

*Strategy 8.3* Assist with classes/camps on Midway, providing guidance to avoid impacts on wildlife resources and monitoring group activities.

*Strategy 8.4* By 2010, collaborate with universities to offer semester internship opportunities for students interested in biological studies.

*Strategy 8.5* By 2012, develop dormitory-style or other lower-cost housing, classrooms, and laboratories in support of longer-term classes on Midway.

*Strategy 8.6* Investigate opportunities to bring select middle and high school students to Midway for courses in atoll ecosystems by 2015.

*Discussion:* Organizations have already shown their interest in using Midway for educational experiences, since it provides unparalleled wildlife dependent educational opportunities. Organizations will be held responsible for providing instructors and leading their participants. The Co-Trustees will provide guidance during the mandatory advance orientation. When possible, Monument staff can provide learning opportunities that engage participants in biological and historical projects such as habitat restoration or historic preservation. FWS staff will also monitor group activities to ensure Midway’s wildlife and historic resources are protected.

The Co-Trustees support expanding environmental education opportunities to the extent feasible on Midway Atoll. Developing lower-cost housing and increasing classroom and laboratory space will facilitate these programs. An opportunity to study Midway’s unique natural resources could be the catalyst to inspire lifelong devotion to the field of science.

**Objective 9 Develop and implement new tools to bring the place to the people rather than the people to the place (with an emphasis on students) by 2010.**

*Strategy 9.1* Install appropriate technologies to make distance learning possible from Midway Atoll by 2009.

*Strategy 9.2* Initiate a distance learning program from Midway Atoll to bring the Monument to classrooms across the Nation by 2010.

*Discussion:* FWS has long been interested in offering a distance learning program from Midway, but doing so from such a remote location is challenging. As technologies improve, the Co-Trustees will evaluate the possibility of establishing such a program that could bring the Northwestern Hawaiian Islands into Hawai’i classrooms in particular, but also to other educational venues. In order to provide support for staff, researchers, and distance learning, NOAA is exploring opportunities to install high-speed satellite uplinks on Midway Atoll.

**4.7 Provide Quality Interpretation of Key Resources**

<p>“We will communicate fish, wildlife, habitat, and other resource issues to visitors of all ages and abilities through effective interpretation. We will tailor core messages and delivery methods to provide interpretation to refuge visitors and present them in appropriate locations.” <i>Fish and Wildlife Service Manual, 605 FW 1</i></p>
---

The rich natural and human history of Midway Atoll provides a unique opportunity to promote visitor understanding of and appreciation for America’s natural and historic resources. Interpretation provides opportunities for visitors to make their own connections to the resource so that a sense of stewardship and respect for these resources develops. To ensure our interpretive products remain focused, we develop interpretive themes that guide development of all interpretive products on the refuge.

The primary interpretive themes for Midway Atoll are adapted from those of the Monument:

- Encircled by the earth’s largest ocean, the small islands and coral reefs of the Northwestern Hawaiian Islands provide a scarce and safe haven for diverse native wildlife species to raise their young; to rest, grow, and play; and to survive into the future.
- These remote atolls host a complex reef ecosystem dominated by apex predators and rich in species found nowhere else in the world.



- Just as human actions can destroy wildlife and their habitat, people can restore island and reef ecosystems to benefit both wildlife and mankind through research, sound science, and special care.
- Stories, ancient chants, and archaeological remnants connect ancient Polynesians to the Northwestern Hawaiian Islands not only geographically but also spiritually.
- Throughout history, Midway has served as a vital outpost for humans as they explored their world, expanded their horizons, protected their boundaries, and sought peace in the world.
- Brave young men – far from home and loved ones – risked their lives at Midway to defend America, and in doing so, turned the tide of war in the Pacific to ensure our freedom.

These themes are designed to encompass the tremendous wildlife and historical treasury found at Midway. Through a variety of interpretive methods, these themes will be conveyed to our visitors.

*Goal 5. Enhance public understanding, appreciation, and support for protection of the Monument's natural, cultural, and historic resources.*

*Goal 7. Identify, interpret, and protect Monument historic and cultural resources.*

*Goal 8. Offer visitor opportunities at Midway Atoll to discover and appreciate the wildlife and beauty of the NWHI, enhance conservation, and honor its unique human history.*

***Objective 10 By 2012, develop a Midway Atoll interpretive plan that will be incorporated into a Monumentwide interpretive plan addressing key interpretive sites and activities.***

*Strategy 10.1* Develop detailed and site-specific descriptions of interpretive facilities, exhibits, signs, programs, trails, etc., that will meet the goals of the Monument, the interests and needs of Midway's visitors, and the unique and meaningful features of the Monument's natural and cultural resources.

*Discussion:* A Midway-specific interpretive plan will guide the development of additional interpretive facilities, exhibits, etc. It will be based on the Monument's interpretive themes and include information on project priorities, costs, staffing needs, and schedules.

***Objective 11 Continuously improve onsite interpretation and interpretive facilities to better educate visitors about the natural resources of Midway Atoll and the Northwestern Hawaiian Islands.***

*Strategy 11.1* Offer wildlife-oriented guided tours to all visitors on at least a weekly basis.

*Strategy 11.2* Transition the wildlife-related visitor center into a Papahānaumokuākea Marine National Monument visitor center by September 2009, to provide an educational window to the Monument. Annually review the exhibits and update them as needed and as described in the Midway Atoll interpretive plan.

*Strategy 11.3* Provide additional opportunities for visitors to learn about ongoing management and research projects through field talks and evening programs.

*Strategy 11.4* Offer evening programs in the Midway theater, including slide talks, videos, and other presentations on the Monument's natural and human history.

*Strategy 11.5* Support and monitor an expanded Friends of Midway Atoll National Wildlife Refuge gift store, ensuring merchandise offers accurate and educational messages.

*Discussion:* The refuge interpreters will offer guided walks and bicycle/golf cart tours focused on natural history themes on at least a weekly basis. To ensure a quality experience, tour groups will be no larger than 25 people (except during large group visits). Tour routes will vary depending on the physical ability of the participants, the weather, and wildlife use patterns. All visitors should have the opportunity to tour Sand Island. Dependent upon the weather and availability of transportation, visitors may also have the opportunity to have a guided tour of Eastern Island, which will combine both natural and historic resource features. Tours on Eastern Island generally walk from the boat pier to and along the historic World War II runways and Battle of Midway memorials. All beaches on Eastern Island are closed to visitors to protect Hawaiian monk seals and sea turtles, and tour routes will vary to accommodate wildlife needs.

Self-discovery and exploration is a key component of the Midway experience. To enhance their experience, interpretive panels regarding Midway's natural resources will be placed at a limited number of remote locations along existing trails on Sand Island, as identified in the Midway Atoll interpretive plan. These panels may include reminders of wildlife viewing etiquette, as appropriate. If a significant number of non-English-speaking visitors come to Midway, translated versions of these panels will be made available as handouts.

The natural resource interpretive exhibits in the Midway visitor center will be reviewed for currency and updated as necessary, working in cooperation with the Co-Trustees. As the "window to the Monument," the focus of the exhibits will be broadened to include the natural resources of the entire Monument.

Researchers and biologists will be encouraged to offer field talks to describe their work and/or provide insights into the world of individual wildlife species. NOAA-Fisheries has expressed an interest in providing guided tours to view monk seals in an unobtrusive manner, and frequently researchers provide presentations or demonstrations to broaden knowledge of their activities. By better understanding the needs of each species for its survival, visitors will gain knowledge of how they can help protect these animals.

Over the years, numerous films and documentaries about the Battle of Midway and other aspects of the atoll's history and its wildlife have been produced. Sharing these with visitors in the historic Midway theater enhances their learning experience and enjoyment.

Through the Friends of Midway Atoll National Wildlife Refuge, a gift store on Midway offers visitors the opportunity to purchase Midway Atoll-related items such as books, posters, postcards, coffee mugs, tee shirts, and note cards. Refuge staff will monitor sales items to ensure they accurately interpret refuge and Monument natural and historic resources. These items will also be available on the Friends website, broadening the distribution of these interpretive materials.

***Objective 12*** By 2010, improve onsite interpretation and interpretive facilities to better educate visitors about the Battle of Midway National Memorial, Midway's human history, and Native Hawaiian culture.

*Strategy 12.1* Offer a history-oriented guided tour to all visitors on at least a weekly basis.

*Strategy 12.2* Working with the Office of Hawaiian Affairs and the Native Hawaiian Cultural Working Group, add a Native Hawaiian cultural component to Midway's orientation session, visitor center exhibits, and outreach materials.

*Strategy 12.3* Partner with NOAA to develop interpretive materials and displays for the temporary museum about the submerged historic sites (shipwrecks and aircraft) located within the Monument to enhance existing historic interpretation.

*Strategy 12.4* By December 2010, seek funding to restore a historic building to house a permanent museum/library to recognize and honor Midway’s – and the Northwestern Hawaiian Islands’ – distinguished history.

*Strategy 12.5* By December 2012, complete restoration of a historic building to house the museum and develop and install the interpretive exhibits as identified in the Midway Atoll interpretive plan.

*Strategy 12.6* Annually review, update, and/or replace exhibits within the museum to ensure they appropriately represent the Monument.

*Discussion:* Much like the natural history tours, historic resource guided tours will be offered by refuge staff on at least a weekly basis. To ensure a quality experience, tour groups will be no larger than 25 people (except during large group visits). Depending upon the physical ability of the participants, the weather, the length of the tour route, and the potential impacts on wildlife, these tours may be on foot, by bicycle, or by golf cart. On Sand Island, the history tour will be separate from the wildlife-oriented tour; on Eastern Island, both topics will be covered in one visit.

Sand Island’s historic structures are found in all corners of the island. A self-guided historic resource tour map with descriptive information was developed in 1996 and was updated in 2008 for current visitor use. Interpretive panels regarding several of Midway’s historic resources were produced in 2002. Because the regularly scheduled visitor program was no longer active, the panels were temporarily placed on portable stands for use only during large group visits. Now that visitors are returning on a more regular basis to Midway, these panels have been mounted as originally planned at their designated sites to bring history to life along the self-guided tour.

As the “window to the Monument,” interpretation at Midway will be broadened to include information about the Northwestern Hawaiian Islands’ importance in Native Hawaiian culture. All interpretive materials and presentations will be reviewed to ensure the islands’ cultural resources are appropriately represented.

History-related exhibits are currently housed on the first floor in the airport hangar. Because that location is rarely visited by visitors and because the building is deteriorating, the exhibits are being moved to a new temporary location in the visitor center in 2009. The new site will be more readily accessible to visitors.

In the longer term, one of the historic buildings – probably within the “Midway Mall” – will be restored to house a permanent museum/library. Detailed plans for this facility will be included in the Midway Atoll interpretive plan. In accordance with the *Midway Atoll National Wildlife Refuge Historic Preservation Plan*, FWS does not plan to acquire materials currently preserved in museums, archival institutions, and private collections to bring them to Midway’s harsh environmental conditions. It is more appropriate to acquire copies of such materials for Midway, allowing the originals to remain secured at existing facilities or in a repository in Hawai‘i. Interpretive exhibits will be developed to reflect all of Midway’s “eras,” from prerecorded history to discovery, to shipwrecks and the Commercial Pacific Cable Company days, the Pan American Flying Clipper period, the Battle of Midway, and on through the Cold War and Vietnam conflicts. Broader based exhibits about cultural and historic sites throughout the

Northwestern Hawaiian Islands will also be developed in partnership with NOAA’s cultural resources program and the State of Hawai‘i.

**Objective 13 By 2010, develop at least two offsite exhibits and programs to educate the general public about the Northwestern Hawaiian Islands and Midway Atoll in particular.**

*Strategy 13.1* In 2009, develop and install a visitor access exhibit in NOAA’s Mokuapāpapa Discovery Center in Hilo, Hawai‘i, as part of the updating of the facility.

*Strategy 13.2* Working with the National Park Service and other key entities, develop offsite exhibits within the World War II in the Pacific Interpretive Concept that feature the historic Battle of Midway and Battle of Midway National Memorial.

*Strategy 13.3* Work with the other venues to incorporate information about Midway Atoll and the Northwestern Hawaiian Islands in their exhibits.

*Discussion:* Since the number of visitors to Midway Atoll will always be relatively small, FWS will work with partner entities to provide information about the Northwestern Hawaiian Islands and Midway Atoll to a broader audience. The Mokuapāpapa Discovery Center in Hilo, Hawai‘i, informs an average of 60,000 visitors per year about the new Monument. As funding is available, FWS will work with NOAA to incorporate an exhibit about Midway Atoll and visitor opportunities. Additional opportunities, such as within the Northwestern Hawaiian Islands exhibit at the Waikiki Aquarium, will be sought in 2008 and beyond.

While some exhibits will focus on natural history, FWS will also ensure appropriate attention is placed on the Battle of Midway in offsite interpretive efforts. In establishing the Battle of Midway National Memorial, FWS was charged with helping others keep knowledge of this important battle alive for future generations. In the near term, our first efforts will be at Pearl Harbor with its many World War II in the Pacific themed attractions. We will also seek partners to help place an exhibit in Washington, D.C.

**Objective 14 Work with and encourage qualified groups or individuals to develop specialized historical programs that honor the Battle of Midway.**

*Strategy 14.1* Continue to seek new vendors who would be interested in bringing history-related groups to Midway.

*Discussion:* FWS will explore opportunities to bring historical tours, either through commercial tour groups or veterans organizations, to Midway Atoll in recognition of its status as the Battle of Midway National Memorial. All such tours will be reviewed and approved through the Monument permitting process.

**4.8 Manage for Other Recreational Use Opportunities**

“We may allow other recreational uses that support or enhance one of the wildlife-dependent recreational uses or minimally conflict with any of the wildlife-dependent recreational uses when we determine they are both appropriate and compatible. We will allow uses that are either legally mandated or occur due to special circumstances.”

*Fish and Wildlife Service Manual, 605 FW 1*

**Objective 15 Allow residents and visitors to engage in other recreational uses on Midway in regulated areas that have been determined to be compatible.**

*Strategy 15.1* Allow residents and visitors to ride bicycles and jog for exercise on existing roads.

*Strategy 15.2* Allow residents and visitors to play tennis and volleyball at designated facilities.

*Strategy 15.3* Allow beach uses such as swimming and sunbathing for visitors and residents.

*Strategy 15.4* Allow amateur radio use from Midway Atoll in accordance with stipulations that make the use compatible.

*Discussion:* The refuge manager has determined that several forms of nonwildlife-dependent recreation are compatible with the Refuge System mission and the refuge purposes, and therefore Monument permits may include special conditions to allow them. These activities will take place only on Sand Island, and most are within developed areas. Bicycling and jogging will be restricted to hard surface roads, including along the edges of the runway, or along the cart path of the West Beach trail. Volleyball will only be allowed in the designated court area adjacent to the Captain Brooks facility. The tennis court is located outside the airport hangar building.

Swimming and sunbathing may only occur on the open public beach along the northern shore of Sand Island during daylight hours (from one-half hour after sunrise to one-half hour before sunset) for visitor safety. Use of the “buddy system” will be required. During the mandatory orientation session, visitors will be advised of appropriate behavior if a monk seal or sea turtle approaches them in the water.

Because of potential bird strikes on amateur radio antennae, limitations will be placed on this use. FWS will work with amateur radio enthusiasts to implement a compatible program, as long as it does not displace wildlife-dependent visitors wanting to visit Midway Atoll. Placement of the outdoor antennae must be approved by the refuge manager.

#### **4.9 Communicate Key Issues with Off-Site Audiences**

“Effective outreach depends on open and continuing communication and collaboration between the refuge and its many publics. Effective outreach involves determining and understanding the issues, identifying audiences, listening to stakeholders, crafting messages, selecting the most effective delivery techniques, and evaluating effectiveness. If conducted successfully, the results we achieve will further refuge purpose(s) and the Refuge System mission.”

*Fish and Wildlife Service Manual, 605 FW 1*

*Goal 5. Enhance public understanding, appreciation, and support for protection of the Monument’s natural, cultural, and historic resources.*

*Goal 7. Identify, interpret, and protect Monument historic and cultural resources.*

**Objective 16 On a continuing basis, maintain outreach efforts to Midway’s diverse audiences to update them on the visitor program and wildlife-oriented news stories.**

*Strategy 16.1* On a continuing basis, update the Monument and refuge websites with current information about the visitor program and wildlife viewing opportunities.

*Strategy 16.2* On an as-needed basis, issue news releases and write articles for publication in newsletters, magazines, or other periodicals to keep key publics informed about the visitor program on Midway Atoll and wildlife issues throughout the Monument.

*Strategy 16.3* Continue to support reporters and documentary filmmakers in developing appropriate articles and films/television productions about the wildlife and history of Midway Atoll.

*Discussion:* Midway Atoll, the Battle of Midway National Memorial, and the Monument have been highly visible in the public eye for some time. The atoll has a broad following by government officials, Members of Congress, veterans' organizations, environmental organizations, media, former residents, past and potential visitors, World War II historians, and others who can be defined as "key publics." Rather than being "local community" members, Midway's supporters are spread across the Nation and around the world.

As individual issues arise regarding Midway, refuge staff on Midway and in Honolulu will work together with their counterparts in the Monument to reach out to our publics with timely and accurate information. The Midway Atoll website (<http://www.fws.gov/midway>) and Monument website will be continuously updated with news of Midway's wildlife, ongoing visitor activities, Battle of Midway-related events, and other Monument-related topics. News releases will be issued to the media as appropriate, and information or articles for periodicals will be provided as requested.

Documentary filmmakers and videographers will be accommodated to the extent possible under Monument permits so that we can reach the broadest audiences. Staffing levels may limit the number of filmmakers that can be accommodated.

***Objective 17* By March 2009, evaluate the effectiveness of the visitor program marketing effort.**

*Strategy 17.1* Assess the need to contract with a marketing firm to promote the visitor program.

*Discussion:* Although FWS will promote the visitor program at Midway to the best of its ability, the specialized skills of a marketing company may be needed to develop sufficient demand to make the program financially self-sustaining. If the evaluation indicates additional work is needed, FWS would work closely with the marketing firm to ensure appropriate and accurate information is distributed to target audiences.

***Objective 18* Working with partners, offer special events and programs on Midway and at other offsite locations that honor its history and natural resources.**

*Strategy 18.1* Annually commemorate the anniversary of the Battle of Midway from June 4-6.

*Strategy 18.2* Celebrate other Monument-focused special events such as Maritime Heritage Week, International Migratory Bird Day, and the International Year of the Reef.

*Strategy 18.3* Work with outside entities to sponsor history-related programs and events on Midway.



*Strategy 18.4* Seek other venues and opportunities to participate in special events that connect to Midway’s history.

*Discussion:* Occasionally, special events will be offered at Midway, particularly in relation to its status as the Battle of Midway National Memorial. As staffing allows, we will also participate in other offsite events to bring the history of Midway to larger numbers of people.

FWS continues to believe the historic aspects of Midway Atoll are an important draw for visitors. In addition to organizations such as the International Midway Memorial Foundation, which is dedicated to honoring and preserving the memory and values of the Battle of Midway, many individuals who were stationed on Midway during the Cold War era have expressed an interest in returning to the atoll with their families.

Other internationally recognized designations such as the International Year of the Reef should also be celebrated on Midway Atoll.

#### **4.10 Build Volunteer Programs and Partnerships with Midway Atoll Support Groups**

“Volunteer and Friends organizations fortify refuge staffs with their gifts of time, skills, and energy. They are integral to the future of the Refuge System. Where appropriate, refuge staff will initiate and nurture relationships with volunteers and Friends organizations and will continually support, monitor, and evaluate these groups with the goal of fortifying important refuge activities. The National Wildlife Refuge System Volunteer and Community Partnership Enhancement Act of 1998 strengthens the Refuge System’s role in developing effective partnerships with various community groups. Whether through volunteers, Friends organizations, or other important partnerships in the community, refuge personnel will seek to make the refuge an active community member, giving rise to a stronger Refuge System.”

*Fish and Wildlife Service Manual, 605 FW 1*

*Goal 1. Protect, preserve, maintain, and where appropriate restore the physical environment and the natural biological communities and their associated biodiversity, habitats, populations, native species, and ecological integrity.*

*Goal 4. Provide for cooperative conservation, including community involvement, that achieves effective Monument operations and ecosystem-based management.*

*Goal 5. Enhance public understanding, appreciation, and support for protection of the Monument’s natural, cultural, and historic resources.*

*Goal 7. Identify, interpret, and protect Monument historic and cultural resources.*

*Goal 8. Offer visitor opportunities at Midway Atoll to discover and appreciate the wildlife and beauty of the NWHI, enhance conservation, and honor its unique human history.*

**Objective 19 Incorporate at least 75 percent of visitors staying 3 days or longer into the volunteer program for habitat restoration.**

*Strategy 19.1* Plan weekly invasive plant pulling parties to involve visitors in invasive weed control.

*Strategy 19.2* Provide trash bags for visitors to take with them as they walk along the open beach so they can collect marine debris as they find it.

*Strategy 19.3* Schedule monthly beach cleanups to pick up marine debris on closed beaches where Monument staff have determined no monk seals or sea turtles are resting.

*Discussion:* Hand pulling of weeds is labor intensive, but it is also an effective tool in the continuing battle against invasive plant species. On most areas of Midway Atoll, the sandy substrate makes weed pulling relatively easy. Many visitors want to “give something back” to the wildlife during their time on the atoll, and this activity will help restore acres of habitat for nesting seabirds.

Beach cleanups are also a valuable tool, not only to protect wildlife species but also to educate visitors about the marine debris problem. By involving them in cleanup efforts, they are more likely to seek solutions and educate others about the problem. Refuge or other designated biologists would first ensure no resting monk seals or sea turtles are present in the stretch of beach to be cleaned. Areas to be cleaned would be rotated around the islands from one month to the next so that all beaches would be cleaned twice a year, if possible.

**Objective 20 Provide 25 percent of visitors staying 3 days or longer opportunities to assist with wildlife population monitoring as volunteers.**

*Strategy 20.1* As refuge staff or long-term biological volunteers are available, offer interested visitors the opportunity to assist with seabird monitoring and banding activities.

*Strategy 20.2* As refuge staff, U.S. Geological Survey-Biological Resources Discipline staff, or long-term biological volunteers are available, allow interested visitors the opportunity to assist with Laysan duck monitoring activities.

*Discussion:* Much like the habitat restoration work above, visitors gain a better appreciation for wildlife and their needs with direct involvement in a monitoring program. All such work would be under the direct supervision of a trained biologist to prevent impacts on the animals. This program will be limited in size and nature, and will be continually monitored by the refuge biologist and refuge manager to ensure it is useful to both the wildlife populations and the visitor.

**Objective 21 Seek long-term well qualified volunteers to assist Monument staff with the operation of the visitor services program.**

*Discussion:* As a complement to Midway Atoll’s ongoing biological volunteer program, we will offer opportunities for qualified volunteers to assist with interpretive programs on Midway. Monument staff will explore the possibility of offering an intern program for college students or other similarly trained volunteers.

**Objective 22 Seek grant funds to bring at least two groups of volunteers to Midway each year to work on historic restoration projects under the guidance of FWS’ cultural resources staff and/or historic preservation specialists.**

*Strategy 22.1* Beginning in 2008, apply for a *Save America's Treasures* (SAT) grant for historic rehabilitation work on Midway Atoll.

*Discussion:* The SAT grant requires a 50/50 match, which FWS can accrue through volunteer service, direct contributions, or material donations. FWS received a SAT grant in 1999 that included termite control work, theater building window restoration, a condition assessment report for the interior of the theater and the Commercial Pacific Cable Company Station, reroofing of one cable building, restoration of an ARMCO hut, and collection of oral histories and memorabilia. A similar program could be reinitiated in the future.

***Objective 23* Provide at least 15 percent of visitors staying 3 days or longer opportunities to assist with historic preservation tasks and activities.**

*Strategy 23.1* Much like the habitat restoration projects, volunteers will be offered opportunities to help accomplish historic preservation tasks that require few technical skills.

*Discussion:* FWS' Cultural Resources Team or Historic Preservation Specialist will update the list yearly or as needed to meet the refuge staff recommendations. Volunteers could greatly facilitate the maintenance of historic resources and give the public a greater appreciation and involvement with historic preservation.

#### **4.11 Refuge Law Enforcement**

A refuge law enforcement officer is present on Midway Atoll, and a law enforcement zone officer in Honolulu and other refuge officers in Hawai'i provide support on an as-needed basis. For large events, the zone officer assembles a group of officers from refuges throughout the Pacific Region to provide law enforcement. Midway's refuge officer will also assist with law enforcement issues for the Monument.

#### **4.12 Concession Operations**

Because this is a small-scale program that is just reopening, the Midway Atoll visitor program will be operated by existing Monument staff in its early years. The program evaluation required in 2009 and biennially thereafter will allow further assessment of whether the program should be operated by a concessionaire. Developing a solicitation for a concessionaire, seeking proposals, and evaluating them can take up to a year to complete.

The one exception to this could be a snorkeling/SCUBA diving concession, which was briefly discussed above in the wildlife observation standard. If interest is expressed in such a program, FWS and its Co-Trustees will evaluate the feasibility of a diving concession at Midway in 2011 or beyond.

#### **4.13 Fee Programs**

Midway Atoll National Wildlife Refuge has charged access fees for its visitor program since 1997, when it received approval under the Recreation Fee Demonstration Program. That program has now been renamed the Recreation Fee Program, established through the Federal Lands Recreation Enhancement Act of 2004 (Public Law 108-447). Almost all of the original fee program sites transitioned into the new program. The entrance fee for Midway Atoll National Wildlife Refuge is \$5.00 per person per day.

With limited FWS funding available to support a visitor program, the refuge has been charged by FWS with developing a visitor program that is financially self-sustaining. To help us meet this goal, Congress has also given the refuge receipts authority, which allows the refuge to keep reasonable fees collected for

services provided at Midway Atoll. These fees will be used to offset costs of implementing the visitor services program.

The following fee schedule reflects actual costs for visiting Midway. The entrance fee is collected under the authority of the Federal Lands Recreation Enhancement Act. Lodging and meal fees cover additional hotel and food services staffing, hotel supplies, and food costs. The visitor fee is collected under Midway’s receipt authority and contributes toward the cost of additional refuge staffing or extended on-island volunteers needed to work with visitors, as well as enhancing visitor facilities. The on-island transportation rental fees will enable repair and replacement of these items as necessary. Boating fees cover vessel maintenance and fuel costs. Round-trip airfare is based on the actual cost of the current flight, divided by the number of passengers that can be accommodated on the aircraft. If that cost can be reduced in the future, the airfare will be reduced accordingly.

**Table 4.13.1 Visitor Program Fee Schedule (as of 2008)**

Description	Fee
Entrance fee	\$5 per day
Round trip airfare	\$2,000 per person
Lodging	\$125 per night
Meals	\$45 per day
Visitor fee	\$55 per day
Bicycle rental (optional)	\$5 per day
Golf cart rental (optional)	\$25 per day
Snorkel rental (optional)	\$25 per week
Boat fees (for Eastern Island or snorkeling trips)	\$20 per half day

In the *Midway Atoll National Wildlife Refuge Visitor Program Market Analysis and Feasibility Study*, Pandion Systems surveyed similar tourism providers to ascertain a typical cost range. Excluding transportation costs, typical costs ranged from \$200 to \$400 per day. Thus the Midway fees above are considered reasonable for the experience offered.

FWS recognizes the extremely high airfare costs associated with our current charter aircraft. We will continue to seek a more cost-efficient means of transportation for our visitors.

#### **4.14 Permitting**

##### **General Permit Requirements**

As part of the newly established Monument, activities within the Midway Atoll Special Management Area will be managed differently than at other national wildlife refuges. Typically, and with few exceptions, lands and waters within the Refuge System, including Midway Atoll National Wildlife Refuge, are closed to all public access and use unless FWS has specifically opened the use or use program on that refuge. The process of opening a refuge includes planning, appropriateness review and compatibility determinations, public review and comment, and NEPA compliance. Some uses, such as sport fishing or hunting, may also require the adoption of refuge-specific regulations under the Administrative Procedure Act involving public comment and publication in the Federal Register. Throughout the Refuge System, this process is used to open a refuge for general access, a particular use, or suite of uses. The refuge manager may also require a special use permit for specialized uses.

However, Proclamation 8031 alters the regulatory regime under which the Midway Atoll National Wildlife Refuge is operated as part of the Monument. The Proclamation established new requirements and methods of management throughout the Northwestern Hawaiian Islands. By overlaying the Midway Atoll and Hawaiian Islands National Wildlife Refuges, the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, and State of Hawai‘i’s Seabird Sanctuary at Kure Atoll and marine refuge with the Monument, the Proclamation created a mechanism to ensure the Co-Trustees provide consistent, unified management while meeting their respective obligations under other applicable statutes and regulations. Specifically, Midway Atoll National Wildlife Refuge is a location where the FWS conducts compatibility determinations in consultation with the Co-Trustees to aid the Secretaries of the Interior and Commerce, in their discretion, to issue a co-signed Monument permit in one of six permit categories described in the Proclamation, provided the Secretaries find the activity:

*(i) is research designed to further understanding of Monument resources and qualities; (ii) will further the educational value of the Monument; (iii) will assist in the conservation and management of the Monument; (iv) will allow Native Hawaiian practices; (v) will allow a special ocean use; or (vi) will allow recreational activities.*

Furthermore, the Secretaries may not issue any permit unless they find:

- the activity can be conducted with adequate safeguards for the resources and ecological integrity of the Monument;
- the activity will be conducted in a manner compatible<sup>2</sup> with the management direction of this proclamation, considering the extent to which the conduct of the activity may diminish or enhance Monument resources, qualities, and ecological integrity, and indirect, secondary, or cumulative effects of the activity, and the duration of such effects;
- there is no practicable alternative to conducting the activity within the Monument;
- the end value of the activity outweighs its adverse impacts on Monument resources, qualities, and ecological integrity;
- the duration of the activity is no longer than necessary to achieve its stated purpose;
- the applicant is qualified to conduct and complete the activity and mitigate any potential impacts resulting from its conduct;
- the applicant has adequate financial resources available to conduct and complete the activity and mitigate any potential impacts resulting from its conduct;
- the methods and procedures proposed by the applicant are appropriate to achieve the proposed activity’s goals in relation to their impacts to Monument resources, qualities, and ecological integrity;
- the applicant’s vessel has been outfitted with a mobile transceiver unit approved by NOAA Office of Law Enforcement and complies with the requirements of this proclamation; and
- there are no other factors that would make the issuance of a permit for the activity inappropriate<sup>3</sup>.

The six categories of Monument permits are:

1. Conservation and Management;
2. Native Hawaiian Practices;
3. Research;
4. Education;

---

<sup>2</sup> Note the use of this word is not necessarily consistent with the same terminology from the Administration Act and FWS policy and regulations promulgated thereunder.

<sup>3</sup> Note the use of this word is not necessarily consistent with the same terminology from the Administration Act and FWS policy and regulations promulgated thereunder.

5. Recreation; and
6. Special Ocean Use.

### **Permits for Visitor Services at Midway Atoll**

Permit applications for visitor services at Midway Atoll will be considered using the findings required by Proclamation 8031 as described above. As discussed in sections 4.5-4.10, 4.12, and 4.13, the plan anticipates recreational, ecotourism, volunteer, and educational activities, which would require Monument permits in the recreation, special ocean use, conservation and management, or education categories.

### **Additional Requirements for Individual Recreational Uses**

Recreational uses conducted by individuals at Midway Atoll, such as snorkeling from the cargo pier, must also comply with additional requirements. For the purposes of this chapter, the Monument recreation permit requirement applies to recreational visitors and transients within the Midway Atoll Special Management Area. The Secretaries may not issue a recreation permit unless they find:

- the activity is for the purpose of recreation when defined as “an activity conducted for personal enjoyment that does not result in the extraction of Monument resources and that does not involve a fee-for-service transaction”
- the activity is not associated with any for-hire operation; and
- the activity does not involve any extractive use.

### **Additional Requirements for Special Ocean Uses**

Enterprises offering recreational use opportunities at Midway Atoll that generate revenue or profits for one or more of the persons associated with the activity or use (e.g., ecotourism, passenger vessels, filmmakers, and potentially some education and research activities) must comply with not only the special ocean use permit requirements from the Proclamation, but also two additional requirements:

- the Secretaries find the activity furthers the conservation and management of the Monument; and
- the refuge manager has found the use compatible with the purposes for which Midway Atoll National Wildlife Refuge was designated.

For the purposes of this chapter, a FWS special use permit as described in the Administration Act or regulation or associated policy at the Midway Atoll National Wildlife Refuge would instead be issued as a Monument special ocean use permit.

### **Permits for Recreational<sup>4</sup> Uses within Midway Atoll Special Management Area**

The permitting regime for the visitor services program for compatible wildlife-dependent recreational uses within the Midway Atoll Special Management Area will be as follows. This plan makes a distinction between visitors (those who visit Midway Atoll specifically to participate in some form of recreational, historical, or memorial-related activity covered under this plan) and transients (those who visit Midway Atoll to conduct work or other permitted activities but wish to recreate in their off-duty hours) and island residents. Island residents include FWS staff (employees and volunteers), NOAA staff, and various resident contractors living on Midway Atoll. Island residents’ participation in recreational activities is part of the FWS morale, welfare, and recreation program. As such, it is covered under the

---

<sup>4</sup> “Recreational” is used here as defined in the National Wildlife Refuge System Administration Act of 1966, as amended.



FWS conservation and management Monument permit and is not discussed further in this plan. However, all morale, welfare, and recreation activities must adhere to all other requirements and stipulations; it is only in the form of permitting that these activities may differ.

This visitor services plan and its associated findings of appropriateness, compatibility determinations, and environmental assessment<sup>5</sup> evaluate broad categories of recreational uses that will generally be allowed or prohibited. Visitors and transients who desire to participate in any one of the uses approved within this plan may apply for a Monument permit. However, in order to be user-friendly and minimize paperwork, these individuals will be provided a Monument permit application as part of their registration forms instead of using the unified application process in advance. This paper form will fulfill the needs of the unified Monument permit application without placing an undue burden on the individuals or the Monument staff who must review them. Monument recreation permits are free under this visitor services plan, and valid for the remainder of the existing Federal fiscal year (October 1 – September 30 of the following calendar year).

The Midway Atoll National Wildlife Refuge manager is responsible for summarizing all individual Monument permits issued as described above during a fiscal year for the FWS annual public use report and the Monument permit tracking system.

The minimum information to be collected includes the full name and signature of applicant, home address and telephone number, types of approved uses in which permission is sought to engage, date(s) of participation, approximate time spent in each activity, etc.

Enterprises who wish to offer fee-for-service visitor opportunities in accordance with this plan must apply for a Monument special ocean use permit using the unified Monument permit application. These Monument special ocean use permits include permission “to transit the Monument as necessary to enter the Midway Atoll Special Management Area” and will be issued in accordance with all Proclamation special ocean use findings, criteria, and requirements, such as being valid for no more than 5 years, requiring the provider to carry insurance or a bond, etc. These permits will carry a variable fee based on recovering the government’s cost in reviewing, issuing, and monitoring the permit under this visitor services plan. These permits may also include a per passenger fee, profit-sharing agreements, or use of government facilities.

Nothing in this plan is intended to limit the ability of the Co-Trustees to actively seek for-profit enterprises to enter into concession agreements or other legal relationships to provide specific for-fee services that help achieve refuge and Monument purposes or goals and this plan.

### **Emergency Provisions**

In addition to Proclamation 8031’s exemption to prohibitions for emergencies and law enforcement activities (“The prohibitions required by this proclamation shall not apply to activities necessary to respond to emergencies threatening life, property, or the environment, or to activities necessary for law enforcement purposes”), the Administration Act contains similar provisions which apply only to the national wildlife refuge portions of the Monument. These provisions are:

- Notwithstanding any other provision of this Act, the Secretary [of the Interior] may temporarily suspend, allow, or initiate any activity in a refuge in the [National Wildlife Refuge] System if the

---

<sup>5</sup> The FONSI signed on May 23, 2007, for the Interim Visitor Services Plan addressed most of these activities. Increased visitation is addressed in the Monument Management Plan Environmental Assessment, found in Volume II of the Plan.

Secretary [of the Interior] determines it is necessary to protect the health and safety of the public or any fish or wildlife population.

- These provisions include, but are not limited to, compatibility and permitting requirements. Recreational uses previously found to be appropriate and compatible may be suspended for the protection of human health, life, or safety; property; general environment; or fish or wildlife population.

The refuge manager's execution of these provisions should be conducted in consultation with the Monument Co-Trustees in advance when practicable, or as quickly as practicable once the immediate emergency or threat has passed.

#### **4.15 Cooperating Association/Friends Groups**

Midway Atoll National Wildlife Refuge is fortunate to have a dedicated support group in the form of the Friends of Midway Atoll National Wildlife Refuge. This nonprofit group was formed in 1999 and currently has more than 200 members from across the Nation. The Friends group was formed to:

- support Midway Atoll National Wildlife Refuge in its efforts to preserve, protect, and restore the biological diversity and historical resources of Midway Atoll, while providing opportunity for wildlife-dependent recreation, education, and scientific research.
- make available interpretive and educational books and pamphlets primarily through retail book sales outlets and free distribution to add to the visitor's understanding of the refuge's management problems and programs, the natural and historic resources of the area, the Refuge System, and FWS.
- contribute funds, goods, and services for FWS interpretation, recreation, and educational programs. Interpretive, recreational, and educational facilities may also be constructed, rehabilitated, or maintained with the use of Friends donations.

The Friends of Midway Atoll operate a gift store on Midway, making such refuge or Monument-related items as books, posters, postcards, coffee mugs, tee shirts, and note cards available to visitors and residents. Donations from the Friends group are used to improve, maintain, and update Midway Atoll's interpretive, educational, recreational, or biological programs or facilities. In the past, the Friends have purchased bicycles for the refuge and financially supported the annual albatross count by volunteers. They sought grants to fund invasive species control work by volunteers that began in December 2006.

## Chapter 5 Implementing the Plan

### 5.1 Proposed Staffing

Current FWS staffing at Midway Atoll includes a refuge manager, deputy refuge manager, wildlife biologist, biological science technician, park ranger (law enforcement), supervisory visitor services manager, park ranger (interpretive), equipment operator, and administrative officer (stationed in Honolulu). The supervisory visitor services manager has the primary responsibility for Midway’s visitor program, including program development, program implementation, program evaluation, coordination with Monument partners, and supervision of the interpretive staff. This employee is responsible for implementing the visitor services plan for Midway in collaboration with Monument Co-Trustee staff. FWS staff in Honolulu will continue to provide support for the Midway visitor program. With the very limited visitor program currently operating at Midway Atoll, this staff has been able to provide visitor services outlined in this plan. When large groups are scheduled to stop at Midway, the sponsor covers the cost of bringing additional visitor services staff to the atoll from the main Hawaiian Islands.

This plan includes activities that can be implemented with funded staff, but longer term development of the visitor program will require additional staff, including additional refuge interpretive rangers. Long-term qualified volunteers may also assist with staffing. In addition, our operations contractor will need to hire additional staff to support the visitor program. These positions will be phased in over the next 5 years as the program is implemented. Staffing may also be augmented by other Monument staff from NOAA or the State of Hawai‘i should those resources become available.

### 5.2 Table of Projects

The table below summarizes the various strategies and projects outlined in this visitor services plan. Implementation of these projects is dependent upon the availability of funding.

**Table 5.2.1 Summary of Strategies/Projects**

Strategy	Project	Target Date
4.7	Complete evaluation of visitor program and make recommendations for improvements	03/31/2009
5.2	Construct a migratory bird/Laysan duck observation blind	03/31/2009
17.1	Assess need to contract with a marketing firm to promote the visitor program	03/31/2009
7.1	Conduct annual educator/conservation leader workshops based on Navigating Change	06/30/2009
11.2	Transition wildlife-related visitor center into a Monument visitor center	09/30/2009
13.1	Develop and install exhibit at Mokuapāpapa Discovery Center	12/31/2009
8.3	Facilitate wildlife-dependent educational classes or educational camps	12/31/2009
5.4	Acquire new vessels to support visitor services program	10/31/2010
1.2	Seek larger capacity aircraft to service Midway Atoll on a regular basis	12/31/2010
13.2	Develop Battle of Midway National Memorial interpretive exhibit in Pearl Harbor Historic District	12/31/2010
5.3	Work with NOAA Co-Trustees to reestablish a dive program for visitors	05/31/2011
10.1	Complete Midway Atoll interpretive plan	12/31/2012
4.5	Develop and install interpretive exhibits and signs in accordance with interpretive plan	05/31/2015

Strategy	Project	Target Date
1.1 and 8.5	Establish additional housing opportunities for individuals and groups	Dependent upon the availability of funding
9.2	Initiate a distance learning program from Midway Atoll	Dependent upon availability of funding
12.5	Restore historic building to house Midway Atoll museum	Dependent upon availability of funding
5.5	Establish remote viewing cameras on sensitive species	Dependent upon availability of funding

### **5.3 Partnership Funding and Resources**

Midway Atoll has several partnering opportunities with other government entities. Henderson Field, Sand Island’s airport, is operated in partnership with the Department of Transportation’s Federal Aviation Administration (FAA). Significant funding has been provided by FAA to not only operate the facility but to upgrade its facilities to meet their Part 139 standards. In addition to serving the needs of Midway Atoll, the airfield is operated as an emergency landing site for twin-engine aircraft flying across the Pacific Ocean.

As part of the Monument, the refuge also partners with NOAA’s National Marine Sanctuary Program, which shares jurisdiction for the Monument with FWS. We are also committed to working with the State of Hawai‘i on Monument programs and issues. Opportunities to share resources and projects with these entities will bring enhanced efficiencies and effectiveness to all of our work in the Northwestern Hawaiian Islands.

NOAA’s National Marine Fisheries Service also monitors Hawaiian monk seals on Midway. It also established a monk seal “captive care and release” program on Midway to enhance survivability rates for female monk seal pups as a cooperative conservation effort between NOAA, FWS, and nongovernmental organizations.

NOAA’s Office of Law Enforcement provides significant support by enforcing Monument regulations, including at Midway Atoll.

Another Department of the Interior agency, the U.S. Geological Survey, worked with refuge staff to bring the endangered Laysan duck to Midway, establishing only the second wild population of the species in the world. The National Park Service has provided funding for historic preservation on Midway through the “Save America’s Treasures” program and has also provided interpreters to assist with guided tours when large groups visit Midway.

Together, FWS and its Co-Trustees coordinate with the U.S. Coast Guard as they exercise their law enforcement, search and rescue, and medical evacuation responsibilities in the central Pacific. The Coast Guard is working with FWS to store aircraft fuel on Midway for mission-related use, and occasionally crews will stay on Midway during extended operations.

The Monument Co-Trustees also partner with universities to conduct research on Midway that will lead to better management of its resources and with documentary filmmakers and photographers who broaden public knowledge of Midway’s wildlife and historic resources.

Other valued partners include our dedicated refuge volunteers, who generally give 3 months or more of their time working on Midway, and the Friends of Midway Atoll, our refuge support group.

---

**APPENDIX C:**  
**Presidential Proclamations 8031 and 8112**

---





# Federal Register

---

**Monday,  
June 26, 2006**

---

**Part V**

## **The President**

---

**Proclamation 8031—Establishment of the  
Northwestern Hawaiian Islands Marine  
National Monument**

---

**Presidential Documents**

---

Title 3—

**Proclamation 8031 of June 15, 2006****The President****Establishment of the Northwestern Hawaiian Islands Marine National Monument****By the President of the United States of America****A Proclamation**

In the Pacific Ocean northwest of the principal islands of Hawaii lies an approximately 1,200 nautical mile stretch of coral islands, seamounts, banks, and shoals. The area, including the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, the Midway National Wildlife Refuge, the Hawaiian Islands National Wildlife Refuge, and the Battle of Midway National Memorial, supports a dynamic reef ecosystem with more than 7,000 marine species, of which approximately half are unique to the Hawaiian Island chain. This diverse ecosystem is home to many species of coral, fish, birds, marine mammals, and other flora and fauna including the endangered Hawaiian monk seal, the threatened green sea turtle, and the endangered leatherback and hawksbill sea turtles. In addition, this area has great cultural significance to Native Hawaiians and a connection to early Polynesian culture worthy of protection and understanding.

WHEREAS Executive Order 13089 of June 11, 1998, Executive Order 13178 of December 4, 2000, and Executive Order 13196 of January 18, 2001, as well as the process for designation of a National Marine Sanctuary undertaken by the Secretary of Commerce, have identified objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States in the area of the Northwestern Hawaiian Islands;

WHEREAS section 2 of the Act of June 8, 1906 (34 Stat. 225, 16 U.S.C. 431) (the “Antiquities Act”) authorizes the President, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon lands owned or controlled by the Government of the United States to be national monuments, and to reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected;

WHEREAS it would be in the public interest to preserve the marine area of the Northwestern Hawaiian Islands and certain lands as necessary for the care and management of the historic and scientific objects therein,

NOW, THEREFORE, I, GEORGE W. BUSH, President of the United States of America, by the authority vested in me by section 2 of the Act of June 8, 1906 (34 Stat. 225, 16 U.S.C. 431), do proclaim that there are hereby set apart and reserved as the Northwestern Hawaiian Islands Marine National Monument (the “monument” or “national monument”) for the purpose of protecting the objects described above, all lands and interests in lands owned or controlled by the Government of the United States within the boundaries described on the accompanying map entitled “Northwestern Hawaiian Islands Marine National Monument” attached to and forming a part of this proclamation. The Federal land and interests in land reserved includes approximately 139,793 square miles of emergent and submerged lands and waters of the Northwestern Hawaiian Islands, which is the smallest

area compatible with the proper care and management of the objects to be protected.

All Federal lands and interests in lands within the boundaries of this monument are hereby appropriated and withdrawn from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws, including, but not limited to, withdrawal from location, entry, and patent under mining laws, and from disposition under all laws relating to mineral and geothermal leasing.

The Secretary of Commerce, through the National Oceanic and Atmospheric Administration (NOAA), will have primary responsibility regarding management of the marine areas, in consultation with the Secretary of the Interior. The Secretary of the Interior, through the Fish and Wildlife Service (FWS), will have sole responsibility for management of the areas of the monument that overlay the Midway Atoll National Wildlife Refuge, the Battle of Midway National Memorial, and the Hawaiian Islands National Wildlife Refuge, in consultation with the Secretary of Commerce.

The Secretary of Commerce and the Secretary of the Interior (collectively, the "Secretaries") shall review and, as appropriate, modify the interagency agreement developed for coordinated management of the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, signed on May 19, 2006. To manage the monument, the Secretary of Commerce, in consultation with the Secretary of the Interior and the State of Hawaii, shall modify, as appropriate, the plan developed by NOAA's National Marine Sanctuary Program through the public sanctuary designation process, and will provide for public review of that plan. To the extent authorized by law, the Secretaries, acting through the FWS and NOAA, shall promulgate any additional regulations needed for the proper care and management of the objects identified above.

The Secretary of State, in consultation with the Secretaries, shall take appropriate action to enter into negotiations with other governments to make necessary arrangements for the protection of the monument and to promote the purposes for which the monument is established. The Secretary of State, in consultation with the Secretaries, shall seek the cooperation of other governments and international organizations in furtherance of the purposes of this proclamation and consistent with applicable regional and multilateral arrangements for the protection and management of special marine areas. Furthermore, this proclamation shall be applied in accordance with international law. No restrictions shall apply to or be enforced against a person who is not a citizen, national, or resident alien of the United States (including foreign flag vessels) unless in accordance with international law.

Nothing in this proclamation shall be deemed to diminish or enlarge the jurisdiction of the State of Hawaii.

The establishment of this monument is subject to valid existing rights and use of the monument shall be administered as follows:

#### **Access to the Monument**

The Secretaries shall prohibit entering the monument except pursuant to permission granted by the Secretaries or their designees. Any person passing through the monument without interruption must notify an official designated by the Secretaries at least 72 hours, but no longer than 1 month, prior to the entry date. Notification of departure from the monument must be provided within 12 hours of leaving. A person providing notice must provide the following information, as applicable: (i) position when making report; (ii) vessel name and International Maritime Organization identification number; (iii) name, address, and telephone number of owner and operator; (iv) United States Coast Guard (USCG) documentation, State license, or registration number; (v) home port; (vi) intended and actual route through the monument; (vii) general categories of any hazardous cargo on board; and (viii) length of vessel and propulsion type (e.g., motor or sail).

#### **Vessel Monitoring Systems**

1. As soon as possible but not later than 30 days following the issuance of this proclamation, NOAA shall publish in the **Federal Register** a list of approved transmitting units and associated communications service providers for purposes of this proclamation. An owner or operator of a vessel that has been issued a permit for accessing the monument must ensure that such a vessel has an operating vessel monitoring system (VMS) on board, approved by the Office of Legal Enforcement in the National Oceanic and Atmospheric Administration in the Department of Commerce (OLE) when voyaging within the monument. An operating VMS includes an operating mobile transmitting unit on the vessel and a functioning communication link between the unit and OLE as provided by an OLE-approved communication service provider.
2. Only a VMS that has been approved by OLE may be used. When installing and activating the OLE-approved VMS, or when reinstalling and reactivating such VMS, the vessel owner or operator must:
  - a. Follow procedures indicated on an installation and activation checklist, which is available from OLE; and
  - b. Submit to OLE a statement certifying compliance with the checklist, as prescribed on the checklist.
3. No person may interfere with, tamper with, alter, damage, disable, or impede the operation of the VMS, or attempt any of the same.
4. When a vessel's VMS is not operating properly, the owner or operator must immediately contact OLE, and follow instructions from that office. If notified by OLE that a vessel's VMS is not operating properly, the owner and operator must follow instructions from that office. In either event, such instructions may include, but are not limited to, manually communicating to a location designated by OLE the vessel's positions or returning to port until the VMS is operable.
5. As a condition of authorized access to the monument, a vessel owner or operator subject to the requirements for a VMS in this section must allow OLE, the USCG, and their authorized officers and designees access to the vessels position data obtained from the VMS. Consistent with applicable law, including the limitations on access to, and use, of VMS data collected under the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 *et seq.*), the Secretaries may have access to, and use of, collected data for scientific, statistical, and management purposes.
6. OLE has authority over the installation and operation of the VMS unit. OLE may authorize the connection or order the disconnection of additional equipment, including a computer, to any VMS unit, when deemed appropriate by OLE.
7. The Secretaries shall prohibit any person from conducting or causing to be conducted:
  - a. Operating any vessel without an approved transmitting device within the monument area 45 days after the publication of the list of approved transmitting devices described in paragraph (1) above;
  - b. Failing to install, activate, repair, or replace a mobile transceiver unit prior to leaving port;
  - c. Failing to operate and maintain a mobile transceiver unit on board the vessel at all times;
  - d. Tampering with, damaging, destroying, altering, or in any way distorting, rendering useless, inoperative, ineffective, or inaccurate the VMS, mobile transceiver unit, or VMS signal required to be installed on or transmitted by a vessel;
  - e. Failing to contact OLE or follow OLE instructions when automatic position reporting has been interrupted;
  - f. Registering a VMS or mobile transceiver unit registered to more than one vessel at the same time;

g. Connecting or leaving connected additional equipment to a VMS unit or mobile transceiver unit without the prior approval of OLE;

h. Making a false statement, oral or written, to an authorized officer regarding the installation, use, operation, or maintenance of a VMS unit or mobile transceiver unit or communication service provider.

### **Restrictions**

#### *Prohibited Activities*

The Secretaries shall prohibit persons from conducting or causing to be conducted the following activities:

1. Exploring for, developing, or producing oil, gas, or minerals within the monument;
2. Using or attempting to use poisons, electrical charges, or explosives in the collection or harvest of a monument resource;
3. Introducing or otherwise releasing an introduced species from within or into the monument; and
4. Anchoring on or having a vessel anchored on any living or dead coral with an anchor, anchor chain, or anchor rope.

#### *Regulated Activities*

Except as otherwise provided in this proclamation, the Secretaries shall prohibit any person from conducting or causing to be conducted within the monument the following activities:

1. Removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging; or attempting to remove, move, take, harvest, possess, injure, disturb, or damage any living or nonliving monument resource;
2. Drilling into, dredging, or otherwise altering the submerged lands other than by anchoring a vessel; or constructing, placing, or abandoning any structure, material, or other matter on the submerged lands;
3. Anchoring a vessel;
4. Deserting a vessel aground, at anchor, or adrift;
5. Discharging or depositing any material or other matter into Special Preservation Areas or the Midway Atoll Special Management Area except vessel engine cooling water, weather deck runoff, and vessel engine exhaust;
6. Discharging or depositing any material or other matter into the monument, or discharging or depositing any material or other matter outside of the monument that subsequently enters the monument and injures any resources of the monument, except fish parts (i.e., chumming material or bait) used in and during authorized fishing operations, or discharges incidental to vessel use such as deck wash, approved marine sanitation device effluent, cooling water, and engine exhaust;
7. Touching coral, living or dead;
8. Possessing fishing gear except when stowed and not available for immediate use during passage without interruption through the monument;
9. Swimming, snorkeling, or closed or open circuit SCUBA diving within any Special Preservation Area or the Midway Atoll Special Management Area; and
10. Attracting any living monument resources.

### **Emergencies and Law Enforcement Activities**

The prohibitions required by this proclamation shall not apply to activities necessary to respond to emergencies threatening life, property, or the environment, or to activities necessary for law enforcement purposes.

### **Armed Forces Actions**

1. The prohibitions required by this proclamation shall not apply to activities and exercises of the Armed Forces (including those carried out by the United States Coast Guard) that are consistent with applicable laws.
2. Nothing in this proclamation shall limit agency actions to respond to emergencies posing an unacceptable threat to human health or safety or to the marine environment and admitting of no other feasible solution.
3. All activities and exercises of the Armed Forces shall be carried out in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on monument resources and qualities.
4. In the event of threatened or actual destruction of, loss of, or injury to a monument resource or quality resulting from an incident, including but not limited to spills and groundings, caused by a component of the Department of Defense or the USCG, the cognizant component shall promptly coordinate with the Secretaries for the purpose of taking appropriate actions to respond to and mitigate the harm and, if possible, restore or replace the monument resource or quality.

#### **Commercial Fishing**

1. The Secretaries shall ensure that any commercial lobster fishing permit shall be subject to a zero annual harvest limit.
2. Fishing for bottomfish and pelagic species. The Secretaries shall ensure that:
  - a. Commercial fishing for bottomfish and associated pelagic species may continue within the monument for not longer than 5 years from the date of this proclamation provided that:
    - (i) The fishing is conducted in accordance with a valid commercial bottomfish permit issued by NOAA; and
    - (ii) Such permit is in effect on the date of this proclamation and is subsequently renewed pursuant to NOAA regulations at 50 CFR part 660 subpart E as necessary.
  - b. Total landings for each fishing year may not exceed the following amounts:
    - (i) 350,000 pounds for bottomfish species; and
    - (ii) 180,000 pounds for pelagic species.
  - c. Commercial fishing for bottomfish and associated pelagic species is prohibited in the monument after 5 years from the date of this proclamation.

#### **General Requirements**

The Secretaries shall ensure that any commercial fishing within the monument is conducted in accordance with the following restrictions and conditions:

1. A valid permit or facsimile of a valid permit is on board the fishing vessel and is available for inspection by an authorized officer;
2. No attempt is made to falsify or fail to make, keep, maintain, or submit any logbook or logbook form or other required record or report;
3. Only gear specifically authorized by the relevant permit issued under the Magnuson-Stevens Fishery Conservation and Management Act is allowed to be in the possession of a person conducting commercial fishing under this section;
4. Any person conducting commercial fishing notifies the Secretaries by telephone, facsimile, or electronic mail at least 72 hours before entering the monument and within 12 hours after leaving the monument;
5. All fishing vessels must carry an activated and functioning VMS unit on board at all times whenever the vessel is in the monument;
6. All fishing vessels must carry an observer when requested to do so by the Secretaries; and



7. The activity does not take place within any Ecological Reserve, any Special Preservation Area, or the Midway Atoll Special Management Area.

#### **Permitting Procedures and Criteria**

Subject to such terms and conditions as the Secretaries deem appropriate, a person may conduct an activity regulated by this proclamation if such activity is specifically authorized by a permit. The Secretaries, in their discretion, may issue a permit under this proclamation if the Secretaries find that the activity: (i) is research designed to further understanding of monument resources and qualities; (ii) will further the educational value of the monument; (iii) will assist in the conservation and management of the monument; (iv) will allow Native Hawaiian practices; (v) will allow a special ocean use; or (vi) will allow recreational activities.

#### **Findings**

1. The Secretaries may not issue any permit unless the Secretaries find:
  - a. The activity can be conducted with adequate safeguards for the resources and ecological integrity of the monument;
  - b. The activity will be conducted in a manner compatible with the management direction of this proclamation, considering the extent to which the conduct of the activity may diminish or enhance monument resources, qualities, and ecological integrity, any indirect, secondary, or cumulative effects of the activity, and the duration of such effects;
  - c. There is no practicable alternative to conducting the activity within the monument;
  - d. The end value of the activity outweighs its adverse impacts on monument resources, qualities, and ecological integrity;
  - e. The duration of the activity is no longer than necessary to achieve its stated purpose;
  - f. The applicant is qualified to conduct and complete the activity and mitigate any potential impacts resulting from its conduct;
  - g. The applicant has adequate financial resources available to conduct and complete the activity and mitigate any potential impacts resulting from its conduct;
  - h. The methods and procedures proposed by the applicant are appropriate to achieve the proposed activity's goals in relation to their impacts to monument resources, qualities, and ecological integrity;
  - i. The applicant's vessel has been outfitted with a mobile transceiver unit approved by OLE and complies with the requirements of this proclamation; and
  - j. There are no other factors that would make the issuance of a permit for the activity inappropriate.
2. *Additional Findings for Native Hawaiian Practice Permits.* In addition to the findings listed above, the Secretaries shall not issue a permit to allow Native Hawaiian practices unless the Secretaries find:
  - a. The activity is non-commercial and will not involve the sale of any organism or material collected;
  - b. The purpose and intent of the activity are appropriate and deemed necessary by traditional standards in the Native Hawaiian culture (pono), and demonstrate an understanding of, and background in, the traditional practice, and its associated values and protocols;
  - c. The activity benefits the resources of the Northwestern Hawaiian Islands and the Native Hawaiian community;
  - d. The activity supports or advances the perpetuation of traditional knowledge and ancestral connections of Native Hawaiians to the Northwestern Hawaiian Islands; and

- e. Any monument resource harvested from the monument will be consumed in the monument.
3. *Additional Findings, Criteria, and Requirements for Special Ocean Use Permits*
- a. In addition to the findings listed above, the following requirements apply to the issuance of a permit for a special ocean use:
- (i) Any permit for a special ocean use issued under this section:
- (A) Shall authorize the conduct of an activity only if that activity is compatible with the purposes for which the monument is designated and with protection of monument resources;
- (B) Shall not authorize the conduct of any activity for a period of more than 5 years unless renewed by the Secretaries;
- (C) Shall require that activities carried out under the permit be conducted in a manner that does not destroy, cause the loss of, or injure monument resources; and
- (D) Shall require the permittee to purchase and maintain comprehensive general liability insurance, or post an equivalent bond, against claims arising out of activities conducted under the permit and to agree to hold the United States harmless against such claims; and
- (ii) Each person issued a permit for a special ocean use under this section shall submit an annual report to the Secretaries not later than December 31 of each year that describes activities conducted under that permit and revenues derived from such activities during the year.
- b. The Secretaries may not issue a permit for a special ocean use unless they determine that the proposed activity will be consistent with the findings listed above for the issuance of any permit.
- c. Categories of special ocean use being permitted for the first time under this section will be restricted in duration and permitted as a special ocean use pilot project. Subsequent permits for any category of special ocean use may be issued only if a special ocean use pilot project for that category has been determined by the Secretaries to meet the criteria in this proclamation and any terms and conditions placed on the permit for the pilot project.
- d. The Secretaries shall provide public notice prior to requiring a special ocean use permit for any category of activity not previously identified as a special ocean use.
- e. The following requirements apply to permits for a special ocean use for an activity within the Midway Atoll Special Management Area.
- (i) The Secretaries may issue a permit for a special ocean use for activities within the Midway Atoll Special Management Area provided:
- (A) The Secretaries find the activity furthers the conservation and management of the monument; and
- (B) The Director of the United States Fish and Wildlife Service or his or her designee has determined that the activity is compatible with the purposes for which the Midway Atoll National Wildlife Refuge was designated.
- (ii) As part of a permit, the Secretaries may allow vessels to transit the monument as necessary to enter the Midway Atoll Special Management Area.
- f. The Secretaries may issue a permit for a special ocean use for activities outside the Midway Atoll Special Management Area provided:
- (i) The Secretaries find the activity will directly benefit the conservation and management of the monument;
- (ii) The Secretaries determine the purpose of the activity is for research or education related to the resources or qualities of the monument;
- (iii) The Secretaries provide public notice of the application and an opportunity to provide comments at least 30 days prior to issuing the permit; and

(iv) The activity does not involve the use of a commercial passenger vessel.

4. *Additional Findings for Recreation Permits.* The Secretaries may issue a permit only for recreational activities to be conducted within the Midway Atoll Special Management Area. In addition to the general findings listed above for any permit, the Secretaries may not issue such permit unless the Secretaries find:

- a. The activity is for the purpose of recreation as defined in regulation;
- b. The activity is not associated with any for-hire operation; and
- c. The activity does not involve any extractive use.

#### **Sustenance Fishing**

Sustenance fishing means fishing for bottomfish or pelagic species that are consumed within the monument, and is incidental to an activity permitted under this proclamation. The Secretaries may permit sustenance fishing outside of any Special Preservation Area as a term or condition of any permit issued under this proclamation. The Secretaries may not permit sustenance fishing in the Midway Atoll Special Management Area unless the activity has been determined by the Director of the United States Fish and Wildlife Service or his or her designee to be compatible with the purposes for which the Midway Atoll National Wildlife Refuge was established. Sustenance fishing must be conducted in a manner compatible with this proclamation, including considering the extent to which the conduct of the activity may diminish monument resources, qualities, and ecological integrity, as well as any indirect, secondary, or cumulative effects of the activity and the duration of such effects. The Secretaries will develop procedures for systematic reporting of sustenance fishing.

**Definitions** For purposes of this proclamation:

*Attract or Attracting* means luring or attempting to lure a living resource by any means, except the mere presence of human beings (e.g., swimmers, divers, boaters).

*Bottomfish Species* means bottomfish management unit species as defined at 50 CFR 660.12.

*Commercial Bottomfishing* means commercial fishing for bottomfish species.

*Commercial Passenger Vessel* means a vessel that carries individuals who have paid for such carriage.

*Commercial Pelagic Trolling* means commercial fishing for pelagic species.

*Deserting* a vessel means:

1. Leaving a vessel aground or adrift:
  - (i) Without notifying the Secretaries of the vessel going aground or adrift within 12 hours of its discovery and developing and presenting to the Secretaries a preliminary salvage plan within 24 hours of such notification;
  - (ii) After expressing or manifesting intention to not undertake or to cease salvage efforts; or
  - (iii) When the Secretaries are unable, after reasonable efforts, to reach the owner/operator within 12 hours of the vessels condition being reported to authorities.
2. Leaving a vessel at anchor when its condition creates potential for a grounding, discharge, or deposit and the owner/operator fails to secure the vessel in a timely manner.

*Ecological Reserve* means an area of the monument consisting of contiguous, diverse habitats that provide natural spawning, nursery, and permanent residence areas for the replenishment and genetic protection of marine life, and also to protect and preserve natural assemblages of habitats and species within areas representing a broad diversity of resources and habitats found within the monument.

*Ecological Integrity* means a condition determined to be characteristic of an ecosystem that has the ability to maintain the function, structure, and abundance of natural biological communities, including rates of change in response to natural environmental variation.

*Fishing Year* means the year beginning at 0001 local time on January 1 and ending at 2400 local time on December 31.

*Introduced Species* means:

1. A species (including, but not limited to, any of its biological matter capable of propagation) that is non-native to the ecosystem(s) protected by the monument; or
2. Any organism into which genetic matter from another species has been transferred in order that the host organism acquires the genetic traits of the transferred genes.

*Landing* means offloading fish from a fishing vessel or causing fish to be offloaded from a fishing vessel.

*Midway Atoll Special Management Area* means the area of the monument surrounding Midway Atoll out to a distance of 12 nautical miles, established for the enhanced management, protection, and preservation of monument wildlife and historical resources.

*Mobile Transceiver Unit* means a vessel monitoring system or VMS device installed on board a vessel that is used for vessel monitoring and transmitting the vessel's position as required by this proclamation.

*Native Hawaiian Practices* means cultural activities conducted for the purposes of perpetuating traditional knowledge, caring for and protecting the environment, and strengthening cultural and spiritual connections to the Northwestern Hawaiian Islands that have demonstrable benefits to the Native Hawaiian community. This may include, but is not limited to, the non-commercial use of monument resources for direct personal consumption while in the monument.

*Ocean-Based Ecotourism* means a class of fee-for-service activities that involves visiting the monument for study, enjoyment, or volunteer assistance for purposes of conservation and management.

*Pelagic Species* means Pacific Pelagic Management Unit Species as defined at 50 CFR 660.12.

*Pono* means appropriate, correct, and deemed necessary by traditional standards in the Hawaiian culture.

*Recreational Activity* means an activity conducted for personal enjoyment that does not result in the extraction of monument resources and that does not involve a fee-for-service transaction. This includes, but is not limited to, wildlife viewing, SCUBA diving, snorkeling, and boating.

*Special Preservation Area (SPA)* means discrete, biologically important areas of the monument within which uses are subject to conditions, restrictions, and prohibitions, including but not limited to access restrictions. SPAs are used to avoid concentrations of uses that could result in declines in species populations or habitat, to reduce conflicts between uses, to protect areas that are critical for sustaining important marine species or habitats, or to provide opportunities for scientific research.

*Special Ocean Use* means an activity or use of the monument that is engaged in to generate revenue or profits for one or more of the persons associated with the activity or use, and does not destroy, cause the loss of, or injure monument resources. This includes ocean-based ecotourism and other activities such as educational and research activities that are engaged in to generate revenue, but does not include commercial fishing for bottomfish or pelagic species conducted pursuant to a valid permit issued by NOAA.

*Stowed and Not Available for Immediate Use* means not readily accessible for immediate use, e.g., by being securely covered and lashed to a deck

or bulkhead, tied down, unbaited, unloaded, or partially disassembled (such as spear shafts being kept separate from spear guns).

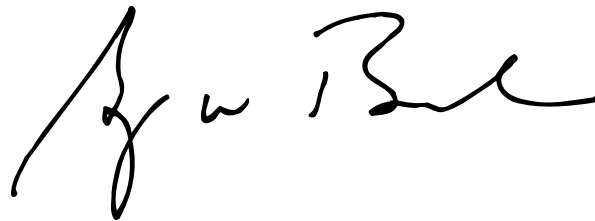
*Sustenance Fishing* means fishing for bottomfish or pelagic species in which all catch is consumed within the monument, and that is incidental to an activity permitted under this proclamation.

*Vessel Monitoring System or VMS* means a vessel monitoring system or mobile transceiver unit approved by the Office for Law Enforcement for use on vessels permitted to access the monument, as required by this subpart.

Nothing in this proclamation shall be deemed to revoke any existing withdrawal, reservation, or appropriation; however, the national monument shall be the dominant reservation.

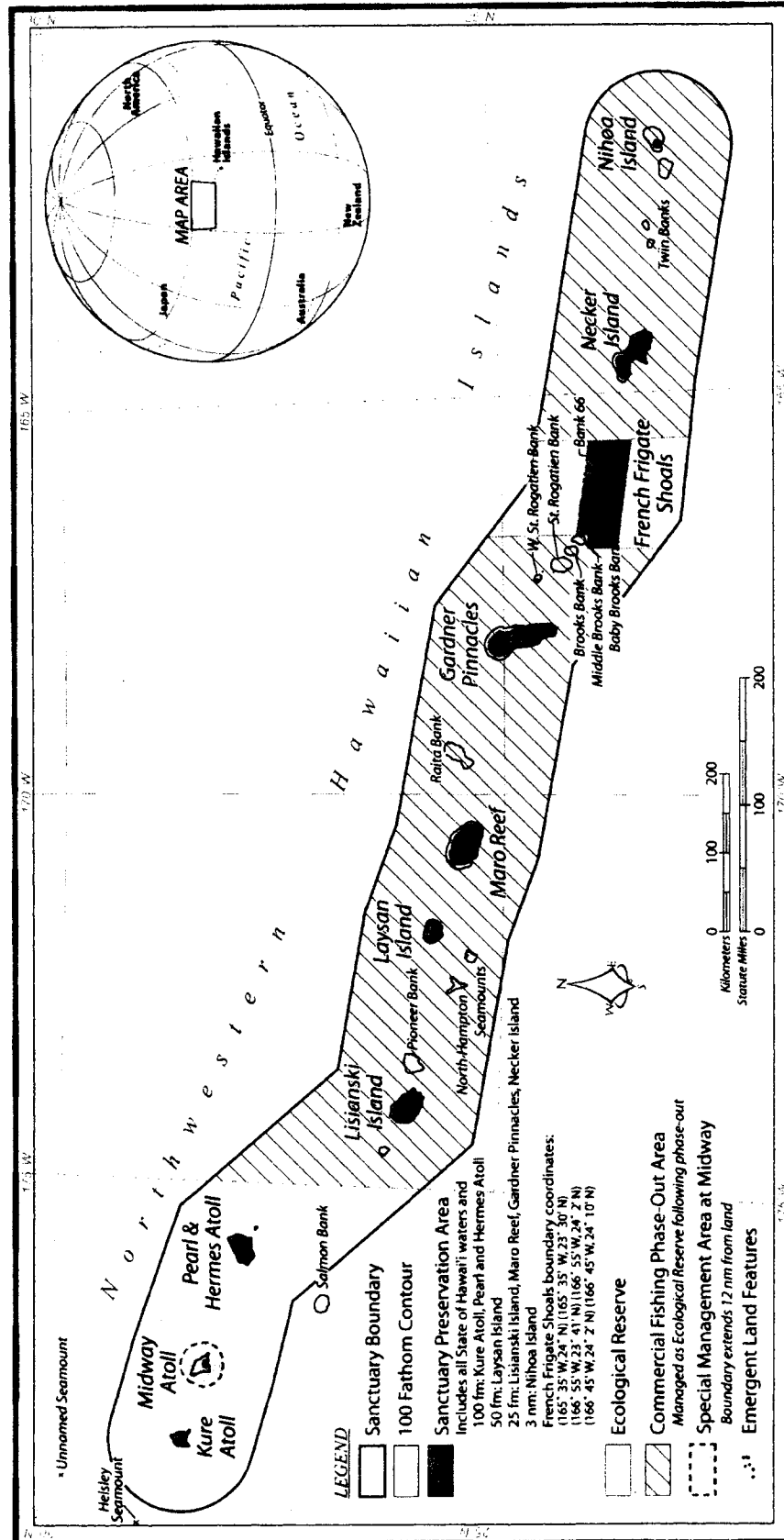
Warning is hereby given to all unauthorized persons not to appropriate, injure, destroy, or remove any feature of this monument and not to locate or settle upon any lands thereof.

IN WITNESS WHEREOF, I have hereunto set my hand this fifteenth day of June, in the year of our Lord two thousand six, and of the Independence of the United States of America the two hundred and thirtieth.



Billing code 3195-01-P

# Northwestern Hawaiian Islands Marine National Monument





### Northwestern Hawaiian Islands Marine National Monument Boundary Coordinates

[Coordinates listed are unprojected (Geographic) and based on the North American Datum of 1983.]

Point	Latitude	Longitude
1	28.437480	-175.177660
2	28.267840	-175.000000
3	26.848220	-173.513200
4	26.600050	-171.628460
5	26.591570	-171.564050
6	26.584980	-171.514000
7	26.567910	-171.458490
8	26.555880	-171.419340
9	26.237590	-170.384040
10	25.842570	-167.964750
11	25.816640	-167.805960
12	25.784980	-167.612000
13	25.664070	-167.441430
14	25.585060	-167.329980
15	25.173930	-166.750000
16	24.681970	-166.056000
17	24.594130	-165.583330
18	24.399760	-164.537400
19	23.880420	-161.742420
20	23.868390	-161.686790
21	23.853160	-161.632100
22	23.834780	-161.578570
23	23.813320	-161.526420
24	23.788880	-161.475860
25	23.761550	-161.427080
26	23.731440	-161.380290
27	23.698680	-161.335660
28	23.663380	-161.293370
29	23.625700	-161.253600
30	23.585780	-161.216500
31	23.543790	-161.182210
32	23.499890	-161.150870
33	23.454250	-161.122600
34	23.407070	-161.097510
35	23.358510	-161.075690
36	23.308790	-161.057240
37	23.258090	-161.042210
38	23.206620	-161.030670
39	23.154580	-161.022660
40	23.102170	-161.018200
41	23.049610	-161.017300

42	22.997110	-161.019980
43	22.944850	-161.026200
44	22.893070	-161.035950
45	22.841950	-161.049190
46	22.791700	-161.065840
47	22.742520	-161.085860
48	22.694600	-161.109150
49	22.648120	-161.135620
50	22.603270	-161.165160
51	22.560230	-161.197660
52	22.519160	-161.232980
53	22.480220	-161.270990
54	22.443560	-161.311530
55	22.409340	-161.354440
56	22.377670	-161.399560
57	22.348690	-161.446710
58	22.322500	-161.495710
59	22.299220	-161.546350
60	22.278920	-161.598460
61	22.261680	-161.651810
62	22.247580	-161.706210
63	22.236670	-161.761450
64	22.228990	-161.817300
65	22.224580	-161.873560
66	22.223430	-161.930000
67	22.225570	-161.986410
68	22.230990	-162.042570
69	22.238520	-162.090980
70	22.239660	-162.098260
71	22.753090	-164.860380
72	22.837820	-165.583330
73	22.925010	-166.327230
74	22.932210	-166.388720
75	22.956970	-166.600000
76	23.062650	-166.750000
77	23.091440	-166.790850
78	24.211550	-168.380720
79	24.211630	-168.380830
80	24.211670	-168.381050
81	24.596330	-170.739990
82	24.604970	-170.793000
83	24.619830	-170.839640
84	24.629360	-170.869580
85	24.937290	-171.836510
86	25.276970	-174.414000
87	25.830690	-175.000000
88	27.246110	-176.497940
89	27.415860	-177.555230

90	27.597840	-178.498430
91	27.610780	-178.565510
92	27.625520	-178.622110
93	27.643380	-178.677580
94	27.664280	-178.731700
95	27.688140	-178.784270
96	27.714880	-178.835070
97	27.744380	-178.883910
98	27.776540	-178.930610
99	27.811230	-178.974960
100	27.848320	-179.016810
101	27.887650	-179.055990
102	27.929090	-179.092340
103	27.972460	-179.125720
104	28.017600	-179.155980
105	28.064330	-179.183020
106	28.112470	-179.206730
107	28.161840	-179.226990
108	28.212230	-179.243740
109	28.263450	-179.256890
110	28.315300	-179.266400
111	28.367580	-179.272220
112	28.412080	-179.274000
113	28.420080	-179.274320
114	28.430370	-179.274000
115	28.472580	-179.272690
116	28.524900	-179.267320
117	28.576810	-179.258240
118	28.628110	-179.245480
119	28.678610	-179.229070
120	28.728090	-179.209090
121	28.776360	-179.185600
122	28.823240	-179.158700
123	28.868520	-179.128480
124	28.912040	-179.095060
125	28.953610	-179.058580
126	28.993080	-179.019170
127	29.030280	-178.977000
128	29.065060	-178.932220
129	29.097280	-178.885010
130	29.126820	-178.835570
131	29.153560	-178.784090
132	29.177380	-178.730770
133	29.198200	-178.675830
134	29.215930	-178.619490
135	29.230490	-178.561970
136	29.241830	-178.503520
137	29.249910	-178.444360

138	29.254680	-178.384730
139	29.256140	-178.324870
140	29.254270	-178.265030
141	29.249080	-178.205450
142	29.240600	-178.146360
143	29.057970	-177.201300
144	29.042570	-177.121570
145	28.649370	-175.591270
146	28.644570	-175.572600
147	28.581980	-175.329000
148	28.437480	-175.177660

### Ecological Reserves Boundary Coordinates

[Coordinates listed in this Appendix are unprojected (Geographic) and based on the North American Datum of 1983.]

Table B-1 Ecological Reserve West of 175 degrees West Longitude

Point ID	Latitude	Longitude
1	29.042570	-177.121570
2	28.649370	-175.591270
3	28.644570	-175.572600
4	28.581980	-175.329000
5	28.437480	-175.177660
6	28.267840	-175.000000
7	25.830690	-175.000000
8	27.246110	-176.497940
9	27.415860	-177.555230
10	27.610780	-178.565510
11	27.625520	-178.622110
12	27.643380	-178.677580
13	27.664280	-178.731700
14	27.688140	-178.784270
15	27.714880	-178.835070
16	27.744380	-178.883910
17	27.776540	-178.930610
18	27.811230	-178.974960
19	27.848320	-179.016810
20	27.887650	-179.055990

21	27.929090	-179.092340
22	27.972460	-179.125720
23	28.017600	-179.155980
24	28.064330	-179.183020
25	28.112470	-179.206730
26	28.161840	-179.226990
27	28.212230	-179.243740
28	28.263450	-179.256890
29	28.315300	-179.266400
30	28.367580	-179.272220
31	28.412080	-179.274000
32	28.430370	-179.274000
33	28.472580	-179.272690
34	28.524900	-179.267320
35	28.576810	-179.258240
36	28.628110	-179.245480
37	28.678610	-179.229070
38	28.728090	-179.209090
39	28.776360	-179.185600
40	28.823240	-179.158700
41	28.868520	-179.128480
42	28.912040	-179.095060
43	28.953610	-179.058580
44	28.993080	-179.019170
45	29.030280	-178.977000
46	29.065060	-178.932220
47	29.097280	-178.885010
48	29.126820	-178.835570
49	29.153560	-178.784090
50	29.177380	-178.730770
51	29.198200	-178.675830
52	29.215930	-178.619490
53	29.230490	-178.561970
54	29.241830	-178.503520
55	29.249910	-178.444360

56	29.254680	-178.384730
57	29.256140	-178.324870
58	29.254270	-178.265030
59	29.249080	-178.205450
60	29.240600	-178.146360
61	29.057970	-177.201300
62	29.042570	-177.121570

Table B-2 French Frigate Shoals Ecological Reserve

Point ID	Latitude	Longitude
1	24.594130	-165.583330
2	23.499970	-165.583330
3	23.999970	-165.583330
4	24.166640	-166.750000
5	25.173930	-166.750000
6	24.681970	-166.056000
7	24.594130	-165.583330
8	23.740820	-166.927560
9	23.687790	-166.928170
10	23.666640	-166.750000
11	23.499970	-165.583330
12	22.837820	-165.583330
13	22.956970	-166.600000
14	23.062650	-166.750000
15	23.196210	-166.938090
16	23.740960	-166.929090
17	23.740820	-166.927560

### Special Preservation Areas Boundary Coordinates

[Coordinates listed in this Appendix are unprojected (Geographic) and based on the North American Datum of 1983.]

Table C-1 French Frigate Shoals Special Preservation Area

Point ID	Latitude	Longitude
1	23.999970	-165.583330
2	23.499970	-165.583330
3	23.666640	-166.750000
4	23.687790	-166.928170



5	23.740820	-166.927560
6	24.036510	-166.924170
7	24.034000	-166.752270
8	24.166640	-166.750000
9	23.999970	-165.583330

Table C-2 Gardner Pinnacles Special Preservation Area

Point ID	Latitude	Longitude
1	25.069550	-167.932070
2	25.041750	-167.925060
3	25.013260	-167.941650
4	24.941640	-167.941660
5	24.906030	-167.922730
6	24.881740	-167.901230
7	24.849970	-167.891660
8	24.747630	-167.897660
9	24.629080	-167.872660
10	24.590720	-167.873600
11	24.563150	-167.866590
12	24.491640	-167.875000
13	24.448290	-167.890630
14	24.428440	-167.901840
15	24.411150	-167.954400
16	24.419790	-167.989680
17	24.438010	-168.003690
18	24.508310	-168.016660
19	24.574980	-168.050000
20	24.591640	-168.083330
21	24.699970	-168.125000
22	24.774970	-168.133330
23	24.816640	-168.150000
24	24.883310	-168.150000
25	24.949970	-168.225000
26	25.008310	-168.266660
27	25.065400	-168.277990
28	25.093010	-168.267940
29	25.103750	-168.250890
30	25.165870	-168.225750
31	25.181750	-168.196320
32	25.191640	-168.141660
33	25.192730	-168.086360
34	25.174040	-168.041280
35	25.124980	-167.983330
36	25.069550	-167.932070

Table C-3 Kure Atoll Special Preservation Area

Point ID	Latitude	Longitude
1	28.392840	-178.429820

2	28.399910	-178.436410
3	28.415160	-178.446280
4	28.432200	-178.448290
5	28.455370	-178.441200
6	28.478140	-178.430830
7	28.496460	-178.413240
8	28.500820	-178.406980
9	28.506480	-178.398860
10	28.514860	-178.380810
11	28.519980	-178.357030
12	28.521950	-178.334820
13	28.521950	-178.334800
14	28.525880	-178.330960
15	28.529600	-178.322670
16	28.546060	-178.307530
17	28.544020	-178.296510
18	28.522790	-178.285740
19	28.502900	-178.282050
20	28.502890	-178.282030
21	28.499380	-178.276340
22	28.487070	-178.260900
23	28.475690	-178.250260
24	28.471030	-178.245900
25	28.450220	-178.238690
26	28.416860	-178.231260
27	28.397060	-178.232420
28	28.378270	-178.238260
29	28.363050	-178.245720
30	28.362280	-178.246630
31	28.362270	-178.246650
32	28.351660	-178.238800
33	28.343860	-178.228570
34	28.341350	-178.214180
35	28.328300	-178.211250
36	28.320980	-178.215800
37	28.318750	-178.226820
38	28.326780	-178.233600
39	28.332160	-178.261690
40	28.342560	-178.262560
41	28.346030	-178.266850
42	28.343860	-178.269830
43	28.336310	-178.286080
44	28.335300	-178.315410
45	28.340220	-178.363860
46	28.344070	-178.381090
47	28.323940	-178.406220
48	28.321250	-178.428370
49	28.367630	-178.432740

50	28.392840	-178.429820
----	-----------	-------------

Table C-4 Pearl and Hermes Atoll Special Preservation Area

Point ID	Latitude	Longitude
1	27.757750	-176.036520
2	27.768320	-176.040880
3	27.768320	-176.040880
4	27.770100	-176.048300
5	27.782320	-176.065490
6	27.840940	-176.037040
7	27.855580	-176.034410
8	27.874110	-176.034890
9	27.892740	-176.027240
10	27.899910	-176.012850
11	27.910770	-175.983500
12	27.910800	-175.983470
13	27.919710	-175.976620
14	27.927980	-175.967410
15	27.935100	-175.956890
16	27.939420	-175.946360
17	27.943320	-175.937810
18	27.950350	-175.926920
19	27.963550	-175.906130
20	27.974710	-175.888940
21	27.981650	-175.875480
22	27.987800	-175.860460
23	27.997110	-175.839520
24	28.004660	-175.823330
25	28.008440	-175.813830
26	28.010980	-175.803790
27	28.011520	-175.793180
28	28.011060	-175.781740
29	28.010310	-175.770160
30	28.009350	-175.764210
31	28.009350	-175.764180
32	28.011110	-175.761890
33	28.021650	-175.734510
34	28.007620	-175.715020
35	27.989730	-175.708650
36	27.989710	-175.708630
37	27.982190	-175.698330
38	27.976630	-175.691710
39	27.973990	-175.688570
40	27.967780	-175.681600
41	27.962560	-175.676580
42	27.955580	-175.672400
43	27.945870	-175.667950
44	27.935150	-175.664330

45	27.923930	-175.662390
46	27.914190	-175.661560
47	27.899720	-175.661860
48	27.883490	-175.664100
49	27.869160	-175.669150
50	27.859160	-175.672680
51	27.848250	-175.675300
52	27.836260	-175.678940
53	27.828010	-175.682580
54	27.818010	-175.688990
55	27.811250	-175.690970
56	27.805500	-175.693210
57	27.805240	-175.693310
58	27.795260	-175.697130
59	27.783750	-175.704120
60	27.776490	-175.709430
61	27.771010	-175.713510
62	27.770990	-175.713520
63	27.763470	-175.710490
64	27.755510	-175.719930
65	27.755160	-175.725020
66	27.749210	-175.729550
67	27.744440	-175.735410
68	27.739890	-175.743640
69	27.735130	-175.754680
70	27.732590	-175.766400
71	27.731290	-175.779240
72	27.730230	-175.795430
73	27.731050	-175.816390
74	27.732360	-175.825560
75	27.733580	-175.833100
76	27.734560	-175.837560
77	27.735040	-175.841750
78	27.732280	-175.845940
79	27.727480	-175.852770
80	27.722740	-175.861850
81	27.717130	-175.874800
82	27.709340	-175.894910
83	27.702570	-175.913780
84	27.699260	-175.929970
85	27.697450	-175.945320
86	27.697660	-175.956490
87	27.699370	-175.966810
88	27.703320	-175.976850
89	27.710260	-175.989680
90	27.720440	-176.003340
91	27.732370	-176.017010
92	27.741820	-176.025930

93	27.746800	-176.029970
94	27.749030	-176.031780

Table C-5 Lisianski Island Special Preservation Area

Point ID	Latitude	Longitude
1	25.940390	-173.790690
2	25.910770	-173.795060
3	25.910770	-173.795060
4	25.871480	-173.850890
5	25.879490	-173.891610
6	25.879980	-173.943990
7	25.963710	-174.108790
8	25.979580	-174.120000
9	26.000210	-174.142570
10	26.040550	-174.157290
11	26.122730	-174.154820
12	26.174970	-174.133330
13	26.212150	-174.085540
14	26.217240	-174.050590
15	26.212430	-173.982900
16	26.183310	-173.933330
17	26.142200	-173.896560
18	26.119380	-173.861860
19	26.085600	-173.822290
20	26.041640	-173.799990
21	26.008310	-173.766660
22	25.988250	-173.752100
23	25.971020	-173.752830

Table C-6 Laysan Island Special Preservation Area

Point ID	Latitude	Longitude
1	25.716670	-171.650000
2	25.700000	-171.666670
3	25.691670	-171.700000
4	25.700000	-171.708330
5	25.700000	-171.733330
6	25.691670	-171.750000
7	25.691670	-171.783330
8	25.708330	-171.816670
9	25.758330	-171.850000
10	25.791670	-171.866670
11	25.833330	-171.875000
12	25.866670	-171.850000
13	25.883330	-171.833330
14	25.900000	-171.800000
15	25.900000	-171.766670
16	25.883330	-171.675000
17	25.866670	-171.625000

18	25.833330	-171.600000
19	25.791670	-171.591670
20	25.766670	-171.600000
21	25.741670	-171.616670
22	25.725000	-171.633330
23	25.716670	-171.650000

Table C-7 Maro Reef Special Preservation Area

Point ID	Latitude	Longitude
1	25.566690	-170.517140
2	25.466690	-170.408800
3	25.375020	-170.350470
4	25.258350	-170.408800
5	25.250020	-170.425470
6	25.258350	-170.542140
7	25.283350	-170.592140
8	25.300020	-170.650470
9	25.316690	-170.767140
10	25.333350	-170.800470
11	25.358350	-170.808800
12	25.391690	-170.867140
13	25.450020	-170.892140
14	25.525020	-170.900470
15	25.550020	-170.900470
16	25.583350	-170.875470
17	25.625020	-170.808810
18	25.633350	-170.775470
19	25.633350	-170.708800
20	25.616690	-170.683810
21	25.591690	-170.575470
22	25.566690	-170.517140

Table C-8 Necker Island Special Preservation Area

Point ID	Latitude	Longitude
1	23.642160	-164.551780
2	23.613240	-164.535150
3	23.588260	-164.530180
4	23.550990	-164.527340
5	23.522830	-164.509770
6	23.490850	-164.451480
7	23.480450	-164.441650
8	23.462880	-164.393270
9	23.463220	-164.368120
10	23.449040	-164.327110
11	23.431280	-164.304620
12	23.396860	-164.282330
13	23.357080	-164.270620
14	23.308700	-164.250210



15	23.289700	-164.256760
16	23.279120	-164.267160
17	23.256820	-164.275850
18	23.235370	-164.298150
19	23.232530	-164.336710
20	23.238010	-164.369100
21	23.256190	-164.395600
22	23.263000	-164.457020
23	23.270370	-164.470630
24	23.291640	-164.483330
25	23.308310	-164.525000
26	23.308870	-164.596130
27	23.299420	-164.630360
28	23.300400	-164.641120
29	23.313770	-164.639170
30	23.323870	-164.629710
31	23.326810	-164.618950
32	23.342460	-164.621560
33	23.353870	-164.609170
34	23.406430	-164.588630
35	23.444900	-164.579500
36	23.455990	-164.605580
37	23.466750	-164.609170
38	23.479950	-164.622600
39	23.490020	-164.651170
40	23.496910	-164.695970
41	23.496540	-164.733520
42	23.484440	-164.769800
43	23.502770	-164.782090
44	23.509200	-164.799290
45	23.523370	-164.810810
46	23.537360	-164.832550
47	23.567430	-164.847030
48	23.600880	-164.834360
49	23.616190	-164.819810
50	23.622430	-164.801100
51	23.621480	-164.768400
52	23.631120	-164.738540
53	23.650580	-164.687890
54	23.663250	-164.624580
55	23.656440	-164.575820
56	23.642160	-164.551780

Table C-9 Nihoa Island Special Preservation Area

Point ID	Latitude	Longitude`
1	23.099610	-161.971310
2	23.100370	-161.970570
3	23.101120	-161.969810

4	23.101850	-161.969040
5	23.102580	-161.968250
6	23.103290	-161.967450
7	23.103990	-161.966630
8	23.104680	-161.965800
9	23.105350	-161.964950
10	23.106020	-161.964090
11	23.106670	-161.963220
12	23.107310	-161.962340
13	23.107930	-161.961440
14	23.108540	-161.960530
15	23.109140	-161.959610
16	23.109720	-161.958670
17	23.110290	-161.957730
18	23.110850	-161.956770
19	23.111390	-161.955800
20	23.111910	-161.954820
21	23.112420	-161.953830
22	23.112920	-161.952830
23	23.113400	-161.951820
24	23.113870	-161.950800
25	23.114320	-161.949770
26	23.114750	-161.948740
27	23.115170	-161.947690
28	23.115580	-161.946640
29	23.115970	-161.945570
30	23.116340	-161.944500
31	23.116700	-161.943420
32	23.117040	-161.942340
33	23.117360	-161.941250
34	23.117670	-161.940150
35	23.117960	-161.939050
36	23.118240	-161.937940
37	23.118500	-161.936820
38	23.118740	-161.935700
39	23.118970	-161.934580
40	23.119170	-161.933450
41	23.119370	-161.932320
42	23.119540	-161.931180
43	23.119700	-161.930040
44	23.119840	-161.928900
45	23.119960	-161.927750
46	23.120070	-161.926610
47	23.120160	-161.925460
48	23.120230	-161.924310
49	23.120290	-161.923150
50	23.120320	-161.922000
51	23.120350	-161.920850

52	23.120350	-161.919690
53	23.120340	-161.918540
54	23.120300	-161.917390
55	23.120260	-161.916240
56	23.120190	-161.915090
57	23.120110	-161.913940
58	23.120010	-161.912790
59	23.119890	-161.911640
60	23.119760	-161.910500
61	23.119610	-161.909360
62	23.119440	-161.908230
63	23.119250	-161.907090
64	23.119050	-161.905970
65	23.118830	-161.904840
66	23.118600	-161.903720
67	23.118350	-161.902610
68	23.118080	-161.901500
69	23.117790	-161.900400
70	23.117490	-161.899300
71	23.117170	-161.898210
72	23.116840	-161.897130
73	23.116490	-161.896050
74	23.116190	-161.895200
75	23.116120	-161.894980
76	23.115770	-161.894010
77	23.115740	-161.893920
78	23.115340	-161.892870
79	23.114930	-161.891820
80	23.114500	-161.890790
81	23.114050	-161.889760
82	23.113590	-161.888740
83	23.113110	-161.887740
84	23.112620	-161.886740
85	23.112120	-161.885750
86	23.111600	-161.884770
87	23.111070	-161.883810
88	23.110520	-161.882850
89	23.109950	-161.881910
90	23.109380	-161.880970
91	23.108780	-161.880050
92	23.108180	-161.879150
93	23.107560	-161.878250
94	23.106930	-161.877370
95	23.106280	-161.876500
96	23.105630	-161.875640
97	23.104950	-161.874800
98	23.104270	-161.873970
99	23.103580	-161.873160

100	23.102870	-161.872360
101	23.102150	-161.871570
102	23.101420	-161.870800
103	23.100670	-161.870040
104	23.099920	-161.869300
105	23.099160	-161.868580
106	23.098380	-161.867870
107	23.097960	-161.867500
108	23.097590	-161.867180
109	23.096790	-161.866500
110	23.095990	-161.865840
111	23.095170	-161.865200
112	23.094350	-161.864570
113	23.093510	-161.863960
114	23.092670	-161.863370
115	23.091810	-161.862790
116	23.090950	-161.862240
117	23.090080	-161.861700
118	23.089200	-161.861170
119	23.088320	-161.860670
120	23.087420	-161.860180
121	23.086530	-161.859720
122	23.085620	-161.859270
123	23.084700	-161.858840
124	23.083780	-161.858420
125	23.082860	-161.858030
126	23.081930	-161.857660
127	23.080990	-161.857300
128	23.080040	-161.856970
129	23.079100	-161.856650
130	23.078140	-161.856350
131	23.077190	-161.856080
132	23.076220	-161.855820
133	23.075260	-161.855580
134	23.074290	-161.855360
135	23.073320	-161.855160
136	23.072350	-161.854990
137	23.071370	-161.854830
138	23.070390	-161.854690
139	23.069410	-161.854570
140	23.068430	-161.854470
141	23.067440	-161.854390
142	23.066450	-161.854330
143	23.065470	-161.854290
144	23.064480	-161.854280
145	23.063490	-161.854280
146	23.062510	-161.854300
147	23.061520	-161.854340

148	23.060530	-161.854400
149	23.059550	-161.854490
150	23.058570	-161.854590
151	23.057580	-161.854710
152	23.056600	-161.854850
153	23.055630	-161.855020
154	23.054650	-161.855200
155	23.053670	-161.855400
156	23.052710	-161.855620
157	23.051740	-161.855860
158	23.050780	-161.856120
159	23.049820	-161.856410
160	23.048870	-161.856710
161	23.047910	-161.857030
162	23.046970	-161.857360
163	23.046030	-161.857720
164	23.045100	-161.858100
165	23.044170	-161.858500
166	23.043240	-161.858910
167	23.042330	-161.859350
168	23.041420	-161.859800
169	23.040510	-161.860270
170	23.039620	-161.860760
171	23.038730	-161.861260
172	23.037850	-161.861790
173	23.036980	-161.862330
174	23.036110	-161.862890
175	23.035250	-161.863470
176	23.034400	-161.864070
177	23.033570	-161.864680
178	23.032740	-161.865310
179	23.031910	-161.865960
180	23.031100	-161.866620
181	23.030310	-161.867300
182	23.029510	-161.868000
183	23.028730	-161.868710
184	23.027960	-161.869430
185	23.027200	-161.870180
186	23.026460	-161.870940
187	23.025720	-161.871710
188	23.025000	-161.872500
189	23.024280	-161.873300
190	23.023580	-161.874120
191	23.022900	-161.874950
192	23.022220	-161.875790
193	23.021560	-161.876650
194	23.020910	-161.877520
195	23.020270	-161.878410

196	23.019650	-161.879310
197	23.019030	-161.880220
198	23.018440	-161.881140
199	23.017860	-161.882070
200	23.017290	-161.883020
201	23.016730	-161.883980
202	23.016190	-161.884940
203	23.015670	-161.885920
204	23.015150	-161.886910
205	23.014660	-161.887910
206	23.014170	-161.888920
207	23.013710	-161.889940
208	23.013260	-161.890970
209	23.012820	-161.892010
210	23.012400	-161.893060
211	23.012000	-161.894110
212	23.011610	-161.895170
213	23.011230	-161.896240
214	23.010880	-161.897320
215	23.010540	-161.898410
216	23.010210	-161.899500
217	23.009900	-161.900590
218	23.009610	-161.901700
219	23.009340	-161.902810
220	23.009080	-161.903920
221	23.008840	-161.905040
222	23.008610	-161.906170
223	23.008400	-161.907300
224	23.008210	-161.908430
225	23.008160	-161.908750
226	23.008030	-161.909560
227	23.007880	-161.910700
228	23.007740	-161.911850
229	23.007610	-161.912990
230	23.007550	-161.913660
231	23.007510	-161.914140
232	23.007420	-161.915290
233	23.007340	-161.916440
234	23.007290	-161.917590
235	23.007250	-161.918740
236	23.007230	-161.919900
237	23.007230	-161.921050
238	23.007240	-161.922210
239	23.007270	-161.923360
240	23.007270	-161.923360
241	23.007320	-161.924510
242	23.007380	-161.925660
243	23.007470	-161.926810



244	23.007570	-161.927960
245	23.007680	-161.929100
246	23.007820	-161.930240
247	23.007970	-161.931380
248	23.008140	-161.932520
249	23.008320	-161.933650
250	23.008520	-161.934780
251	23.008740	-161.935900
252	23.008980	-161.937020
253	23.009230	-161.938140
254	23.009500	-161.939240
255	23.009780	-161.940350
256	23.010080	-161.941440
257	23.010400	-161.942530
258	23.010740	-161.943620
259	23.011090	-161.944690
260	23.011460	-161.945760
261	23.011840	-161.946820
262	23.012240	-161.947880
263	23.012650	-161.948920
264	23.013080	-161.949960
265	23.013520	-161.950980
266	23.013990	-161.952000
267	23.014460	-161.953010
268	23.014950	-161.954010
269	23.015460	-161.955000
270	23.015980	-161.955970
271	23.016510	-161.956940
272	23.017060	-161.957900
273	23.017620	-161.958840
274	23.018200	-161.959770
275	23.018790	-161.960690
276	23.019400	-161.961600
277	23.019480	-161.961720
278	23.019600	-161.961890
279	23.020010	-161.962500
280	23.020650	-161.963380
281	23.021290	-161.964250
282	23.021950	-161.965100
283	23.022620	-161.965950
284	23.023300	-161.966770
285	23.024000	-161.967590
286	23.024710	-161.968390
287	23.025430	-161.969170
288	23.026160	-161.969950
289	23.026900	-161.970700
290	23.027650	-161.971440
291	23.028420	-161.972170

292	23.029200	-161.972870
293	23.029980	-161.973570
294	23.030780	-161.974240
295	23.031590	-161.974900
296	23.032400	-161.975550
297	23.033230	-161.976170
298	23.034060	-161.976780
299	23.034910	-161.977380
300	23.035760	-161.977950
301	23.036620	-161.978510
302	23.037490	-161.979050
303	23.038370	-161.979570
304	23.039260	-161.980080
305	23.040150	-161.980560
306	23.041050	-161.981030
307	23.041960	-161.981480
308	23.042870	-161.981910
309	23.043790	-161.982320
310	23.044720	-161.982710
311	23.045650	-161.983090
312	23.046590	-161.983440
313	23.047530	-161.983780
314	23.048480	-161.984090
315	23.049430	-161.984390
316	23.050390	-161.984670
317	23.051350	-161.984930
318	23.052320	-161.985160
319	23.053290	-161.985380
320	23.054260	-161.985580
321	23.055230	-161.985760
322	23.056210	-161.985920
323	23.057190	-161.986060
324	23.058170	-161.986180
325	23.059150	-161.986280
326	23.060130	-161.986350
327	23.061120	-161.986410
328	23.062110	-161.986450
329	23.063090	-161.986470
330	23.064080	-161.986470
331	23.065070	-161.986450
332	23.066060	-161.986400
333	23.067040	-161.986340
334	23.068030	-161.986260
335	23.069010	-161.986160
336	23.069990	-161.986030
337	23.070970	-161.985890
338	23.071950	-161.985730
339	23.072930	-161.985550

340	23.073900	-161.985350
341	23.074870	-161.985120
342	23.075830	-161.984880
343	23.076800	-161.984620
344	23.077760	-161.984340
345	23.078710	-161.984040
346	23.079660	-161.983720
347	23.080610	-161.983380
348	23.081550	-161.983020
349	23.082480	-161.982650
350	23.083410	-161.982250
351	23.084330	-161.981830
352	23.085250	-161.981400
353	23.086160	-161.980950
354	23.087060	-161.980480
355	23.087960	-161.979990
356	23.088850	-161.979480
357	23.089730	-161.978960
358	23.090600	-161.978410
359	23.091470	-161.977850
360	23.092320	-161.977270
361	23.093170	-161.976680
362	23.094010	-161.976060
363	23.094840	-161.975430
364	23.095660	-161.974790
365	23.096470	-161.974130
366	23.097270	-161.973450
367	23.098060	-161.972750
368	23.098840	-161.972040

### Midway Atoll Special Management Area Boundary Coordinates

[Coordinates listed in this Appendix are unprojected (Geographic) and based on the North American Datum of 1983.]

Point	Latitude	Longitude
1	27.997920	-177.312670
2	27.991240	-177.363420
3	27.992160	-177.417620
4	27.999620	-177.470820
5	28.015160	-177.518750
6	28.036610	-177.553930
7	28.068170	-177.594240
8	28.105720	-177.620360
9	28.148620	-177.643950
10	28.201340	-177.655070
11	28.214300	-177.656000
12	28.236740	-177.650280

13	28.258770	-177.651870
14	28.297350	-177.637040
15	28.316240	-177.625190
16	28.338040	-177.607680
17	28.369970	-177.595290
18	28.404180	-177.565440
19	28.436280	-177.526610
20	28.460440	-177.490130
21	28.475910	-177.445680
22	28.482310	-177.424090
23	28.484800	-177.378720
24	28.481280	-177.324120
25	28.464920	-177.265700
26	28.442740	-177.218650
27	28.412680	-177.172550
28	28.376800	-177.137820
29	28.332440	-177.115740
30	28.268790	-177.089450
31	28.214270	-177.087250
32	28.179270	-177.084890
33	28.156690	-177.093630
34	28.125950	-177.109140
35	28.097800	-177.124810
36	28.067810	-177.150600
37	28.039860	-177.186770
38	28.021050	-177.222070
39	28.005720	-177.264920
40	27.997920	-177.312670

[FR Doc. 06-5725

Filed 6-23-06; 8:45 am]

Billing code 3195-01-C



# Federal Register

---

**Tuesday,  
March 6, 2007**

---

## **Part VI**

## **The President**

---

**Proclamation 8112—Amending  
Proclamation 8031 of June 15, 2006, To  
Read, “Establishment of the  
Papahānaumokuākea Marine National  
Monument”**

## Title 3—

Proclamation 8112 of February 28, 2007

## The President

**Amending Proclamation 8031 of June 15, 2006, To Read, “Establishment of the Papahānaumokuākea Marine National Monument”**

By the President of the United States of America

**A Proclamation**

WHEREAS Proclamation 8031 of June 15, 2006, established the Northwestern Hawaiian Islands Marine National Monument;

NOW, THEREFORE, I, GEORGE W. BUSH, President of the United States of America, by the authority vested in me by the Constitution and the laws of the United States, including section 2 of the Act of June 8, 1906 (34 Stat. 225, 16 U.S.C. 431), do amend Proclamation 8031 for the purpose of giving the monument a Native Hawaiian name and making the following conforming changes and corrections;

**Section 1.** The title of Proclamation 8031 is amended to read, “Establishment of the Papahānaumokuākea Marine National Monument”.

**Sec. 2.** The phrase Northwestern Hawaiian Islands Marine National Monument is amended to read Papahānaumokuākea Marine National Monument, wherever it appears in Proclamation 8031.

**Sec. 3.** Under *Findings, Additional Findings for Native Hawaiian Practice Permits*, 2(e) is amended to read: *Any living monument resource harvested from the monument will be consumed or utilized in the monument.*

**Sec. 4.** The title of the map of the Monument accompanying Proclamation 8031 is amended to read, “Papahānaumokuākea Marine National Monument” and the word “Sanctuary” in the map is deleted wherever it appears and the word “Monument” is inserted in lieu thereof.





---

**APPENDIX D:**  
**Monument Regulations**

---

S6.1.4.1 Vehicles manufactured on or after September 1, 1998 and before September 1, 2007 are not required to comply with the requirements specified in S7.

S6.1.4.2 Vehicles manufactured on or after September 1, 2007 shall comply with the requirements specified in S7.

\* \* \* \* \*

Issued on: August 22, 2006.

**Nicole R. Nason,**

*Administrator.*

[FR Doc. E6-14259 Filed 8-28-06; 8:45 am]

BILLING CODE 4910-59-P

## DEPARTMENT OF COMMERCE

### National Oceanic and Atmospheric Administration

## DEPARTMENT OF THE INTERIOR

### Fish and Wildlife Service

#### 50 CFR Part 404

[Docket No. 060824225-6225-01]

RIN 0648-AU82

### Northwestern Hawaiian Islands Marine National Monument

**AGENCIES:** National Oceanic and Atmospheric Administration (NOAA), Department of Commerce (DOC); United States Fish and Wildlife Service (USFWS), Department of the Interior (DOI).

**ACTION:** Final rule.

**SUMMARY:** NOAA and the USFWS are issuing final regulations for the Northwestern Hawaiian Islands Marine National Monument. This action codifies the prohibitions and management measures set forth in Presidential Proclamation 8031 establishing the Monument. The rule is effective immediately.

**DATES:** *Effective date:* These regulations are effective August 25, 2006. Written comments on the information collection requirement must be received by October 30, 2006.

**ADDRESSES:** Submit written comments regarding the burden-hour estimates or other aspects of the information collection requirements contained in this proposed rule by e-mail to Diana Hynek at [dHynek@noaa.gov](mailto:dHynek@noaa.gov).

Coordinates for the outer boundary of the Monument, the Special Preservation Areas, the Ecological Reserves, and the Midway Atoll Special Management Area can be found at: <http://hawaiireef.noaa.gov/management/>.

**FOR FURTHER INFORMATION CONTACT:** NOAA contact: T. Aulani Wilhelm, Monument Superintendent (NOAA); 6600 Kalaniana'ole Highway, #300, Honolulu, HI 96825; (808) 397-2657.

FWS contact: Barry Stieglitz, Monument Project Leader (USFWS); Hawaiian and Pacific Islands NWR Complex, 300 Ala Moana Boulevard, Box 50167, Honolulu, HI 96850-5000; 808-792-9540.

*State of Hawaii contact:* Athline Clark, Special Projects Manager, Department of Land and Natural Resources, Division of Aquatic Resources; 1151 Punchbowl Street, Room 330, Honolulu, HI 96813; (808) 587-0099.

**SUPPLEMENTARY INFORMATION:** On June 15, 2006, President Bush established the Northwestern Hawaiian Islands Marine National Monument by issuing Presidential Proclamation 8031 (71 FR 36443, June 26, 2006) under the authority of the Antiquities Act (Act) (16 U.S.C. 431). The Proclamation reserves all lands and interests in lands owned or controlled by the Government of the United States in the Northwestern Hawaiian Islands (NWHI), including emergent and submerged lands and waters, out to a distance of approximately 50 nautical miles (nmi) from the islands. The outer boundary of the Monument is approximately 100 nmi wide and extends approximately 1200 nmi around coral islands, seamounts, banks, and shoals. The area includes the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, the Midway Atoll National Wildlife Refuge/Battle of Midway National Memorial, and the Hawaiian Islands National Wildlife Refuge.

The Proclamation appropriated and withdrew the area from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws, including, but not limited to, withdrawal from location, entry, and patent under mining laws, and from disposition under all laws relating to mineral and geothermal leasing.

The Proclamation provides that the Secretary of Commerce, through NOAA, has primary responsibility regarding the management of the marine areas of the Monument, in consultation with the Secretary of the Interior. The Secretary of the Interior, through the USFWS, has sole responsibility for management of the areas of the Monument that overlay the Midway Atoll National Wildlife Refuge, the Battle of Midway National Memorial, and the Hawaiian Islands National Wildlife Refuge, in consultation with the Secretary of Commerce. Further, the Proclamation

provides that nothing in the Proclamation diminishes or enlarges the jurisdiction of the State of Hawaii. The Monument includes state waters, including the Northwestern Hawaiian Islands State Marine Refuge and Kure Atoll Wildlife Sanctuary. The State currently holds the submerged and ceded lands of the NWHI in trust. This public trust is overseen by the Office of Hawaiian Affairs through an amendment to the Constitution of the State of Hawaii. The State of Hawaii has primary responsibility for managing the State waters of the Monument.

The three principal entities with responsibility for managing lands and waters of the Monument—NOAA, USFWS, and the State of Hawaii (collectively, the Co-Trustees)—are working cooperatively and will consult to administer the Monument. The Co-Trustees have established a goal to provide unified management in the spirit of cooperative conservation. This relationship will be further described in a Memorandum of Agreement among the Co-Trustees.

The Proclamation requires restrictions and prohibitions regarding activities in the Monument consistent with the authority provided by the Act. The Proclamation shall be applied in accordance with international law. No restrictions shall apply to or be enforced against a person who is not a citizen, national, or resident alien of the United States (including foreign flag vessels) unless in accordance with international law. NOAA and USFWS are promulgating as final regulations the management measures and prohibitions set forth in the Proclamation to codify them in the Code of Federal Regulations. This action will provide additional notice to the public and other interested parties of the terms of the Proclamation and activities that are prohibited or regulated and thereby facilitate improved compliance. Interested parties may view Hawaii Administrative Rules also applicable within the Monument at [http://www.hawaii.gov/dlnr/dar/fish\\_regs/nwhi.htm](http://www.hawaii.gov/dlnr/dar/fish_regs/nwhi.htm).

These regulations address the requirement in the Proclamation that the Secretaries shall ensure, in addition to other things, that commercial fishing for bottomfish and other associated pelagic species may continue in the Monument for no more than 5 years. Section 404.10 sets out the conditions under which such fishing may continue to be conducted. However, commercial fishing remains prohibited in areas of the Monument not open to such fishing prior to issuance of the Proclamation.

**Classification**

*Administrative Procedure Act*

The Secretaries find good cause to waive notice and comment on these regulations, pursuant to 5 U.S.C. 533(b)(B), and the 30-day delay in effective date pursuant to 5 U.S.C. 553(d). Notice and comment are unnecessary and contrary to the public interest because these regulations do not expand on the action already taken by the President in the Proclamation. The Proclamation became effective upon issuance on June 15, 2006. These regulations codify the prohibitions and management measures set forth in the Proclamation. Therefore, these regulations are being published as final

regulations and are effective August 25, 2006.

*E.O. 12866*

This rule has been determined to be significant for purposes of E.O. 12866.

*Paperwork Reduction Act*

This rule contains a collection-of-information requirement that was submitted to OMB for emergency approval under the Paperwork Reduction Act (PRA). The collection-of-information requirement was approved by OMB and granted OMB control number 0648-0548 which expires on February 28, 2007. We are now requesting comment on this information collection requirement for OMB's

subsequent review and approval on a non-emergency basis.

The public reporting burden for this information collection is described in the table below. The public reporting burden for permit applications and associated reporting requirements is estimated to average 1 hour per response. The public reporting burden for entry and exit notification is expected to average 15 minutes per response. The public reporting burden for VMS checklist certification is estimated to average 5 minutes per response. Each of these public reporting burdens includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

**APPLICANT BURDEN**

Permit type	Permits and other reporting per year	Responses per requirement	Total responses	Hours/response	Total hours	Annual record-keeping/reporting cost per response (dollar)	Total annual cost (dollar)
(a) General .....	33	3	99	1 .....	99	1.00 .....	99.00
(b) Special Ocean Use .....	5	3	15	24 .....	360	1.00 .....	15.00
(c) Native Hawaiian Practices.	2	2	4	4 .....	16	1.00 .....	4.00
(d) Recreation .....	2	3	6	1 .....	6	1.00 .....	6.00
(e) Entry & Exit Notice .....	174	2	348	5 minutes .....	29	0.00 .....	0.00
(f) Purchase and installation of VMS.	50	NA	NA	4 hours .....	50	899 (initial cost: \$3595).	44,950.00
(g) VMS maintenance .....	50	NA	NA	4 hours .....	200	0 .....	0
(h) VMS Certification .....	50	0.25	12.5	5 minutes .....	4	0.25 .....	13.00
(i) Hourly VMS reports .....	50	3805	190,224	5 seconds .....	264	1.28/day .....	10,145.00
<b>Total .....</b>	<b>124</b>	<b>.....</b>	<b>190,709</b>	<b>.....</b>	<b>1028</b>	<b>.....</b>	<b>55,232.00</b>

Note: VMS installation and activation hours and purchase costs are annualized by dividing by 4 years, the expected service life.

Public comment is sought regarding: whether this collection of information is necessary for the proper performance of the functions of the agency, including whether the information shall have practical utility; the accuracy of the burden estimate; ways to enhance the quality, utility, and clarity of the information to be collected; and ways to minimize the burden of the collection of information, including through the use of automated collection techniques or other forms of information technology. Send comments on these or any other aspects of the collection of information to Diana Hynek, Departmental Paperwork Clearance Officer, Department of Commerce, Room 6625, 14th and Constitution Avenue, NW, Washington, DC 20230, or via e-mail at [dHynek@noaa.gov](mailto:dHynek@noaa.gov).

Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject

to the requirements of the PRA, unless that collection of information displays a currently valid OMB Control Number.

**List of Subjects in 50 CFR Part 404**

Administrative practice and procedure, Coastal zone, Fish, Fisheries, Historic preservation, Intergovernmental relations, Marine resources, Monuments and memorials, Natural resources, Reporting and recordkeeping requirements, Wildlife, Wildlife refuges.

Dated: August 24, 2006.

**Conrad C. Lautenbacher Jr.**,  
*Vice Admiral, U.S. Navy (Ret.),*  
*Undersecretary of Commerce for Oceans and Atmosphere.*

Dated: August 24, 2006.

**David M. Verhey**,  
*Acting Assistant Secretary for Fish and Wildlife and Parks.*

■ Accordingly, NOAA and USFWS add part 404, title 50 of the Code of Federal Regulations as follows:

**PART 404—NORTHWESTERN HAWAIIAN ISLANDS MARINE NATIONAL MONUMENT**

- Sec.
- 404.1 Scope and purpose.
- 404.2 Boundary.
- 404.3 Definitions.
- 404.4 Access to the Monument.
- 404.5 Requirements for a vessel monitoring system.
- 404.6 Prohibited activities.
- 404.7 Regulated activities.
- 404.8 Emergencies and law enforcement activities.
- 404.9 Armed Forces actions.
- 404.10 Commercial fishing.
- 404.11 Permitting procedures and criteria.
- 404.12 International law.
- Appendix A to Part 404—Map of the Monument Outer Boundary and Ecological Reserves, Special Preservation Areas, and Midway Atoll Special Management Area
- Appendix B to Part 404—Approved Vessel Monitoring Systems

**Authority:** 16 U.S.C. 431 *et seq.*; 16 U.S.C. 460k-3; 16 U.S.C. 1801 *et seq.*; 16 U.S.C. 742f, 16 U.S.C. 742l, and 16 U.S.C. 668dd-

ee; 16 U.S.C. 1361 *et seq.*; 16 U.S.C. 1531 *et seq.*, Pub. L. No. 106–513, § 6(g) (2000).

#### § 404.1 Scope and purpose.

The regulations in this part codify the provisions of Presidential Proclamation 8031, and govern the administration of the Northwestern Hawaiian Islands Marine National Monument. These regulations are jointly implemented by the Secretaries of the Interior, through the U.S. Fish and Wildlife Service (USFWS), and Commerce, through the National Oceanic and Atmospheric Administration (NOAA). Nothing in these regulations shall be deemed to diminish or enlarge the jurisdiction of the State of Hawaii.

#### § 404.2 Boundary.

The Northwestern Hawaiian Islands Marine National Monument consists of all lands and interest in lands owned or controlled by the Government of the United States within the boundaries of the Monument, including emergent and submerged lands and waters of the Northwestern Hawaiian Islands. The map in Appendix A to this part 404 depicts the outer boundary of the Monument, which consists of the geodetic lines connecting the coordinates specified in the Proclamation.

#### § 404.3 Definitions.

The following definitions are applicable only to this Part.

*Attract or Attracting* means luring or attempting to lure a living resource by any means, except the mere presence of human beings (e.g., swimmers, divers, boaters).

*Bottomfish Species* means Bottomfish management unit species as defined at 50 CFR 665.12.

*Commercial Bottomfishing* means commercial fishing for bottomfish species.

*Commercial passenger vessel* means a vessel that carries individuals who have paid for such carriage.

*Commercial pelagic trolling* means commercial fishing for pelagic species.

*Deserting a vessel* means:

(1) Leaving a vessel aground or adrift:  
(i) Without notifying the Secretaries of the vessel going aground or adrift within 12 hours of its discovery and developing and presenting to the Secretaries a preliminary salvage plan within 24 hours of such notification;

(ii) After expressing or manifesting intention to not undertake or to cease salvage efforts; or

(iii) When the Secretaries are unable, after reasonable efforts, to reach the owner/operator within 12 hours of the vessel's condition being reported to authorities.

(2) Leaving a vessel at anchor when its condition creates potential for a grounding, discharge, or deposit and the owner/operator fails to secure the vessel in a timely manner.

*Ecological Reserve* means the areas of the Monument, identified in the Proclamation, consisting of contiguous, diverse habitats that provide natural spawning, nursery, and permanent residence areas for the replenishment and genetic protection of marine life, and also to protect and preserve natural assemblages of habitats and species within areas representing a broad diversity of resources and habitats found within the Monument. Specific coordinates for Ecological Reserves within the Monument are found in the Proclamation, and the Ecological Reserves consist of the areas within the geodetic lines connecting these coordinates. The Ecological Reserves are depicted on the map in Appendix A to part 404.

*Ecological integrity* means a condition determined to be characteristic of an ecosystem that has the ability to maintain the function, structure, and abundance of natural biological communities, including rates of change in response to natural environmental variation.

*Fishing year* means the year beginning at 0001 local time on January 1 and ending at 2400 local time on December 31.

*Introduced Species* means:

(1) A species (including, but not limited to, any of its biological matter capable of propagation) that is non-native to the ecosystem(s) protected by the Monument; or

(2) Any organism into which genetic matter from another species has been transferred in order that the host organism acquires the genetic traits of the transferred genes.

*Landing* means offloading fish from a fishing vessel or causing fish to be offloaded from a fishing vessel.

*Midway Atoll Special Management Area* means the area of the Monument surrounding Midway Atoll out to a distance of 12 nautical miles, established for the enhanced management, protection, and preservation of Monument wildlife and historical resources. The geographic coordinates of this area, which consists of the area within the geodetic lines connecting these coordinates, are found in the Proclamation. The Midway Atoll Special Management Area is depicted on the map in Appendix A to part 404.

*Mobile transceiver unit* means a vessel monitoring system or VMS device, as described in Appendix E to this Part, installed on board a vessel that is used

for vessel monitoring and transmitting the vessel's position as required by this Part.

*Monument* means the Northwestern Hawaiian Islands Marine National Monument.

*Native Hawaiian Practices* means cultural activities conducted for the purposes of perpetuating traditional knowledge, caring for and protecting the environment and strengthening cultural and spiritual connections to the Northwestern Hawaiian Islands that have demonstrable benefits to the Native Hawaiian community. This may include, but is not limited to, the non-commercial use of Monument resources for direct personal consumption while in the Monument.

*Ocean-based ecotourism* means a class of fee-for-service activities that involves visiting the Monument for study, enjoyment, or volunteer assistance for purposes of conservation and management.

*Office for Law Enforcement (OLE)* refers to NOAA, National Marine Fisheries Service, Office for Law Enforcement.

*Pelagic Species* means Pacific Pelagic Management Unit Species as defined at 50 CFR 665.12.

*Pono* means appropriate, correct, and deemed necessary by traditional standards in the Hawaiian culture.

*Proclamation* means Presidential Proclamation 8031, dated June 15, 2006 (71 FR 36443).

*Recreational activity* means an activity conducted for personal enjoyment that does not result in the extraction of Monument resources and that does not involve a fee-for-service transaction. This includes, but is not limited to, wildlife viewing, SCUBA diving, snorkeling, and boating.

*Secretaries* means the Secretary of Commerce and the Secretary of the Interior or their designees.

*Special Preservation Area (SPA)* means discrete, biologically important areas of the Monument, identified in the Proclamation, within which uses are subject to conditions, restrictions, and prohibitions, including but not limited to access restrictions. SPAs are used to avoid concentrations of uses that could result in declines in species populations or habitat, to reduce conflicts between uses, to protect areas that are critical for sustaining important marine species or habitats, or to provide opportunities for scientific research. Specific coordinates for Special Preservation Areas within the Monument are found in the Proclamation, and the Special Preservation Areas consist of the areas within the geodetic lines connecting these coordinates. The Special

Preservation Areas are depicted on the map in Appendix A to part 404.

*Special ocean use* means an activity or use of the Monument that is engaged in to generate revenue or profits for one or more of the persons associated with the activity or use, and does not destroy, cause the loss of, or injure Monument resources. This includes ocean-based ecotourism and other activities such as educational and research activities that are engaged in to generate revenue, but does not include commercial fishing for bottomfish or pelagic species conducted pursuant to a valid permit issued by NOAA.

*Stowed and not available for immediate use* means not readily accessible for immediate use, e.g., by being securely covered and lashed to a deck or bulkhead, tied down, unbaited, unloaded, or partially disassembled (such as spear shafts being kept separate from spear guns).

*Sustenance fishing* means fishing for bottomfish or pelagic species in which all catch is consumed within the Monument, and that is incidental to an activity permitted under this part.

*Vessel monitoring system or VMS* means a vessel monitoring system or mobile transceiver unit as described in § 404.5 and approved by Office for Law Enforcement for use on vessels permitted to access the Monument, as required by this Part.

#### § 404.4 Access to the Monument.

(a) Entering the Monument is prohibited and thus unlawful except:

- (1) As provided in §§ 404.8 and 404.9;
- (2) Pursuant to a permit issued under §§ 404.10 or 404.11; or

(3) When conducting passage without interruption in accordance with paragraph (b) of this section.

(b) Any person passing through the Monument without interruption is subject to the prohibitions in §§ 404.5, 404.6, and 404.7 and must provide notification prior to entering and after leaving the Monument. Notification of entry must be provided at least 72 hours, but no longer than 1 month, prior to the entry date. Notification of departure from the Monument must be provided within 12 hours of leaving. Notification under this paragraph may be made via e-mail, telephone or fax by contacting:

(1) E-mail: [nwhi.notifications@commat.noaa.gov](mailto:nwhi.notifications@commat.noaa.gov);  
or

(2) Telephone: 1-866-478-NWHI (6944); or (808) 395-NWHI (6944).

(c) A person providing notice under this paragraph must provide the following information, as applicable:

(1) Position when making report.

(2) Vessel name and International Maritime Organization identification number.

(3) Name, address, and telephone number of owner and operator.

(4) USCG documentation, state license, or registration number.

(5) Home port.

(6) Intended and actual route through the Monument.

(7) General categories of any hazardous cargo on board.

(8) Length of vessel and propulsion type (e.g., motor or sail).

#### § 404.5 Requirements for a vessel monitoring system.

(a) *Requirement for use.* Effective August 28, 2006, an owner or operator of a vessel that has been issued a permit for accessing the Monument must ensure that such vessel has an OLE-approved, operating VMS on board when voyaging within the Monument. An operating VMS includes an operating mobile transmitting unit on the vessel and a functioning communication link between the unit and OLE as provided by an OLE-approved communication service provider. Appendix B to this part 404 provides information regarding OLE-approved transmitting units.

(b) *Installing and activating the VMS.* Only a VMS that has been approved by OLE may be used. When installing and activating the OLE-approved VMS, or when reinstalling and reactivating such VMS, the vessel owner or operator must:

(1) Follow procedures indicated on an installation and activation checklist, which is available from OLE; and

(2) Submit to OLE a statement certifying compliance with the checklist, as prescribed on the checklist.

(c) *Interference with the VMS.* No person may interfere with, tamper with, alter, damage, disable, or impede the operation of the VMS, or attempt any of the same.

(d) *Interruption of operation of the VMS.* When a vessel's VMS is not operating properly, the owner or operator must immediately contact OLE, and follow instructions from that office. If notified by OLE that a vessel's VMS is not operating properly, the owner and operator must follow instructions from that office. In either event, such instructions may include, but are not limited to, manually communicating to a location designated by OLE the vessel's positions or returning to port until the VMS is operable.

(e) *Access to position data.* As a condition of authorized access to the Monument, a vessel owner or operator subject to the requirements for a VMS in this section must allow OLE, the USCG,

and their authorized officers and designees access to the vessel's position data obtained from the VMS. Consistent with other applicable laws, including the limitations on access to, and use of, VMS data collected under the Magnuson-Stevens Fishery Conservation and Management Act, the Secretaries may have access to, and use of, collected data for scientific, statistical, and management purposes.

(f) *Authority for installation and operation.* OLE has authority over the installation and operation of the VMS unit. OLE may authorize the connection or order the disconnection of additional equipment, including a computer, to any VMS unit when deemed appropriate by OLE.

(g) *Activities Regarding Vessel Monitoring Systems.* Effective August 28, 2006, the following activities regarding vessel monitoring systems are prohibited and thus unlawful for any person to conduct or cause to be conducted:

(1) Operating any vessel within the Monument without an OLE type-approved mobile transceiver unit described in this section;

(2) Failing to install, activate, repair, or replace a mobile transceiver unit prior to leaving port;

(3) Failing to operate and maintain a mobile transceiver unit on board the vessel at all times as specified in this section;

(4) Tampering with, damaging, destroying, altering, or in any way distorting, rendering useless, inoperative, ineffective, or inaccurate the VMS, mobile transceiver unit, or VMS signal required to be installed on or transmitted by a vessel as specified in this section;

(5) Failing to contact OLE or follow OLE instructions when automatic position reporting has been interrupted as specified in this section;

(6) Registering a VMS or mobile transceiver unit to more than one vessel at the same time;

(7) Connecting or leaving connected additional equipment to a VMS unit or mobile transceiver unit without the prior approval of OLE; and

(8) Making a false statement, oral or written, to an authorized officer regarding the installation, use, operation, or maintenance of a VMS unit or mobile transceiver unit or communication service provider.

#### § 404.6 Prohibited activities.

The following activities are prohibited and thus unlawful for any person to conduct or cause to be conducted:

(a) Exploring for, developing, or producing oil, gas, or minerals within the Monument;

(b) Using or attempting to use poisons, electrical charges, or explosives in the collection or harvest of a Monument resource;

(c) Introducing or otherwise releasing an introduced species from within or into the Monument; and

(d) Anchoring on or having a vessel anchored on any living or dead coral with an anchor, anchor chain, or anchor rope.

#### § 404.7 Regulated activities.

Except as provided in §§ 404.8, 404.9 and 404.10, the following activities are prohibited and thus unlawful for any person to conduct or cause to be conducted within the Monument without a valid permit as provided for in § 404.11:

(a) Removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging; or attempting to remove, move, take, harvest, possess, injure, disturb, or damage any living or nonliving Monument resource;

(b) Drilling into, dredging, or otherwise altering the submerged lands other than by anchoring a vessel; or constructing, placing, or abandoning any structure, material, or other matter on the submerged lands;

(c) Anchoring a vessel;

(d) Deserting a vessel aground, at anchor, or adrift;

(e) Discharging or depositing any material or other matter into Special Preservation Areas or the Midway Atoll Special Management Area except vessel engine cooling water, weather deck runoff, and vessel engine exhaust;

(f) Discharging or depositing any material or other matter into the Monument, or discharging or depositing any material or other matter outside the Monument that subsequently enters the Monument and injures any resources of the Monument, except fish parts (i.e., chumming material or bait) used in and during authorized fishing operations, or discharges incidental to vessel use such as deck wash, approved marine sanitation device effluent, cooling water, and engine exhaust;

(g) Touching coral, living or dead;

(h) Possessing fishing gear except when stowed and not available for immediate use during passage without interruption through the Monument;

(i) Swimming, snorkeling, or closed or open circuit SCUBA diving within any Special Preservation Area or the Midway Atoll Special Management Area; and

(j) Attracting any living Monument resource.

#### § 404.8 Emergencies and law enforcement activities.

The prohibitions in this part do not apply to activities necessary to respond to emergencies threatening life, property, or the environment, or to activities necessary for law enforcement purposes.

#### § 404.9 Armed Forces actions.

(a) The prohibitions in this part do not apply to activities and exercises of the Armed Forces (including those carried out by the United States Coast Guard) that are consistent with applicable laws.

(b) These regulations shall not limit agency actions to respond to emergencies posing an unacceptable threat to human health or safety or to the marine environment and admitting of no other feasible solution.

(c) All activities and exercises of the Armed Forces shall be carried out in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on Monument resources and qualities.

(d) In the event of threatened or actual destruction of, loss of, or injury to a Monument resource or quality resulting from an incident, including but not limited to spills and groundings, caused by a component of the Department of Defense or the United States Coast Guard, the cognizant component shall promptly coordinate with the Secretaries for the purpose of taking appropriate actions to respond to and mitigate the harm and, if possible, restore or replace the Monument resource or quality.

#### § 404.10 Commercial fishing.

(a) *Lobster fishing.* Any commercial lobster fishing permit is subject to a zero annual harvest limit condition.

(b) *Fishing and bottomfish and pelagic species.* (1) Notwithstanding the prohibitions in § 404.7(a) and (h), commercial fishing for bottomfish and associated pelagic species may continue within the Monument subject to paragraph (c) of this section, until June 15, 2011, provided that:

(i) The fishing is conducted in accordance with a valid commercial bottomfish permit issued by NOAA; and

(ii) Such permit was in effect on June 15, 2006, and is subsequently renewed pursuant to NOAA regulations at 50 CFR part 665, subpart E as necessary.

(2) Total landings for each fishing year from fishing allowed under paragraph (b)(1) of this section may not exceed the following amounts:

(i) 350,000 pounds for bottomfish species; and

(ii) 180,000 pounds for pelagic species.

(3) Commercial fishing for bottomfish and associated pelagic species is prohibited in the Monument after June 15, 2011.

(c) *General requirements.* Any commercial fishing within the Monument shall be conducted in accordance with the following restrictions and conditions:

(1) A valid permit or facsimile of a valid permit shall be on board the fishing vessel and available for inspection by an authorized officer;

(2) No attempt is made to falsify or fail to make, keep, maintain, or submit any logbook or logbook form or other required record or report.

(3) Only gear specifically authorized by the relevant permit issued under the Magnuson-Stevens Fishery Conservation and Management Act is allowed to be in the possession of a person conducting commercial fishing under this section;

(4) Any person conducting commercial fishing notifies the Secretaries by telephone, facsimile, or electronic mail at least 72 hours before entering the Monument and within 12 hours after leaving the Monument in accordance with § 404.4(b) and (c);

(5) All fishing vessels must carry an activated and functioning VMS unit on board at all times whenever the vessel is in the Monument;

(6) All fishing vessels must carry an observer when requested to do so by the Secretaries;

(7) The activity does not take place within any Ecological Reserve, any Special Preservation Area, or the Midway Atoll Special Management Area.

#### § 404.11 Permitting procedures and criteria.

(a) *Issuance.* Subject to such terms and conditions as the Secretaries deem appropriate, a person may conduct an activity prohibited by § 404.7 if such activity is specifically authorized by a permit issued under this section.

(b) *Application requirements.* Applicants for permits under this section shall submit applications to: Northwestern Hawaiian Islands Marine National Monument, 6600 Kalanianaʻole Highway, Suite 300, Honolulu, HI 96825.

(c) *Permit Types.* A permit under this subpart may be issued if the Secretaries find that the activity:

(1) Is research designed to further understanding of Monument resources and qualities;

(2) Will further the educational value of the Monument;



(3) Will assist in the conservation and management of the Monument;

(4) Will allow Native Hawaiian practices subject to paragraph (e) of this section;

(5) Will allow a special ocean use subject to paragraph (f) of this section; or

(6) Will allow recreational activities subject to paragraph (g) of this section.

(d) *Findings.* A permit may not be issued under this section unless the Secretaries find:

(1) The activity can be conducted with adequate safeguards for the resources and ecological integrity of the Monument;

(2) The activity will be conducted in a manner compatible with the purposes of the Proclamation, considering the extent to which the conduct of the activity may diminish or enhance Monument resources, qualities, and ecological integrity, any indirect, secondary or cumulative effects of the activity, and the duration of such effects;

(3) There is no practicable alternative to conducting the activity within the Monument;

(4) The end value of the activity outweighs its adverse impacts on Monument resources, qualities, and ecological integrity;

(5) The duration of the activity is no longer than necessary to achieve its stated purpose;

(6) The applicant is qualified to conduct and complete the activity and mitigate any potential impacts resulting from its conduct;

(7) The applicant has adequate financial resources available to conduct and complete the activity and mitigate any potential impacts resulting from its conduct;

(8) The methods and procedures proposed by the applicant are appropriate to achieve the proposed activity's goals in relation to their impacts to Monument resources, qualities, and ecological integrity;

(9) The applicant's vessel has been outfitted with a mobile transceiver unit approved by OLE and complies with the requirements of § 404.5; and

(10) There are no other factors that would make the issuance of a permit for the activity inappropriate.

(e) *Additional findings for Native Hawaiian practice permits.* In addition to the findings listed in paragraph (d) of this section, a permit to allow Native Hawaiian practices under paragraph (c)(4) of this section, may not be issued unless:

(1) The activity is non-commercial and will not involve the sale of any organism or material collected;

(2) The purpose and intent of the activity are appropriate and deemed necessary by traditional standards in the Native Hawaiian culture (*pono*), and demonstrate an understanding of, and background in, the traditional practice, and its associated values and protocols;

(3) The activity benefits the resources of the Northwestern Hawaiian Islands and the Native Hawaiian community;

(4) The activity supports or advances the perpetuation of traditional knowledge and ancestral connections of Native Hawaiians to the Northwestern Hawaiian Islands; and

(5) Any Monument resource harvested from the Monument will be consumed in the Monument.

(f) *Additional findings, criteria, and requirements for special ocean use permits.* (1) In addition to the findings listed in paragraph (d) of this section, the following requirements apply to the issuance of a permit for a special ocean use under paragraph (c)(5) of this section:

(i) Any permit for a special ocean use issued under this section:

(ii) Shall authorize the conduct of an activity only if that activity is compatible with the purposes for which the Monument is designated and with protection of Monument resources;

(A) Shall not authorize the conduct of any activity for a period of more than 5 years unless renewed;

(B) Shall require that activities carried out under the permit be conducted in a manner that does not destroy, cause the loss of, or injure Monument resources; and

(iii) Shall require the permittee to purchase and maintain comprehensive general liability insurance, or post an equivalent bond, against claims arising out of activities conducted under the permit and to agree to hold the United States harmless against such claims;

(iv) Each person issued a permit for a special ocean use under this section shall submit an annual report to the Secretaries not later than December 31 of each year which describes activities conducted under that permit and revenues derived from such activities during the year.

(2) In addition to the findings listed in paragraph (d) of this section, a permit may not be issued for a special ocean use unless the activity has been determined to be consistent with the findings made pursuant to paragraph (f) of this section.

(3) Categories of special ocean use being permitted for the first time under this section will be restricted in duration and permitted as a special ocean use pilot project. Subsequent permits for any category of special

ocean use may only be issued if a special ocean use pilot project for that category meets the requirements of this section, and any terms and conditions placed on the permit for the pilot project.

(4) Public notice shall be provided prior to requiring a special ocean use permit for any category of activity not previously identified as a special ocean use.

(5) The following requirements apply to permits for a special ocean use for an activity within the Midway Atoll Special Management Area.

(i) A permit for a special ocean use for activities within the Midway Atoll Special Management Area may be issued provided:

(A) The activity furthers the conservation and management of the Monument; and

(B) The Director of the United States Fish and Wildlife Service or his or her designee has determined that the activity is compatible with the purposes for which the Midway Atoll National Wildlife Refuge was designated.

(ii) As part of a permit issued pursuant to this paragraph (f)(5), vessels may be allowed to transit the Monument as necessary to enter the Midway Atoll Special Management Area.

(6) A permit for a special ocean use for activities outside the Midway Atoll Special Management Area may be issued provided:

(i) The activity will directly benefit the conservation and management of the Monument;

(ii) The purpose of the activity is for research or education related to the resources or qualities of the Monument;

(iii) Public notice of the application and an opportunity to provide comments is given at least 30 days prior to issuing the permit; and

(iv) The activity does not involve the use of a commercial passenger vessel.

(g) *Additional findings for recreation permits.* A permit for recreational activities under paragraph (c)(6) of this section may be issued for activities to be conducted within the Midway Atoll Special Management area if, in addition to the findings listed in paragraph (d) of this section:

(1) The activity is for the purpose of recreation as defined in section 404.3;

(2) The activity is not associated with any for-hire operation; and

(3) The activity does not involve any extractive use.

(h) *Sustenance fishing.* Sustenance fishing, as defined in 404.3, may be allowed outside of any Special Preservation Area as a term or condition of any permit issued under this part. Sustenance fishing in the Midway Atoll

Special Management Area shall not be allowed unless the activity has been determined by the Director of the U.S. Fish and Wildlife Service or his or her designee to be compatible with the purposes for which the Midway Atoll National Wildlife Refuge was established. Sustenance fishing must be conducted in a manner compatible with the Proclamation and this part, including considering the extent to which the conduct of the activity may

diminish Monument resources, qualities, and ecological integrity, as well as any indirect, secondary, or cumulative effects of the activity and the duration of such effects. Sustenance fishing is subject to systematic reporting requirements when developed by the Secretaries.

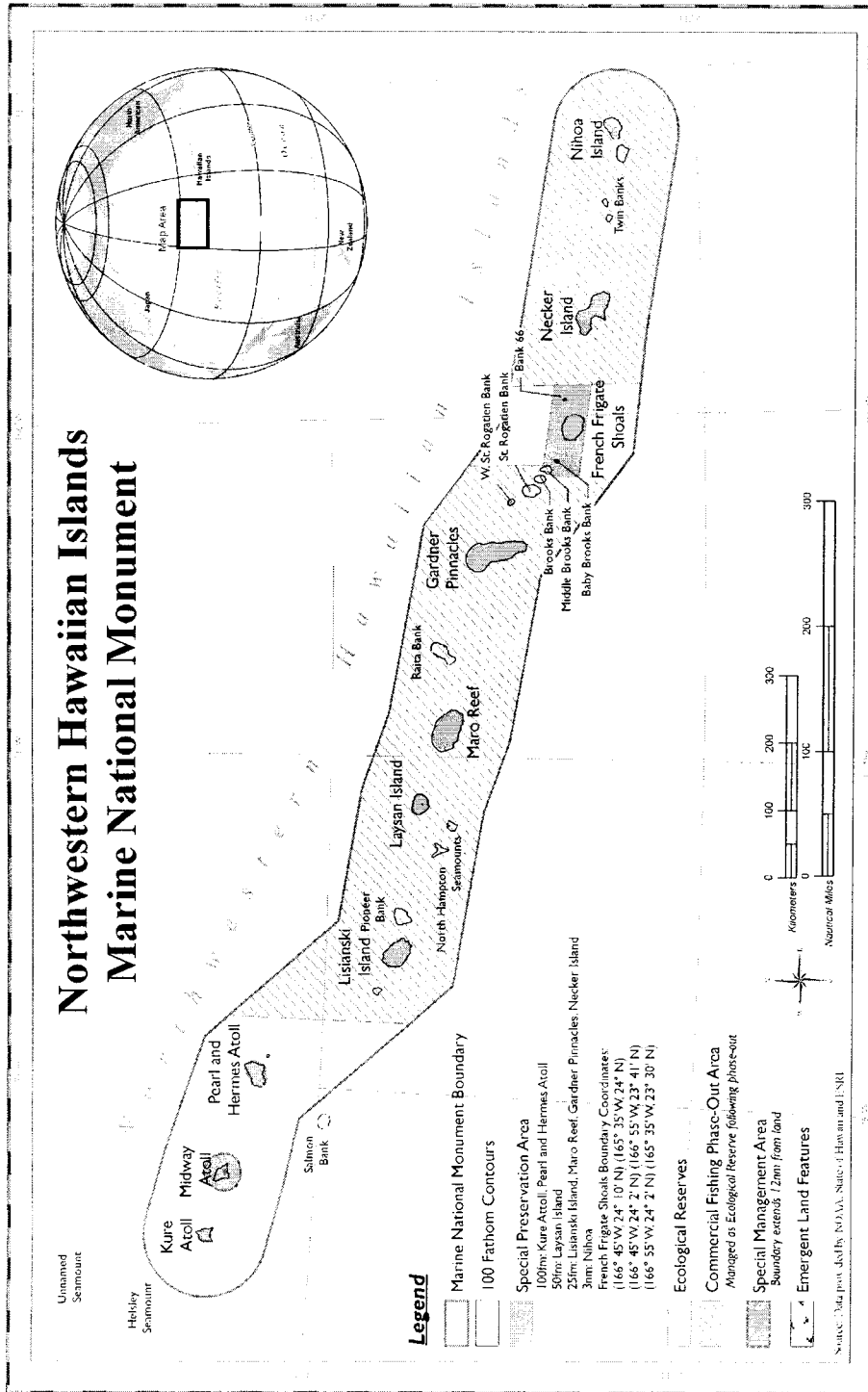
**§ 404.12 International law.**

These regulations shall be applied in accordance with international law. No restrictions shall apply to or be enforced

against a person who is not a citizen, national, or resident alien of the United States (including foreign flag vessels) unless in accordance with international law.

**Appendix A to Part 404—Map of the Monument Outer Boundary and Ecological Reserves, Special Preservation Areas, and Midway Atoll Special Management Area**

BILLING CODE 3510-NK-P



BILLING CODE 3510-NK-C

## Appendix B to Part 404—Approved VMS

### I. VMS Mobile Transceiver Unit

#### *Thrane & Thrane Sailor 3026D Gold VMS*

The Thrane & Thrane Sailor 3026D Gold VMS (TT-3026D) has been found to meet the minimum technical requirements for vessels issued permits to operate in the Northwestern Hawaiian Islands Marine National Monument. The address for the Thrane & Thrane distributor contact is provided in this notice under the heading VMS Provider Address.

The TT-3026D Gold VMS features an integrated GPS/Inmarsat-C unit and a marine grade monitor with keyboard and integrated mouse. The unit is factory pre-configured for NMFS VMS operations (non-Global Maritime Distress & Safety System (non-GMDSS)). Satellite commissioning services are provided by Thrane & Thrane personnel.

Automatic GPS position reporting starts after transceiver installation and power activation onboard the vessel. The unit is an integrated transceiver/antenna/GPS design using a floating 10 to 32 VDC power supply. The unit is configured for automatic reduced position transmissions when the vessel is stationary (i.e., in port). It allows for port stays without power drain or power shut down. The unit restarts normal position transmission automatically when the vessel goes to sea.

The TT-3026D provides operation down to +/- 15 degree angles. The unit has the capability of two-way communications to send formatted forms and to receive e-mail and other messages. A configuration option is available to automatically send position reports to a private address, such as a fleet management company.

A vessel owner may purchase this system by contacting the entity identified in this notice under the heading "VMS Provider Address". The owner should identify himself or herself as a vessel owner issued a permit to operate in the Northwestern Hawaiian Islands Marine National Monument, so the transceiver set can be properly configured. To use the TT-3026D the vessel owner will need to establish an Inmarsat-C system use contract with an approved Inmarsat-C communications service provider. The owner will be required to complete the Inmarsat-C "Registration for Service Activation for Maritime Mobile Earth Station." The owner should consult with Thrane & Thrane when completing this form.

Thrane & Thrane personnel will perform the following services before shipment: (1) Configure the transceiver according to OLE specifications for vessels issued permits to operate in the Northwestern Hawaiian Islands Marine National Monument; (2) download the predetermined NMFS position

reporting and broadcast command identification numbers into the unit; (3) test the unit to ensure operation when installation has been completed on the vessel; and (4) forward the Inmarsat service provider and the transceiver identifying information to OLE.

### II. Inmarsat-C Communications Providers

It is recommended, for vendor warranty and customer service purposes, that the vessel owner keep for his or her records and that Telenor and Xantic have on record the following identifying information: (1) Signed and dated receipts and contracts; (2) transceiver serial number; (3) Telenor or Xantic customer number, user name and password; (4) e-mail address of transceiver; (5) Inmarsat identification number; (6) owner name; (7) vessel name; (8) vessel documentation or registration number; and (9) mobile earth station license (FCC license).

The OLE will provide an installation and activation checklist that the vessel owner must follow. The vessel owner must sign a statement on the checklist certifying compliance with the installation procedures and return the checklist to OLE. Installation can be performed by an experienced crew or by an electronics specialist, and the installation cost is paid by the owner.

The owner may confirm the TT-3026D operation and communications service to ensure that position reports are automatically sent to and received by OLE before leaving on a trip under VMS. The OLE does not regard the vessel as meeting requirements until position reports are automatically received. For confirmation purposes, contact the NOAA Fisheries Office for Law Enforcement, 8484 Georgia Ave., Suite 415, Silver Spring, MD 20910, phone 888-219-9228, fax 301-427-0049.

#### *Telenor Satellite Services*

Inmarsat-C is a store-and-forward data messaging service. Inmarsat-C allows users to send and receive information virtually anywhere in the world, on land, at sea, and in the air. Inmarsat-C supports a wide variety of applications including Internet, e-mail, position and weather reporting, a free daily news service, and remote equipment monitoring and control. Mariners can use Inmarsat-C free of charge to send critical safety at sea messages as part of the U.S. Coast Guard's Automated Mutual-Assistance Vessel Rescue system and of the NOAA Shipboard Environmental Acquisition System programs. Telenor Vessel Monitoring System Services is being sold through Thrane & Thrane, Inc. For the Thrane & Thrane and Telenor addresses, look inside this notice under the heading "VMS Provider Address".

#### *Xantic*

Xantic is a provider of Vessel Monitoring Services to the maritime industry. By

installing an approved OLE Inmarsat-C transceiver on the vessel, vessels can send and receive e-mail, to and from land, while the transceiver automatically sends vessel position reports to OLE, and is fully compliant with the International Coast Guard Search and Rescue Centers. Xantic Vessel Monitoring System Services are being sold through Thrane & Thrane, Inc. For the Thrane & Thrane and Xantic addresses, look in this notice under the heading "VMS Provider Address".

For Telenor and Xantic, Thrane & Thrane customer service supports the security and privacy of vessel accounts and messages with the following: (a) Password authentication for vessel owners or agents and for OLE to prevent unauthorized changes or inquiries; and (b) separation of private messages from OLE messages. (OLE requires VMS-related position reports, only.)

Billing is separated between accounts for the vessel owner and the OLE. VMS position reports and vessel-initiated messaging are paid for by the vessel owner. Messaging initiated from OLE operations center is paid for by NOAA.

Thrane & Thrane provides customer service for Telenor and Xantic users to support and establish two-way transmission of transceiver unit configuration commands between the transceiver and land-based control centers. This supports OLE's message needs and, optionally, the crew's private message needs.

The vessel owner can configure automatic position reports to be sent to a private address, such as to a fleet management company.

Vessel owners wishing to use Telenor or Xantic services will need to purchase an Inmarsat-C transceiver approved for vessels issued permits to operate in the Northwestern Hawaiian Islands Marine National Monument. The owner will need to complete an Inmarsat-C system use contract with Telenor or Xantic, including a mobile earth station license (FCC requirement). The transceiver will need to be commissioned with Inmarsat according to Telenor or Xantic's instructions. The owner should refer to and follow the configuration, installation, and service activation procedures for the specific transceiver purchased.

### III. VMS Provider Address

For TT-3026D, Telenor, or Xantic information, contact Ronald Lockerby, Marine Products, Thrane & Thrane, Inc., 509 Viking Drive, Suite K, L & M, Virginia Beach, VA 23452; voice: 757-463-9557; fax: 757-463-9581, e-mail: [rdl@tt.dk.com](mailto:rdl@tt.dk.com); Web site: <http://www.landseasystems.com>.

[FR Doc. 06-7235 Filed 8-25-06; 12:24 pm]

BILLING CODE 3510-NK-P

# Corrections

Federal Register

Vol. 71, No. 173

Thursday, September 7, 2006

This section of the FEDERAL REGISTER contains editorial corrections of previously published Presidential, Rule, Proposed Rule, and Notice documents. These corrections are prepared by the Office of the Federal Register. Agency prepared corrections are issued as signed documents and appear in the appropriate document categories elsewhere in the issue.

## DEPARTMENT OF COMMERCE

### National Oceanic and Atmospheric Administration

## DEPARTMENT OF THE INTERIOR

### Fish and Wildlife Service

#### 50 CFR Part 404

[Docket No. 060824225–6225–01]

RIN 0648–AU82

### Northwestern Hawaiian Islands Marine National Monument

#### *Correction*

In rule document 06–7235 beginning on page 51134 in the issue of Tuesday,

August 29, 2006, make the following correction:

#### **§ 404.4 [Corrected]**

On page 51137, in the first column, in § 404.4(b)(1), in the second line, “*nwhi.notifications@commat;noaa.gov*” should read “*nwhi.notifications@noaa.gov*”.

[FR Doc. C6–7235 Filed 9–6–06; 8:45 am]

BILLING CODE 1505–01–D

(3) \* \* \*

(i) *Possession and use of required mitigation gear.* The equipment listed in paragraph (c)(5)(i) of this section must be carried on board and must be used to handle, release, and disentangle hooked or entangled sea turtles, prohibited sharks, or smalltooth sawfish in accordance with requirements specified in paragraph (d)(3)(ii) of this section.

(ii) *Handling and release requirements.* Sea turtle bycatch mitigation gear, as required by paragraph (d)(3)(i) of this section, must be used to disengage any hooked or entangled sea turtles as stated in paragraph (c)(5)(ii) of this section. This mitigation gear should also be employed to disengage any hooked or entangled species of prohibited sharks as listed in Category (D) of Table 1 of Appendix A of this part. If a smalltooth sawfish is caught, the fish should be kept in the water while maintaining water flow over the gills and examined for research tags and the line should be cut as close to the hook as possible. Dehooking devices should not be used to release smalltooth sawfish.

\* \* \* \* \*

■ 5. In § 635.71, paragraph (a)(33) is revised as follows:

**§ 635.71 Prohibitions.**

\* \* \* \* \*

(a) \* \* \*

(33) Deploy or fish with any fishing gear from a vessel with pelagic or bottom longline gear on board without carrying the required sea turtle bycatch mitigation gear, as specified at § 635.21(c)(5)(i) for pelagic longline gear and § 635.21(d)(3)(i) for bottom longline gear. This equipment must be utilized in accordance with § 635.21(c)(5)(ii) and (d)(3)(ii) for pelagic and bottom longline gear, respectively.

\* \* \* \* \*

[FR Doc. E7-2011 Filed 2-6-07; 8:45 am]

BILLING CODE 3510-22-S

**DEPARTMENT OF COMMERCE****National Oceanic and Atmospheric Administration****DEPARTMENT OF THE INTERIOR****Fish and Wildlife Service****50 CFR Part 404**

[Docket No. 060824225-6031-02]

RIN 0648-AU82

**Northwestern Hawaiian Islands Marine National Monument; Correction**

**AGENCIES:** National Oceanic and Atmospheric Administration (NOAA), Department of Commerce (DOC); United States Fish and Wildlife Service (USFWS), Department of the Interior (DOI).

**ACTION:** Final rule; correcting amendment.

**SUMMARY:** NOAA and the USFWS published final regulations for the Northwestern Hawaiian Islands Marine National Monument (Monument) on August 29, 2006. The preamble and regulatory text of that notice contained errors pertaining to the electronic mail address for submitting comments on the information collection requirements of that rule, the reference to the dimensions of the outer boundary of the Monument, and the numbering sequence for one paragraph. This final rule corrects those errors. This rule makes no substantive change to the regulations.

**DATES:** This correction is effective February 7, 2007.

**SUPPLEMENTARY INFORMATION:** Regulations published by NOAA and the USFWS on August 29, 2006 to codify the prohibitions and management measures set forth in Presidential Proclamation 8031 (71 FR 36443, June 26, 2006) establishing the Monument, contained an error in the instructions for submitting comments on the information collection requirements of the final rule via electronic mail, the reference to the dimensions of the Monument's outer boundary, and the numbering sequence for one paragraph.

The first error appeared in the first sentence of the **ADDRESSES** section of the notice. Here the notice incorrectly refers to a "proposed rule" and provides the incorrect e-mail address. That sentence should read "Submit written comments regarding the burden-hour estimates or other aspects of the information collection requirements contained in this final rule by e-mail to Diana Hynek at *dHynek@doc.gov*." The incorrect e-

mail address also appeared in the **SUPPLEMENTARY INFORMATION** section of the notice in the first column on page 51135 below the table. The e-mail address should read *dHynek@doc.gov*.

The second error is in the third sentence of the first paragraph of the **SUPPLEMENTARY INFORMATION** section of the notice, where dimensions for the outer boundary of the Monument were given. The dimensions are for the Monument, not the outer boundary. Therefore, this sentence should read "The Monument is approximately 100 nmi wide and extends approximately 1200 nmi around coral islands, seamounts, banks, and shoals."

The regulatory text of that rule also contained an error in the numbering sequence for one paragraph. Paragraph 404.11(f)(1)(ii) should have been designated as paragraph 404.11(f)(1)(i)(A). Paragraphs 404.11(f)(1)(ii)(A) and (B) and paragraph 404.11(f)(1)(iii) should have been numbered paragraphs 404.11(f)(1)(i)(B) through (D), respectively. Paragraph 404.11(f)(1)(iv) should have been designated as paragraph 404.11(f)(1)(ii). This final rule makes these corrections. The substance of the regulations remains unchanged.

**Classification***Administrative Procedure Act*

The Secretaries find good cause to waive notice and comment on this correction, pursuant to 5 U.S.C. 533(b)(B), and the 30-day delay in effective date pursuant to 5 U.S.C. 553(d). Notice and comment are unnecessary because this correction is a minor, technical change in an e-mail address and the numbering of the regulations as well as elimination of erroneous references to the notice as a proposed rule and the dimensions of the Monument's outer boundary. The substance of the regulations remains unchanged. Therefore, this correction is being published as a final regulation and is effective February 7, 2007.

*E.O. 12866*

This rule has been determined to be not significant for purposes of E.O. 12866.

**List of Subjects in 50 CFR Part 404**

Administrative practice and procedure, Coastal zone, Fish, Fisheries, Historic preservation, Intergovernmental relations, Marine resources, Monuments and memorials, Natural resources, Reporting and recordkeeping requirements, Wildlife, Wildlife refuges.



Dated: November 16, 2006.

**Conrad C. Lautenbacher Jr.,**

*Undersecretary of Commerce for Oceans and Atmosphere.*

Dated: January 5, 2007.

**David M. Verhey,**

*Acting Assistant Secretary for Fish and Wildlife and Parks.*

■ Accordingly, NOAA and USFWS correct 50 CFR part 404 as follows:

#### **PART 404—NORTHWESTERN HAWAIIAN ISLANDS MARINE NATIONAL MONUMENT**

■ 1. The authority citation for 50 CFR part 404 continues to read as follows:

**Authority:** 16 U.S.C. 431 *et seq.*; 16 U.S.C. 460k-3; 16 U.S.C. 1801 *et seq.*; 16 U.S.C. 742f; 16 U.S.C. 742l; and 16 U.S.C. 668dd-ee; 16 U.S.C. 1361 *et seq.*; 16 U.S.C. 1531 *et seq.*; Pub. L. No. 106-513, § 6(g) (2000).

■ 2. In § 404.11, paragraph (f)(1) is revised to read as follows:

#### **§ 404.11 Permitting procedures and criteria.**

\* \* \* \* \*

(f) *Additional findings, criteria, and requirements for special ocean use permits.*

(1) In addition to the findings listed in paragraph (d) of this section, the following requirements apply to the issuance of a permit for a special ocean use under paragraph (c)(5) of this section:

(i) Any permit for a special ocean use issued under this section:

(A) Shall authorize the conduct of an activity only if that activity is compatible with the purposes for which the Monument is designated and with protection of Monument resources;

(B) Shall not authorize the conduct of any activity for a period of more than 5 years unless renewed;

(C) Shall require that activities carried out under the permit be conducted in a manner that does not destroy, cause the loss of, or injure Monument resources; and

(D) Shall require the permittee to purchase and maintain comprehensive general liability insurance, or post an equivalent bond, against claims arising out of activities conducted under the permit and to agree to hold the United States harmless against such claims;

(ii) Each person issued a permit for a special ocean use under this section shall submit an annual report to the Secretaries not later than December 31 of each year which describes activities conducted under that permit and revenues derived from such activities during the year.

\* \* \* \* \*

[FR Doc. 07-545 Filed 2-6-07; 8:45 am]

**BILLING CODE 3510-NK-P**

#### **DEPARTMENT OF COMMERCE**

#### **National Oceanic and Atmospheric Administration**

#### **50 CFR Part 648**

[Docket No. 061124307-7013-02; I.D. 112106A]

**RIN 0648-AT65**

#### **Fisheries of the Northeastern United States; Atlantic Mackerel, Squid, and Butterfish Fisheries; Specifications and Management Measures; Correction**

**AGENCY:** National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Final rule; correction.

**SUMMARY:** On January 30, 2007, NMFS published a final rule implementing 2007 specifications and management measures for Atlantic mackerel, squid, and butterfish (MSB) and modifying existing management measures. The preamble to the final rule contains Table 1 announcing the specifications for Atlantic mackerel, squid, and butterfish fisheries for the 2007 fishing year. Table 2 of the preamble to the final rule announces the trimester allocation of the *Loligo* squid quota in 2007. The headings to both tables inadvertently indicated that the specifications and allocation for 2007 were “proposed” rather than “final”. This document corrects those errors.

**DATES:** Effective March 1, 2007.

**FOR FURTHER INFORMATION CONTACT:** Carrie Nordeen, Fishery Policy Analyst, 978-281-9272, fax 978-281-9135.

**SUPPLEMENTARY INFORMATION:** Regulations implementing the Fishery

Management Plan for the Atlantic Mackerel, Squid, and Butterfish Fisheries (FMP) appear at 50 CFR part 648, subpart B, and regulations governing foreign fishing appear at 50 CFR part 600, subpart F. The final rule published on January 30, 2007 (72 FR 4211) fulfilled NMFS regulatory requirements at §§ 648.21 and 600.516(c) based on the maximum optimum yield (Max OY) of each fishery as established by the regulations, annually specify the amounts of the initial optimum yield (IOY), allowable biological catch (ABC), domestic annual harvest (DAH), and domestic annual processing (DAP), as well as, where applicable, the amounts for total allowable level of foreign fishing (TALFF) and joint venture processing (JVP) for the affected species managed under the FMP. The final specifications for 2007 were identified in Table 1 of the preamble to the final rule. However, the heading to Table 1 inadvertently indicated that the specifications were “proposed” rather than “final”. This document corrects the heading for Table 1 appearing on page 4212 (FR Doc. E7-1445) of the preamble contained in the January 30, 2007 **Federal Register** document. The remainder of Table 1 is republished in its entirety for the public’s convenience.

The final rule published January 30, 2007 (72 FR 4213) also identified the distribution of the trimester allocation of *Loligo* squid quota for the 2007 fishing year. However, the heading to Table 2 inadvertently indicated that the trimester allocation was “proposed” rather than “final”. This document corrects the heading for Table 2 appearing on page 4213 (FR Doc. E7-1445) of the preamble contained in the January 30, 2007 **Federal Register** final rule document. The remainder of Table 2 is republished in its entirety for the public’s convenience.

#### **Correction**

Accordingly, the final rule published on January 30, 2007, at 72 FR 4211 (FR Doc. E7-1445), to be effective March 1, 2007, is corrected as follows:

1. On page 4212, Table 1, title heading is corrected and the table text is republished to read as follows:

---

**APPENDIX E:**  
**Monument Memorandum of Agreement**

---

MEMORANDUM OF AGREEMENT

AMONG THE

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

AND THE

U.S. DEPARTMENT OF THE INTERIOR  
U.S. FISH AND WILDLIFE SERVICE

AND THE

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

FOR

PROMOTING COORDINATED MANAGEMENT OF THE  
NORTHWESTERN HAWAIIAN ISLANDS MARINE NATIONAL MONUMENT



## I. BACKGROUND

- A. The President established the Northwestern Hawaiian Islands Marine National Monument (Monument) on June 15, 2006, to protect the scientific and historic resources of the Northwestern Hawaiian Islands (NWHI). The purposes and management regime for the Monument, as well as restrictions and prohibitions regarding activities in the Monument, are set forth in Presidential Proclamation 8031 (71 FR 36443, June 26, 2006).
- B. The Monument encompasses a vast and remote chain of islands that is a part of the Hawaiian Archipelago and provides habitat for numerous species found nowhere else on earth. These islands represent a nearly pristine ecosystem where habitats upon which marine species depend include both land and water. This area represents the majority of the coral reefs found within the United States' jurisdiction and supports more than 7,000 marine species, of which at least one quarter are unique to the Hawaiian Islands chain. This diverse ecosystem is home to many species of coral, fish, birds, marine mammals, and other flora and fauna, including the endangered Hawaiian monk seal, the threatened green sea turtle, and the endangered leatherback and hawksbill sea turtles. Like the coral reefs, the islets are home to many plant and animal species found nowhere else in the world, including four endangered land birds, an endangered seabird, and 12 endangered plants. In addition, millions of central Pacific seabirds congregate on these islands to breed. The area is rich in history and represents a place of great cultural significance to Native Hawaiians. It is an area that must be carefully managed to ensure that the resources are not diminished for future generations. The Hawaiian Islands are also the most remote archipelago in the world. This isolation has resulted in the opportunity and need for integrated resource management of this vast and exceptional environment.
- C. The Secretary of Commerce, through the National Oceanic and Atmospheric Administration (NOAA), has primary responsibility regarding the management of the marine areas of the Monument, in consultation with the Secretary of the Interior. The Secretary of the Interior, through the United States Fish and Wildlife Service (USFWS), has sole responsibility for the areas of the Monument that overlay the Midway Atoll National Wildlife Refuge, the Battle of Midway National Memorial, and the Hawaiian Islands National Wildlife Refuge, in consultation with the Secretary of Commerce. Nothing in the Proclamation diminishes or enlarges the jurisdiction of the State of Hawai'i. The State of Hawai'i has primary responsibility for managing the State waters of the Monument. The State of Hawai'i through the Department of Land and Natural Resources has primary responsibility for the Kure Atoll portion of the Hawai'i State Seabird Sanctuary. The State of Hawai'i holds the State submerged and ceded lands of the NWHI in trust. The Department of Land and Natural Resources (DLNR) will collaborate with the Office of Hawaiian Affairs (OHA) in the perpetuation of Hawaiian cultural resources in the Monument, including the customary and traditional rights and practices of Native Hawaiians exercised for subsistence, cultural, and religious purposes under the Constitution of the State of Hawai'i, Article XII, Section 7.

- D. The areas subject to this Agreement are the lands and waters within the Monument. The Monument includes all lands and interest in lands owned or controlled by the Government of the United States in the NWHI, including emergent and submerged lands, and waters out to a distance of approximately 50 nautical miles from the islands. The Monument extends approximately 1200 nautical miles across coral islands, seamounts, banks, and shoals. The Monument includes a portion of State of Hawai'i waters, including the Northwestern Hawaiian Islands State Marine Refuge and the Kure Atoll portion of the Hawai'i State Seabird Sanctuary. The Monument also includes Midway Atoll National Wildlife Refuge/Battle of Midway National Memorial, Hawaiian Islands National Wildlife Refuge, and the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve.
- E. The United States and the State of Hawai'i recognize the importance of the Monument's healthy coral reef, marine, and terrestrial ecosystems to the cultural, economic, and biological future of the State of Hawai'i and the Nation as a whole. Both recognize that a well managed terrestrial and marine environment in the NWHI is necessary to maintain the health and vigor of rare and protected species such as Hawaiian monk seals, sea turtles, seabirds, land birds, and plants, as well as to protect the other vital components of the ecosystem. The parties are collectively charged with protecting, conserving, and enhancing fish, plant, and wildlife habitats, including coral reefs and other marine and terrestrial resources in the NWHI. In order to protect the unique resources of these remote islands, the parties will manage the Monument in a manner that is free from exploitation and degradation due to human activities.

## II. PARTIES, PURPOSE AND SCOPE

- A. The Parties to this agreement are the State of Hawai'i, the U.S. Department of the Interior (DOI), and the U.S. Department of Commerce (DOC) (hereinafter collectively referred to as the Co-Trustees). This Memorandum of Agreement (Agreement) constitutes an agreement among the Co-Trustees to carry out coordinated resource management for the long-term comprehensive conservation and protection of the Monument.
- B. This Agreement establishes functional relationships to effectively coordinate management actions in this area among the Co-Trustees. This Agreement also provides the general terms and conditions under which the Co-Trustees will cooperate and manage the resources of the Monument.
- C. This Agreement also establishes objectives and responsibilities necessary for coordinated management activities in the Monument and is intended to provide the framework for long-term comprehensive protection of the Monument. The Co-Trustees will focus on coordinating planning efforts, management priorities, and field operations in the Monument.

- D. The Co-Trustees will undertake coordinated, integrated management and protection that will result in comprehensive conservation of the ecosystems of the Monument in perpetuity. The Co-Trustees recognize that the Monument is also a place of special cultural significance for Native Hawaiians, which provides a unique opportunity to manage marine resources in a manner that honors the rich heritage of the Native Hawaiian culture. The Monument also is a place of more recent historical significance, including the Battle of Midway.
- E. Monument Vision, Mission, and Guiding Principles:
1. The Monument vision is that the health, diversity, and resources of the vast NWHI ecosystems and the wildlife they support – unique in the world – be protected forever.
  2. The Monument mission is to carry out seamless integrated management to achieve strong, long-term protection and perpetuation of NWHI ecosystems, Native Hawaiian traditional and customary cultural and religious practices, and heritage resources for current and future generations.
  3. The Monument guiding principles are to manage the Monument in a manner that, consistent with applicable law:
    - is consistent with the vision and mission;
    - recognizes that the resources of the NWHI are administered by the Co-Trustees for the benefit of present and future generations;
    - affirms that the NWHI and its wildlife are important, unique, and irreplaceable;
    - honors the significance of the region for Native Hawaiians;
    - honors the historic importance of the region;
    - incorporates best practices, scientific principles, traditional knowledge, and an adaptive management approach;
    - errs on the side of resource protection when there is uncertainty regarding impacts of an activity;
    - enhances public appreciation of the unique character and environment of the NWHI;
    - authorizes only uses consistent with Presidential Proclamation 8031 and other applicable laws;
    - coordinates with federal, state, and local governments; Native Hawaiians; relevant organizations; and the public; and
    - carries out effective outreach, monitoring, and enforcement to promote compliance.



### III. REFERENCES AND AUTHORITIES

The Co-Trustees are authorized to enter into this Agreement under various authorities most relevant to coordinated management, including:

- A. Antiquities Act, 16 U.S.C. § 431, *et seq.*;
- B. Proclamation 8031 of June 15, 2006, 71 FR 36443 (June 26, 2006);
- C. Northwestern Hawaiian Islands Marine National Monument codifying regulations, 50 CFR Part 404 (2006);
- D. State of Hawai'i Organic Act of April 30, 1900, c339, 31 Stat. 141 Section 2; and Hawai'i Admission Act of March 18, 1959, Pub. L. 86-3, 73 Stat. 4 Section 2;
- E. Constitution of the State of Hawai'i, Article XI, Sections 1, 2, 6, and 9; and Article XII, Section 7;
- F. Title 12, Chapter 171, Section 171-3, Chapter 183D, Section 183D-8, Chapter 187A, Section 187A-8, Chapter 188, Sections 188-37 and 188-53, Chapter 195D, Section 195D-5, and Chapter 199, Section 199-3, Hawai'i Revised Statutes; and Title 13, Chapter 60.5 and Chapter 125 Hawai'i Administrative Rules;
- G. National Marine Sanctuaries Amendments Act of 2000, Pub. L. 106-513 §6(g) (2000);
- H. Endangered Species Act of 1973, as amended, 16 U.S.C. § 1531, *et seq.*;
- I. Marine Mammal Protection Act of 1972, 16 U.S.C. § 1361, *et seq.*;
- J. Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. § 1801, *et seq.*;
- K. National Wildlife Refuge System Administration Act of 1966, as amended, 16 U.S.C. §§ 668dd-ee;
- L. Refuge Recreation Act, 16 U.S.C. § 460k-3;
- M. Fish and Wildlife Act of 1956, 16 U.S.C. § 742f;
- N. Fish and Wildlife Improvement Act of 1978, 16 U.S.C. § 742l;

#### **IV. MONUMENT MANAGEMENT OFFICIALS AND RESPONSIBILITIES**

- A. Senior Executive Board (SEB): The Co-Trustees hereby establish the SEB.
1. The SEB shall provide policy guidance to their respective agency staff assigned to carry-out Monument management activities.
  2. Responsible Officials: SEB Membership will consist of an appropriate senior level designee from each of the following (Co-Trustees will notify each other of appointed designee and upon change of designee):
    - a. State of Hawai'i Department of Land and Natural Resources
    - b. U.S. Department of the Interior
    - c. U.S. Department of Commerce
  3. The SEB shall be responsible for the following activities through the Monument Management Board (MMB):
    - a. Develop a management plan for ensuring the coordinated management of the coral reef ecosystems and related marine resources, terrestrial resources, and cultural and historic resources of the Monument, consistent with Proclamation 8031 and other applicable laws and regulations. To develop the management plan, the SEB shall modify, as appropriate, the plan developed by NOAA's National Marine Sanctuary Program through the public sanctuary designation process and provide for public review of that plan. The management plan should also maximize the efficient use of financial and human capital. Further, the SEB shall regularly review the implementation of the management plan and adjust the management framework as appropriate, consistent with applicable laws and policies.
    - b. Provide access and support for enforcement purposes, share enforcement resources and data, as appropriate, and develop joint enforcement capabilities as needed to ensure compliance with applicable State and Federal laws. Enforcement support may involve assistance from additional agencies such as the U.S. Coast Guard.
    - c. Coordinate research and monitoring efforts to better understand and address major threats to Monument resources. Initiate joint resource assessment, monitoring, and research activities including, but not limited to, population studies, species inventories and assessments, impacts from derelict fishing gear, and documentation of historic and cultural resources. Provide opportunities to participate in research activities initiated by each Co-Trustee, as appropriate. Coordinate research, including permits required for management activities that further the recovery of threatened or endangered species and protect and/or restore biodiversity within the Monument.

- d. Develop a mechanism to access scientific and resource data, as needed, and, consistent with applicable law, a protocol to ensure the necessary confidentiality of certain information, such as fisheries data and the location of heritage resources.
  - e. Provide support to identify locations of cultural and religious significance and for noncommercial Native Hawaiian practices, which may benefit the resources of the Monument and the Native Hawaiian community. Develop a protocol to protect sensitive, culturally significant, and religious locations while allowing permitted access.
  - f. Manage recreational, educational, and commercial activities that may take place within the Monument consistent with Proclamation 8031.
  - g. Identify and facilitate, as appropriate, coordination, consultation, and partnership opportunities regarding Monument management activities among Federal, State, and local governments, Native Hawaiians, the private sector, foreign governments, international organizations, and any other public or private persons or entities.
  - h. Facilitate opportunities to participate in and collaborate on educational activities and projects between and among the Co-Trustees.
  - i. Develop interagency agreements, grants, memoranda of understanding, or other appropriate instruments that allow for ease in sharing resources, including funds as appropriate, and a sharing of in-kind assistance and support such as the sharing of vessel time, aircraft missions, or other logistical support as a means of facilitating cooperative project opportunities. These more detailed agreements on specific issues will be signed at an appropriate level.
  - j. Ensure appropriate monitoring of activities within the Monument. Develop a coordinated response program to assess and address human induced or natural threats to Monument resources.
  - k. Enhance coordination by jointly issuing permits required for activities allowed under Presidential Proclamation 8031.
- B. Monument Management Board (MMB): The Co-Trustees hereby establish the MMB.
- 1. The MMB will promote coordinated management of the Monument at the field level.

2. Responsible Officials: MMB membership will consist of appropriate designees from the following entities (Co-Trustees will notify each other of appointed designee and upon change of designee):
    - a. State of Hawai'i, Department of Land and Natural Resources, Division of Aquatic Resources, Honolulu, HI
    - b. State of Hawai'i, Department of Land and Natural Resources, Division of Forestry and Wildlife, Honolulu, HI
    - c. U.S. Fish and Wildlife Service, National Wildlife Refuge System, Honolulu, HI
    - d. U.S. Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office, Honolulu, HI
    - e. National Oceanic and Atmospheric Administration, National Marine Sanctuary Program, Honolulu, HI
    - f. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Honolulu, HI
    - g. State of Hawai'i, Office of Hawaiian Affairs, Honolulu, HI
  3. The Monument Management Board shall implement the activities set forth in Section IV.A.3.
  4. Whenever appropriate and practicable, the MMB will coordinate and consult with representatives of the U.S. Coast Guard, which provides enforcement support pertaining to laws and regulations regarding marine resources in the area.
- C. Interagency Coordinating Committee (ICC): The Co-Trustees hereby authorize the MMB to establish an Interagency Coordinating Committee (ICC) to assist in the implementation of Monument management activities set forth in Section IV.A.3. The MMB will request the participation of other Federal and State agencies to establish the ICC as it determines to be appropriate and necessary to seek additional input, or as subject to needs that may arise.

## V. PERIOD OF AGREEMENT, MODIFICATION, OR TERMINATION

- A. This Agreement becomes effective when all Co-Trustees sign it. The Co-Trustees shall review this Agreement at least every year to determine whether it should be modified or terminated.
- B. The Co-Trustees may modify this Agreement by written amendment only and with the concurrence of all Co-Trustees.
- C. The Co-Trustees may terminate this Agreement by mutual written consent. Any Co-Trustee may terminate its participation in this Agreement by giving the other Co-Trustees six months advance written notice.

## **VI. DISPUTE RESOLUTION**

If the members of the MMB disagree on an issue of Monument resource management, they shall present their differences to each other in writing, and they shall discuss them. The MMB should be the first body to attempt resolution of any disagreement. If the MMB fails to resolve their differences within 30 days after identification of the disagreement, or immediately upon determination that the MMB has reached an impasse, the matter shall be elevated to the SEB for resolution.

## **VII. OTHER PROVISIONS**

- A. Nothing in this Agreement shall be construed to conflict with applicable laws, or otherwise diminish authorities otherwise vested in the Secretaries of Commerce and Interior under federal law or the State of Hawai'i under state law. Any such conflicting term shall be invalid, but the remainder of the Agreement shall remain in effect. If a term is invalid, the Co-Trustees shall immediately review the Agreement to decide what should be done in light of the invalid term, e.g., amend or terminate the Agreement.
- B. This Agreement serves as the foundation for the entering into other agreements among the Co-Trustees and with agencies and other entities, as appropriate, and at a level appropriate to such agreement. Such agreements may be for the purpose of, among other things, the pursuit of research or training, supplementation of enforcement support or enter into cooperative enforcement agreements, data sharing, or increasing management capacity in the Monument. All such agreements shall be coordinated with the other Co-Trustees and may become annexes to this Agreement.
- C. The Co-Trustees intend to enter into an appropriate enforcement agreement to enhance enforcement of the Proclamation and implementing regulations. In the interim, pursuant to the authority of 16 U.S.C. 742l (b) and Title 12, Chapter 199, Section 199-3, Hawai'i Revised Statutes, NOAA and FWS and the State of Hawai'i each hereby authorize the other to use without reimbursement their respective personnel, services and facilities to enforce the provisions of all applicable Federal and State laws within the boundaries of the Monument.
- D. This Agreement defines in general terms the basis on which the Co-Trustees will cooperate, and as such, does not constitute a financial obligation or an authorization for particular expenditures. Expenditures of funds, human resources, equipment, supplies, facilities, training, public information, and technical expertise are generally intended to be provided by each signatory Co-Trustee to the extent that their participation is required and resources are available.
- E. Nothing in this agreement is intended to require the expenditure of funds in excess or advance of applicable appropriations. This Agreement is not a fiscal or funds obligation document. Any activities involving reimbursement or contribution of funds between Co-Trustees to this Agreement will be handled in accordance with

applicable laws, regulations, and procedures. Such activities will be documented in separate agreements, which will identify the specific projects between the Co-Trustees in appropriate detail. Such separate agreements should also reference this Agreement.

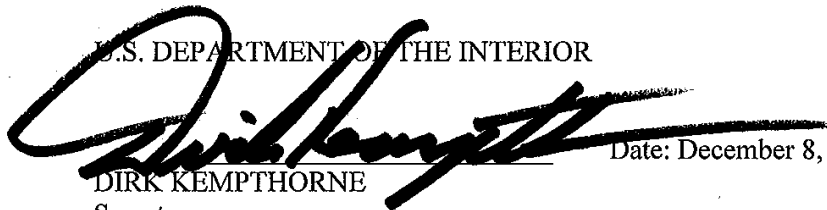
STATE OF HAWAII



LINDA LINGLE  
Governor  
State of Hawaii

Date: December 8, 2006

U.S. DEPARTMENT OF THE INTERIOR



DIRK KEMPTHORNE  
Secretary  
United States Department of the Interior

Date: December 8, 2006

U.S. DEPARTMENT OF COMMERCE



CARLOS M. GUTIERREZ  
Secretary of Commerce

Date: December 8, 2006



---

**APPENDIX F:**  
**Operational Protocols and**  
**Best Management Practices**

---

## **Disease and Introduced Species Prevention Protocol for Permitted Activities in the Marine Environment Papahānaumokuākea Marine National Monument<sup>1</sup>**

### **I. Equipment and Dive Gear Disinfection**

Equipment and gear is treated according to three levels that correspond to the potential for the spread of disease and/or introduced species.

General points applicable to all the levels and acceptable disinfection solutions are listed in D.

#### **A. Level One: Equipment in direct contact with diseased coral tissue or other diseased organisms**

- Equipment: includes, but is not limited to, gloves, chisels, forceps, drill bits, shears, clippers, and spear tips.
- Multiple sets of equipment: Use a disinfected set of equipment for diseased coral colonies and another disinfected set of equipment for non-diseased coral colonies at each dive site.
- Disinfect between sites: Use a disinfected set of equipment at each dive site. Disinfect equipment by soaking for a minimum of ten minutes in an acceptable disinfection solution (see acceptable disinfection solutions listed below).

*Non-porous equipment* (e.g. forceps, chisels): Use wipes in which the active ingredient is quaternary ammonium chloride compounds (QACs) (e.g., Clorox or Lysol® wipes) to remove organic matter. Follow wiping by soaking for a minimum of ten minutes in a disinfectant solution.

*Porous equipment and dive gear* (e.g. gloves, nylon mesh bags): Manually remove any organic matter, and soak for a minimum of 10 minutes in an acceptable disinfectant solution.

- Secure all samples: Seal all samples in bags or jars under water and place sample bags and jars in secure holding container.

#### **B. Level Two: Benthic equipment not used to sample diseased coral tissue or other diseased organisms**

- Benthic equipment: includes equipment that may contact the benthos such as reels, tape measures, goodie bags, transect lines, etc.
- Disinfect between sites: Use a disinfected set of equipment at each dive site.

---

<sup>1</sup> This protocol and a companion document, “Disease and Introduced Species Prevention Protocol for Permitted Activities in the Marine Environment Papahānaumokuākea Marine National Monument,” were accepted at the April 9, 2007 Monument Management Board Meeting.

- Disinfect equipment: achieved by soaking for a minimum of ten minutes in a disinfection solution (see acceptable disinfection solutions listed below).

*Non-porous equipment* must be wiped and/or soaked. If wiping, use wipes in which the active ingredient is QACs. An accepted wipe is Clorox or Lysol® wipes. If soaking, soak for a minimum of ten minutes in an acceptable disinfectant solution.

*Porous equipment* must be soaked for a minimum of ten minutes in an acceptable disinfectant solution.

### **C. Third Level: All dive gear used in the Monument**

- Dive gear includes any wetsuit, mask, fin, snorkel, BC, regulator, weight belt, booties, etc.
- Disinfect dive gear daily (if used). Inspect all dive gear and remove any organic matter. Disinfect by submerging for a minimum of ten minutes in an acceptable disinfection solution, followed by a thorough fresh water rinse, and hanging to dry.

### **D. General points applicable to all three levels**

- Disinfect any equipment and gear at least daily if used. Also, only disinfected equipment and gear may be transported either direction between Papahānaumokuākea and the main Hawaiian islands.
- Dispose of organic matter and used solution according to the ship's solid waste disposal or other approved secure holding system.
- Acceptable Disinfection Solutions:
  1. 3% dilution of commercial bleach (e.g. Clorox or other 5-6% sodium hypochlorite product) in fresh water;
  2. the manufacturer's recommended disinfection strength dilution of quaternary ammonium compounds in "soft" (low concentration of calcium or magnesium ions) fresh water. An example of an acceptable QAC solution is Lysol® All Purpose Cleaner in a 6.6% Lysol in water dilution.

## **II. Cleaning Tender Vessels**

- At least daily (if tender vessel if used), inspect for and remove any algal fragments or other organisms (dispose of organic matter and used solution according to the ship's solid waste disposal or other approved secure holding system).
- Rinse tender vessel internal and external surfaces with fresh water between islands, including during transits in either direction between Papahānaumokuākea and the main Hawaiian islands.
- Allow tender vessel to dry before redeployment.

## **III. Disinfection of Shipboard Wet Laboratory**

- At least daily (if lab is used), disinfect entire laboratory, including sinks, countertops, walls, doors, and floors.
- Acceptable Disinfection Solutions and Wipes:

1. 3% dilution of commercial bleach (e.g. Clorox or other 5-6% sodium hypochlorite product) in fresh water;
  2. the manufacturer's recommended disinfection strength dilution of quaternary ammonium compounds in "soft" (low concentration of calcium or magnesium ions) fresh water. An example of an acceptable QAC solution is Lysol® All Purpose Cleaner in a 6.6% Lysol in water dilution. Also, commercially available wipes containing QACs (e.g. Clorox®, Lysol®) are acceptable; and
  3. 70-80% ethanol.
- Dispose of all materials generated during cleaning according to the ship's solid disposal or other secure holding system.
  - The laboratory must be clean between islands, including during transits in either direction between Papahānaumokuākea and the main Hawaiian islands.

**Papahānaumokuākea Marine National Monument  
Special Conditions & Rules  
For  
Moving Between Islands & Atolls  
And  
Packing For Field Camps**

**June 2007**

The islands and atolls of the Papahānaumokuākea Marine National Monument (Monument) and the Hawaiian Islands National Wildlife Refuge are special places providing habitat for many rare, endemic plants and animals. Many of these species are formally listed as Endangered under the Endangered Species Act. Endemic plants and insects, and the predators they support, are especially vulnerable to the introduction of competing or consuming species. Such introductions may cause the extinction of island and reef endemics, or even the destruction of entire island or reef ecological communities. Notable local examples include: the introduction of rabbits to Laysan Island in 1902 which caused the extinction of numerous plant and insect species, and 3 endemic landbird species; the introduction of rats to many Pacific Islands causing the elimination of many burrowing seabird colonies; the introduction of the annual grass, sandbur, to Laysan Island where it has crowded out native bunch grass thus, eliminating nesting habitat for the Endangered Laysan finch; and, the introduction and proliferation of numerous ant species throughout the Pacific Islands to the widespread detriment of endemic plant and insect species.

Several of the islands within the Monument are especially pristine, and as a result are rich in rare and special plants and animals. Nihoa Island has at least 17 endemic and rare insect species, 5 Endangered plants and 2 Endangered birds. Necker Island has Endangered plants and 11 endemic insects. Laysan Island has Endangered plants, 9 endemic arthropods and the Endangered Laysan finch and Laysan duck. Other islands in the Monument such as Lisianski, and islets in Atolls such as Pearl and Hermes Reef and French Frigate Shoals provide homes for a variety of endemic and/or endangered species and require special protection from alien species.

Other Pacific Island such as Kure and the “high islands” (Oahu, Hawaii, Maui, Kauai, etc.) as well as, certain islands within Midway Atoll, Pearl and Hermes Reef and French Frigate Shoals have plants and/or animals that are of high risk for introduction to the relatively pristine islands discussed above. Of special concerns are snakes, rats, cats, dogs, ants and a variety of other insect and plant species. Harmful plant species of highest concern that we know of are *Verbesina encelioides*, *Cenchrus echinatus*, and *Setaria verticillata*.

The Co-trustees are responsible for the management and protection of the islands, reefs and wildlife of the Monument. No one is permitted to set foot within the Monument without the express permission of the Co-trustees through the permitting process. Because of the above concerns, the following restrictions on the movement of personnel and materials throughout the Monument exist.

**The Following Conditions and Rules apply to the all islands within the Monument with the exception of those at French Frigate Shoals and Midway Atoll:**

**Definitions:**

“new” means off the shelf and never used anywhere but the island in question.

“clothing” is all apparel , shoes, socks, over and under garments.

"soft gear" is all gear such as daypacks, fannypacks, packing foam or similar material, camera bags, camera/binocular straps, microphone covers, nets, holding or weighing bags, bedding, tents, luggage, or any fabric, fiber, paper or material capable of harboring seeds or insects.

1. Any personnel who will be landing boats, and staying within the boats, at any island should have clean clothes and shoes.
2. Any personnel going ashore at any island and moving inshore from the immediate area in which waves are breaking, or beyond the intertidal area, at the time of landing must have new footwear, new or island specific clothes and new or island specific soft gear. All must be frozen for at least 48 hours prior to landing.
3. Any personnel entering any vegetated area, regardless of how sparse the vegetation, must have new footwear, new clothes and new soft gear all frozen for at least 48 hours prior to landing.
4. To avoid transport of seeds from within small boats the following protocol should be followed. For islands with safe or sandy landing conditions, one should keep quarantine shoes/socks inside quarantine containers until the island is reached. One should go ashore bare foot, and then don the quarantine shoes. Non quarantine shoes should be removed in the small boat, put into a bucket or some kind of sealed container, and left enclosed in that container until the person departs the island. The sealed container, if clean on the outside, may go ashore, but should not be opened ashore. For landings which are rocky, rough, and relatively unsafe (such as Necker and Nihoa) for safety reasons, quarantine shoes should be donned when inside the small boats, but care should be taken to look for seeds and insects which may be in the small boat.
5. Soft gear may not be moved between islands. Hard gear must be thoroughly cleaned and frozen for at least 48 hours between islands.
6. During transit, clothing and gear coming off Kure, Midway, or any islet of French Frigate Shoals must be carefully sequestered to avoid contamination of gear bound for cleaner islands. Special care must be taken to avoid contaminating gear storage areas and quarters aboard transporting vessels with seeds or insects from these islands.
7. Regardless of origin or destination, inspect and clean all equipment, supplies, etc., just prior to any trip to the Monument. Carefully clean all clothing, footwear and softgear following use to minimize risk of cross contamination of materials between islands.
8. Pack supplies in plastic buckets with fitted lids or other sealable metal or plastic containers since they can be thoroughly cleaned inside and out. **Cardboard is not permitted on islands.** Cardboard boxes disintegrate in a short time and harbor seeds, animals, etc., which cannot be easily found or removed. **Wood is not permitted unless sealed (painted or varnished) on all surfaces and frozen for 48 hours.**

Wooden boxes can also harbor insects and seeds and therefore are only allowed if well constructed (tight fitting seams are required). All wood must be treated, and inside and outside surfaces must be painted or varnished to provide a smooth, cleanable finish that seals all holes.
9. Freeze or tarp and fumigate then seal all equipment (clothes, books, tents, everything) just prior to departure. Food and cooking items need not be fumigated but should be cleaned and frozen, if freezable. Cameras, binoculars, radios, and other electronic equipment must be thoroughly cleaned, including internal inspection whenever possible, but do not need to be frozen or



fumigated. Such equipment can only be packed in wooden crates if treated as in #2 above. Any containers must contain new, clean packing materials and be frozen or fumigated.

10. At present, Tern Island is the singular exception to the above rule, having less stringent rules due to the large number of previously established alien species. Careful inspection of all materials and containers is still required. However, it is acceptable to use wooden and cardboard containers for transporting supplies to Tern Island. Also, there is no requirement for freezing or fumigating items disembarked at Tern. Although requirements for Tern Island are more lax, the Refuge is still concerned about the possibilities of new introductions. Do not wear clothing to Tern Island that has been worn at Pearl and Hermes, Midway Atoll or Kure Atoll.

**Additional Special Conditions for Travel to Nihoa and Necker (Mokumanamana) Islands:**

Nihoa and Necker are the most pristine locations in the Monument. Nihoa is home to the highest number of federally listed endangered species in the Monument. Many areas of these small rugged islands are inaccessible. Introduction of any alien species could have disastrous results in a very short time. It would be almost impossible to mount any kind of control or eradication program on these islands should an alien species become established. Because of these reasons, access to Nihoa and Necker are strictly limited, and rules governing entry are more stringent.

1. Access to Nihoa and Necker by permittees will only be allowed under the accompaniment and supervision of a U.S. Fish and Wildlife Service (USFWS) Representative. The representative, who shall be appointed by the U.S. Fish and Wildlife Service Monument Manager will work with permittees to assure careful compliance with all rules for inspection, handling and preparation of equipment. The USFWS Representative will have the authority to control and limit access to various parts of the island to protect animals, plants and archaeological sites, especially endangered species. The USFWS Representative will have the authority to disallow access to the island, or order an immediate departure from the island if conditions for working on the island are not met or are violated in some way.
2. All field equipment made out of fabric material or wood must be new, and never previously used in the Northwestern or main Hawaiian Islands. Equipment previously purchased or made for use on Nihoa and Necker that has been carefully sealed and stored while away from Nihoa and Necker, and not used elsewhere, may also be brought onto the island. Rules for freezing and/or fumigating are as described for other sites in the Monument (see above).
3. Clothing, footwear (shoes, slippers, socks, etc.), daypacks (soft gear) must be new, unused, or previously only used on Nihoa (or Necker) and carefully sealed and stored while off of the island. Hard gear such as camera, and equipment must be thoroughly cleaned and inspected.

**Additional Special Conditions for Travel Within Pearl and Hermes Atoll:**

In recent years *Verbesina encelioides* has been introduced to Southeast Island within Pearl and Hermes Atoll. This noxious weed has taken over a large portion of the island. To prevent the further spread of this weed to the other islets within this atoll the following precaution must be taken:

1. Every person should have one set of quarantine gear and clothing for Southeast Island and one set of quarantine gear and clothing for all other islets in the atoll. For instance the same clothing, and if needed camping gear, may be used at north and seal kittery, but anything used at southeast needs to stay off all other islets in the atoll. Do not use the outer islet clothing and gear on Southeast Island.

2. Carefully inspect small boats and their associated equipment when traveling between islets at Pearl and Hermes Atoll. Since folks likely take one anchor ashore and put one anchor in the water there is potential for seed dispersal on anchor lines as well as from within the small boats. This needs to be watched very carefully.

**Additional Special Conditions for Food:**

Fresh foods such as fruits, vegetables, leafy vegetables and tubers are not permitted on quarantine enforced islands (Necker, Nihoa, Laysan, Garner Pinnacles, Lisianski and Pearl and Hermes Reef). Concern is not only that certain species such as tomatoes could easily become established but that decomposing organic waste can also harbor microbes and insects and can act as an introduction vector. Soil can contain many seeds, eggs, larvae, etc., and cannot be transported to or between islands.

All other food that can be safely frozen (this does not apply to food in cans or glass jars) must be packaged in air tight containers just as all other gear and frozen for 48 hours.

DEPARTMENT OF LAND AND NATURAL RESOURCES

Adoption of Chapter 13-76  
Hawaii Administrative Rules

August 10, 2007

SUMMARY

Chapter 13-76, Hawaii Administrative Rules,  
entitled "Non-Indigenous Aquatic Species", is adopted.

217.81

HAWAII ADMINISTRATIVE RULES

TITLE 13

DEPARTMENT OF LAND AND NATURAL RESOURCES

SUBTITLE 4

FISHERIES

PART IV FISHERIES RESOURCE MANAGEMENT

CHAPTER 76

NON-INDIGENOUS AQUATIC SPECIES

Subchapter 1 General Provisions

§13-76-1	Purpose
§13-76-2	Definitions
§13-76-3	General permit conditions
§13-76-4	Penalties
§13-76-5	Severability
§§13-76-6 to 13-76-10	(Reserved)

Subchapter 2 Ballast Water Management

§13-76-11	Purpose
§13-76-12	Definitions
§13-76-13	Prohibited activities
§13-76-14	Applicability
§13-76-15	Permits
§13-76-16	Ballast water management plan requirements
§13-76-17	Ballast water exchange requirements
§13-76-18	Ballast water discharge requirements
§13-76-19	Ballast water reporting requirements
§13-76-20	Evaluation and compliance

SUBCHAPTER 1

GENERAL PROVISIONS

§13-76-1 Purpose. This chapter governs rules aimed at preventing, to the extent practical, the introduction and spread of non-indigenous aquatic species into State waters. Such non-indigenous aquatic species are potentially harmful to the environment and economy of Hawaii because they may replace or destroy native species and alter their habitats. [Eff OCT 12 2007 ] (Auth: HRS §187A-32) (Imp: HRS §187A-32)

§13-76-2 Definitions. As used in this chapter unless otherwise provided:

"Board" means the board of land and natural resources.

"Department" means the department of land and natural resources.

"Master" means the person authorized by the vessel operator to be the captain of the vessel.

"Non-indigenous aquatic species" means any marine, brackish water, or freshwater species or other viable biological material, including, but not limited to, eggs, spores, or seeds, that enters or exists in an ecosystem where it was not known to have existed before, is outside its natural or historic range, or may have come to Hawaii by human introduction.

"Person" means any individual, corporation, partnership, trust, association, or other private entity, or any officer, employee, agent, department, or instrumentality of the federal government, of any state or political subdivision thereof, or of any foreign government.

"State" means the State of Hawaii.

"State marine waters" means all waters of the State, including the water column and the water surface, extending from the upper reaches of the wash of the waves on shore seaward to the limit of the

State's police power and management authority, including the United States territorial sea, notwithstanding any law to the contrary.

"USCG" means the United States Coast Guard.

"Vessel operator" means a company that owns, operates or has chartered a vessel. [Eff OCT 12 2007 ]  
(Auth: HRS §187A-32) (Imp: HRS §187A-32)

§13-76-3 General permit conditions. (a) The general permit provisions of this section shall be in addition to the more specific provisions of section 13-76-15, and as otherwise provided in this chapter.

(b) The department may require persons to submit an application for a permit issued pursuant to this chapter.

(c) The submission of an application to the department shall not obligate the department to issue a permit or constitute a right or interest on the part of the applicant to have a permit issued.

(d) A permit shall have a limited duration subject to the provisions of this chapter, but such duration shall not exceed one year from the date of issuance. The issuance of a permit shall not constitute a vested right or property interest to receive future or additional permits.

(e) Permits are non-transferable, so that whenever a permittee parts with possession or transfers, in whole or in part, the title to or interest in the vessel identified in the permit to another person by any arrangement, the permit shall immediately expire. The permittee must notify the department prior to and immediately after such transfer has occurred.

(f) The department may impose terms and conditions it deems necessary to carry out the purposes of this chapter, including requiring a report or reports of any activity conducted that may potentially introduce a non-indigenous species to state marine waters by the applicant or permit holder within the state.



(g) It is unlawful for any person to violate any provision of any permit issued pursuant to this chapter. Failure to comply with any provision of this chapter, or any provision of any permit issued hereunder, shall be cause for termination of said permit.

(h) If the department determines that the protection and conservation of aquatic life in the area requires the cessation of all or certain activities allowed under the permits, upon notification to the permit holders of this determination by any reasonable means, the permits shall automatically expire on a date provided in the notification.

(i) There is no right to a renewal or re-issuance of a permit. When reviewing an application for a permit, the department shall consider whether the applicant has previously violated or not complied with any term or condition of a permit and may deny the application on this basis.

(j) The permittee shall have the permit on board the vessel and be able to show the permit upon the demand of any employee, agent, or officer authorized to enforce this chapter. Failure or refusal to show the permit shall be a violation of this chapter and sufficient cause to immediately but temporarily suspend the permit until such time that the board may take action to revoke the permit.

(k) The board may revoke any permit for any violation of the terms and conditions of the permit and a person whose permit was revoked shall not be eligible to apply for another permit until one year from the date of revocation. [Eff **OCT 12 2007** ]  
(Auth: HRS §§187A-5, 187A-32) (Imp: HRS §§187A-5, 187A-32)

§13-76-4 Penalties. A person violating the provisions of this chapter shall be guilty of a petty misdemeanour, as provided under section 187A-13, HRS, subject to administrative penalties as provided under

section 187A-12.5, HRS, and punished as provided by law. [Eff OCT 12 2007 ] (Auth: HRS §§187A-12.5, 187A-13, 187A-32) (Imp: HRS §§187A-12.5, 187A-13)

§13-76-5 Severability. The provisions of these rules are declared to be severable, and if any portion or the application thereof to any person or property is held invalid for any reason, the validity or application of the remainder of these rules to other persons or property shall not be affected. [Eff OCT 12 2007 ] (Auth: HRS §§187A-12.5, 187A-13, 187A-32) (Imp: HRS §§187A-12.5, 187A-13)

## SUBCHAPTER 2

### BALLAST WATER MANAGEMENT

§13-76-11 Purpose. (a) This subchapter addresses the management and disposition of vessel ballast water as a medium or means for the introduction of aquatic invasive species into state marine waters, such as but not limited to any ocean, estuary, bay, harbor, beach, or coastal area. These rules are intended to act in coordination with federal regulations on ballast water management by 1) establishing state laws that will correspond to and complement federal regulations on ballast water to ensure consistency, 2) providing best practices guidelines to improve vessel ballast water management prior to entering state marine waters, 3) adopting a ballast water management program, including a ballast water exchange reporting system, and 4) monitoring compliance with program requirements.

(b) This subchapter identifies: 1) prohibited activities; 2) vessels exempted from ballast water management plan requirements, ballast water reporting requirements, ballast water exchange requirements, and ballast water discharge requirements; 3) which permits are available to qualifying vessels; 4) requirements

that incoming vessels are subject to regarding ballast water; and 5) State verification of compliance with this subchapter. [Eff **OCT 12 2007** ] (Auth: HRS §§187A-5, 187A-32) (Imp: HRS §§187A-5, 187A-32)

§13-76-12 Definitions. As used in this subchapter, unless otherwise provided:

"Aquatic invasive species" means a non-indigenous aquatic species, which, if introduced into an ecosystem, may cause harm to Hawaii's economy, environment, human health, or public safety and welfare.

"Ballast operations" means the transfer, uptake, and/or discharge of ballast water.

"Ballast tank" means any tank, hold, or part of a vessel used to carry ballast water, whether or not the tank or hold was designed for that purpose.

"Ballast water" means any water, associated sediments, and suspended matter taken on board a vessel to manipulate, control, or maintain trim, draft, stability, or stresses of the vessel, without regard to the manner in which it is carried.

"BWM" means ballast water management as required by federal law 33 CFR Part 151 Subpart D, Mandatory Ballast Water Management Program for U.S. Waters, dated July 28, 2004.

"Coastwise trade" includes the transportation of passengers or merchandise between points embraced within the coastwise laws of the United States.

"Discharge" means to drain or remove part or all of the ballast water off the vessel.

"EEZ" means the United States exclusive economic zone established by Presidential Proclamation No. 5030, dated March 10, 1983, which extends from the baseline of the territorial sea of the United States seaward 200 nautical miles, substantially as defined in federal law 33 CFR 151.2025, dated July 1, 2005.

"Empty/refill exchange" means to pump the ballast tank or tanks out, until empty or as close to empty as the master determines is safe to do so, then refilling

the tank with mid-ocean waters.

"Exchange" means to replace water in ballast tanks by using flow through exchange, empty/refill exchange, or other exchange methodology recommended or required by the United States Coast Guard.

"Flow through exchange" means to flush out ballast tanks by pumping in mid-ocean water at the bottom of the tank and continuously overflowing the tank from the top until three full volumes of the ballast water tank capacity have been changed.

"MHI EEZ" means the main Hawaiian islands exclusive economic zone identified as those waters of the EEZ surrounding the main Hawaiian islands east of 161° West longitude.

"Mid-ocean waters" means waters at least 200 nautical miles from any coast.

"Permanent ballast" means a weight or heavy material added to a vessel to enhance the vessel's stability that is always left on the vessel and not normally removed either between or during voyages.

"Transfer" means the on-board movement of ballast water from one part of the vessel to another.

"Qualifying vessels" means all vessels, United States or foreign flagged, carrying ballast water into state marine waters after operating outside the EEZ.

"Sediments" means any material that settles out of ballast water within a vessel.

"Uptake" means to fill part or all of the vessel's ballast tanks with water from outside the vessel.

"Vessel in innocent passage" means a ship engaged in continuous and expeditious surface passage through the territorial sea and archipelagic waters of foreign coastal states in a manner not prejudicial to its peace, good order, or security. Passage includes stopping and anchoring, but only if incidental to ordinary navigation or necessary by rough weather or distress, or for the purpose of rendering assistance to persons, ships, or aircraft in danger or distress.

"Voyage" means any transit by a vessel that originates from a port or place outside of the EEZ

surrounding the State of Hawaii and destined for a port or place in Hawaii. [Eff **OCT 12 2007** ] (Auth: HRS §187A-32) (Imp: HRS §187A-32)

§13-76-13 Prohibited activities. (a) Unless exempted under the provisions of section 13-76-14, by permit issued pursuant to section 13-76-15, or as may be otherwise provided by law, it is unlawful for the master of a qualifying vessel:

- (1) To fail to have or fail to follow a ballast water management plan, as required under section 13-76-16;
- (2) To exchange ballast water contrary to the provisions of section 13-76-17;
- (3) To discharge, or allow the discharge of, ballast water in state marine waters in violation of section 13-76-18;
- (4) To fail to submit a ballast water report form, as required in section 13-76-19; and
- (5) To violate any provision in this subchapter.

(b) It is unlawful for the master to prevent, hinder, or otherwise interfere with the department's or USCG's evaluation of the vessel's compliance with the provisions of this subchapter. The evaluation may be conducted in accordance with section 13-76-20 and as may be otherwise provided in this subchapter. [Eff **OCT 12 2007** ] (Auth: HRS §§187A-5, 187A-32) (Imp: HRS §§187A-5, 187A-32)

§13-76-14 Applicability. (a) The ballast water management plan requirements of section 13-76-16 shall apply to qualifying vessels.

(b) The ballast water reporting requirements of section 13-76-19 shall apply to qualifying vessels, except for the following:

- (1) Crude oil tankers engaged in coastwise trade. This exemption applies only to vessels carrying unrefined crude oil product from one U.S. place to another, including

Hawaii;

- (2) Any vessel of the United States Department of Defense or USCG, subject to the requirements of Section 1103 of the National Invasive Species Act of 1996, or any vessel of the armed forces, as defined in Section 1322(a)(14) of Title 33 of the United States Code that is subject to the "Uniform National Discharge Standards for Vessels of the Armed Forces" pursuant to Section 1322(n) of Title 33 of the United States Code;
- (3) Any vessel that operates exclusively within the MHI EEZ;
- (4) Any vessel that operates outside of the EEZ, but conducts all ballast operations exclusively in the MHI EEZ, regardless of the number of voyages the vessel makes; and
- (5) Any vessel in innocent passage or having entered state marine waters due to circumstances beyond its control; provided that the vessel does not discharge ballast water into state marine waters, or into waters that may impact state marine waters, unless the vessel meets the requirements of section 13-76-18;

(c) The ballast water exchange requirements of section 13-76-17 shall apply to qualifying vessels that conduct ballast water exchanges; except for vessels exempted under subsection 13-76-14(b) (1), (2), (3), (5) and the following:

- (1) Any vessel equipped with a functioning treatment system designed to kill all living aquatic organisms in the ballast water; provided that USCG or other approving authority has determined that the system is designed to be at least as effective as ballast water exchange at reducing the risk of transfer of aquatic invasive species in ballast water and the treatment system is properly functioning as designed; and



(2) Any vessel, to the extent that it is equipped with permanent, freshwater, or treated ballast, as specified in section 13-76-14 (c) (1) above or will not discharge ballast water in state marine waters.

(d) The ballast water discharge requirements of section 13-76-18 shall apply to qualifying vessels that either will discharge or have discharged ballast water into state marine waters; except for vessels exempted under subsections 13-76-14(b) (2) and (3), and 13-76-14(c) (1) and (2).

(e) The master, or vessel operator when there is no master, shall be responsible for complying with the provisions of this subchapter, unless otherwise provided. Nothing in this subchapter shall relieve the master of the responsibility to ensure the safety and stability of the vessel or the safety of the crew and passengers, or any other responsibility. [Eff

OCT 12 2007 ] (Auth: HRS §187A-32) (Imp: HRS §187A-32)

§13-76-15 Permits. (a) The department may issue permits to vessel operators, exempting qualifying vessels from the provisions of this subchapter, subject to the provisions of section 13-76-3 and the following conditions:

- (1) Receipt of a completed application, on a form provided by the department, and any other information the department may require; and
- (2) Approval by the department, after an assessment of the appropriateness of the application based on:
  - (A) Safety of the crew or its passengers, USCG approved ballast water treatment system, protection of property, vessel integrity or other factors the department considers relevant to the intent and purpose of this subchapter; and

(B) All applicable state and federal law.

(b) The permit exemptions are limited to the provisions of this subchapter and do not exempt the master from other state laws or any federal laws.

[Eff **OCT 12 2007** ] (Auth: HRS §§187A-5, 187A-32)  
(Imp: HRS §§187A-5, 187A-32)

§13-76-16 Ballast water management plan requirements. Vessels in compliance with BWM requirements for a ballast water management plan, shall be deemed to also be in compliance with this section. It is unlawful for any master to violate BWM requirements for a ballast water management plan.  
[Eff **OCT 12 2007** ] (Auth: HRS §187A-32) (Imp: HRS §187A-32)

§13-76-17 Ballast water exchange requirements.

(a) Qualifying vessels that require ballast water exchanges shall conduct such exchanges in mid-ocean waters. Unless exempted by section 13-76-14(c), or as may be otherwise provided by law, it is unlawful for a master to conduct a ballast water exchange within state marine waters while holding ballast water obtained from an area less than 200 nautical miles from any coast.

(b) All such exchanges shall be by flow through exchange, empty/refill exchange, or other exchange methodology recommended or required by the USCG or other approving authority.

(c) The master is responsible for the safety of the vessel, its crew, and its passengers and is not required to conduct a ballast water management practice, including exchange, if the master determines that the practice would threaten the safety of the vessel, its crew, or its passengers because of adverse weather, vessel design limitations, equipment failure, or any other extraordinary conditions. Should the master make such a determination, the master shall

take all feasible measures, based on the best available technologies economically achievable, that do not compromise the safety of the vessel, its crew, and its passengers, to minimize the discharge of ballast water containing non-indigenous aquatic species into state marine waters or waters that may impact state marine waters. Such discharge shall be subject to the provisions of section 13-76-18.

(d) Nothing in this subchapter relieves the master of the responsibility for ensuring the safety and stability of the vessel or the safety of the crew and passengers, or any other responsibility. [Eff  
OCT 12 2007 ] (Auth: HRS §187A-32) (Imp: HRS §187A-32)

§13-76-18 Ballast water discharge requirements.

(a) To the extent practical, the master of any qualifying vessel that has not conducted a mid-ocean waters ballast water exchange, and is subject to the provisions of subsection 13-76-14(d), shall not discharge ballast water into state marine waters.

(b) The master shall report to the department, pursuant to section 13-76-19, when a mid-ocean waters ballast water exchange was not done and a ballast water discharge into state marine waters is necessary.

(c) Unless exempted by subsections 13-76-14(c) or 13-76-14(e) of this section, prior to any ballast water discharge into the EEZ or state marine waters, the master shall obtain approval from the department to discharge ballast water. Upon approval, the master shall then implement all feasible measures to minimize the discharge of ballast water.

(d) This subchapter does not authorize the discharge of oil, noxious liquid substances, or any other pollutant in a manner prohibited by state, federal or international laws or regulations. Ballast water carried in any tank containing a residue of oil, noxious liquid substances, or any other pollutant shall be discharged in accordance with the applicable requirements.

(e) The master shall be exempted from the provisions of subsections 13-76-18(a) and 13-76-18(c), if the master determines that such ballast water discharge is necessary to ensure the safety and stability of the vessel or the safety of the crew and passengers, because of adverse weather, vessel design limitations, equipment failure, or any other extraordinary conditions. [Eff **OCT 12 2007** ]  
(Auth: HRS §187A-32) (Imp: HRS §187A-32)

§13-76-19 Ballast water reporting requirements.

(a) Unless exempted in subsection 13-76-14(b), for all qualifying vessels, the master shall:

- (1) Fully and accurately fill out the USCG ballast water report form;
- (2) Submit the form by fax, electronic mail, or as otherwise provided to the department no later than twenty-four (24) hours prior to vessel arrival into state marine waters;
- (3) Submit an amended form to the department before the vessel departs state marine waters, should there be a change in any of the information submitted in accordance with this section; and
- (4) Maintain on board the vessel records that include all of the information provided on the form for at least two years.

(b) Submission of this form or an amended form to the department does not relieve the master of the responsibility to report to the USCG, if the USCG requires such report or amended form. [Eff **OCT 12 2007** ] (Auth: HRS §187A-32) (Imp: HRS §187A-32)

§13-76-20 Evaluation and compliance. (a) In order to evaluate the compliance rate of qualifying vessels with the provisions of this subchapter, the department, in coordination with the USCG, may:

- (1) Take samples of ballast water and sediment, examine documents, and make other appropriate inquiries;
  - (2) Compile the information obtained from submitted reports and use the information in conjunction with existing information relating to the number of vessel arrivals; and
  - (3) Take other actions necessary for the purposes of this subchapter.
- (b) The master shall make available to the department, upon the department's request, the records required by section 13-76-19 and other relevant information. [Eff OCT 12 2007 ] (Auth: HRS §187A-32) (Imp: HRS §187A-32)

DEPARTMENT OF LAND AND NATURAL RESOURCES

Chapter 13-76, Hawaii Administrative Rules, on the Summary Page dated August 10, 2007, was adopted on August 10, 2007, following a public hearing held on June 28, 2007, after public notice was given in the Honolulu Star-Bulletin on May 20, 2007.

The adoption of chapter 13-76 shall take effect ten days after filing with the Office of the Lieutenant Governor.



---

Laura H. Thielen  
Interim Chairperson  
Board of Land and Natural  
Resources

APPROVED:




---

Linda Lingle  
Governor  
State of Hawaii

Dated: OCT -1 2007

APPROVED AS TO FORM:



---

Deputy Attorney General

---

Filed

76-15

27 61



## **Precautions for Minimizing Human Impacts on Endangered Land Birds in Papahānaumokuākea Marine National Monument**

The Nihoa finch (*Telespiza ultima*), Nihoa millerbird (*Acrocephalus remota*), and Laysan finch (*Telespiza cantans*) are inquisitive birds that constantly inspect and probe their environment while foraging. While this probably benefits them in their natural environment, it can be problematic when humans bring in equipment or set up encampments. Things that we normally would not think of as hazards to wildlife become sources of finch or millerbird mortality (usually by drowning, entanglement, and entrapment). In order to avoid the unintentional killing of these endangered species, it is imperative that visitors to Nihoa, Laysan, and Pearl and Hermes Atoll be aware of the different hazards that humans pose to passerine birds. The guidelines below derive from documented mortalities and will help you “bird-proof” your operation, but additional hazards exist, so use common sense at all times.

1. The burn barrel must be attended **at all times** when burning trash; be vigilant. When not burning, any vents or rust-eaten holes in the barrel or lid must be covered (e.g., with rocks).
2. Buckets must always be overturned so that they won’t collect rainwater.
3. Laundry buckets must have lids on them while laundry is soaking.
4. Water-filled buckets for dishwashing (or any other chore) must always be attended.
5. Desalinator garbage cans should have netting placed between the can and the lid. Make sure the lids close properly; faulty positioning of hoses can interfere with proper closure.
6. Tarps (e.g., those covering propane, etc.) must be tucked in tightly so that they don’t collect rainwater.
7. Fabric with loose threads should be burned; little feet can become entangled when fabric is hung out to dry. Cut loose threads off tents and tarps.
8. Anything with small mesh (e.g., bird nets or insect nets) should be put away to avoid foot entanglement.
9. Water jugs should be aligned with ample space between rows so that finches won’t get trapped. Always keep jugs capped.
10. For stability reasons, buckets should not be stacked more than two high. Keep an eye out for leaning buckets or water jugs, and level the sand beneath them if necessary.
11. Tents should be zipped at all times (day and night) so that finches and millerbirds cannot enter.
12. Finches and millerbirds should be discouraged from eating people-food so as not to augment the camp population any more than it is already. Dependency by the finches on the camp will result in suffering when temporary and more-permanent field camps dissolve.

## **Human Hazards to Seabirds in Papahānaumokuākea Marine National Monument**

Most seabirds exhibit insular tameness, which is behavior characterized by a lack of the wariness you might observe in birds living in areas with terrestrial predators. Because of this, it sometimes appears by their actions as if humans pose no problems for them. In fact there are a number of potentially serious consequences every time a seabird colony is entered, even by experienced researchers. Hazards to seabirds also result from the movement of vessels through the waters of the Monument.

**Mechanical** - At most seabird colonies in the Monument, you will see birds nesting on three different levels, under the ground, on the surface, and in the shrubs and trees. At many times of the year it is difficult to walk in some parts of the colony without stepping on eggs or caving in the burrows of the petrels and shearwaters. Chicks of several of the tern species hide in vegetation so you should be careful about setting your foot where you cannot see the surface of the ground. Ground-nesting gray-backed terns and brown noddies are often most affected by your activities because they are very timid and nest in open areas that may be travel pathways. If you have occasion to have to walk in burrow areas, you must be prepared to rescue a shearwater or petrel by digging if you accidentally cave in its home. Putting out temporary tents or stacks of equipment may provide a site that burrowing or crevice nesting birds will use. Subsequently removing these materials may cause the nest to fail. Special care should be taken never to leave string or line anywhere in the colony. Seabirds have an uncanny ability to find it and get tangled in any material of this kind. Lights in camps or on vessels at sea cause a collision hazard for petrels and shearwaters in particular because they are confused by the light and collide with the vessel or lighted structure. All ship lights except for running lights or anchor lights should be extinguished or shielded, especially when operating in proximity to seabird colonies.

**Thermal** - The climate of the tropical and subtropical islands seems mild but the eggs and small chicks of all the species live a precarious life on the edge of thermal disaster. The attendance patterns of adults reflect this with eggs and tiny chicks virtually never left unattended. Great care and attention must be given to never keeping a bird off its egg or chick for more than a few minutes. Keep this in mind if you must spend more than 3 or 4 minutes in any area. This is an issue when it is hot as well as when it is cool and wet. When first approaching a site look for any nests or adults flushed from an inconspicuous nest and plan your work to minimize keeping birds from attending their eggs or chicks for more than 3 minutes.

**Biological** - In some colonies, one species may learn to take advantage of human disturbance to prey upon others. Frigatebirds will take chicks and steal nest material from booby nests and other frigatebird nests when the owners of the nest are frightened off by human disturbance. In colonies inhabited by finches of various species, the minute an egg is exposed the finch will rush in and peck a hole and consume the contents. Unattended eggs of ground-nesting species are often eaten by shorebirds such as ruddy turnstones. All small seabirds are at great risk in colonies where there are introduced rats. It is possible that going up to isolated or cryptic nests and handling the eggs will provide a trail that might lead rats to the nest.

**Behavioral considerations** – Young ground-nesting terns such as sooty terns, gray-backed terns and brown noddies are particularly vulnerable to disturbance at age 2 through 7 days from hatching because they are large enough to run in panic if a person walks through the nesting area but not old enough to find their way back to their own nest-site where their parent will recognize and feed them. A colony with chicks at this young age (before scapular feathers have erupted) must not be disturbed. All three species

of boobies (brown, red-footed, and masked) are vulnerable to injury and death when they dive on towed lures used during trolling operations. Younger birds seem particularly susceptible to this. Sustainance fishing operations in the Monument should be stopped immediately if birds are flying in the area and express interest in the lures.

## **Papahānaumokuākea Marine National Monument**

### **National Marine Fisheries Service Best Management Practices**

- If there is any Hawaiian monk seal or any other protected species in the area when performing any permitted activity, the activity shall cease until the animal(s) depart the area unless the activity is covered under a separate permit that allows that activity (e.g., ESA and/or MMPA permits);
- The applicant and those working under any permit issued for this activity shall be familiar with the “Marine Wildlife Viewing Guidelines,” accessible at NOAA’s National Marine Fisheries Service website: [http://www.fpir.noaa.gov/PRD/prd\\_laws\\_policies\\_guidelines1.html](http://www.fpir.noaa.gov/PRD/prd_laws_policies_guidelines1.html);
- Implement the “Disease and Introduced Species Prevention Protocol for Permitted Activities in the Marine Environment Papahānaumokuākea Marine National Monument” for in-water activities; and
- Implement the “Bests Practices for Minimizing the Impact of Artificial Light on Sea Turtles” Pacific Islands regional Office, NOAA National Marine Fisheries service, Rev. Nov. 9, 2007, as applicable.

February 28, 2008 Pacific Islands Regional Office.

This page intentionally left blank.

## **Best Practices for Minimizing the Impact of Artificial Light on Sea Turtles**

NOAA's National Marine Fisheries Service (NOAA Fisheries) and the U.S. Fish and Wildlife Service are jointly responsible for the protection of threatened and endangered sea turtles. In Hawai'i, the agencies are especially concerned about the impact of shoreline activities on the successful nesting and basking of green and hawksbill sea turtles.

Over 90 percent of nesting activity for the Hawaiian population of the threatened green sea turtle (*Chelonia mydas*) occurs at French Frigate Shoals in the Northwestern Hawaiian Islands (NWHI). Green turtles nest from May through September, peaking in June and July. Hatchlings continue to emerge from nests through November. Large numbers of green turtles are also known to bask throughout the NWHI. The endangered hawksbill sea turtle (*Eretmochelys imbricata*) also nests in Hawai'i, with over 90 percent of documented nests occurring on the Island of Hawai'i. Regular nesting also occurs on Maui and Moloka'i. Hawksbills appear to nest and forage primarily within the main Hawaiian Islands, though they have been sighted in the Northwestern Hawaiian Islands.

Many factors affect the potential survival of these turtles, including the loss or destruction of nesting and basking beaches, and other human shoreline activities such as the use of artificial lights. The following set of measures should be adopted as appropriate, to minimize the impacts of lighting on sea turtles:

**A. Avoid the use of artificial lighting near beaches, where possible, particularly during nesting and hatching seasons.**

Artificial light sources on a nesting beach may deter adult females from exiting the water to lay eggs on the beach, cause abandonment of nesting attempts, or disorient adult females and disrupt their natural behavior of returning to the sea after nesting. Artificial light will disorient hatchlings that use light cues to find their way to the sea, making them more vulnerable to predation, exhaustion, and desiccation. Artificial light may also disturb basking turtles.

**B. Do not use excessive or unnecessary amounts of light, or leave lights on or allow campfires to burn longer than necessary.**

Basking behavior may help turtles avoid marine predators. If artificial lighting causes a basking turtle to return to the sea, it may be more vulnerable to predation.

**C. Shield or redirect lights to reduce as much as possible the amount of light that can be seen from the nesting or basking beach.**

Effective light shields should be completely opaque, sufficiently large, and positioned so that light from the shielded source does not reach the beach.

**D. Where possible, use low-intensity light sources that emit long wavelength light (yellow, red) and avoid sources that emit short wavelengths (ultraviolet, blue, green, white).**

Long wavelengths are the least disturbing to sea turtles. Red light-emitting diodes (LEDs) are the best option and one of the light sources least disruptive to sea turtles. Amber or yellow filters placed on light sources are less desirable than red lighting, as they vary in effectiveness and will fade over time.

**E. Aboard vessels at sea, use the minimum lighting necessary to comply with navigation rules and best safety practices.**

Sea turtles of all life stages may be attracted to lights from vessels at sea. These turtles may be vulnerable to vessel activities, as well as being vulnerable to predators that may also be attracted to the same lights.



## **Special Conditions & Rules for Small Boat Operations at Tern Island**

### **Trip Authorization**

All boat trips, including the use of non-FWS vessels, must be authorized by the resident refuge manager before leaving Tern Island or entering French Frigate Shoals. Information must be provided on the trip objectives, the destination(s), and approximate time of return. The resident refuge manager may withhold permission for a boat to leave Tern Island or operate within the refuge boundary if in his/her opinion, the seas are too rough, the weather is inclement, the equipment is in questionable condition, or the operator lacks the experience to cope with prevailing conditions.

### **Boat Operators and Passengers**

All boat operators are required to have completed a Boat Safety Course for use of boats at French Frigate Shoals. FWS Employees must have official DOI boat training certification. Operators must be experienced in handling small craft around coral heads and choppy seas and be familiar with outboard engine operation and repair. If the resident refuge manager is not familiar with their abilities, he/she may request a demonstration ride or other means for skills verification. All persons involved in boating operations must be able to swim. The operator is responsible for seeing that all boat use policy requirements are met. Any kind of unsafe boat operation (violation of boating policy, reckless driving, excessive speed, etc.) will be cause for the resident refuge manager to revoke that person's right to operate boats at French Frigate Shoals. Everyone in the boat must have his/her life jacket on at all times! Each person that is to operate boats at French Frigate Shoals will be required to read and sign the Tern Island copy of the Boat Use Policy to verify that he/she has read and understood it.

### **Boats and Equipment**

All boats going on solo trips are required to have two motors in working condition. Both motors must be tested before leaving the dock area and must be attached to the boat by a safety chain or rope unless bolted to the hull. Boats must have standard safety equipment on board including a life preserver for each person (diving buoyancy compensators and wet suits are not adequate), a bow anchor with at least 120 feet of line (and a similarly equipped stern anchor, if landing on another islet), paddles or oars, an emergency tool kit, a first-aid kit, an emergency locating transmitter (EPIRB), an emergency strobe light, and handheld radios.

A second boat with two motors in good working condition will either travel with the other boat(s) or be ready for immediate use at Tern Island should an emergency arise and rescue be required.

### **Radio Procedure**

All boats launched from Tern Island must be equipped with two operational radios. An exception to this rule is when several boats are being used to offload vessels. Since all boats will be in visual contact with other boats, Tern Island, or the offloading vessel, only one radio is required. Check with the resident refuge manager for the radio frequencies being used. Radios must be tested before leaving the dock area. It is the responsibility of the boat operator to make sure that radios are properly charged prior to any trip (check with the resident refuge manager for proper charging procedures).

Boats must contact Tern Island when they leave a location and when they reach their destination. Arrangements must be made prior to a boat trip to have someone monitoring the radios at Tern Island within 15 minutes after arrival at a destination, or of the time of a prearranged radio call. If contact is not made the boat must immediately return to Tern Island. If radio contact is made while returning to Tern Island the trip can be resumed. If Tern Island does not hear from a boat 1 hour past the expected arrival or prearranged radio call, the backup boat will be launched and a search will commence.

Previous FFS Boating Policy required a rescue boat to be launched 1 hour after any boat is overdue for radio check in. This remains unchanged except that in the late afternoon all boat operators must check in prior to the Departure Guidelines listed below. If a boat has not checked in by the listed guideline, a rescue boat will be launched immediately and sent to the last known location of the missing boat.

### **Departure Guidelines**

All boating activities must be limited to a period between half an hour after sunrise and 1 1/2 hours before sunset. If you change your original route for any reason during the day, contact the resident refuge manager by radio on Channel 16. To allow reasonable amount of time to perform search and rescue, boats must depart the following areas before sunset as stated: Disappearing Island 5 hours, the Gins 2 hr 15 min; East Island 2 hours; Shark, Trig, and Round Islands 1 hr 50 min.

### **General Rules**

No boats may be launched if the wind speed exceeds 20 knots or if seas are deemed exceedingly rough by the resident refuge manager. Approach to within one-half mile of any islet not specifically mentioned on Monument Permits is prohibited, except in emergency situations or unless permission is otherwise obtained in advance from the resident refuge manager. At least two people must be aboard a boat at all times unless pre-approved by the resident refuge manager.

---

**APPENDIX G:**  
**IMO Particularly Sensitive Sea Area Designation**  
**and Associated Protective Measures**

---



MARINE ENVIRONMENT PROTECTION  
COMMITTEE  
57th session  
Agenda item 21

MEPC 57/21  
7 April 2008  
Original: ENGLISH

**REPORT OF THE MARINE ENVIRONMENT PROTECTION COMMITTEE  
ON ITS FIFTY-SEVENTH SESSION**

<b>Section</b>	<b>Paragraph Nos.</b>	<b>Page No.</b>
1 INTRODUCTION	1.1 – 1.9	4
2 HARMFUL AQUATIC ORGANISMS IN BALLAST WATER	2.1 – 2.50	7
3 RECYCLING OF SHIPS	3.1 – 3.67	16
4 PREVENTION OF AIR POLLUTION FROM SHIPS	4.1 – 4.121	28
5 INTERPRETATIONS OF AND AMENDMENTS TO MARPOL AND RELATED INSTRUMENTS	5.1 – 5.17	58
6 IMPLEMENTATION OF THE OPRC CONVENTION AND THE OPRC-HNS PROTOCOL AND RELEVANT CONFERENCE RESOLUTIONS	6.1 – 6.11	62
7 IDENTIFICATION AND PROTECTION OF SPECIAL AREAS AND PARTICULARLY SENSITIVE SEA AREAS	7.1 – 7.19	66
8 INADEQUACY OF RECEPTION FACILITIES	8.1 – 8.10	68
9 REPORTS OF SUB-COMMITTEES	9.1 – 9.12	70
10 WORK OF OTHER BODIES	10.1 – 10.32	71
11 STATUS OF CONVENTIONS	11.1 – 11.2	78

For reasons of economy, this document is printed in a limited number. Delegates are kindly asked to bring their copies to meetings and not to request additional copies.

<b>Section</b>	<b>Paragraph Nos.</b>	<b>Page No.</b>
12 HARMFUL ANTI-FOULING SYSTEMS FOR SHIPS	12.1 – 12.13	79
13 PROMOTION OF IMPLEMENTATION AND ENFORCEMENT OF MARPOL AND RELATED INSTRUMENTS	13.1 – 13.6	81
14 FOLLOW-UP TO UNCED AND WSSD	14.1 – 14.4	82
15 TECHNICAL CO-OPERATION PROGRAMME	15.1 – 15.21	82
16 ROLE OF THE HUMAN ELEMENT	16.1 – 16.6	86
17 FORMAL SAFETY ASSESSMENT	17.1 – 17.13	87
18 WORK PROGRAMME OF THE COMMITTEE AND SUBSIDIARY BODIES	18.1 – 18.20	89
19 APPLICATION OF THE COMMITTEES' GUIDELINES	19.1 – 19.11	92
20 ANY OTHER BUSINESS	20.1 – 20.19	94

#### **LIST OF ANNEXES**

ANNEX 1	RESOLUTION MEPC.169(57) – PROCEDURE FOR APPROVAL OF BALLAST WATER MANAGEMENT SYSTEMS THAT MAKE USE OF ACTIVE SUBSTANCES (G9)
ANNEX 2	PROVISIONAL TERMS OF REFERENCE FOR THE BALLAST WATER REVIEW GROUP AT MEPC 58
ANNEX 3	STATEMENT BY THE DELEGATION OF THE UNITED STATES CONCERNING SHIP RECYCLING IN NON-PARTY FACILITIES
ANNEX 4	RESOLUTION MEPC.170(57) – GUIDELINES FOR EXHAUST GAS CLEANING SYSTEMS
ANNEX 5	DRAFT AMENDMENTS TO MARPOL ANNEX VI
ANNEX 6	DRAFT AMENDMENTS TO THE NO <sub>x</sub> TECHNICAL CODE
ANNEX 7	TERMS OF REFERENCE FOR THE INTERSESSIONAL MEETING OF THE WORKING GROUP ON GREENHOUSE GAS EMISSIONS FROM SHIPS

- ANNEX 8 UNIFIED INTERPRETATION TO REGULATIONS 1.28 AND 1.30 OF MARPOL ANNEX I AND REGULATION 1.1 OF MARPOL ANNEX IV
- ANNEX 9 UNIFIED INTERPRETATION TO REGULATION 22 OF MARPOL ANNEX I
- ANNEX 10 REVISED WORK PROGRAMME OF THE OPRC-HNS TECHNICAL GROUP AND PROVISIONAL AGENDA FOR TG 8
- ANNEX 11 STATEMENT BY THE DELEGATION OF SINGAPORE CONCERNING THE TORRES STRAIT EXTENSION TO THE GREAT BARRIER REEF PSSA
- ANNEX 12 RESOLUTION MEPC.171(57) – DESIGNATION OF THE PAPAHAŪNAUMOKUĀKEA MARINE NATIONAL MONUMENT AS A PARTICULARLY SENSITIVE SEA AREA
- ANNEX 13 RESOLUTION MEPC.172(57) – ESTABLISHMENT OF THE DATE ON WHICH REGULATION 5(1)(a) OF MARPOL ANNEX V IN RESPECT OF THE MEDITERRANEAN SEA AREA SPECIAL AREA SHALL TAKE EFFECT
- ANNEX 14 REVISED WORK PROGRAMME OF THE BLG SUB-COMMITTEE AND PROVISIONAL AGENDA FOR BLG 13
- ANNEX 15 REVISED WORK PROGRAMME OF THE FSI SUB-COMMITTEE AND PROVISIONAL AGENDA FOR FSI 16
- ANNEX 16 WORK PROGRAMME ITEMS OF THE DSC, NAV AND DE SUB-COMMITTEES WHICH RELATE TO ENVIRONMENTAL ISSUES
- ANNEX 17 ITEMS TO BE INCLUDED IN THE AGENDAS FOR MEPC 58, MEPC 59 AND MEPC 60
- ANNEX 18 AMENDMENTS TO THE GUIDELINES ON THE ORGANIZATION AND METHOD OF WORK OF THE MARITIME SAFETY COMMITTEE AND THE MARINE ENVIRONMENT PROTECTION COMMITTEE AND THEIR SUBSIDIARY BODIES (MSC-MEPC.1/CIRC.1)



**ANNEX 12****RESOLUTION MEPC.171(57)****Adopted on 4 April 2008****DESIGNATION OF THE  
PAPAHĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT  
AS A PARTICULARLY SENSITIVE SEA AREA**

THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

BEING AWARE of the ecological, socio-economic and scientific attributes of the Papahānaumokuākea Marine National Monument, as well as its vulnerability to damage by international shipping activities and the steps taken by the United States to address that vulnerability,

NOTING the Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas adopted by resolution A.982(24) (PSSA Guidelines) and the Revised Guidance Document for Submission of PSSA Proposals to IMO set forth in MEPC/Circ.510,

HAVING CONSIDERED the proposal made by the Government of the United States that the Papahānaumokuākea Marine National Monument be designated as a Particularly Sensitive Sea Area,

HAVING AGREED that the criteria for the identification and designation of a Particularly Sensitive Area provided in resolution A.982(24) are fulfilled for the Papahānaumokuākea Marine National Monument,

HAVING NOTED that the Maritime Safety Committee, at its eighty-third session, in considering the necessary associated protective measures, adopted new and amended, routing measures, as well as a new ship reporting system applicable to the proposed Particularly Sensitive Sea Area,

1. DESIGNATES the Papahānaumokuākea Marine National Monument described in annex 1 as a Particularly Sensitive Sea Area;
2. INVITES Member Governments to recognize the ecological, socio-economic, and scientific attributes of the area, set forth in annex 2, as well as its vulnerability to damage by international shipping activities, as described in annex 3; and
3. FURTHER INVITES Member Governments to note the associated protective measures established to address the area's vulnerability, the details of which are contained in annex 4, and request ships flying their flag that they act in accordance with such measures.

ANNEX 1

**DESCRIPTION OF THE PAPAĀNAUMOKUĀKEA MARINE  
NATIONAL MONUMENT PSSA\***

(Reference chart: United States 19016, 2007 edition; 19019, 2007 edition; 19022, 2007 edition. These charts are based on World Geodetic Survey 1984 and astronomic datum.)

**Description of the Particularly Sensitive Sea Area for the Papahānaumokuākea Marine National Monument**

To avoid the risk of damage from ship groundings and pollution damage by international shipping activities and the destruction and degradation of this unique, fragile, and pristine coral reef ecosystem, as well as of significant cultural and archaeological resources, mariners should exercise extreme care when navigating in the area bounded by a line connecting the following geographical positions which is designated as a Particularly Sensitive Sea Area:

<b>Point</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
1	28°26'.24 N	175°10'.65 W
2	28°16'.07 N	175°00'.00 W
3	26°50'.89 N	173°30'.79 W
4	26°36'.00 N	171°37'.70 W
5	26°35'.49 N	171°33'.84 W
6	26°35'.09 N	171°30'.84 W
7	26°34'.07 N	171°27'.50 W
8	26°33'.35 N	171°25'.16 W
9	26°14'.25 N	170°23'.04 W
10	25°50'.55 N	167°57'.88 W
11	25°48'.99 N	167°48'.35 W
12	25°47'.09 N	167°36'.72 W
13	25°39'.84 N	167°26'.48 W
14	25°35'.10 N	167°19'.79 W
15	25°10'.43 N	166°45'.00 W
16	24°40'.91 N	166°03'.36 W
17	24°35'.64 N	165°34'.99 W
18	24°23'.98 N	164°32'.24 W
19	23°52'.82 N	161°44'.54 W
20	23°52'.10 N	161°41'.20 W
21	23°51'.18 N	161°37'.92 W
22	23°50'.08 N	161°34'.71 W
23	23°48'.79 N	161°31'.58 W
24	23°47'.33 N	161°28'.55 W
25	23°45'.69 N	161°25'.62 W
26	23°43'.88 N	161°22'.81 W
27	23°41'.92 N	161°20'.13 W
28	23°39'.80 N	161°17'.60 W
29	23°37'.54 N	161°15'.21 W

---

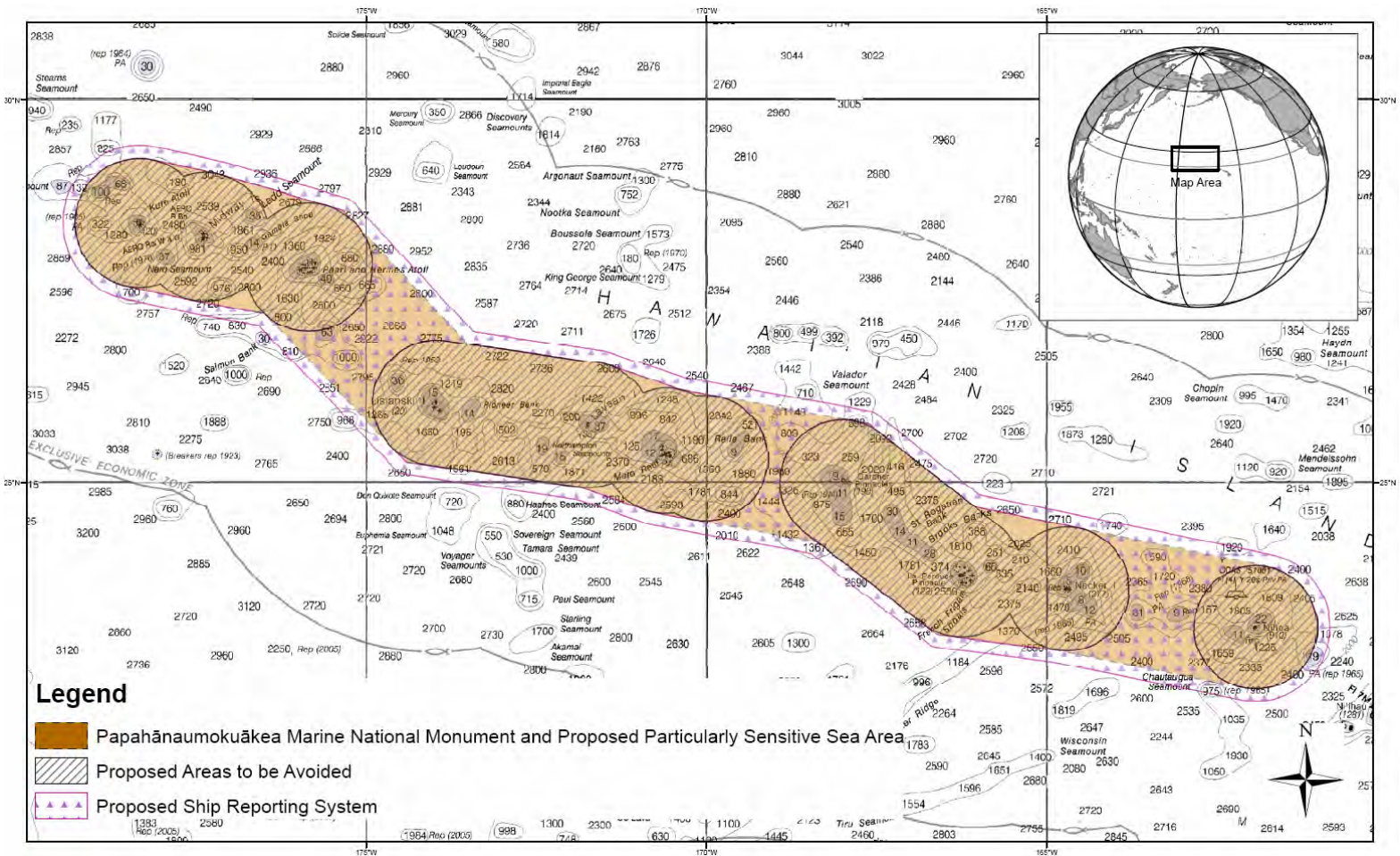
\* The text in this annex is taken from the United States submission contained in document MEPC 56/8.

<b>Point</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
30	23°35'.14 N	161°12'.99 W
31	23°32'.62 N	161°10'.93 W
32	23°29'.99 N	161°09'.05 W
33	23°27'.25 N	161°07'.35 W
34	23°24'.42 N	161°05'.85 W
35	23°21'.51 N	161°04'.54 W
36	23°18'.52 N	161°03'.43 W
37	23°15'.48 N	161°02'.53 W
38	23°12'.39 N	161°01'.84 W
39	23°09'.27 N	161°01'.35 W
40	23°06'.13 N	161°01'.09 W
41	23°02'.97 N	161°01'.03 W
42	22°59'.82 N	161°01'.19 W
43	22°56'.69 N	161°01'.57 W
44	22°53'.58 N	161°02'.15 W
45	22°50'.51 N	161°02'.95 W
46	22°47'.50 N	161°03'.95 W
47	22°44'.55 N	161°05'.15 W
48	22°41'.67 N	161°06'.54 W
49	22°38'.88 N	161°08'.13 W
50	22°36'.19 N	161°09'.90 W
51	22°33'.61 N	161°11'.85 W
52	22°31'.14 N	161°13'.97 W
53	22°28'.81 N	161°16'.25 W
54	22°26'.61 N	161°18'.69 W
55	22°24'.56 N	161°21'.26 W
56	22°22'.66 N	161°23'.97 W
57	22°20'.92 N	161°26'.80 W
58	22°19'.35 N	161°29'.74 W
59	22°17'.95 N	161°32'.78 W
60	22°16'.73 N	161°35'.90 W
61	22°15'.70 N	161°39'.10 W
62	22°14'.85 N	161°42'.37 W
63	22°14'.20 N	161°45'.68 W
64	22°13'.73 N	161°49'.03 W
65	22°13'.47 N	161°52'.41 W
66	22°13'.40 N	161°55'.80 W
67	22°13'.53 N	161°59'.18 W
68	22°13'.85 N	162°02'.55 W
69	22°14'.31 N	162°05'.45 W
70	22°14'.37 N	162°05'.89 W
71	22°45'.18 N	164°51'.62 W
72	22°50'.26 N	165°34'.99 W
73	22°55'.50 N	166°19'.63 W
74	22°55'.93 N	166°23'.32 W
75	22°57'.41 N	166°36'.00 W
76	23°03'.75 N	166°45'.00 W
77	23°05'.48 N	166°47'.45 W

<b>Point</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
78	24°12'.69 N	168°22'.84 W
79	24°12'.69 N	168°22'.84 W
80	24°12'.70 N	168°22'.86 W
81	24°35'.77 N	170°44'.39 W
82	24°36'.29 N	170°47'.58 W
83	24°37'.18 N	170°50'.37 W
84	24°37'.76 N	170°52'.17 W
85	24°56'.23 N	171°50'.19 W
86	25°16'.61 N	174°24'.84 W
87	25°49'.84 N	175°00'.00 W
88	27°14'.76 N	176°29'.87 W
89	27°24'.95 N	177°33'.31 W
90	27°35'.87 N	178°29'.90 W
91	27°36'.64 N	178°33'.93 W
92	27°37'.53 N	178°37'.32 W
93	27°38'.60 N	178°40'.65 W
94	27°39'.85 N	178°43'.90 W
95	27°41'.28 N	178°47'.05 W
96	27°42'.89 N	178°50'.10 W
97	27°44'.66 N	178°53'.03 W
98	27°46'.59 N	178°55'.83 W
99	27°48'.67 N	178°58'.49 W
100	27°50'.89 N	179°01'.00 W
101	27°53'.25 N	179°03'.35 W
102	27°55'.74 N	179°05'.54 W
103	27°58'.34 N	179°07'.54 W
104	28°01'.05 N	179°09'.35 W
105	28°03'.85 N	179°10'.98 W
106	28°06'.74 N	179°12'.40 W
107	28°09'.71 N	179°13'.61 W
108	28°12'.73 N	179°14'.62 W
109	28°15'.80 N	179°15'.41 W
110	28°18'.91 N	179°15'.98 W
111	28°22'.05 N	179°16'.33 W
112	28°24'.72 N	179°16'.44 W
113	28°25'.20 N	179°16'.45 W
114	28°25'.82 N	179°16'.44 W
115	28°28'.35 N	179°16'.36 W
116	28°31'.49 N	179°16'.03 W
117	28°34'.60 N	179°15'.49 W
118	28°37'.68 N	179°14'.72 W
119	28°40'.71 N	179°13'.74 W
120	28°43'.68 N	179°12'.54 W
121	28°46'.58 N	179°11'.13 W
122	28°49'.39 N	179°09'.52 W
123	28°52'.11 N	179°07'.70 W
124	28°54'.72 N	179°05'.70 W
125	28°57'.21 N	179°03'.51 W

<b>Point</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
126	28°59'.58 N	179°01'.15 W
127	29°01'.81 N	178°58'.62 W
128	29°03'.90 N	178°55'.93 W
129	29°05'.83 N	178°53'.10 W
130	29°07'.60 N	178°50'.13 W
131	29°09'.21 N	178°47'.04 W
132	29°10'.64 N	178°43'.84 W
133	29°11'.89 N	178°40'.54 W
134	29°12'.95 N	178°37'.16 W
135	29°13'.82 N	178°33'.71 W
136	29°14'.50 N	178°30'.21 W
137	29°14'.99 N	178°26'.66 W
138	29°15'.28 N	178°23'.08 W
139	29°15'.36 N	178°19'.49 W
140	29°15'.25 N	178°15'.90 W
141	29°14'.94 N	178°12'.32 W
142	29°14'.43 N	178°08'.78 W
143	29°03'.47 N	177°12'.07 W
144	29°02'.55 N	177°07'.29 W
145	28°38'.96 N	175°35'.47 W
146	28°38'.67 N	175°34'.35 W
147	28°34'.91 N	175°19'.74 W
148	28°26'.24 N	175°10'.65 W

CHARTLET



## ANNEX 2

### **ECOLOGICAL, SOCIO-ECONOMIC, AND SCIENTIFIC ATTRIBUTES OF THE PAPA HĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT PSSA\***

#### **1 *Ecological Criteria***

##### **1.1 Uniqueness or rarity**

1.1.1 The Papahānaumokuākea Marine National Monument (North-western Hawaiian Islands or NWHI) supports a unique, dynamic coral reef ecosystem, which, thanks to its relative isolation, is among the healthiest in the world (Citizen's Guide 2006). It is one of the last remaining large-scale wilderness coral reef ecosystems on the planet and the largest coral reef ecosystem in the marginal tropical seas (Cousteau 2003). Approximately one-quarter of the species found in the NWHI are endemic to the Hawaiian Island chain, which is one of the highest rates of marine endemism in the world (Friedlander *et al.* 2005; Citizen's Guide 2006). The proportion of scientifically non-described coral reef species (e.g., sponges, corals, algae, and other invertebrates) in this area is one of the highest in the world (Cousteau 2003). The NWHI also contain important breeding and nesting grounds for a number of species, many of which are at risk, including the critically endangered Hawaiian monk seal, the threatened green sea turtle, and 19 species of seabirds (Henderson 2001; NOAA 2004b; Citizen's Guide 2006).

1.1.2 The uniqueness of this area was expressed in 2003 by ocean explorer Jean-Michel Cousteau in his **Voyage to Kure** expedition log: "These islands are a celebration of the uniqueness brought on by isolation. Along this ribbon of life, we found teeming populations of spinner dolphins and large apex predators such as reef sharks, jacks, and groupers. We encountered many of the Hawaiian endemic species of reef fish, including the rare masked angelfish and Hawaiian grouper; all perfect reminders of an intact coral reef ecosystem" (Cousteau 2003).

##### **1.2 Critical Habitat**

1.2.1 Parts of the proposed area provide critical habitat for a variety of endangered or threatened species that are protected under various United States domestic laws. These species include the critically endangered Hawaiian monk seal; the endangered sperm whale; the endangered hawksbill, leatherback, and green sea turtles; the endangered short-tailed albatross; six endangered plant species; and four endangered land birds: the Nihoa finch, Nihoa millerbird, Laysan finch, and Laysan Duck, the world's rarest duck. Of these species, seven are listed in Appendix I of the Convention on Trade in Endangered Species of Wild Flora and Fauna (CITES) and nine are listed on the World Conservation Union (IUCN) Red List of Threatened Species (including three with "critically endangered" status).

##### **1.3 Dependency**

1.3.1 The ecological processes of the NWHI ecosystem are dependent on the health of its vast, diverse coral reef tracts. Often called the "rainforests" of the sea, coral reefs are vital to

---

\* The text in this annex is taken from the United States submission contained in document MEPC 56/8.



maintaining the biological diversity of the oceans (Citizen's Guide 2006). The pristine coral reefs of the NWHI are the foundation of a symbiotic community composed of countless millions of plants and animals dependent upon one another for survival (Citizen's Guide 2006). These reefs perform important ecosystem services including filtering water, protecting islands from sediment deposition and storms, and providing nourishment for marine organisms.

1.3.2 Thousands of species depend on the coral reefs of the NWHI. Hawaiian monk seals, a majority of which make their home in the NWHI, are the only surviving marine mammal that is dependent on coral reef ecosystems (Citizen's Guide 2006; Cousteau 2003). The high incidence of apex predators such as sharks, jacks, and groupers also depends on the high productivity of this ecosystem. In turn, the prevalence of apex predators has a significant effect on the structuring of the fish assemblage of the area, impacting the diversity and relative abundance of species lower on the food chain. Thus, adverse impacts on these apex predators could cause populations of smaller fish to quickly become unbalanced, changing the trophic structure and order of dominance within the ecosystem (Maragos and Gulko 2002; Friedlander and DeMartini 2002; Suthers 2004).

1.3.3 Approximately 14 million seabirds, with 5.5 million nesting annually in the NWHI, rely on the coral reef ecosystem for food and other habitat needs (Naughton and Flint 2004). In turn, the ecosystem is dependent on these birds' role in the high relative productivity and diversity of the NWHI. Nutrient-rich defecation (guano) deposited by the birds on the islands and nearshore waters – which subsequently is dissolved and provides significant levels of nitrogen to the ecosystem – is thought to stimulate the prolific growths of algae found around the islands. When high levels of algal growth are combined with significant wave action, such as at La Perouse Pinnacle at French Frigate Shoals, this creates favourable conditions for the growth of other species (Maragos and Gulko 2002).

1.3.4 The ecological processes of the NWHI depend on more than just its coral reefs. Beyond the banks and steep slopes, between 1,640 and 14,000 feet, the ocean floor levels out at sea bottom which contains distinct, rich habitat (Press and Siever 1986; Benoit-Bird *et al.* 2001). This habitat is linked to the coral reef ecosystem by a dense assemblage of small fish, shrimp, and squid that migrate from the ocean depths to near the surface in regular patterns and serve as an important food resource for many animals, including spinner dolphins, bottom fish, tunas, and billfish (Benoit-Bird *et al.* 2001). The importance of offshore and deepwater habitat is also evidenced by the movements and diets of Hawaiian monk seals. Although part of the seals' diet comes from shallow-water coral reef fish, the seals are known to travel over one hundred miles between islands and dive to depths of greater than 900 feet when foraging for deepwater prey, mainly bottom fish, which make up the primary part of their diet (Henderson 2001; TenBruggencate 2006). Each of these habitats is essential to the other, and the loss of one affects the operation of all the others throughout the system. Accordingly, an impact on one part of the system can threaten the entire ecosystem as well as the diversity of species that depend on the area.

## 1.4 Diversity

1.4.1 The NWHI supports more than 7,000 species of fishes, mammals, plants, coral, and other invertebrates (Bush 2006). Discoveries of species in the NWHI are continuing to be made, as demonstrated by a 2006 research expedition in French Frigate Shoals which yielded over 100 species not previously known to exist in the area and many of which may be previously unknown to science (Associated Press 2006). The rich diversity of the NWHI is in part due to

the relative isolation of the area and minimal impact from humans, which is underscored by the starkly contrasting lower levels of diversity found in the marine areas of the main Hawaiian Islands (DeMartini and Friedlander 2004; Friedlander *et al.* 2005a; NOAA 2004g). Coral reefs are among the most highly diverse of all ecosystems on the planet; the coral reef ecosystem of the NWHI exemplifies this point.

1.4.2 Further contributing to diversity, the ecosystem of the NWHI contains a wide variety of habitats, extending from the shoreline to depths of approximately 14,000 feet. For example, within the pristine coral reefs of the NWHI, the percentage of coral cover varies widely, creating a series of interconnected but distinct types of coral reef habitats, or zones (e.g., shelf, fore reef, reef crest, back reef, and lagoon). Wave exposure is the primary factor causing zonation in the NWHI, but gradients in sediment, salinity, and temperature are also important (Friedlander *et al.* 2005a). As a result of this zonation, the coral reefs of the NWHI contain a variety of environmental niches and resources that support a diverse array of species.

## **1.5 Productivity**

1.5.1 Coral reef ecosystems have the highest gross primary productivity of all ocean areas, and the proposed area contains several thousand square miles of coral reefs, indicating a highly productive ecosystem. Also indicative of the area's productivity is the high incidence of apex predators such as sharks, jacks, and groupers, which make up more than half of the total fish biomass in the NWHI. A very high replacement rate of small and mid-size fish is necessary to support an apex predator-dominated ecosystem.

1.5.2 The productivity of the proposed area can readily be seen by comparing it to the productivity in the main Hawaiian Islands. A comparison of both biomass and trophic structure between reef fish communities in the NWHI and the main Hawaiian Islands showed that across similar habitats, biomass was 260 per cent higher in the NWHI (Friedlander and DeMartini 2002). Productivity is especially high in the area's inshore waters, shallow lagoons, and coral reefs. For example, the lagoon in French Frigate Shoals produces nearly ten times the amount of phytoplankton as produced in the same volume of water in the open seas. The area also has extensive submerged banks, which have high levels of primary productivity due to the existence of expansive algal meadows. Furthermore, while apex predators represent only three per cent of the fish biomass in the main Hawaiian Islands, they make up 54 per cent of the biomass in the NWHI (Suthers 2004).

## **1.6 Spawning or Breeding Grounds**

1.6.1 The NWHI provide critical breeding and nesting grounds for a wide variety of species. The area contains the breeding grounds for almost the entire remaining population of the Hawaiian monk seal, and serves as the seals' primary haul-out, pupping, and weaning habitat. The area also provides the breeding grounds and primary nesting sites for approximately 90 per cent of the threatened Hawaiian Islands green sea turtle population. Millions of Central Pacific seabirds also congregate on these islands to breed, including all but three of Hawaii's 22 species of seabirds, such as the grey-backed tern, short-tailed albatross, and the red-tailed tropicbird. More than 99 per cent of the world's Laysan albatrosses and 98 per cent of the world's black-footed albatrosses return to the NWHI each year to reproduce. For some bird species, the NWHI provide their only breeding site.

## **1.7 Naturalness**

1.7.1 Because of their geographical isolation and long history of protection, the reefs of the NWHI are among the healthiest and most undisturbed coral reefs on the planet. Their naturalness is perhaps best evidenced by the relatively high diversity and productivity in the NWHI as compared with the reefs of the main Hawaiian Islands, which have experienced much greater impacts from humans, and by the fact that the NWHI is one of the worlds last remaining large-scale apex predator-dominated reef ecosystems.

## **1.8 Integrity**

1.8.1 The area of the NWHI is a prime example of a self-sustaining ecological entity. The volcanic islands, coral atolls, shallow reefs, banks, slopes, shoals, seamounts, deep reefs, and open water form the basis for this interlocking and complex ecosystem. Its integrated nature is evidenced by the vast number of interdependent processes that connect the varied NWHI habitats, as discussed in particular in section 3.4 (Dependency) of this proposal. Examples of this include: (1) the critical link between the shallow coral reef and the deep ocean floor habitats manifested by species that migrate regularly from great depths and are consumed by many shallower water animals; (2) the foraging, feeding, breeding, and pupping areas of the Hawaiian monk seal range from the offshore, deepwater habitats to the land areas; and (3) the deposits of bird guano stimulate algal growth which, when combined with wave action, contributes to the growth of other species and the high productivity of the ecosystem.

1.8.2 While the NWHI are a part of the greater chain of Hawaiian Islands, there is clear evidence that the NWHI function as a distinct, biological unit. The NWHI ecosystem is highly productive, diverse, and apex predator-dominated while the ecosystem around the main Hawaiian Islands has substantially lower productivity, less species diversity, and is not apex predator-dominated. These differences demonstrate that the NWHI function as an integral unit.

## **1.9 Fragility**

1.9.1 The area contains several thousand square miles of coral reefs made up of at least 57 species of hard coral and 12 species of soft coral. Coral communities are fragile ecosystems. They require a delicate balance across a range of environmental conditions in order to be healthy and grow. The health of a coral ecosystem may be threatened by changes to even one of those environmental conditions. Corals derive a substantial portion of their nutrition from symbiotic algae (called zooxanthellae) within their tissues. Because algae require light for photosynthesis, clear and clean water conditions are necessary for growth and well-being. The introduction of pollutants can be toxic to the coral.

1.9.2 The physical structure of the reef is provided by calcium carbonate, which forms the rock framework or reef “skeleton”. This calcium carbonate is deposited at a rate of about one-centimetre per year by the living coral animal (polyp). These polyps exist in a thin layer at the surface of the reef rock. The coral reef system of the NWHI has taken thousands of years to build and, if damaged, regeneration of the reef may never occur. If optimal conditions for regeneration exist, it would still take hundreds, and perhaps thousands of years, for a damaged area of the reef to return to its previous condition.

1.9.3 In the NWHI, transiting ships are a primary anthropogenic threat to this fragile ecosystem because of ship groundings and pollution from operational and accidental discharges. Secondary and cumulative damage may occur when dislocated coral fragments caused by groundings are tossed against healthy coral by wave action, currents, and storms.

1.9.4 The isolation of the NWHI affords both protection from and vulnerability to invasive species, which can be transferred by ships. The islands' ecosystems have evolved without the influence of outside forces, demonstrated by the high level of native and endemic species. To date, 11 non-native species have been identified in the waters of the NWHI. Non-native species can displace native species and seriously disrupt and imbalance the natural ecosystem.

## **1.10 Bio-geographic importance**

1.10.1 The NWHI represent one of the last remaining examples of an intact apex predator-dominated coral reef ecosystem with large top predator fish such as sharks in abundance. Because it is isolated, many aspects of the area represent what a completely pristine and undisturbed bio-geographic system would look like at this latitude if one still existed.

1.10.2 The area is geologically unique. The islands were created from a single plume of magma rising from a hot spot in the earth's mantle. Built up over millions of years of eruption, high volcanic islands were formed, then carried north-westerly by the movement of the Pacific Plate beneath. Twenty-eight million years ago the last emergent feature of the chain, Kure, was located where the present Big Island of Hawaii is now located.

## **2 Social, cultural and economic criteria**

### **2.1 Human Dependency**

2.1.1 The NWHI are of particular importance because of their significance in Native Hawaiian history and culture. The NWHI have long been considered a sacred place in Native Hawaiian traditions, and two of the islands in particular contain important archaeological sites (Kikiloi 2006). Early Polynesian voyagers, in their trans-Pacific voyages aboard large double-hulled sailing canoes, were the first humans to arrive in the NWHI, as early as 1000 A.D. Early Hawaiians lived on Nihoa for an estimated 700 years, but this occupation mysteriously ceased before Captain Cook's first landing in Hawaii in 1778 (Citizen's Guide 2006). Their early presence is evidenced by numerous sites on Nihoa and Mokumanamana (Necker), which are listed on both United States and State of Hawaii Registers of Historic Places for their cultural and historical significance. Together, the two islands have 140 recorded cultural sites, including ceremonial, residential, and agricultural sites, some which resemble historically important Polynesian sites in Tahiti and the Marqueses (Emory 1928; Cleghorn 1988; Liller 2000; Kawaharada 2001; Kikiloi 2006). These sites are being studied to increase the understanding of the connection between Native Hawaiian culture and the early Polynesians.

2.1.2 Oral traditions also confirm the relationship of the islands to ancestral Native Hawaiians, and recent ethnological studies have highlighted the continuity of traditional practices in the NWHI. Native Hawaiian cultural practitioners continue to voyage to the NWHI to honour their ancestors and perpetuate these practices. In 1997, Hui Mälama i Nä Kūpuna o Hawaii's Nei, a group dedicated to the repatriation of ancestral remains, returned sets of iwi (bones) to Nihoa and Mokumanamana (Necker). In 2003, the voyaging canoe *Hōkūle`a* travelled to Nihoa so that a group could conduct traditional ceremonies. In 2004, the *Hōkūle`a* sailed to Kure Atoll, and

in 2005 it took a group to Mokumanamana (Necker) for ceremonies on the summer solstice (Citizen's Guide 2006). Finally, underscoring the importance of the NWHI marine ecosystem in Native Hawaiian culture, oral traditions identify the coral polyp as the first living creature to emerge on Earth and the foundation and the building block of all other life in the sea (Friedlander *et al.* 2005b). It follows that ensuring a healthy, intact ecosystem in the NWHI plays an important role in perpetuating Native Hawaiian cultural traditions.

## **2.2 Cultural heritage**

2.2.1 The NWHI are rich in underwater cultural heritage. The numerous wrecks found in the area are time capsules which capture specific elements of our seagoing past. Documents indicate that over 120 vessels and aircraft have been lost in the waters of the proposed area. These remains are representative of distinct phases of Pacific history and include Japanese junks, Hawaiian sampans, 19th century whalers, United States Navy side wheel steamers, French sailing ships, and fighter aircraft lost during the World War II Battle of Midway. Only a handful of these sites have been located and assessed so far, but these surveys reveal resources unique to the North-western Hawaiian Islands. The wrecks of the whaling ships **Pearl** and **Hermes**, both of which ran aground in 1822, are the only archaeological remains of the South Seas whaling industry, and the oldest shipwrecks found thus far in Hawaii. The scattered remains of the **USS Saginaw**, lost in 1870, capture the United States Civil War-era technology of the "old steam navy." The wreck site of the **Dunnottar Castle**, an iron hulled sailing ship lost in 1886, offers a rare glimpse of the days of the Tall Ships. These and many other sites are rare, representative of broad themes of maritime history, and a testimony to the uniqueness of Pacific seafaring history. Unwarranted damage or removal of submerged archaeological sites is prohibited by state and federal preservation laws, and United States Monument management agencies seek to protect these heritage resources as windows into the past.

## **3 Scientific and educational criteria**

### **3.1 Research**

3.1.1 This area is of high scientific interest and offers unparalleled opportunity for research. Given the fact that the NWHI are remote and rich with marine and terrestrial life, they provide one of the few areas in the world where researchers can conduct large-scale comparisons between human-impacted marine ecosystems and un-impacted marine ecosystems (Citizen's Guide; Friedlander and DeMartini 2002). Such comparisons may serve as a living model to guide restoration efforts elsewhere.

3.1.2 As further evidence of the importance of this area for research, in October 2006 an international team of biologists made discoveries in French Frigate Shoals of several new species of coral, sea stars, snails, and clams. The researchers also discovered over one hundred species never before seen in French Frigate Shoals and many of which may have been previously unknown to science (Associated Press 2006). These scientific discoveries suggest that much research remains to be done to fully understand and appreciate this complex ecosystem.

3.1.3 Research and monitoring conducted by United States federal and state agencies, academic institutions, and other organizations over the last 30 years have contributed substantially to the understanding of natural and anthropogenic factors influencing the NWHI and the interconnectedness of the physical and biological processes along the entire Hawaiian Island chain. Ongoing research and monitoring of the marine ecosystems in the NWHI will continue to

provide significant insights that will benefit management not only for the NWHI but in the entire Hawaiian Island chain and marine ecosystems around the world.

### **3.2 Baseline for monitoring studies**

3.2.1 The NWHI are one of the few marine regions on earth where monitoring and research activities can be conducted in the virtual absence of local human habitation and activities. It thus provides ideal baseline conditions with regard to biota and environmental characteristics because it has not had substantial perturbations and is thus in a natural or near-natural condition. Remote, uninhabited, and relatively pristine in comparison to the main Hawaiian Islands and other marine ecosystems around the world, the NWHI serve as one of the few modern sentinels for monitoring and deciphering short-term and long-term responses to local, regional, and global environmental and anthropogenic stressors.

### **3.3 Education**

3.3.1 The NWHI provide a model and rare benchmark of a healthy, intact integrated ecosystem preserved in its natural or near-natural state that may inspire Hawaiian residents as well as others to take part in ocean restoration efforts in their communities. This guiding premise led to “Navigating Change”, a multi-year, interagency project which focuses on raising awareness and motivating people to change their attitudes and behaviours to better care for Hawaii’s land and ocean resources. A five-part video and educational curriculum featuring the traditional Polynesian voyaging canoe *Hōkūle`a* during its 2004 expedition to the NWHI was completed in partnership with several agencies and organizations. Teacher workshops on the “Navigating Change” program have been held since 2003 across Hawaii and an outreach co-ordinator leads an associated curriculum in schools state-wide. As people learn more about the NWHI, many will want to go there and experience it. Therefore, the educational message that is being sent to preserve the fragile balance of the NWHI is that people must admire it from afar. Educational activities, therefore, will focus on bringing the place to the people, not the people to the place.

## ANNEX 3

### **VULNERABILITY TO DAMAGE BY INTERNATIONAL SHIPPING ACTIVITIES\***

#### **1 *Vessel Traffic Characteristics***

##### **1.1 Operational factors**

1.1.1 There are limited maritime activities conducted in the waters of the NWHI, undoubtedly due to the islands' remote location and harsh environmental conditions for human activities. Pursuant to the Presidential Proclamation of June 15, 2006, most domestic activities within NWHI waters are prohibited or strictly regulated. Public access to the land portions of the NWHI has for many years been allowed by permit only, except for Midway Atoll, and permits are issued only for research and Native Hawaiian cultural activities. The maritime activities in this area are primarily research and management, fishing, cultural practices, and recreation. Research activities include assessment, long-term monitoring of resources, impacts and threats from human activities, and protection and conservation of NWHI resources. An estimated four million dollars are spent annually on research and management of the area. There are eight remaining commercial fishing permits in the NWHI, although the Presidential Proclamation and codifying regulations require closure of the fishery five years from the date of the Proclamation. Native Hawaiian cultural practitioners voyage to the NWHI to honour their ancestors and perpetuate traditional practices. Current tourism and recreational activities are limited to Midway Atoll and, under the Proclamation, a permit is now required. The extent to which ocean tourism and recreation occurs in the NWHI is unknown, but it appears to be extremely low. These activities may include wildlife watching, diving and snorkelling, charter fishing, and tour boats. Additionally, a management plan for tourism to the historic World War II location and military heritage sites on Midway Atoll is currently being developed and up to three cruise ships may visit the island each year.

##### **1.2 Vessel Types**

1.2.1 Container ships, bulk carriers, tankers, freighters, and fishing vessels regularly transit the waters surrounding the NWHI. With the exception of a few small boats at Midway Atoll and Tern Island (French Frigate Shoals), no vessels home port in the NWHI. Research and management vessels, eight fishing vessels, vessels used by Native Hawaiians, some recreational vessels, and a few cruise ships, conduct strictly regulated activities in NWHI waters (Franklin 2006; Mohri 2006).

##### **1.3 Traffic Characteristics**

1.3.1 Although due to its remoteness, the exact route of vessels through this area is unknown, it appears that most traffic passes to the north of the island chain, following the great circle routes to and from ports on the west coast of North America and East Asia. Other trans-Pacific ships travelling from ports in Hawaii transit at least 100 miles south of the NWHI. Occasionally, vessels transiting from the south pass within the boundaries of the proposed PSSA (Franklin 2006; Tosatto 2005; Horizon Lines 2006; Devany 2006).

---

\* The text in this annex is taken from the United States submission contained in document MEPC 56/8.



1.3.2 A preliminary analysis of vessel traffic patterns within the NWHI was conducted based on data collected by the World Meteorological Organization's Voluntary Observing Ships scheme. This scheme collects geo-referenced data from select non-research vessels that make frequent and regular crossings of all major ocean basins. While the scheme does not capture the total traffic in the area, during a 21-month study period in 2004 and 2005, approximately 132 vessels reported from within the area of the proposed PSSA: 104 of these vessels were freighters, 8 were tankers, 4 were research vessels, 2 were passenger vessels, 2 were vessels used for educational purposes, 1 was a recreational vessel, 1 was a towing vessel with a 666-foot vessel in tow, and 10 were unidentified vessels. The 132 vessels were flagged in 23 different countries (Franklin 2006).

## 1.4 Substances Carried

1.4.1 While precise data is not available for the types of harmful substances carried on board the vessels that transit the waters of the NWHI, it is possible to identify examples of such substances from incidents that have occurred in the area. Three vessels, the **Paradise Queen II** (1998), the **Swordman I** (2000), and the **Casitas** (2005), all grounded in the NWHI and had significant quantities of bunker fuel or were carrying other types of fuel onboard (Cascadia Times 2006; Shallenberger 2004). These substances are harmful to the marine ecosystem and to the terrestrial environment when washed ashore. In another incident, a container of the pesticide, carbofuran, washed ashore at Laysan Island (Friedlander *et al.* 2005).

1.4.2 Three other ship accidents occurred involving cargoes that may not be classified as "hazardous substances," but that would be harmful if released into this area of the sea. The first incident involved the **Anangel Liberty** in 1980 where 2,200 tons of kaolin clay was dumped overboard to lighten the ship enough to pull it off one of the reefs on French Frigate Shoals. Fortunately, the currents on that day carried most of the clay out to sea rather than onto the reef. Had it not, the clay could have smothered coral thus adversely affecting the ecosystem. The other two incidents involved the grounding on Laysan of fishing vessels that had evidence of rats on board. Again, fortunately, the rats did not take up residence on the nearby island; however, if they had, it would have been extremely harmful to the ecology of the area because such introduced species can become "ecosystem busters" and cripple the ecosystem within that area (Shallenberger 2004).

## 2 Natural Factors

### 2.1 Hydrographical

2.1.1 The hydrography of the NWHI underscores the need for mariners to navigate with extreme caution. The chain of small islands, atolls, banks, seamounts, pinnacles, shoals, and other emergent features are remnants of volcanic islands which are eroding and subsiding beneath the ocean surface. While only the peaks of the original islands remain above the water's surface, coral growth on submerged slopes has matched the rate of subsidence (Evans *et al.* 2004). Due to these features, navigation in this area is dangerous and must be done with extreme caution. Water depths in this area range from the water's surface to slightly submerged banks, reefs, and other emergent features to the ocean floor at more than 14,000 feet.

2.1.2 The area of the proposed PSSA is currently covered by mostly small scale charts, with the most recent surveys taking place since 2000 near known islands, reefs and atolls. Although modern hydrographic surveys by the University of Hawaii and satellite imagery of the area have

allowed NOAA's Office of Coast Survey to correct the position of several of these features, many of the submerged banks and isolated features have yet to be updated or discovered.

2.1.3 In 2003, a mapping expedition was undertaken by NOAA and the University of Hawaii Undersea Research Laboratory. The primary objective of this project was to provide for more complete and accurate charts and survey data to support the management of the NWHI Coral Reef Ecosystem Reserve and protection of its resources. This expedition included hydrographic experts to ensure that appropriate International Hydrographic Organization quality standards were met. The hydrographic data will be applied to all affected charts by the end of 2007. Notwithstanding, large areas of the NWHI remain to be surveyed and nautical charts updated.

## **2.2 Meteorological**

2.2.1 The northeast trade winds prevail throughout the year, but westerly blows can be expected during the winter. The average velocity of the winds is 12 knots, with monthly averages of 16 knots in December and 9.5 knots in August. Gales have been experienced in July and September. Occasional heavy showers of short duration also occur, cutting visibility to about 2 miles (Coast Pilot 7, 38<sup>th</sup> ed., 2006).

2.2.2 Tropical storms and hurricanes are a potential, but infrequent, threat to the shallow coral reef community structure of the NWHI. They can generate extreme wave energy events that can damage the coral and are the primary natural force in altering and shaping coral reef community structures (Dollar 1982; Dollar and Grigg 2004). Since 1979, two hurricanes (category 2) have passed near the NWHI. The most recent significant tropical storm was Hurricane Nele which passed near Gardner Pinnacles in 1985 (Friedlander *et al.* 2005).

2.2.3 Pacific Decadal Oscillation (PDO) events and the El Nino/La Nina phenomenon (ENSO) are two other meteorological factors that occur in the area of the NWHI. PDO events have been described as long-lived El Nino-like patterns of Pacific climate variability. They appear to persist for 20 to 30 years, compared to the 6 to 18 months for an El Niño event. The effects of the PDO are strongest in the North Pacific, while secondary signatures exist in the tropics. PDO sea level pressure anomalies vary with low pressures over the North Pacific and high pressure over the subtropical Pacific. These pressure patterns cause enhanced counter-clockwise wind stress over the North Pacific. With regard to the ENSO, while scientists do not fully understand how one is triggered, the initial detection occurs by a rise in atmospheric pressure in the western Pacific and a drop in pressure in the eastern Pacific (Garrison 1999). This causes trade winds to shift direction, which subsequently causes warm water in the western Pacific to flow across the Pacific basin. This mass of warm water has a number of effects on climate and ocean conditions. For example, it can cause trade wind speeds to drop, which can cause an increase in sea surface temperature (Hoeke *et al.* 2004). Light winds are likely the cause of recent coral bleaching in the NWHI. Increased water temperatures stress the coral, which causes it to expel the symbiotic zooxanthellae. If water temperature does not decrease and zooxanthellae do not return to the coral tissue, the coral will die.

## **2.3 Oceanographic**

2.3.1 The NWHI are influenced by a wide range of oceanographic conditions that vary on spatial and temporal scales. Ocean currents, waves, temperatures, nutrients, and other oceanographic parameters and conditions influence ecosystem composition, structure, and function in the NWHI. Ocean currents play an important role in the dispersal and recruitment of

marine life in the NWHI. Surface currents are highly variable in both speed and direction (Firing *et al.* 2004), with long-term average surface flow from east to west in response to the prevailing northeast trade wind conditions. The highly variable nature of the surface currents is due in large part to eddies created by local island effects on large-scale circulation. Marine debris accumulation in shallow water areas of the NWHI also is influenced by large and small-scale ocean circulation patterns. These eddies might also result in pollution from vessels accumulating in the coral thus damaging resources.

2.3.2 Ocean waves also play an important role in the NWHI. The distribution of corals and other shallow water organisms is influenced by the exposure to waves. The size and strength of ocean wave events have annual, inter-annual, and decadal time scales. Annual extra-tropical storms (storms that originate outside the tropical latitudes) create high energy large wave events from five to over ten meters which approach largely from the northwest during the winter. During this time, the average wave power increases substantially and extreme wave events of over ten meters pound the shallow water coral communities, thus posing a hazard to the coral reef communities and to navigation. Decadal variability in wave power is possibly related to PDO events (Manutau *et al.* 1997). The number of extreme wave events has been recorded during the periods from 1985 to 1989 and from 1998 to 2002, and anomalously low numbers of extreme wave events occurred during the early 1980s and during the period from 1990 to 1996 (Friedlander *et al.* 2005).

## 2.4 Other helpful information

2.4.1 There is substantial evidence that international shipping activities are causing or may cause damage to the recognized attributes of the proposed PSSA. The hazards to navigation in the NWHI are demonstrated by the large number of shipwrecks throughout the NWHI chain. Over 60 shipwrecks have occurred in the area and some of these wrecks serve as the origin of a number of the islands' names.<sup>1</sup> While some of these wrecks are truly historic and therefore serve as time capsules of seafaring history, there have been a number of significant maritime casualties in more recent years. In 1998, the 80-foot **Paradise Queen II** ran aground on Kure Atoll. It spilled approximately 4,000 gallons of diesel fuel and other petroleum hydrocarbons. The remaining 7,000 gallons on board the vessel were recovered during salvage operations. The 85-foot **Swordman I** ran aground on Pearl and Hermes Atoll in 2000. It was carrying over 10,000 gallons of diesel fuel and hydraulic oil and approximately \$1.5 million was spent for response and removal of the vessel. In 2005, the 145-foot **Casitas** also ran aground on Pearl and Hermes Atoll, carrying over 33,000 gallons of diesel fuel on board. The vast majority of diesel fuel was salvaged and the vessel was removed from the Atoll and scuttled in an estimated \$5 million clean up and removal operation (Cascadia Times 2006; Shallenberger 2004; Biennial Coastal Zone Conference 2003).

2.4.2 The grounding of the **Anangel Liberty** on French Frigate Shoals in 1980 plowed a channel 2-3 metres deep, 100 metres long, and 30 meters wide in the coral reef. Coral communities were damaged within 50 meters on both sides of the channel ploughed by the freighter as a result of cargo (kaolin clay) that was dumped. In 1977, the burning and sinking of the **Hawaiian Patriot** to the south of French Frigate Shoals resulted in more than five million gallons of fuel oil entering the ocean (United States Fish & Wildlife Serv. 2005; United States Coral Reef Task Force 1999). Also in 1977, **Irene's Challenge** spilled

---

<sup>1</sup> This figure does not include aircraft or vessels that were sunk in the Battle of Midway.

approximately 10.4 million gallons of crude oil approximately 50 miles to the north of Lisianski Island. MEPC 56/INF.2, annex 1, provides a table summarizing select incidents that have occurred between 1970 and 2006 (United States Coral Reef Task Force 1999; NOAA 2006).

2.4.3 In addition to the damage that may be caused to the NWHI by spills or releases of ships' cargos or bunker fuel, damage may be caused by the grounding of ships on fragile coral and other sensitive habitats in the area. In the case of vessel grounding, destruction in the area of contact may be widespread and result in the scouring and destruction of coral by dislodgement and pulverization, as well as the crushing, fracturing, and removal of reef structure. Impacts may also include the scarring and abrading of nearby resources as wave action, currents, and wind move rubble produced at the initial site of the grounding. Additionally, there may be increased sedimentation with the fracturing and erosion of the reef structure, which can smother coral and other sensitive habitats (Coral Reef Restoration Handbook 2006). Damage may also be caused by subsequent vessel removal efforts which can further crush and bury sensitive resources. A vessel that has grounded and then is abandoned can continue to damage resources as debris becomes dislodged from the vessel and from its movement at the grounding location by wind and wave action.

2.4.4 Fortunately, although damage to coral and other resources has occurred from the ships that have grounded or sunk in the NWHI, recovery and removal efforts as well as favourable weather patterns and the currents occurring at the time of these maritime casualties have so far spared the fragile NWHI ecosystem from being seriously adversely impacted (Shallenberger 2004). Without taking the necessary action to increase maritime safety, protect the fragile marine environment, and facilitate the ability to respond to developing maritime emergencies, it is reasonably foreseeable that ships will continue to run aground in the NWHI and cause physical damage to the fragile coral reef ecosystem, as well as pose a threat of severe damage to this pristine area from the release of cargo and bunker fuel. Given the remoteness of the NWHI, the low level of development on the islands, and the minimum amount of domestic maritime activity that takes place within the surrounding waters, vessels that transit the area are one of the most persistent and significant anthropogenic threats to the recognized attributes of the area.

2.4.5 Another element that increases the vulnerability of the NWHI to international shipping activities is that, although the islands span 1,200 miles, most emergency response equipment is stationed in the main Hawaiian Islands, including Kauai, which is to the east of the NWHI. Search, rescue, and response operations have been staged from Midway Atoll, which is at the far north-western end of the island chain; however, without assistance from resources based in the main Hawaiian Islands, search, rescue, and response from Midway can generally reach only 10 miles offshore due to the limited equipment located permanently on the island. The sparse land area and fragile environment of the other islands makes it virtually impossible for them to act as staging areas for emergency response efforts. This fact, coupled with the hazardous nature of navigation throughout this area, results in the NWHI being highly vulnerable to damage by international shipping.

2.4.6 Another potential source of damage to this pristine area by international shipping activities is from the introduction of alien species. While only approximately 11 alien species have been detected in the waters of the NWHI, once established these species are extremely difficult – if not impossible – to control and eradicate from the reefs. Therefore, it is critical to keep ships that may be carrying ballast water or species on their hulls from foundering or

grounding on the reefs and providing the opportunity for the introduction of alien species (Citizen's Guide 2006).

2.4.7 In addition to the threat posed by transiting ships, another stress to the environment of the NWHI is marine debris, a severe and chronic threat to the area. Ocean currents carry a wide array of marine debris to the NWHI, including derelict fishing nets and other gear, household plastics, hazardous materials, and shore-based debris, and deposit it on the reef and beaches of the island chain. The debris frequently entangles and kills coral and leads to the death of animals such as seabirds and the Hawaiian monk seal through the ingestion of material or entanglement in nets. Derelict fishing gear also poses a navigation hazard because, for example, it can get wrapped around the propeller of a vessel. In the past 10 years, United States agencies have removed over 560 tons of debris from NWHI reefs at a cost of approximately US\$13.5 million (Citizen's Guide 2006; Brainard 2006).

2.4.8 The IMO measure of six existing ATBAs is already in effect. While there has been no incident in the areas of the existing ATBAs subsequent to their adoption that involves the vessels to which the ATBAs apply (e.g., vessels of 1,000 gross tons and above), there have been incidents in the NWHI outside of the existing ATBAs and incidents within the ATBAs by vessels to which the ATBAs do not now apply. For instance, the **Paradise Queen II** grounded on Kure Atoll, an area which is not now included within the ATBAs. Within the ATBA surrounding Pearl and Hermes Atoll, the **Swordman I** and **Casitas** ran aground; however, these vessels were smaller than the 1,000 gross ton applicability threshold of the existing ATBAs.

ANNEX 4

**ASSOCIATED PROTECTIVE MEASURES FOR THE PAPAĀNAUMOKUĀKEA  
MARINE NATIONAL MONUMENT PSSA\***

*Expansion and amendment of the areas to be avoided “In the region of the Papahānaumokuākea Marine National Monument Particularly Sensitive Sea Areas (PSSA)”*

(Reference chart: United States 19016 (2007 edition; 19019, 2007 edition; 19022, 2007 edition.)  
**Note:** These charts are based on World Geodetic System 1984 Datum (WGS-84) and astronomic datum<sup>2</sup>.)

**Description of the Areas to be Avoided**

Given the magnitude of obstacles that make navigation in these areas hazardous, and in order to increase maritime safety, protection of the environment, preservation of cultural resources and areas of cultural importance significant to Native Hawaiians, and facilitate the ability to respond to developing maritime emergencies in the Papahānaumokuākea Marine National Monument, all ships solely in transit should avoid the following areas:

1 Those areas contained within a circle of radius of 50 nautical miles centred upon the following geographical positions:

- |      |              |  |
|------|--------------|--|
| (1)  | 28° 25'.18 N | 178° 19'.75 W (Kure Atoll)                       |
| (2)  | 28° 14'.20 N | 177° 22'.10 W (Midway Atoll)                     |
| (3)  | 27° 50'.62 N | 175° 50'.53 W (Pearl and Hermes Atoll)           |
| (4)  | 26° 03'.82 N | 173° 58'.00 W (Lisianski Island)                 |
| (5)  | 25° 46'.18 N | 171° 43'.95 W (Laysan Island)                    |
| (6)  | 25° 25'.45 N | 170° 35'.32 W (Maro Reef)                        |
| (7)  | 25° 19'.50 N | 170° 00'.88 W (Between Maro Reef and Raita Bank) |
| (8)  | 25° 00'.00 N | 167° 59'.92 W (Gardner Pinnacles)                |
| (9)  | 23° 45'.52 N | 166° 14'.62 W (French Frigate Shoals)            |
| (10) | 23° 34'.60 N | 164° 42'.02 W (Necker Island)                    |
| (11) | 23° 03'.38 N | 161° 55'.32 W (Nihoa Island)                     |

2 The areas contained between the following geographical positions:

		Begin Co-ordinates		End Co-ordinates	
		Latitude	Longitude	Latitude	Longitude
<b>Area 1</b>	Lisianski Island (N) ---> Laysan Island	26° 53'.22 N	173° 49'.64 W	26° 35'.58 N	171° 35'.60 W
	Lisianski Island (S) ---> Laysan Island	25° 14'.42 N	174° 06'.36 W	24° 57'.63 N	171° 57'.07 W
<b>Area 2</b>	Gardner Pinnacles (N) ---> French Frigate Shoals	25° 38'.90 N	167° 25'.31 W	24° 24'.80 N	165° 40'.89 W
	Gardner Pinnacles (S) ---> French Frigate Shoals	24° 14'.27 N	168° 22'.13 W	23° 05'.84 N	166° 47'.81 W

\* The text in this annex is directly taken from document MSC 83/28, annexes 25 and 26.

<sup>2</sup> The charts are available in paper, raster, or ENC form and may be found at <http://chartmaker.ncd.noaa.gov/NSD/coastpilot.htm>. Mariners are also urged to consult the latest edition, of the United States Coast Pilot No.7, available at <http://chartmaker.ncd.noaa.gov/nsd/coastpilot7.htm> and in particular, Chapter 14, which pertains to Hawaii, available at [http://chartmaker.ncd.noaa.gov/nsd/Cp7/CP7-39ed-Ch14\\_7.pdf](http://chartmaker.ncd.noaa.gov/nsd/Cp7/CP7-39ed-Ch14_7.pdf).

*A ship reporting system (CORAL SHIPREP) is established in “The Papahānaumokuākea Marine National Monument” Particularly Sensitive Sea Area (PSSA)*

## **1 Categories of ships**

### **1.1 Ships required to participate in the system**

1.1.1 As a condition of entry to a United States port or place, all ships 300 gross tonnage or greater, and all ships in the event of a developing emergency, and that are in transit through the reporting area are required to participate in CORAL SHIPREP, except for sovereign immune vessels which are exempt under SOLAS regulation V/1.

### **1.2 Ships recommended to participate in the system**

1.2.1 All ships 300 gross tonnage or greater, fishing vessels, and all ships in the event of a developing emergency, and that are in transit through the reporting area are recommended to participate in CORAL SHIPREP.

## **2 Geographical coverage of the system and the number and edition of the reference chart used for the delineation of the system**

2.1 The geographical coverage of CORAL SHIPREP is depicted by the geographical positions in the appendix.

2.2 The reference charts that include the ship reporting area are United States 19016, 2007 edition, 19019, 2007 edition, and 19022, 2007 edition. These charts are based on World Geodetic System 1984 Datum (WGS-84) and astronomic datum.

## **3 Format, content of reports, times and geographical positions for submitting reports, authorities to whom reports should<sup>3</sup> be sent, available services**

### *3.1 Format*

3.1.1 The ship report should be drafted in accordance with the format shown in paragraph 2 of the appendix to resolution A.851(20).

### *3.2 Content*

3.2.1 The report for a ship entering the system should contain the following information:

System identifier: CORAL SHIPREP

A	Name of the ship, call sign, or IMO identification number
B	Date and Time (UTC)
C or D	Position
E or F	Course and speed of ship
I	Destination
L	Intended route through the reporting area
O	Vessel draft

---

<sup>3</sup> For those ships that are required to report the use of the word “should” in this annex is to be read as “shall”.



P	General categories of hazardous cargo on board
Q or R	Defects or deficiencies, if relevant
T	Contact information of ship's agent or owner
U	Ship size and type (e.g., length, tonnage, and type)
W	Total number of persons on board

3.2.2 The report for a ship leaving the system should contain the following information:

System identifier: CORAL SHIPREP

A	Name of the ship, call sign, or IMO identification number
B	Date and Time (UTC)
C or D	Position

3.2.3 A ship may elect, for reasons of commercial confidentiality, to communicate that section of the report which provides information on general categories of hazardous cargo by non-verbal means prior to entering the reporting area.

### 3.3 *Geographical positions for submitting reports*

3.3.1 Each ship should submit a full report in accordance with paragraph 3.2.1 as soon as it crosses the boundary to enter the ship reporting system.

3.3.2 Each ship should submit a report in accordance with paragraph 3.2.2 as soon as it crosses the boundary to leave the ship reporting system.

3.3.3 Further reports should be made whenever there is a change in navigation status or circumstances, particularly in relation to item Q of the reporting format.

### 3.4 *Authority to whom reports should be sent*

3.4.1 The shore-based Authority is the United States Coast Guard's Communication Area Master Station Pacific (CAMSPAC). For ships 300 gross tonnage and greater, an e-mail address to be used for reporting through INMARSAT-C will be provided in advance of implementation of this system through Notices to Mariners. In the event of a developing emergency, ships are urged to call the United States Coast Guard 14th District. Vessels unable to report in through INMARSAT-C should report to [nwhi.notification@noaa.gov](mailto:nwhi.notification@noaa.gov).

## 4 **Information to be provided to ship and procedures to be followed**

4.1 The CORAL SHIPREP shore-based Authority will provide critical alerts and information to shipping about specific and urgent situations and other information that may affect safety of navigation within the IMO-adopted Areas To Be Avoided and "The Papahānaumokuākea Marine National Monument" Particularly Sensitive Sea Area, as well as remind ships about the existence of the IMO-adopted Areas To Be Avoided and necessity of navigating with extreme caution through the Particularly Sensitive Sea Area.<sup>4</sup>

---

<sup>4</sup> Pending the final decision of MEPC 57 on the designation of this PSSA.

4.2 Navigational warnings and emergency broadcasts will be issued as NAVTEX messages or specifically directed at GMDSS equipped vessels using INMARSAT-C.

## **5 Radio Communication required for the system and frequencies on which reports should be transmitted**

5.1 This system will be based on INMARSAT-C and an e-mail and ships equipped with such capabilities should report through INMARSAT-C.

5.2 In the event of a developing emergency, a ship is urged to call the United States Coast Guard 14th District at 001-808-541-2500 to request a response and assistance.

5.3 For vessels unable to communicate through INMARSAT-C, reports should be made prior to, during, or after transiting through the reporting area to [nwhi.notification@noaa.gov](mailto:nwhi.notification@noaa.gov).

5.4 Commercially sensitive information will be kept confidential and should be transmitted prior to entry into the reporting system. Such information may be sent to [nwhi.notification@noaa.gov](mailto:nwhi.notification@noaa.gov).

5.5 The language used for reports to the system should be English, employing the IMO *Standard Marine Communications Phrases*, where necessary.

5.6 Communications associated with CORAL SHIPREP are, in accordance with SOLAS regulation V/11, free of charge to affected vessels.

## **6 Relevant rules and regulations in force in the area of the system**

### *6.1 International actions*

6.1.1 The United States has taken appropriate action to implement the international conventions to which it is party.

6.1.2 In recognition of the fragile environment in this area and potential hazards to navigation, the IMO has adopted several Areas To Be Avoided to protect the Northwestern Hawaiian Islands and has designated the area as a Particularly Sensitive Sea Areas where mariners should navigate with extreme caution.

6.1.3 The United States applies its laws in accordance with international law, which includes navigational rights under customary international law as reflected in the United Nations Convention on the Law of the Sea. No restrictions shall apply to or be enforced against foreign flagged vessels unless in accordance with such law.

### *6.2 Domestic Actions*

6.2.1 The United States has taken considerable action to ensure maritime safety and to protect the fragile environment and cultural resources and areas of cultural importance significant to Native Hawaiians in the NWHI. This area has been the subject of a variety of protective measures, including designation of this area as the North-western Hawaiian Islands Marine National Monument (subsequently renamed the Papahānaumokuākea Marine National Monument) in recognition of its fragility and to protect the many species of coral, fish, birds, marine mammals, and other flora and fauna, as well as to protect historical and archaeological

heritage resources, including cultural resources and areas of significant importance to Native Hawaiians.

6.2.2 Regulations in this area, *inter alia*, prohibit taking, possessing, injuring, or disturbing any resource; altering the seabed; anchoring or deserting a vessel; and possessing fishing gear unless stowed. All of these activities may be allowed by permit; however, permits cannot be issued for such things as releasing an introduced species. Activities such as discharging or depositing any material into the Monument, or discharging or depositing any material outside the Monument that subsequently injures Monument resources, except discharges incidental to vessel use, such as approved marine sanitation device effluent, cooling water, and engine exhaust are also prohibited. The United States strictly regulates entry into the Monument and, for those vessels subject to United States jurisdiction, requires the mandatory use of vessel monitoring systems on those vessels that may be allowed into the Monument for specific purposes.

## **7 Shore-based facilities to support operation of the system**

7.1 The shore-based Authority is the United States Coast Guard's Communications Area Master Station Pacific (CAMSPAC). CAMSPAC provides maritime distress communication services and safety and weather broadcasts to commercial and recreational mariners, and also provides secure voice communications and record message delivery services for all United States Coast Guard cutters, aircraft, and shore units. Additionally, CAMSPAC is one of the United States Coast Guard's Pacific Area's (PACAREA) Continuity of Operations sites. CAMSPAC delivers contingency and interagency communication services for Incident Commanders by deploying a state-of-the-art transportable communications centre. CAMSPAC is the Operational Commander of the United States Coast Guard's Pacific Area Communications System, consisting of communication stations in Honolulu Hawaii, Kodiak Alaska, and remote facilities in Guam. There are approximately 150 people assigned to CAMSPAC.

7.2 CORAL SHIPREP will use INMARSAT-C communications equipment. A computer server handles and sorts incoming reports and sends the return message. Incoming reports are text messages that arrive via either internet e-mail or telex. When the ship reporting system server receives a report, the server sends the ship a specific return message. Area co-ordinators will monitor and update the information to the server for inclusion in the outgoing message.

## **8 Alternative communication if the shore-based facilities fail**

8.1 NAVTEX Broadcast Notice to Mariners may be used to notify mariners of the temporary failure of the system and can provide mariners with basic information necessary to navigate safely through this area.

8.2 For those ships reporting through INMARSAT-C, the standard protocol now used for such systems will be used to re-route incoming and outgoing communications through an alternative address and it is expected that this will minimize the system's downtime, though a short delay may occur.

## **9 Measures to be taken if a ship does not report**

9.1.1 All means will be used to encourage and promote the full participation of the ships recommended to submit reports.

9.1.2 If reports are not submitted by those ships required to report and the ship can be positively identified, appropriate action will be taken – including interaction with the flag State – in accordance with customary international law as reflected in the 1982 United Nations Convention on the Law of the Sea.

APPENDIX

**GEOGRAPHICAL CO-ORDINATES**

**SHIP REPORTING SYSTEM**

(Reference chart: United States 19016 (2007 edition; 19019, 2007 edition; 19022, 2007 edition.)  
These charts are based on World Geodetic System 1984 Datum (WGS-84) and astronomic datum.)

**1 Outer Boundary**

<b>Point</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
1	29°25'.47 N	178°16'.97 W
2	28°43'.73 N	175°13'.84 W
3	27°00'.77 N	173°25'.78 W
4	26°44'.91 N	171°28'.07 W
5	26°24'.23 N	170°20'.59 W
6	25°56'.43 N	167°32'.10 W
7	24°50'.20 N	165°58'.69 W
8	24°05'.52 N	161°56'.86 W
9	24°05'.29 N	161°56'.62 W
10	24°04'.37 N	161°51'.53 W
11	24°03'.44 N	161°46'.45 W
12	24°02'.41 N	161°41'.39 W
13	24°01'.31 N	161°36'.35 W
14	23°59'.68 N	161°31'.55 W
15	23°57'.85 N	161°26'.85 W
16	23°55'.54 N	161°22'.31 W
17	23°52'.96 N	161°17'.92 W
18	23°50'.12 N	161°13'.72 W
19	23°46'.94 N	161°10'.08 W
20	23°43'.49 N	161°06'.47 W
21	23°39'.71 N	161°03'.09 W
22	23°35'.72 N	161°00'.14 W
23	23°31'.59 N	160°57'.46 W
24	23°27'.32 N	160°55'.23 W
25	23°22'.74 N	160°53'.71 W
26	23°18'.29 N	160°52'.17 W
27	23°13'.57 N	160°51'.04 W
28	23°08'.68 N	160°50'.46 W
29	23°03'.70 N	160°50'.17 W
30	22°58'.67 N	160°50'.35 W
31	22°53'.84 N	160°51'.04 W
32	22°49'.11 N	160°52'.20 W
33	22°44'.46 N	160°53'.56 W
34	22°40'.03 N	160°55'.52 W

<b>Point</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
35	22°35'.73 N	160°57'.68 W
36	22°31'.54 N	161°00'.25 W
37	22°27'.57 N	161°03'.23 W
38	22°23'.76 N	161°06'.64 W
39	22°20'.24 N	161°10'.23 W
40	22°17'.02 N	161°14'.13 W
41	22°14'.04 N	161°18'.34 W
42	22°11'.35 N	161°22'.80 W
43	22°09'.19 N	161°27'.45 W
44	22°07'.29 N	161°32'.11 W
45	22°05'.87 N	161°36'.94 W
46	22°04'.62 N	161°41'.89 W
47	22°03'.94 N	161°47'.09 W
48	22°03'.41 N	161°52'.36 W
49	22°03'.41 N	161°57'.51 W
50	22°03'.82 N	162°02'.83 W
51	22°04'.49 N	162°08'.04 W
52	22°05'.43 N	162°13'.12 W
53	22°05'.97 N	162°16'.41 W
54	22°06'.29 N	162°16'.85 W
55	22°34'.57 N	164°47'.27 W
56	22°47'.60 N	166°38'.23 W
57	24°03'.82 N	168°27'.91 W
58	24°25'.76 N	170°45'.39 W
59	24°46'.54 N	171°53'.03 W
60	25°07'.60 N	174°28'.71 W
61	27°05'.82 N	176°35'.51 W
62	27°27'.32 N	178°38'.66 W
63	27°28'.93 N	178°43'.56 W
64	27°30'.64 N	178°48'.40 W
65	27°32'.74 N	178°52'.96 W
66	27°35'.06 N	178°57'.30 W
67	27°37'.89 N	179°01'.49 W
68	27°40'.90 N	179°05'.60 W
69	27°44'.17 N	179°09'.41 W
70	27°47'.74 N	179°12'.85 W
71	27°51'.45 N	179°16'.00 W
72	27°55'.32 N	179°18'.82 W
73	27°59'.33 N	179°21'.13 W
74	28°03'.49 N	179°23'.15 W
75	28°07'.82 N	179°24'.76 W
76	28°12'.31 N	179°26'.18 W
77	28°16'.95 N	179°27'.05 W
78	28°21'.61 N	179°27'.63 W
79	28°26'.18 N	179°27'.77 W
80	28°30'.87 N	179°27'.48 W
81	28°35'.61 N	179°26'.95 W
82	28°40'.09 N	179°25'.75 W

<b>Point</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
83	28°44'.46 N	179°24'.31 W
84	28°48'.70 N	179°22'.50 W
85	28°52'.81 N	179°20'.43 W
86	28°56'.71 N	179°17'.77 W
87	29°00'.58 N	179°14'.92 W
88	29°04'.18 N	179°11'.69 W
89	29°07'.62 N	179°08'.20 W
90	29°10'.86 N	179°04'.37 W
91	29°13'.76 N	179°00'.21 W
92	29°16'.24 N	178°55'.78 W
93	29°18'.51 N	178°51'.26 W
94	29°20'.45 N	178°46'.50 W
95	29°22'.26 N	178°41'.67 W
96	29°23'.52 N	178°36'.64 W
97	29°24'.53 N	178°31'.54 W
98	29°25'.16 N	178°26'.31 W
99	29°25'.42 N	178°20'.92 W
100	29°25'.29 N	178°16'.70 W

## 2 Inner Boundary Around Kure Atoll, Midway Atoll, and Pearl and Hermes Atoll

<b>Point</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
1	27°14'.76 N	176°29'.87 W
2	27°24'.95 N	177°33'.31 W
3	27°35'.87 N	178°29'.90 W
4	27°36'.64 N	178°33'.93 W
5	27°37'.53 N	178°37'.32 W
6	27°38'.60 N	178°40'.65 W
7	27°39'.85 N	178°43'.90 W
8	27°41'.28 N	178°47'.05 W
9	27°42'.89 N	178°50'.10 W
10	27°44'.66 N	178°53'.03 W
11	27°46'.59 N	178°55'.83 W
12	27°48'.67 N	178°58'.49 W
13	27°50'.89 N	179°01'.00 W
14	27°53'.22 N	179°03'.39 W
15	27°55'.69 N	179°05'.61 W
16	27°58'.29 N	179°07'.61 W
17	28°01'.01 N	179°09'.47 W
18	28°03'.81 N	179°11'.10 W
19	28°06'.71 N	179°12'.53 W
20	28°09'.67 N	179°13'.75 W
21	28°12'.70 N	179°14'.75 W
22	28°15'.78 N	179°15'.54 W
23	28°18'.91 N	179°16'.11 W
24	28°22'.04 N	179°16'.45 W
25	28°24'.72 N	179°16'.56 W



<b>Point</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
26	28°25'.20 N	179°16'.57 W
27	28°25'.81 N	179°16'.56 W
28	28°28'.35 N	179°16'.44 W
29	28°31'.49 N	179°16'.10 W
30	28°34'.61 N	179°15'.54 W
31	28°37'.69 N	179°14'.75 W
32	28°40'.71 N	179°13'.74 W
33	28°43'.68 N	179°12'.54 W
34	28°46'.58 N	179°11'.13 W
35	28°49'.39 N	179°09'.52 W
36	28°52'.11 N	179°07'.70 W
37	28°54'.72 N	179°05'.70 W
38	28°57'.21 N	179°03'.51 W
39	28°59'.58 N	179°01'.15 W
40	29°01'.81 N	178°58'.62 W
41	29°03'.90 N	178°55'.93 W
42	29°05'.83 N	178°53'.10 W
43	29°07'.60 N	178°50'.13 W
44	29°09'.21 N	178°47'.04 W
45	29°10'.64 N	178°43'.84 W
46	29°11'.89 N	178°40'.54 W
47	29°12'.95 N	178°37'.16 W
48	29°13'.82 N	178°33'.71 W
49	29°14'.50 N	178°30'.21 W
50	29°14'.99 N	178°26'.66 W
51	29°15'.28 N	178°23'.08 W
52	29°15'.36 N	178°19'.49 W
53	29°15'.25 N	178°15'.90 W
54	29°14'.94 N	178°12'.32 W
55	29°14'.43 N	178°08'.78 W
56	29°03'.47 N	177°12'.07 W
57	29°02'.55 N	177°07'.29 W
58	28°38'.96 N	175°35'.47 W
59	28°38'.67 N	175°34'.35 W
60	28°34'.91 N	175°19'.74 W
61	28°26'.24 N	175°10'.65 W
62	28°24'.61 N	175°08'.95 W
63	28°24'.53 N	175°09'.04 W
64	28°20'.09 N	175°04'.91 W
65	28°16'.05 N	175°01'.92 W
66	28°11'.78 N	174°59'.33 W
67	28°07'.29 N	174°57'.23 W
68	28°02'.63 N	174°55'.68 W
69	27°57'.84 N	174°54'.62 W
70	27°53'.01 N	174°54'.05 W
71	27°48'.12 N	174°54'.05 W
72	27°43'.28 N	174°54'.62 W
73	27°38'.48 N	174°55'.71 W

<b>Point</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
74	27°33'.81 N	174°57'.32 W
75	27°29'.30 N	174°59'.43 W
76	27°25'.00 N	175°02'.03 W
77	27°20'.93 N	175°05'.07 W
78	27°17'.18 N	175°08'.59 W
79	27°13'.73 N	175°12'.47 W
80	27°10'.59 N	175°16'.67 W
81	27°07'.88 N	175°21'.25 W
82	27°05'.57 N	175°26'.09 W
83	27°03'.66 N	175°31'.15 W
84	27°02'.22 N	175°36'.40 W
85	27°01'.29 N	175°41'.78 W
86	27°00'.73 N	175°47'.22 W
87	27°00'.68 N	175°52'.74 W
88	27°01'.09 N	175°58'.16 W
89	27°01'.99 N	176°03'.53 W
90	27°03'.34 N	176°08'.81 W
91	27°05'.12 N	176°13'.91 W
92	27°07'.37 N	176°18'.79 W
93	27°09'.98 N	176°23'.40 W
94	27°13'.02 N	176°27'.74 W
95	27°13'.77 N	176°28'.70 W

### 3 Inner Boundary Around Lisianski Island, Laysan Island, Maro Reef, and Raita Bank

<b>Point</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
1	26°50'.89 N	173°30'.79 W
2	26°36'.00 N	171°37'.70 W
3	26°35'.49 N	171°33'.84 W
4	26°35'.10 N	171°30'.84 W
5	26°34'.07 N	171°27'.50 W
6	26°33'.35 N	171°25'.16 W
7	26°14'.26 N	170°23'.04 W
8	26°08'.69 N	169°48'.96 W
9	26°08'.36 N	169°49'.03 W
10	26°07'.62 N	169°45'.83 W
11	26°06'.03 N	169°40'.57 W
12	26°03'.97 N	169°35'.64 W
13	26°01'.51 N	169°30'.91 W
14	25°58'.65 N	169°26'.45 W
15	25°55'.32 N	169°22'.34 W
16	25°51'.67 N	169°18'.60 W
17	25°47'.78 N	169°15'.19 W
18	25°43'.54 N	169°12'.34 W
19	25°39'.05 N	169°09'.93 W
20	25°34'.37 N	169°08'.08 W
21	25°29'.54 N	169°06'.76 W

<b>Point</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
22	25°24'.61 N	169°05'.93 W
23	25°19'.63 N	169°05'.64 W
24	25°14'.65 N	169°05'.93 W
25	25°09'.69 N	169°06'.66 W
26	25°04'.85 N	169°08'.02 W
27	25°00'.17 N	169°09'.96 W
28	24°55'.66 N	169°12'.35 W
29	24°51'.35 N	169°15'.14 W
30	24°47'.37 N	169°18'.48 W
31	24°43'.69 N	169°22'.22 W
32	24°40'.34 N	169°26'.31 W
33	24°37'.42 N	169°30'.78 W
34	24°35'.00 N	169°35'.64 W
35	24°33'.02 N	169°40'.66 W
36	24°31'.34 N	169°45'.88 W
37	24°30'.31 N	169°51'.08 W
38	24°29'.68 N	169°56'.53 W
39	24°29'.56 N	170°01'.81 W
40	24°29'.61 N	170°04'.57 W
41	24°35'.77 N	170°44'.39 W
42	24°36'.29 N	170°47'.58 W
43	24°37'.18 N	170°50'.37 W
44	24°37'.76 N	170°52'.17 W
45	24°56'.23 N	171°50'.19 W
46	25°16'.61 N	174°24'.84 W
47	25°29'.56 N	174°38'.45 W
48	25°33'.28 N	174°42'.03 W
49	25°37'.33 N	174°45'.20 W
50	25°41'.68 N	174°47'.84 W
51	25°46'.23 N	174°50'.05 W
52	25°50'.93 N	174°51'.77 W
53	25°55'.80 N	174°52'.91 W
54	26°00'.71 N	174°53'.47 W
55	26°05'.67 N	174°53'.61 W
56	26°10'.59 N	174°53'.07 W
57	26°15'.46 N	174°52'.08 W
58	26°20'.20 N	174°50'.57 W
59	26°24'.75 N	174°48'.44 W
60	26°29'.15 N	174°45'.94 W
61	26°33'.26 N	174°42'.96 W
62	26°37'.11 N	174°39'.49 W
63	26°40'.60 N	174°35'.63 W
64	26°43'.75 N	174°31'.43 W
65	26°46'.49 N	174°26'.87 W
66	26°48'.90 N	174°22'.09 W
67	26°50'.79 N	174°17'.03 W
68	26°52'.20 N	174°11'.79 W
69	26°53'.21 N	174°06'.43 W

Point	LATITUDE	LONGITUDE
70	26°53'.74 N	174°00'.98 W
71	26°53'.74 N	173°55'.48 W
72	26°53'.29 N	173°50'.02 W
73	26°52'.56 N	173°44'.58 W
74	26°51'.85 N	173°39'.14 W
75	26°51'.13 N	173°33'.69 W
76	26°50'.75 N	173°30'.87 W

#### 4 Inner Boundary Around Gardner Pinnacles, French Frigate Shoals, and Necker Island

Point	LATITUDE	LONGITUDE
1	25°49'.64 N	167°52'.66 W
2	25°49'.70 N	167°52'.65 W
3	25°48'.99 N	167°48'.35 W
4	25°47'.09 N	167°36'.72 W
5	25°39'.84 N	167°26'.48 W
6	25°35'.10 N	167°19'.79 W
7	25°10'.43 N	166°45'.00 W
8	24°40'.91 N	166°03'.36 W
9	24°35'.64 N	165°34'.99 W
10	24°23'.78 N	164°31'.12 W
11	24°23'.59 N	164°31'.14 W
12	24°23'.31 N	164°29'.74 W
13	24°21'.85 N	164°24'.52 W
14	24°20'.10 N	164°19'.39 W
15	24°17'.75 N	164°14'.56 W
16	24°14'.99 N	164°09'.97 W
17	24°11'.86 N	164°05'.69 W
18	24°08'.30 N	164°01'.80 W
19	24°04'.48 N	163°58'.23 W
20	24°00'.27 N	163°55'.22 W
21	23°55'.85 N	163°52'.59 W
22	23°51'.17 N	163°50'.56 W
23	23°46'.33 N	163°48'.98 W
24	23°41'.37 N	163°47'.99 W
25	23°36'.34 N	163°47'.56 W
26	23°31'.27 N	163°47'.60 W
27	23°26'.27 N	163°48'.28 W
28	23°21'.34 N	163°49'.50 W
29	23°16'.53 N	163°51'.14 W
30	23°11'.96 N	163°53'.47 W
31	23°07'.54 N	163°56'.15 W
32	23°03'.46 N	163°59'.38 W
33	22°59'.65 N	164°03'.01 W
34	22°56'.27 N	164°07'.10 W
35	22°53'.22 N	164°11'.49 W
36	22°50'.60 N	164°16'.18 W

<b>Point</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
37	22°48'.48 N	164°21'.16 W
38	22°46'.73 N	164°26'.28 W
39	22°45'.49 N	164°31'.60 W
40	22°44'.83 N	164°37'.03 W
41	22°44'.65 N	164°42'.51 W
42	22°44'.92 N	164°47'.99 W
43	22°45'.11 N	164°49'.52 W
44	22°45'.39 N	164°51'.48 W
45	22°45'.17 N	164°51'.53 W
46	22°50'.26 N	165°34'.99 W
47	22°55'.50 N	166°19'.63 W
48	22°55'.93 N	166°23'.32 W
49	22°57'.41 N	166°36'.00 W
50	23°03'.75 N	166°45'.00 W
51	23°05'.48 N	166°47'.45 W
52	24°12'.70 N	168°22'.86 W
53	24°12'.88 N	168°22'.78 W
54	24°16'.05 N	168°27'.28 W
55	24°19'.15 N	168°31'.66 W
56	24°22'.27 N	168°35'.95 W
57	24°25'.71 N	168°39'.94 W
58	24°29'.51 N	168°43'.55 W
59	24°33'.67 N	168°46'.63 W
60	24°38'.06 N	168°49'.29 W
61	24°42'.68 N	168°51'.46 W
62	24°47'.45 N	168°53'.12 W
63	24°52'.34 N	168°54'.28 W
64	24°57'.32 N	168°54'.82 W
65	25°02'.32 N	168°54'.95 W
66	25°07'.30 N	168°54'.43 W
67	25°12'.19 N	168°53'.32 W
68	25°16'.99 N	168°51'.76 W
69	25°21'.57 N	168°49'.60 W
70	25°25'.94 N	168°46'.93 W
71	25°30'.09 N	168°43'.86 W
72	25°33'.89 N	168°40'.42 W
73	25°37'.37 N	168°36'.52 W
74	25°40'.49 N	168°32'.24 W
75	25°43'.24 N	168°27'.68 W
76	25°45'.57 N	168°22'.82 W
77	25°47'.43 N	168°17'.76 W
78	25°48'.79 N	168°12'.47 W
79	25°49'.72 N	168°07'.09 W
80	25°50'.11 N	168°01'.62 W
81	25°50'.18 N	168°00'.09 W

## 5 Inner Boundary Around Nihoa Island

Point	LATITUDE	LONGITUDE
1	23°52'.82 N	161°44'.54 W
2	23°52'.10 N	161°41'.20 W
3	23°51'.18 N	161°37'.92 W
4	23°50'.08 N	161°34'.71 W
5	23°48'.79 N	161°31'.58 W
6	23°47'.33 N	161°28'.55 W
7	23°45'.69 N	161°25'.62 W
8	23°43'.88 N	161°22'.81 W
9	23°41'.92 N	161°20'.13 W
10	23°39'.80 N	161°17'.60 W
11	23°37'.54 N	161°15'.21 W
12	23°35'.14 N	161°12'.99 W
13	23°32'.62 N	161°10'.93 W
14	23°29'.99 N	161°09'.05 W
15	23°27'.25 N	161°07'.35 W
16	23°24'.42 N	161°05'.85 W
17	23°21'.51 N	161°04'.54 W
18	23°18'.52 N	161°03'.43 W
19	23°15'.48 N	161°02'.53 W
20	23°12'.39 N	161°01'.84 W
21	23°09'.27 N	161°01'.35 W
22	23°06'.13 N	161°01'.09 W
23	23°02'.97 N	161°01'.03 W
24	22°59'.82 N	161°01'.19 W
25	22°56'.69 N	161°01'.57 W
26	22°53'.58 N	161°02'.15 W
27	22°50'.51 N	161°02'.95 W
28	22°47'.50 N	161°03'.95 W
29	22°44'.55 N	161°05'.15 W
30	22°41'.67 N	161°06'.54 W
31	22°38'.88 N	161°08'.13 W
32	22°36'.19 N	161°09'.90 W
33	22°33'.61 N	161°11'.85 W
34	22°31'.14 N	161°13'.97 W
35	22°28'.81 N	161°16'.25 W
36	22°26'.61 N	161°18'.69 W
37	22°24'.56 N	161°21'.26 W
38	22°22'.66 N	161°23'.97 W
39	22°20'.92 N	161°26'.80 W
40	22°19'.35 N	161°29'.74 W
41	22°17'.95 N	161°32'.78 W
42	22°16'.73 N	161°35'.90 W
43	22°15'.70 N	161°39'.10 W
44	22°14'.85 N	161°42'.37 W
45	22°14'.20 N	161°45'.68 W
46	22°13'.73 N	161°49'.03 W

<b>Point</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
47	22°13'.47 N	161°52'.41 W
48	22°13'.40 N	161°55'.80 W
49	22°13'.53 N	161°59'.18 W
50	22°13'.85 N	162°02'.55 W
51	22°14'.31 N	162°05'.45 W
52	22°14'.37 N	162°05'.89 W
53	22°14'.59 N	162°06'.88 W
54	22°15'.87 N	162°12'.18 W
55	22°17'.70 N	162°17'.31 W
56	22°19'.97 N	162°22'.20 W
57	22°22'.73 N	162°26'.84 W
58	22°25'.88 N	162°31'.15 W
59	22°29'.41 N	162°35'.09 W
60	22°33'.28 N	162°38'.61 W
61	22°37'.47 N	162°41'.72 W
62	22°41'.93 N	162°44'.34 W
63	22°46'.63 N	162°46'.47 W
64	22°51'.48 N	162°48'.05 W
65	22°56'.46 N	162°49'.09 W
66	23°01'.50 N	162°49'.58 W
67	23°06'.58 N	162°49'.49 W
68	23°11'.61 N	162°48'.89 W
69	23°16'.57 N	162°47'.70 W
70	23°21'.36 N	162°45'.98 W
71	23°26'.02 N	162°43'.75 W
72	23°30'.40 N	162°41'.01 W
73	23°34'.51 N	162°37'.83 W
74	23°38'.26 N	162°34'.18 W
75	23°41'.69 N	162°30'.18 W
76	23°44'.72 N	162°25'.79 W
77	23°47'.36 N	162°21'.11 W
78	23°49'.55 N	162°16'.16 W
79	23°51'.24 N	162°10'.99 W
80	23°52'.44 N	162°05'.63 W
81	23°53'.14 N	162°00'.25 W
82	23°53'.36 N	161°54'.75 W
83	23°53'.09 N	161°49'.28 W
84	23°52'.82 N	161°47'.09 W
85	23°52'.39 N	161°44'.67 W

\*\*\*



isopropylamine salt of glyphosate, the ethanolamine salt of glyphosate, the dimethylamine salt of glyphosate, the ammonium salt of glyphosate, and the potassium salt of glyphosate on the food commodities cattle, meat byproducts at 5.0 ppm; egg at 0.05 ppm; goat, meat byproducts at 5.0 ppm; grain, aspirated fractions at 310 ppm; hog, meat byproducts at 5.0 ppm; horse, meat byproducts at 5.0 ppm; poultry, meat, at 4.0 ppm; poultry, meat byproducts at 1.0 ppm; sheep, meat byproducts at 5.0 ppm; soybean, seed at 20.0 ppm; soybean, forage at 100.0 ppm; soybean, hay at 200.0 ppm, and soybean, hulls at 120 ppm as discussed in Unit II of this document.

**VI. Statutory and Executive Order Reviews**

This final rule establishes tolerances under section 408(d) of FFDCA in response to a petition submitted to the Agency. The Office of Management and Budget (OMB) has exempted these types of actions from review under Executive Order 12866, entitled *Regulatory Planning and Review* (58 FR 51735, October 4, 1993). Because this final rule has been exempted from review under Executive Order 12866, this final rule is not subject to Executive Order 13211, entitled *Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use* (66 FR 28355, May 22, 2001) or Executive Order 13045, entitled *Protection of Children from Environmental Health Risks and Safety Risks* (62 FR 19885, April 23, 1997). This final rule does not contain any information collections subject to OMB approval under the Paperwork Reduction Act (PRA), 44 U.S.C. 3501 *et seq.*, nor does it require any special considerations under Executive Order 12898, entitled *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (59 FR 7629, February 16, 1994).

Since tolerances and exemptions that are established on the basis of a petition under section 408(d) of FFDCA, such as the tolerance in this final rule, do not require the issuance of a proposed rule, the requirements of the Regulatory Flexibility Act (RFA) (5 U.S.C. 601 *et seq.*) do not apply.

This final rule directly regulates growers, food processors, food handlers, and food retailers, not States or tribes, nor does this action alter the relationships or distribution of power and responsibilities established by Congress in the preemption provisions of section 408(n)(4) of FFDCA. As such, the Agency has determined that this action will not have a substantial direct

effect on States or tribal governments, on the relationship between the national government and the States or tribal governments, or on the distribution of power and responsibilities among the various levels of government or between the Federal Government and Indian tribes. Thus, the Agency has determined that Executive Order 13132, entitled *Federalism* (64 FR 43255, August 10, 1999) and Executive Order 13175, entitled *Consultation and Coordination with Indian Tribal Governments* (65 FR 67249, November 9, 2000) do not apply to this final rule. In addition, this final rule does not impose any enforceable duty or contain any unfunded mandate as described under Title II of the Unfunded Mandates Reform Act of 1995 (UMRA) (Public Law 104-4).

This action does not involve any technical standards that would require Agency consideration of voluntary consensus standards pursuant to section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law 104-113, section 12(d) (15 U.S.C. 272 note).

**VII. Congressional Review Act**

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of this final rule in the **Federal Register**. This final rule is not a “major rule as defined by 5 U.S.C. 804(2).

**List of Subjects in 40 CFR Part 180**

Environmental protection, Administrative practice and procedure, Agricultural commodities, Pesticides and pests, Reporting and recordkeeping requirements.

Dated: November 19, 2008.

**Donald R. Stubbs,**

*Director, Registration Division, Office of Pesticide Programs.*

■ Therefore, 40 CFR chapter I is amended as follows:

**PART 180—[AMENDED]**

■ 1. The authority citation for part 180 continues to read as follows:

**Authority:** 21 U.S.C. 321(q), 346a and 371.

■ 2. Section 180.364 is amended as follows:

■ a. By removing the entries cattle, meat byproducts; egg; goat, meat byproducts; grain, aspirated fractions; hog, meat byproducts; horse, meat byproducts; poultry, meat; poultry, meat byproducts; sheep, meat byproducts; soybean, forage; soybean, hay; soybean, hulls; and soybean, seed from the table in paragraph (a).

■ b. By redesignating paragraph (a) introductory text and the remainder of the table as paragraph (a)(1) and by adding paragraph (a)(2) to read as follows:

**§ 180.364 Glyphosate, Tolerance for residue.**

(a) \* \* \* (1) \* \* \*

(2) Tolerances are established for combined residues of glyphosate, N-(phosphonomethyl)glycine and its metabolite N-acetyl-glyphosate (expressed as glyphosate) resulting from the application of glyphosate, the isopropylamine salt of glyphosate, the ethanolamine salt of glyphosate, the dimethylamine salt of glyphosate, the ammonium salt of glyphosate, and the potassium salt of glyphosate on the food commodities:

Commodity	Parts per Million
Cattle, meat byproducts ...	5.0
Egg .....	0.05
Goat, meat byproducts .....	5.0
Grain aspirated fractions ..	310.0
Hog, meat byproducts .....	5.0
Horse, meat byproducts ...	5.0
Poultry, meat .....	4.0
Poultry, meat byproducts ..	1.0
Sheep, meat byproducts ..	5.0
Soybean, forage .....	100.0
Soybean, hay .....	200.0
Soybean, hulls .....	120.0
Soybean, seed .....	20.0

\* \* \* \* \*

[FR Doc. E8-28571 Filed 12-2-08; 8:45 am]

BILLING CODE 6560-50-S

**DEPARTMENT OF COMMERCE**

**National Oceanic and Atmospheric Administration**

**DEPARTMENT OF THE INTERIOR**

**Fish and Wildlife Service**

**50 CFR Part 404**

[Docket No. 080227317-81455-02]

RIN 0648-AW44

**Papahānaumokuākea Marine National Monument Proclamation Provisions**

**AGENCIES:** National Oceanic and Atmospheric Administration (NOAA),

Department of Commerce (DOC); United States Fish and Wildlife Service (USFWS), Department of the Interior (DOI).

**ACTION:** Final rule.

**SUMMARY:** NOAA and the USFWS are publishing final regulations to establish a ship reporting system for the Papahānaumokuākea Marine National Monument. This action implements measures adopted by the International Maritime Organization requiring notification by ships passing through the Monument without interruption.

**DATES:** This rule is effective January 2, 2009.

**ADDRESSES:** For copies of the environmental assessment or other related documents, please write to: T. Aulani Wilhelm, Monument Superintendent (NOAA); 6600 Kalanianaʻole Highway, 300, Honolulu, HI 96825. Written comments regarding the burden-hour estimates or other aspects of the collection-of-information requirements contained in this final rule may be submitted to (enter office name) and by e-mail to [David\\_Rostker@omb.eop.gov](mailto:David_Rostker@omb.eop.gov), or fax to (202) 395-7285.

Copies of the final environmental assessment may be viewed and downloaded at <http://hawaiireef.noaa.gov/>.

**FOR FURTHER INFORMATION CONTACT:** T. Aulani Wilhelm, Monument Superintendent (NOAA); 6600 Kalanianaʻole Highway, 300, Honolulu, HI 96825; (808) 397-2657.

**SUPPLEMENTARY INFORMATION:**

### I. Statutory and Regulatory Background

On June 15, 2006, President Bush established the Northwestern Hawaiian Islands Marine National Monument (Monument) by issuing Presidential Proclamation 8031 (Proclamation); (71 FR 36443, June 26, 2006) under the authority of the Antiquities Act (Act) (16 U.S.C. 431). The Proclamation reserves all lands and interests in lands owned or controlled by the Government of the United States in the Northwestern Hawaiian Islands (NWHI), including emergent and submerged lands and waters, out to a distance of approximately 50 nautical miles (nmi) from the islands. The outer boundary of the Monument is approximately 100 nmi wide and extends approximately 1200 nmi around coral islands, seamounts, banks, and shoals. The area includes the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, the Midway Atoll National Wildlife Refuge/Battle of Midway National Memorial, and the Hawaiian Islands

National Wildlife Refuge. The Monument was renamed the Papahānaumokuākea Marine National Monument by Proclamation 8112 (72 FR 10029, February 28, 2007).

The Proclamation provides that the Secretary of Commerce, through NOAA, has primary responsibility regarding the management of the marine areas of the Monument, in consultation with the Secretary of the Interior. The Secretary of the Interior, through the USFWS, has sole responsibility for management of the areas of the Monument that overlay the Midway Atoll National Wildlife Refuge, the Battle of Midway National Memorial, and the Hawaiian Islands National Wildlife Refuge, in consultation with the Secretary of Commerce. Further, the Proclamation provides that nothing in the Proclamation diminishes or enlarges the jurisdiction of the State of Hawaii. The Monument includes state waters, including the Northwestern Hawaiian Islands State Marine Refuge and State Seabird Sanctuary at Kure Atoll. The State currently holds the submerged and ceded lands of the NWHI in trust. This public trust is overseen by the Office of Hawaiian Affairs through an amendment to the Constitution of the State of Hawaii. The State of Hawaii has primary responsibility for managing the State waters of the Monument.

In 2006 NOAA and USFWS published joint regulations codifying the provisions of the Proclamation (71 FR 51134, August 29, 2006). With certain exceptions, the Proclamation and the joint regulations restrict access to the Monument to persons who have been issued Monument permits. Vessels that do not have permits cannot enter the Monument except for uninterrupted passage through the Monument and notice must be provided to NOAA by telephone, fax, or e-mail not less than 72 hours and not more than one month prior to passing through the Monument. Notice must also be provided not more than twelve hours after the vessel has exited the Monument. All of the terms of the Proclamation and the regulations are applied in accordance with international law.

The Proclamation directed the Secretary of State, in consultation with the Secretaries of Commerce and the Interior, to take appropriate action to enter into negotiations with other governments to make necessary arrangements for the protection of the Monument and to promote the purposes for which it was established. The proclamation further directed the Secretary of State to seek the cooperation of other governments and international organizations in

furtherance of the purposes of the Proclamation and consistent with applicable regional and multilateral arrangements for the protection and management of special marine areas.

In April 2007 and in accordance with the Proclamation, the United States proposed to the International Maritime Organization (IMO), a specialized agency of the United Nations, that the Monument be designated as a Particularly Sensitive Sea Area (PSSA) to protect the attributes of the fragile and integrated coral reef ecosystem from potential hazards associated with international shipping activities. The U.S. noted in its proposal that the burden on international shipping by the proposed PSSA and its associated protective measures would be minimal while its objectives—increased maritime safety, protection of the fragile environment, preservation of cultural resources and areas of cultural importance significant to Native Hawaiians, as well as facilitation of the ability to respond to developing maritime emergencies—would be significantly furthered. PSSA designation had been granted previously to only ten marine areas globally, including the marine areas around the Florida Keys, the Great Barrier Reef, and the Galapagos.

On April 3, 2008, the IMO designated the Monument as a PSSA. As part of the PSSA designation process, the IMO adopted U.S. proposals for associated protective measures consisting of (1) expanding and consolidating the six existing recommendatory Areas To Be Avoided (ATBAs) in the Monument into four larger areas and enlarging the class of vessels to which they apply; and (2) establishing a ship reporting system for vessels transiting the Monument, which is mandatory for ships 300 gross tons or greater that are entering or departing a U.S. port or place and recommended for other ships. The system requires that ships notify the U.S. shore-based authority (i.e., the U.S. Coast Guard; NOAA will be receiving all messages associated with this program on behalf of the Coast Guard) at the time they begin transiting the reporting area and again when they exit. Notification is made by e-mail through the Inmarsat-C system or other satellite communication system. It is estimated that almost all commercial vessel traffic will be able to report via Inmarsat-C.

The PSSA and associated protective measures were adopted to provide additional protection to the exceptional natural, cultural and historic resources in the Monument. Requiring vessels to notify NOAA upon entering the reporting area will help make the

operators of these vessels aware that they are traveling through a fragile area with potential navigational hazards such as the extensive coral reefs found in many shallow areas of the Monument. The PSSA is now in effect, and the IMO has provided for an effective date for the associated protective measures of May 1, 2008.

NOAA and USFWS are establishing the infrastructure that will be required to maintain an international ship reporting system and to ensure that information regarding PSSA designation will be incorporated into nautical charts and other information sources. This rule implements the mandatory ship reporting system as adopted by IMO, establishes the reporting area using the IMO boundary coordinates, and publishes the coordinates of the four ATBAs.

## II. Vessel Reporting Requirements

These regulations apply to vessels that do not have permits to enter the Monument and that pass through the Monument without interruption. These regulations do not change the exemptions at 50 CFR 404.8 (activities necessary to respond to emergencies or necessary for law enforcement purposes) and 404.9 (activities and exercises of the Armed Forces, including those of the United States Coast Guard) and, therefore, do not apply to vessels covered by those exemptions. As explained further, below, these regulations also do not apply to sovereign immune vessels.

The regulations accomplish the following actions:

(1) Modify the current notification requirements (at 50 CFR 404.4) for passing through the Monument without interruption and add several new associated terms and definitions (at Sec. 404.3);

(2) Establish a reporting area around the Monument, extending outward ten nautical miles from the Monument boundary but excluding the ATBAs within the Monument;

(3) Describe the categories of vessels that are subject to the reporting requirement;

(4) Specify the type of information regarding the vessel, its location, etc. that is required in the e-mail to NOAA

and that is to be sent in a reporting format that is consistent with the reporting system adopted by IMO;

(5) Allow for vessels that do not have e-mail capability to continue to comply with the current prior notification requirements;

(6) Recommend voluntary participation in the reporting system for all other vessels that are not required to notify NOAA; and

(7) Publish the revised boundaries of the four voluntary ATBAs.

Each of these elements is described below.

### A. Modification of Existing Notification Requirements

Monument regulations at 50 CFR 404.4 prohibit entry into the Monument except in certain situations. One of the exceptions is for vessels passing through the Monument without interruption. Those vessels, however, are currently required to provide notice prior to entering and after leaving the Monument. Notification of entry must be provided at least 72 hours, but no longer than 1 month, prior to the entry date. Notification of departure from the Monument must be provided within 12 hours of leaving. Notification may be made by e-mail, telephone, or fax and must include the following information: Position when making the report; vessel name and IMO identification number; name, address, and telephone number of owner and operator; United States Coast Guard documentation, state license, or registration number; home port; intended and actual route through the Monument; general categories of any hazardous cargo on board; and length of vessel and propulsion type (e.g., motor or sail).

These changes to the regulations replace the current notification requirements for vessels that have e-mail capability. Vessels without e-mail capability will continue to provide notification in advance and upon exiting the Monument as described previously but the type of information to be provided is modified by these regulations as indicated below.

The following terms are being added to the definitions at 50 CFR 404.3 to facilitate implementation of the proposed ship reporting requirements:

“Areas to be avoided”; “Categories of hazardous cargoes”; “IMO”; and “Reporting area.” The definitions to these terms are contained in the text of the regulations.

### B. Reporting Area

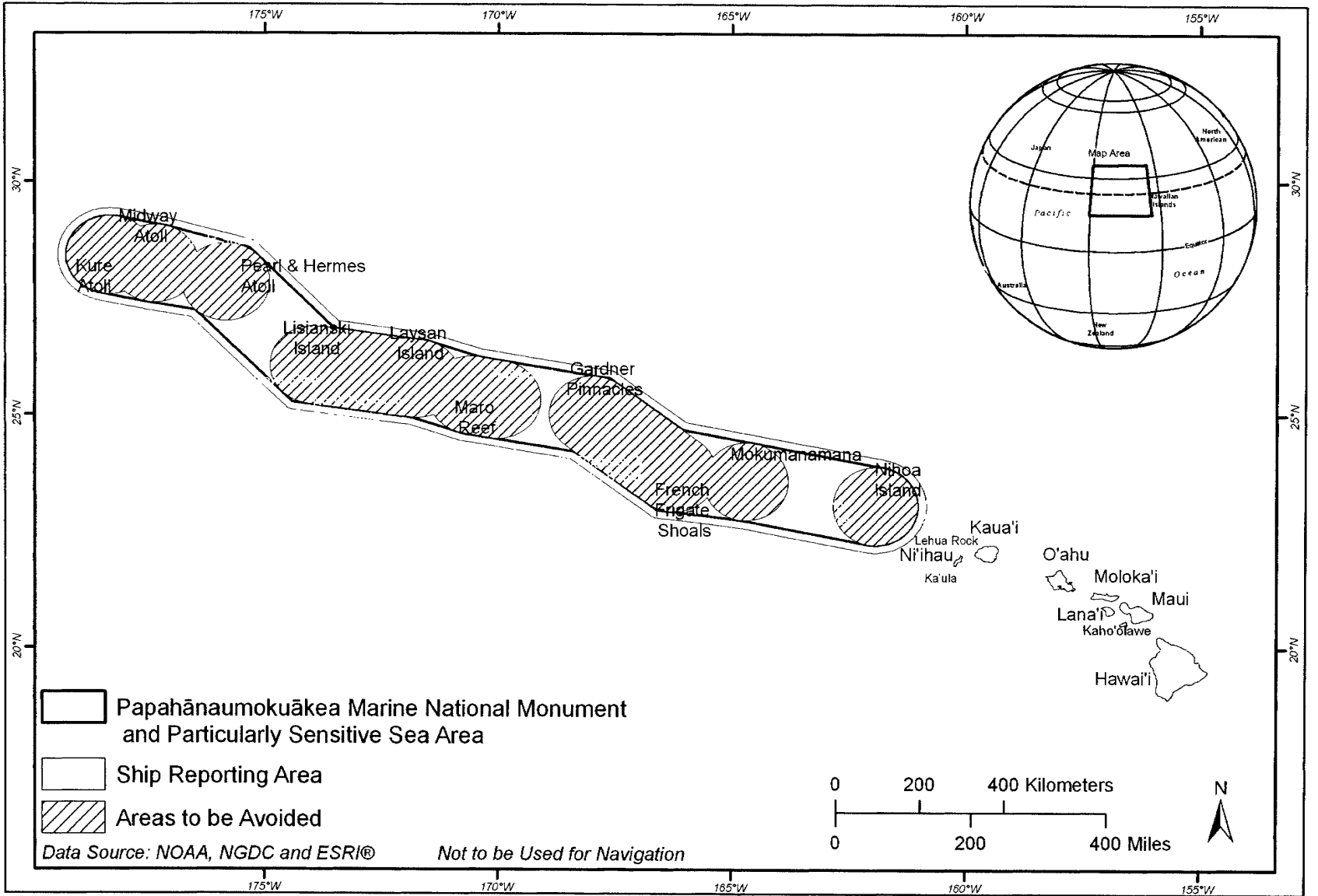
The regulations create a reporting area extending ten miles out and entirely around the Monument boundary. The coordinates of the area are set forth in Appendix D of the regulations and are the same as the coordinates that were adopted by IMO when it accepted the PSSA in principle and adopted the associated protective measures for the PSSA in 2007. Certain categories of vessels (described below) that intend to pass through the Monument without interruption are required to e-mail certain information at the time they cross the reporting area boundary and again when they exit the reporting area after having passed through the Monument.




The reporting area does not include the ATBAs within the Monument. As such, vessels that pass through an ATBA while passing through the Monument must notify NOAA at the time they exit the reporting area and enter the ATBA, and again when they exit the ATBA and re-enter the reporting area.

There are three large areas of the Monument (within the reporting area) that are not within the IMO-designated ATBAs. These breaks between the four ATBAs allow for primarily north-south passage through the Monument. From west to east, these areas are in the following locations and are shown in Figure 1: Between the ATBAs extending around Pearl and Hermes Atoll and Lisianski Island; between the ATBAs around Maro Reef and Gardner Pinnacles; and between the ATBAs around Mokumanamana (Necker Island) and Nihoa Island. It is anticipated that vessels will navigate through the Monument via these areas. Vessels passing through the Monument in these areas are only required to send e-mail notification upon entering the reporting area and again upon leaving it.

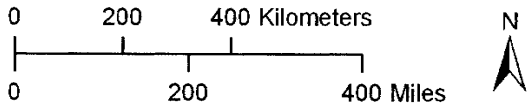
**BILLING CODE 3510-22-P**

Figure 1. Papahānaumokuākea Marine National Monument Particularly Sensitive Sea Areas, Ship Reporting Areas, and Areas to be Avoided



-  Papahānaumokuākea Marine National Monument and Particularly Sensitive Sea Area
-  Ship Reporting Area
-  Areas to be Avoided

Data Source: NOAA, NGDC and ESRI® Not to be Used for Navigation



BILLING CODE 3510-22-C

December 2008

G-42

Appendix G: Particularly Sensitive Sea Area

### *C. Vessels That Are Required To Provide Notification*

All vessels of the United States—regardless of size—are subject to the proposed reporting requirements. All foreign vessels greater than 300 gross tons and that are either going to or coming from a U.S. port or place are required to participate in the ship reporting system. Foreign vessels of any size that are heading to or coming from a U.S. port or place are also required to provide e-mail notification if they experience an emergency while crossing through the reporting area. Although e-mail capability is now routine on vessels greater than 300 gross tons and is also widely used by many smaller vessels, vessels of the United States less than 300 gross tons that do not have e-mail capability remain subject to the advanced notice reporting requirements currently in effect. These vessels will continue to be required to follow the current reporting process: Provide notice by telephone, fax, or e-mail not less than 72 hours but not more than one month prior to entering the Monument for uninterrupted passage and to provide notification of departing the Monument within 12 hours of leaving.

Vessels are not required to provide notification if they operate in the reporting area but remain outside of the Monument, such as fishing vessels fishing outside the Monument boundary. However, if the operator of a vessel within the reporting area decides to cross uninterrupted through the Monument all of the notification requirements will then apply. In no case may the vessel lawfully pass through the Monument until notification had been provided, consistent with these regulations.

The reporting requirements do not apply to vessels of the Armed Forces and the United States Coast Guard because the prohibitions in the Proclamation and the regulations do not apply to their activities and exercises (50 CFR 404.9(a)). In addition, the ship reporting system adopted by the IMO specifically exempts all sovereign immune vessels from the reporting requirement and, therefore, the regulations published today do not apply to these vessels. Vessel sovereign immunity is interpreted in light of relevant provisions of international instruments, such as the IMO-adopted ship reporting system, Article 36 of the United Nations Convention on the Law of the Sea, and Chapter 5, Regulation 1 of the International Convention for the Safety of Life at Sea. This is consistent with provisions of the Proclamation and

the regulations that state the Proclamation shall be applied in accordance with international law. No restrictions shall apply to or be enforced against a person who is not a citizen, national, or resident alien of the United States (including foreign flag vessels) unless in accordance with international law.

### *D. Specific Information and Reporting Format Required for Entry and Exit Notifications by Vessels With E-mail Capability*

The information that each vessel must submit and the format in which it must be submitted are shown in Appendix E to the regulations. The information to be provided upon entering the reporting area and the reporting format are based on and consistent with the reporting requirements adopted by IMO and include: Vessel identification information (i.e., name, call sign, flag, IMO identification number); date and time of entry; position; true course; speed in knots and tenths; destination and estimated time of arrival; intended route through the reporting area; vessel draft; categories of hazardous cargoes on board; any vessel defects or deficiencies that restrict maneuverability or impair normal navigation; any pollution incident or goods lost overboard within the Monument, reporting area, or the U.S. EEZ; contact information for the vessel's agent or owner; vessel size (length overall, gross tonnage) and type; and total number of persons on board. Information required when the vessel leaves the reporting area includes: Vessel identification information (i.e., name, call sign, flag, IMO identification number); date and time of exit; position; and any pollution incident or goods lost overboard within the Monument, reporting area, or the U.S. EEZ.

The system that is being established to receive the notifications is based on Inmarsat-C and NOAA will assume the cost associated with Inmarsat-C transmissions to the e-mail address provided under this program. This rule does not require a vessel to install or use Inmarsat-C, but NOAA will not assume costs associated with e-mail transmissions sent through other satellite communications systems. Vessel owners who receive an Inmarsat-C charge for any e-mail sent to NOAA pursuant to these regulations will be reimbursed upon invoicing NOAA with a copy of the charges.

### *E. Specific Information and Reporting Format Required for Entry and Exit Notifications by Vessels Without Onboard E-mail Capability*

Vessels of the United States less than 300 gross tons that do not have onboard e-mail capability are required to submit the following information not less than 72 hours but not more than one month prior to entering the Monument for uninterrupted passage: Vessel identification information (e.g., name, call sign, flag, IMO identification number); date and time of entry; position (as applicable); destination and estimated time of arrival; intended route through the Monument and the reporting area; vessel draft; categories of hazardous cargoes on board (as applicable); any vessel defects or deficiencies that restrict maneuverability or impair normal navigation; contact information for the vessel's agent or owner; vessel size (length overall, gross tonnage) and type; and total number of persons on board. Upon exiting the Monument these vessels must provide the following information within 12 hours of leaving: Vessel identification information (e.g., name, call sign, flag, IMO identification number); date and time of exit; position; and any pollution incident or goods lost overboard within the Monument, reporting area, or the U.S. EEZ. This information may be submitted by nonvessel-based e-mail (e.g., from home or office), fax, or telephone. Once a vessel is equipped with an onboard e-mail system, however, it must comply with the requirements for vessels with that capability, including the reporting format shown in Appendix E to the regulations.

### *F. Voluntary Participation in the Ship Reporting System by All Other Vessels*

Vessels that are not required to participate in the ship reporting system are nevertheless strongly urged to participate on a voluntary basis. Participation will help make the operators of these vessels aware that they are traveling through a fragile area with potential navigational hazards such as the extensive coral reefs found in many shallow areas of the Monument. Voluntary participation will increase maritime safety, protection of the fragile environment, preservation of cultural resources and areas of cultural importance significant to Native Hawaiians. Participation will also facilitate the ability to respond to developing maritime emergencies.

### *G. Modification of the Areas To Be Avoided (ATBAs)*

An ATBA is an area within which either navigation is particularly hazardous or it is exceptionally important to avoid casualties. As such, ATBAs should be avoided by all ships, or certain classes of ships. While ATBAs can be mandatory (i.e., vessels are required by applicable law to avoid and operate outside of the area) most are voluntary and vessels may travel through them. The IMO adopted six voluntary ATBAs in the Northwestern Hawaiian Islands in 1980. Part of the action taken in 2008 by the IMO was to enlarge the six original ATBAs so that they now connect in certain places resulting in four larger ATBAs. This rule publishes the coordinates of these four ATBAs. The coordinates are attached to the regulations as Appendix C. The ATBAs are not part of the reporting area and vessels that enter any ATBA while passing through the Monument without interruption must provide an exit notification upon entering the ATBA, an entry notification again upon reentering the reporting area, and a second exit notification when the vessel departed the reporting area and the Monument on the other side. Thus, transiting through the Monument via an ATBA requires four reports as compared with the two reports required for transiting the Monument between the ATBAs.

### **III. Response to Comments**

Comments on the proposed rule and the draft environmental assessment were received from the following: The Department of the Navy; the United States Coast Guard; the Missile Defense Agency; and the Marine Mammal Commission. The comments did not result in any changes to the proposed regulations but additional discussion has been added to the preamble of this final rule to clarify that the reporting requirements do not apply to activities and exercises of the Armed Forces (including those carried out by the United States Coast Guard) or to sovereign immune vessels of foreign nations. The comments are summarized below together with responses from NOAA and FWS.

*Comment 1:* It should be clear that the Armed Forces exception in 50 CFR 404.9 applies to the new ship reporting regulations.

*Response:* The reporting regulations do not affect the Armed Forces exception to the prohibitions set forth in the Proclamation and in the regulations at 50 CFR 404.9. The reporting regulations do not apply to activities and exercises of the Armed Forces,

(including those carried out by the United States Coast Guard) that are consistent with applicable laws. The Armed Forces exemptions in the Proclamation and at 50 CFR 404.9 are not affected by these regulations.

*Comment 2:* Clarify that the regulations do not affect international legal principles governing freedom of navigation for sovereign immune vessels in international waters, such as foreign warships, and law-enforcement craft.

*Response:* Language has been added to section 404.4(c) to clarify that the regulations do not apply to sovereign immune vessels in international waters. The ship reporting system adopted by the IMO specifically exempts all sovereign immune vessels from the reporting requirement and, therefore, the regulations published today do not apply to these vessels. This is consistent with provisions of the Proclamation and the regulations that state the Proclamation shall be applied in accordance with international law. No restrictions shall apply to or be enforced against a person who is not a citizen, national, or resident alien of the United States (including foreign flag vessels) unless in accordance with international law.

*Comment 3:* The ATBAs are recommendatory and ships should not be required to report their entry into or exit from Monument ATBAs.

*Response:* The regulations do not require vessels to report when they enter or exit ATBAs. They do, however, require vessels to notify the U.S. shore-based authority (NOAA, on behalf of the U.S. Coast Guard) whenever they enter or exit the Reporting Area. As adopted by the IMO and implemented by these regulations, the ATBAs are outside of the Reporting Area. A vessel entering an ATBA is required to notify NOAA because it is exiting the Reporting Area and it must send another e-mail when it reenters the Reporting Area from an ATBA or anywhere else that is outside of the Reporting Area.

*Comment 4:* Modify the reporting requirements to: (a) Ensure that all vessels in the reporting area or Monument immediately report any emergencies; (b) clarify that emergencies include any accidents, pollution incidents, or losses of cargo that could pose a risk to natural and cultural resources; and (c) identify the types of information to be reported in cases of emergencies.

*Response:* At this time, NOAA and FWS are maintaining the regulations as proposed to implement the measures recommended by the IMO, but will consider a separate rule making to address whether and how to require the

reporting of emergencies in the Monument. The scope of such a rule could apply to a broader category of vessels than those simply passing through the Monument without interruption and could include vessels entering the Monument pursuant to permits. Such a rule would also be applied in accordance with international law.

*Comment 5:* Include in the ship reporting system a return message describing why special precautions are needed in the area, the Areas To Be Avoided, other relevant protection measures and appropriate information (e.g., permit requirements for any activity other than uninterrupted passage through the Monument).

*Response:* A return message will be sent back to vessels that provide e-mail notification and will include relevant information such as precautions while in the Monument and other matters.

## **IV. Classification**

### *A. National Environmental Policy Act*

An environmental assessment has been prepared to evaluate the proposed revisions to the reporting requirements and resulted in a Finding of No Significant Impact (FONSI). Copies are available at the address and Web site listed in the **ADDRESSES** section of this rule.

### *B. Executive Order 12866: Regulatory Impact*

This rule has been determined to be not significant within the meaning of Executive Order 12866.

### *C. Executive Order 13132: Federalism Assessment*

NOAA has concluded this regulatory action does not have federalism implications sufficient to warrant preparation of a federalism assessment under Executive Order 13132. The State of Hawaii was consulted during the promulgation of this rule.

### *D. Paperwork Reduction Act*

This rule contains a collection-of-information requirement subject to the Paperwork Reduction Act (PRA) and which has been approved by OMB under control number 0648-0548. Public reporting burden for entry and exit notification is expected to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. In the proposed rule, NOAA and FWS requested public comment regarding this collection of information and

burden estimate. No comments were received.

#### *E. Regulatory Flexibility Act*

The Chief Counsel for Regulation of the Department of Commerce certified to the Chief Counsel for Advocacy of the Small Business Administration (SBA) that this rule would not have a significant economic impact on a substantial number of small entities.

The factual basis for this certification is as follows:

The regulations establish a ship reporting system for the Monument. When transiting the Monument, all U.S. vessels, all foreign-flag vessels 300 gross tons or greater that are going to or coming from a U.S. port or place, and all foreign-flag vessels of any size coming from a U.S. port or place and experiencing an emergency while crossing through the reporting area are required to participate in the reporting system. Specific information is required to be transmitted via e-mail to NOAA upon entry into and exit from the reporting area. Vessels without onboard e-mail capability will continue to provide notification as originally required by the Monument regulations at 50 CFR part 404, and the information provided is essentially the same as required previously.

The SBA establishes size standards for determining whether a U.S. entity is a small business. The size standards relevant to this proposed rulemaking are: finfish fishing (NAICS Code 114111): Average annual receipts of \$4.0 million or less; and deep sea freight transport (NAICS Code 483111): average employment of 500 employees or less. Approximately 120 U.S. fishing vessels are expected to be impacted by this rulemaking, and all are considered to be small entities. U.S. freight transport vessels are expected to be affected by this rulemaking, though none are considered to be small entities. All vessels without e-mail capability are considered to be small entities.

The cost of the regulation is not expected to be significant. It is expected that vessels transiting the Monument will remain outside of the designated ATBA's to avoid navigational hazards in the ATBA's. For these vessels, two e-mails will be required for compliance with the proposed rule: One upon entering the reporting area and one upon exiting the reporting area. For those vessels that cross into the ATBA's, four e-mails will be necessary. Because the ATBA's are not part of the reporting system, the vessel will enter and exit the reporting area twice. The cost of sending an e-mail varies depending on the type of service, the provider rates and the

length of the message but is estimated to be approximately \$1.75 per entry report e-mail sent via Inmarsat-C. The exit report should cost approximately \$0.50. It will take approximately 15 minutes or less to send each e-mail.

Because NOAA is paying for the monetary cost of e-mail transmissions using the Inmarsat-C system, this cost will not be accrued by any small entities. Entities using other e-mail systems, however, will bear the monetary cost of e-mail transmission in addition to the time cost. For those vessels without on-board e-mail capability, cost of compliance for notification prior to entry is expected to be the cost of a standard fax or e-mail charge, or will be free if the information is provided by telephone using the 1-800 number listed in the regulations. An exit notification made within 12 hours will require the use of a satellite telephone, the cost of which will be subject to rate variables. However, the content to be conveyed is relatively brief and can be provided in approximately one minute.

Given the minimal cost of compliance with this rulemaking, the impact of this rule is not expected to be significant. As a result, a regulatory flexibility analysis is not required and none has been prepared.

#### **List of Subjects in 50 CFR Part 404**

Administrative practice and procedure, Coastal zone, Fish, Fisheries, Historic preservation, Intergovernmental relations, Marine resources, Monuments and memorials, Natural resources, Reporting and recordkeeping requirements, Wildlife, Wildlife refuges.

Dated: November 21, 2008.

**Jane C. Luxton,**

*General Counsel, National Oceanic and Atmospheric Administration.*

Dated: November 20, 2008.

**Lyle Laverty,**

*Assistant Secretary for Fish and Wildlife and Parks.*

■ Accordingly, for the reasons set forth in the preamble, NOAA and USFWS amend part 404, title 50 of the Code of Federal Regulations as follows:

#### **PART 404—[AMENDED]**

■ 1. The authority citation for part 404 continues to read as follows:

**Authority:** 16 U.S.C. 431 *et seq.*; 16 U.S.C. 460k-3; 16 U.S.C. 1801 *et seq.*; 16 U.S.C. 742f, 16 U.S.C. 742l, and 16 U.S.C. 668dd-ee; 16 U.S.C. 1361 *et seq.*; 16 U.S.C. 1531 *et seq.*, Public Law 106-513, Sec. 6(g) (2000).

■ 2. In § 404.3, definitions for “Areas to be avoided,” “Categories of Hazardous

cargoes,” “IMO,” and “Reporting area” are added alphabetically as follows:

#### **§ 404.3 Definitions.**

\* \* \* \* \*

*Areas to be avoided* means the four designated areas that should be avoided by vessels that are conducting passage through the Monument without interruption. Appendix C sets forth the coordinates of these areas.

\* \* \* \* \*

*Categories of hazardous cargoes* means goods classified in the International Maritime Dangerous Goods (IMDG) Code; substances classified in chapter 17 of the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code) and chapter 19 of the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code); oils as defined in MARPOL Annex I; noxious liquid substances as defined in MARPOL Annex II; harmful substances as defined in MARPOL Annex III; and radioactive materials specified in the Code for the Safe Carriage of the Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes in Flasks on Board Ships (INF Code).

\* \* \* \* \*

*IMO* means the International Maritime Organization.

\* \* \* \* \*

*Reporting area* means the area within the coordinates set forth in Appendix D.

\* \* \* \* \*

■ 3. Revise § 404.4 to read as follows:

#### **§ 404.4 Access to Monument.**

(a) Entering the Monument is prohibited and thus unlawful except:

- (1) As provided in §§ 404.8 and 404.9;
- (2) Pursuant to a permit issued under §§ 404.10 or 404.11; or
- (3) When conducting passage without interruption in accordance with paragraphs (b) through (f) of this section.

(b) Any person passing through the Monument without interruption is subject to the prohibitions in §§ 404.5, 404.6, and 404.7.

(c) The following vessels, except vessels entitled to sovereign immunity under international law, passing through the Monument without interruption must participate in the ship reporting system as provided in paragraphs (d) and (e) of this section:

- (1) Vessels of the United States, except as provided in paragraph (f) of this section;
- (2) All other ships 300 gross tonnage or greater, entering or departing a United States port or place; and



(3) All other ships in the event of an emergency, entering or departing a United States port or place.

(d) Immediately upon entering the reporting area, the vessels described in paragraph (c) of this section must provide the following information by e-mail sent to *nwhi.notifications@noaa.gov* in the IMO standard reporting format and data syntax shown in Appendix E:

(1) Vessel name, call sign or ship station identity, flag, and IMO identification number if applicable, and either Federal documentation or State registration number if applicable.

(2) Date, time (UTC) and month of entry.

(3) Position.

(4) True course.

(5) Speed in knots and tenths.

(6) Destination and estimated time of arrival.

(7) Intended route through the Monument and the reporting area.

(8) Vessel draft (in meters).

(9) Categories of hazardous cargoes on board.

(10) Any vessel defects or deficiencies that restrict maneuverability or impair normal navigation.

(11) Any pollution incident or goods lost overboard within the Monument, the reporting area, or the U.S. EEZ.

(12) Contact information for the vessel's agent or owner.

(13) Vessel size (length overall, gross tonnage) and type.

(14) Total number of persons on board.

(e) Immediately upon leaving the reporting area, the vessels described in paragraph (c) must provide the following information by e-mail sent to *nwhi.notifications@noaa.gov* in the IMO standard reporting format and data syntax shown in Appendix E:

(1) Vessel name, call sign or ship station identity, flag, and IMO identification number if applicable, and either Federal documentation or State registration number if applicable.

(2) Date, time (UTC) and month of exit.

(3) Position.

(4) Any pollution incident or goods lost overboard within the Monument, the reporting area, or the U.S. EEZ.

(f)(1) Vessels of the United States less than 300 gross tonnage that are not equipped with onboard e-mail capability must provide notification of entry and the information described in paragraphs (d)(1), (2), (3) as applicable, (6), (7), (8), (9) as applicable, (10), (12), (13), and (14) of this section at least 72 hours, but no longer than 1 month, prior to the entry date. Notification of departure from the Monument and the

information described in paragraph (e) of this section must be provided within 12 hours of leaving. Notification under this paragraph may be made by e-mail, telephone, or fax, by contacting: (i) *E-mail: nwhi.notifications@noaa.gov*;

(ii) *Telephone: 1-866-478-NWHI (6944)*;

(iii) *Fax: 1-808-397-2662*.

(2) The information must be provided in the IMO standard reporting format and data syntax shown in Appendix E.

(g) All vessels passing through the Monument without interruption other than those described in paragraphs (c)(1) through (3) of this section should participate in the ship reporting system set forth in paragraphs (d) and (e) of this section.

■ 4. Add Appendix C to Part 404 to read as follows:

**Appendix C to Part 404—Boundary Coordinated for Papahānaumokuākea Marine National Monument Areas To Be Avoided**

**Appendix C—Geographical Coordinates**

*Areas To Be Avoided*

*Papahānaumokuākea Marine National Monument*

Reference chart: United States 540, 2008 edition; 19016, 2008 edition; 19019, 2008 edition; 19022, 2008 edition.

These charts are based on World Geodetic System 1984 Datum (WGS-84) and astronomic datum.

TABLE C-1—KURE ATOLL, MIDWAY ATOLL, AND PEARL AND HERMES ATOLL

Point	Latitude (N)	Longitude (W)
1	27°14'.76	176°29'.87
2	27°24'.95	177°33'.31
3	27°35'.87	178°29'.90
4	27°36'.64	178°33'.93
5	27°37'.53	178°37'.32
6	27°38'.60	178°40'.65
7	27°39'.85	178°43'.90
8	27°41'.28	178°47'.05
9	27°42'.89	178°50'.10
10	27°44'.66	178°53'.03
11	27°46'.59	178°55'.83
12	27°48'.67	178°58'.49
13	27°50'.89	179°01'.00
14	27°53'.22	179°03'.39
15	27°55'.69	179°05'.61
16	27°58'.29	179°07'.61
17	28°01'.01	179°09'.47
18	28°03'.81	179°11'.10
19	28°06'.71	179°12'.53
20	28°09'.67	179°13'.75
21	28°12'.70	179°14'.75
22	28°15'.78	179°15'.54
23	28°18'.91	179°16'.11
24	28°22'.04	179°16'.45
25	28°24'.72	179°16'.56
26	28°25'.20	179°16'.57

TABLE C-1—KURE ATOLL, MIDWAY ATOLL, AND PEARL AND HERMES ATOLL—Continued

Point	Latitude (N)	Longitude (W)
27	28°25'.81	179°16'.56
28	28°28'.35	179°16'.44
29	28°31'.49	179°16'.10
30	28°34'.61	179°15'.54
31	28°37'.69	179°14'.75
32	28°40'.71	179°13'.74
33	28°43'.68	179°12'.54
34	28°46'.58	179°11'.13
35	28°49'.39	179°09'.52
36	28°52'.11	179°07'.70
37	28°54'.72	179°05'.70
38	28°57'.21	179°03'.51
39	28°59'.58	179°01'.15
40	29°01'.81	178°58'.62
41	29°03'.90	178°55'.93
42	29°05'.83	178°53'.10
43	29°07'.60	178°50'.13
44	29°09'.21	178°47'.04
45	29°10'.64	178°43'.84
46	29°11'.89	178°40'.54
47	29°12'.95	178°37'.16
48	29°13'.82	178°33'.71
49	29°14'.50	178°30'.21
50	29°14'.99	178°26'.66
51	29°15'.28	178°23'.08
52	29°15'.36	178°19'.49
53	29°15'.25	178°15'.90
54	29°14'.94	178°12'.32
55	29°14'.43	178°08'.78
56	29°03'.47	177°12'.07
57	29°02'.55	177°07'.29
58	28°38'.96	175°35'.47
59	28°38'.67	175°34'.35
60	28°34'.91	175°19'.74
61	28°26'.24	175°10'.65
62	28°24'.61	175°08'.95
63	28°24'.53	175°09'.04
64	28°20'.09	175°04'.91
65	28°16'.05	175°01'.92
66	28°11'.78	174°59'.33
67	28°07'.29	174°57'.23
68	28°02'.63	174°55'.68
69	27°57'.84	174°54'.62
70	27°53'.01	174°54'.05
71	27°48'.12	174°54'.05
72	27°43'.28	174°54'.62
73	27°38'.48	174°55'.71
74	27°33'.81	174°57'.32
75	27°29'.30	174°59'.43
76	27°25'.00	175°02'.03
77	27°20'.93	175°05'.07
78	27°17'.18	175°08'.59
79	27°13'.73	175°12'.47
80	27°10'.59	175°16'.67
81	27°07'.88	175°21'.25
82	27°05'.57	175°26'.09
83	27°03'.66	175°31'.15
84	27°02'.22	175°36'.40
85	27°01'.29	175°41'.78
86	27°00'.73	175°47'.22
87	27°00'.68	175°52'.74
88	27°01'.09	175°58'.16
89	27°01'.99	176°03'.53
90	27°03'.34	176°08'.81
91	27°05'.12	176°13'.91
92	27°07'.37	176°18'.79
93	27°09'.98	176°23'.40
94	27°13'.02	176°27'.74
95	27°13'.77	176°28'.70

TABLE C-2—LISIANSKI ISLAND, LAYSAN ISLAND, MARO REEF, AND RAITA BANK

Point	Latitude (N)	Longitude (W)
1	26°50'.89	173°30'.79
2	26°36'.00	171°37'.70
3	26°35'.49	171°33'.84
4	26°35'.10	171°30'.84
5	26°34'.07	171°27'.50
6	26°33'.35	171°25'.16
7	26°14'.26	170°23'.04
8	26°08'.69	169°48'.96
9	26°08'.36	169°49'.03
10	26°07'.62	169°45'.83
11	26°06'.03	169°40'.57
12	26°03'.97	169°35'.64
13	26°01'.51	169°30'.91
14	25°58'.65	169°26'.45
15	25°55'.32	169°22'.34
16	25°51'.67	169°18'.60
17	25°47'.78	169°15'.19
18	25°43'.54	169°12'.34
19	25°39'.05	169°09'.93
20	25°34'.37	169°08'.08
21	25°29'.54	169°06'.76
22	25°24'.61	169°05'.93
23	25°19'.63	169°05'.64
24	25°14'.65	169°05'.93
25	25°09'.69	169°06'.66
26	25°04'.85	169°08'.02
27	25°00'.17	169°09'.96
28	24°55'.66	169°12'.35
29	24°51'.35	169°15'.14
30	24°47'.37	169°18'.48
31	24°43'.69	169°22'.22
32	24°40'.34	169°26'.31
33	24°37'.42	169°30'.78
34	24°35'.00	169°35'.64
35	24°33'.02	169°40'.66
36	24°31'.34	169°45'.88
37	24°30'.31	169°51'.08
38	24°29'.68	169°56'.53
39	24°29'.56	170°01'.81
40	24°29'.61	170°04'.57
41	24°35'.77	170°44'.39
42	24°36'.29	170°47'.58
43	24°37'.18	170°50'.37
44	24°37'.76	170°52'.17
45	24°56'.23	171°50'.19
46	25°16'.61	174°24'.84
47	25°29'.56	174°38'.45
48	25°33'.28	174°42'.03
49	25°37'.33	174°45'.20
50	25°41'.68	174°47'.84
51	25°46'.23	174°50'.05
52	25°50'.93	174°51'.77
53	25°55'.80	174°52'.91
54	26°00'.71	174°53'.47
55	26°05'.67	174°53'.61
56	26°10'.59	174°53'.07
57	26°15'.46	174°52'.08
58	26°20'.20	174°50'.57
59	26°24'.75	174°48'.44
60	26°29'.15	174°45'.94
61	26°33'.26	174°42'.96
62	26°37'.11	174°39'.49
63	26°40'.60	174°35'.63
64	26°43'.75	174°31'.43
65	26°46'.49	174°26'.87
66	26°48'.90	174°22'.09
67	26°50'.79	174°17'.03
68	26°52'.20	174°11'.79
69	26°53'.21	174°06'.43

TABLE C-2—LISIANSKI ISLAND, LAYSAN ISLAND, MARO REEF, AND RAITA BANK—Continued

Point	Latitude (N)	Longitude (W)
70	26°53'.74	174°00'.98
71	26°53'.74	173°55'.48
72	26°53'.29	173°50'.02
73	26°52'.56	173°44'.58
74	26°51'.85	173°39'.14
75	26°51'.13	173°33'.69
76	26°50'.75	173°30'.87

TABLE C-3—GARDNER PINNACLES, FRENCH FRIGATE SHOALS, AND NECKER ISLAND

Point	Latitude (N)	Longitude (W)
1	25°49'.64	167°52'.66
2	25°49'.70	167°52'.65
3	25°48'.99	167°48'.35
4	25°47'.09	167°36'.72
5	25°39'.84	167°26'.48
6	25°35'.10	167°19'.79
7	25°10'.43	166°45'.00
8	24°40'.91	166°03'.36
9	24°35'.64	165°34'.99
10	24°23'.78	164°31'.12
11	24°23'.59	164°31'.14
12	24°23'.31	164°29'.74
13	24°21'.85	164°24'.52
14	24°20'.10	164°19'.39
15	24°17'.75	164°14'.56
16	24°14'.99	164°09'.97
17	24°11'.86	164°05'.69
18	24°08'.30	164°01'.80
19	24°04'.48	163°58'.23
20	24°00'.27	163°55'.22
21	23°55'.85	163°52'.59
22	23°51'.17	163°50'.56
23	23°46'.33	163°48'.98
24	23°41'.37	163°47'.99
25	23°36'.34	163°47'.56
26	23°31'.27	163°47'.60
27	23°26'.27	163°48'.28
28	23°21'.34	163°49'.50
29	23°16'.53	163°51'.14
30	23°11'.96	163°53'.47
31	23°07'.54	163°56'.15
32	23°03'.46	163°59'.38
33	22°59'.65	164°03'.01
34	22°56'.27	164°07'.10
35	22°53'.22	164°11'.49
36	22°50'.60	164°16'.18
37	22°48'.48	164°21'.16
38	22°46'.73	164°26'.28
39	22°45'.49	164°31'.60
40	22°44'.83	164°37'.03
41	22°44'.65	164°42'.51
42	22°44'.92	164°47'.99
43	22°45'.11	164°49'.52
44	22°45'.39	164°51'.48
45	22°45'.17	164°51'.53
46	22°50'.26	165°34'.99
47	22°55'.50	166°19'.63
48	22°55'.93	166°23'.32
49	22°57'.41	166°36'.00
50	23°03'.75	166°45'.00
51	23°05'.48	166°47'.45
52	24°12'.70	168°22'.86

TABLE C-3—GARDNER PINNACLES, FRENCH FRIGATE SHOALS, AND NECKER ISLAND—Continued

Point	Latitude (N)	Longitude (W)
53	24°12'.88	168°22'.78
54	24°16'.05	168°27'.28
55	24°19'.15	168°31'.66
56	24°22'.27	168°35'.95
57	24°25'.71	168°39'.94
58	24°29'.51	168°43'.55
59	24°33'.67	168°46'.63
60	24°38'.06	168°49'.29
61	24°42'.68	168°51'.46
62	24°47'.45	168°53'.12
63	24°52'.34	168°54'.28
64	24°57'.32	168°54'.82
65	25°02'.32	168°54'.95
66	25°07'.30	168°54'.43
67	25°12'.19	168°53'.32
68	25°16'.99	168°51'.76
69	25°21'.57	168°49'.60
70	25°25'.94	168°46'.93
71	25°30'.09	168°43'.86
72	25°33'.89	168°40'.42
73	25°37'.37	168°36'.52
74	25°40'.49	168°32'.24
75	25°43'.24	168°27'.68
76	25°45'.57	168°22'.82
77	25°47'.43	168°17'.76
78	25°48'.79	168°12'.47
79	25°49'.72	168°07'.09
80	25°50'.11	168°01'.62
81	25°50'.18	168°00'.09

TABLE C-4—NIHOA ISLAND

Point	Latitude (N)	Longitude (W)
1	23°52'.82	161°44'.54
2	23°52'.10	161°41'.20
3	23°51'.18	161°37'.92
4	23°50'.08	161°34'.71
5	23°48'.79	161°31'.58
6	23°47'.33	161°28'.55
7	23°45'.69	161°25'.62
8	23°43'.88	161°22'.81
9	23°41'.92	161°20'.13
10	23°39'.80	161°17'.60
11	23°37'.54	161°15'.21
12	23°35'.14	161°12'.99
13	23°32'.62	161°10'.93
14	23°29'.99	161°09'.05
15	23°27'.25	161°07'.35
16	23°24'.42	161°05'.85
17	23°21'.51	161°04'.54
18	23°18'.52	161°03'.43
19	23°15'.48	161°02'.53
20	23°12'.39	161°01'.84
21	23°09'.27	161°01'.35
22	23°06'.13	161°01'.09
23	23°02'.97	161°01'.03
24	22°59'.82	161°01'.19
25	22°56'.69	161°01'.57
26	22°53'.58	161°02'.15
27	22°50'.51	161°02'.95
28	22°47'.50	161°03'.95
29	22°44'.55	161°05'.15
30	22°41'.67	161°06'.54
31	22°38'.88	161°08'.13
32	22°36'.19	161°09'.90
33	22°33'.61	161°11'.85

TABLE C-4—NIHOA ISLAND—  
Continued

Point	Latitude (N)	Longitude (W)
34	22°31'.14	161°13'.97
35	22°28'.81	161°16'.25
36	22°26'.61	161°18'.69
37	22°24'.56	161°21'.26
38	22°22'.66	161°23'.97
39	22°20'.92	161°26'.80
40	22°19'.35	161°29'.74
41	22°17'.95	161°32'.78
42	22°16'.73	161°35'.90
43	22°15'.70	161°39'.10
44	22°14'.85	161°42'.37
45	22°14'.20	161°45'.68
46	22°13'.73	161°49'.03
47	22°13'.47	161°52'.41
48	22°13'.40	161°55'.80
49	22°13'.53	161°59'.18
50	22°13'.85	162°02'.55
51	22°14'.31	162°05'.45
52	22°14'.37	162°05'.89
53	22°14'.59	162°06'.88
54	22°15'.87	162°12'.18
55	22°17'.70	162°17'.31
56	22°19'.97	162°22'.20
57	22°22'.73	162°26'.84
58	22°25'.88	162°31'.15
59	22°29'.41	162°35'.09
60	22°33'.28	162°38'.61
61	22°37'.47	162°41'.72
62	22°41'.93	162°44'.34
63	22°46'.63	162°46'.47
64	22°51'.48	162°48'.05
65	22°56'.46	162°49'.09
66	23°01'.50	162°49'.58
67	23°06'.58	162°49'.49
68	23°11'.61	162°48'.89
69	23°16'.57	162°47'.70
70	23°21'.36	162°45'.98
71	23°26'.02	162°43'.75
72	23°30'.40	162°41'.01
73	23°34'.51	162°37'.83
74	23°38'.26	162°34'.18
75	23°41'.69	162°30'.18
76	23°44'.72	162°25'.79
77	23°47'.36	162°21'.11
78	23°49'.55	162°16'.16
79	23°51'.24	162°10'.99
80	23°52'.44	162°05'.63
81	23°53'.14	162°00'.25
82	23°53'.36	161°54'.75
83	23°53'.09	161°49'.28
84	23°52'.82	161°47'.09
85	23°52'.39	161°44'.67

■ 5. Add Appendix D to Part 404 to read as follows:

**Appendix D to Part 404—Boundary Coordinates for Papahānaumokuākea Marine National Monument Ship Reporting Area**

**Appendix D—Geographical Coordinates**

*Ship Reporting Area*

*Papahānaumokuākea Marine National Monument*

Reference chart: United States 540, 2008 edition; 19016, 2008 edition; 19019, 2008 edition; 19022, 2008 edition.

These charts are based on World Geodetic System 1984 Datum (WGS-84) and astronomic datum.

TABLE D-1—OUTER BOUNDARY

Point	Latitude (N)	Longitude (W)
1	29°25'.47	178°16'.97
2	28°43'.73	175°13'.84
3	27°00'.77	173°25'.78
4	26°44'.91	171°28'.07
5	26°24'.23	170°20'.59
6	25°56'.43	167°32'.10
7	24°50'.20	165°58'.69
8	24°05'.52	161°56'.86
9	24°05'.29	161°56'.62
10	24°04'.37	161°51'.53
11	24°03'.44	161°46'.45
12	24°02'.41	161°41'.39
13	24°01'.31	161°36'.35
14	23°59'.68	161°31'.55
15	23°57'.85	161°26'.85
16	23°55'.54	161°22'.31
17	23°52'.96	161°17'.92
18	23°50'.12	161°13'.72
19	23°46'.94	161°10'.08
20	23°43'.49	161°06'.47
21	23°39'.71	161°03'.09
22	23°35'.72	161°00'.14
23	23°31'.59	160°57'.46
24	23°27'.32	160°55'.23
25	23°22'.74	160°53'.71
26	23°18'.29	160°52'.17
27	23°13'.57	160°51'.04
28	23°08'.68	160°50'.46
29	23°03'.70	160°50'.17
30	22°58'.67	160°50'.35
31	22°53'.84	160°51'.04
32	22°49'.11	160°52'.20
33	22°44'.46	160°53'.56
34	22°40'.03	160°55'.52
35	22°35'.73	160°57'.68
36	22°31'.54	161°00'.25
37	22°27'.57	161°03'.23
38	22°23'.76	161°06'.64
39	22°20'.24	161°10'.23
40	22°17'.02	161°14'.13
41	22°14'.04	161°18'.34
42	22°11'.35	161°22'.80
43	22°09'.19	161°27'.45
44	22°07'.29	161°32'.11
45	22°05'.87	161°36'.94
46	22°04'.62	161°41'.89
47	22°03'.94	161°47'.09
48	22°03'.41	161°52'.36
49	22°03'.41	161°57'.51
50	22°03'.82	162°02'.83
51	22°04'.49	162°08'.04
52	22°05'.43	162°13'.12
53	22°05'.97	162°16'.41
54	22°06'.29	162°16'.85
55	22°04'.57	164°47'.27
56	22°47'.60	166°38'.23
57	24°03'.82	168°27'.91
58	24°25'.76	170°45'.39
59	24°46'.54	171°53'.03
60	25°07'.60	174°28'.71
61	27°05'.82	176°35'.51
62	27°27'.32	178°38'.66
63	27°28'.93	178°43'.56
64	27°30'.64	178°48'.40
65	27°32'.74	178°52'.96
66	27°35'.06	178°57'.30
67	27°37'.89	179°01'.49

TABLE D-1—OUTER BOUNDARY—  
Continued

Point	Latitude (N)	Longitude (W)
68	27°40'.90	179°05'.60
69	27°44'.17	179°09'.41
70	27°47'.74	179°12'.85
71	27°51'.45	179°16'.00
72	27°55'.32	179°18'.82
73	27°59'.33	179°21'.13
74	28°03'.49	179°23'.15
75	28°07'.82	179°24'.76
76	28°12'.31	179°26'.18
77	28°16'.95	179°27'.05
78	28°21'.61	179°27'.63
79	28°26'.18	179°27'.77
80	28°30'.87	179°27'.48
81	28°35'.61	179°26'.95
82	28°40'.09	179°25'.75
83	28°44'.46	179°24'.31
84	28°48'.70	179°22'.50
85	28°52'.81	179°20'.43
86	28°56'.71	179°17'.77
87	29°00'.58	179°14'.92
88	29°04'.18	179°11'.69
89	29°07'.62	179°08'.20
90	29°10'.86	179°04'.37
91	29°13'.76	179°00'.21
92	29°16'.24	178°55'.78
93	29°18'.51	178°51'.26
94	29°20'.45	178°46'.50
95	29°22'.26	178°41'.67
96	29°23'.52	178°36'.64
97	29°24'.53	178°31'.54
98	29°25'.16	178°26'.31
99	29°25'.42	178°20'.92
100	29°25'.29	178°16'.70

TABLE D-2—INNER BOUNDARY  
AROUND KURE ATOLL, MIDWAY  
ATOLL, AND PEARL AND HERMES  
ATOLL

Point	Latitude (N)	Longitude (W)
1	27°14'.76	176°29'.87
2	27°24'.95	177°33'.31
3	27°35'.87	178°29'.90
4	27°36'.64	178°33'.93
5	27°37'.53	178°37'.32
6	27°38'.60	178°40'.65
7	27°39'.85	178°43'.90
8	27°41'.28	178°47'.05
9	27°42'.89	178°50'.10
10	27°44'.66	178°53'.03
11	27°46'.59	178°55'.83
12	27°48'.67	178°58'.49
13	27°50'.89	179°01'.00
14	27°53'.22	179°03'.39
15	27°55'.69	179°05'.61
16	27°58'.29	179°07'.61
17	28°01'.01	179°09'.47
18	28°03'.81	179°11'.10
19	28°06'.71	179°12'.53
20	28°09'.67	179°13'.75
21	28°12'.70	179°14'.75
22	28°15'.78	179°15'.54
23	28°18'.91	179°16'.11
24	28°22'.04	179°16'.45
25	28°24'.72	179°16'.56
26	28°25'.20	179°16'.57

TABLE D-2—INNER BOUNDARY AROUND KURE ATOLL, MIDWAY ATOLL, AND PEARL AND HERMES ATOLL—Continued

Point	Latitude (N)	Longitude (W)
27	28°25'.81	179°16'.56
28	28°28'.35	179°16'.44
29	28°31'.49	179°16'.10
30	28°34'.61	179°15'.54
31	28°37'.69	179°14'.75
32	28°40'.71	179°13'.74
33	28°43'.68	179°12'.54
34	28°46'.58	179°11'.13
35	28°49'.39	179°09'.52
36	28°52'.11	179°07'.70
37	28°54'.72	179°05'.70
38	28°57'.21	179°03'.51
39	28°59'.58	179°01'.15
40	29°01'.81	178°58'.62
41	29°03'.90	178°55'.93
42	29°05'.83	178°53'.10
43	29°07'.60	178°50'.13
44	29°09'.21	178°47'.04
45	29°10'.64	178°43'.84
46	29°11'.89	178°40'.54
47	29°12'.95	178°37'.16
48	29°13'.82	178°33'.71
49	29°14'.50	178°30'.21
50	29°14'.99	178°26'.66
51	29°15'.28	178°23'.08
52	29°15'.36	178°19'.49
53	29°15'.25	178°15'.90
54	29°14'.94	178°12'.32
55	29°14'.43	178°08'.78
56	29°03'.47	177°12'.07
57	29°02'.55	177°07'.29
58	28°38'.96	175°35'.47
59	28°38'.67	175°34'.35
60	28°34'.91	175°19'.74
61	28°26'.24	175°10'.65
62	28°24'.61	175°08'.95
63	28°24'.53	175°09'.04
64	28°20'.09	175°04'.91
65	28°16'.05	175°01'.92
66	28°11'.78	174°59'.33
67	28°07'.29	174°57'.23
68	28°02'.63	174°55'.68
69	27°57'.84	174°54'.62
70	27°53'.01	174°54'.05
71	27°48'.12	174°54'.05
72	27°43'.28	174°54'.62
73	27°38'.48	174°55'.71
74	27°33'.81	174°57'.32
75	27°29'.30	174°59'.43
76	27°25'.00	175°02'.03
77	27°20'.93	175°05'.07
78	27°17'.18	175°08'.59
79	27°13'.73	175°12'.47
80	27°10'.59	175°16'.67
81	27°07'.88	175°21'.25
82	27°05'.57	175°26'.09
83	27°03'.66	175°31'.15
84	27°02'.22	175°36'.40
85	27°01'.29	175°41'.78
86	27°00'.73	175°47'.22
87	27°00'.68	175°52'.74
88	27°01'.09	175°58'.16
89	27°01'.99	176°03'.53
90	27°03'.34	176°08'.81
91	27°05'.12	176°13'.91
92	27°07'.37	176°18'.79
93	27°09'.98	176°23'.40

TABLE D-2—INNER BOUNDARY AROUND KURE ATOLL, MIDWAY ATOLL, AND PEARL AND HERMES ATOLL—Continued

Point	Latitude (N)	Longitude (W)
94	27°13'.02	176°27'.74
95	27°13'.77	176°28'.70

TABLE D-3—INNER BOUNDARY AROUND LISIANSKI ISLAND, LAYSAN ISLAND, MARO REEF, AND RAITA BANK

Point	Latitude (N)	Longitude (W)
1	26°50'.89	173°30'.79
2	26°36'.00	171°37'.70
3	26°35'.49	171°33'.84
4	26°35'.10	171°30'.84
5	26°34'.07	171°27'.50
6	26°33'.35	171°25'.16
7	26°14'.26	170°23'.04
8	26°08'.69	169°48'.96
9	26°08'.36	169°49'.03
10	26°07'.62	169°45'.83
11	26°06'.03	169°40'.57
12	26°03'.97	169°35'.64
13	26°01'.51	169°30'.91
14	25°58'.65	169°26'.45
15	25°55'.32	169°22'.34
16	25°51'.67	169°18'.60
17	25°47'.78	169°15'.19
18	25°43'.54	169°12'.34
19	25°39'.05	169°09'.93
20	25°34'.37	169°08'.08
21	25°29'.54	169°06'.76
22	25°24'.61	169°05'.93
23	25°19'.63	169°05'.64
24	25°14'.65	169°05'.93
25	25°09'.69	169°06'.66
26	25°04'.85	169°08'.02
27	25°00'.17	169°09'.96
28	24°55'.66	169°12'.35
29	24°51'.35	169°15'.14
30	24°47'.37	169°18'.48
31	24°43'.69	169°22'.22
32	24°40'.34	169°26'.31
33	24°37'.42	169°30'.78
34	24°35'.00	169°35'.64
35	24°33'.02	169°40'.66
36	24°31'.34	169°45'.88
37	24°30'.31	169°51'.08
38	24°29'.68	169°56'.53
39	24°29'.56	170°01'.81
40	24°29'.61	170°04'.57
41	24°35'.77	170°44'.39
42	24°36'.29	170°47'.58
43	24°37'.18	170°50'.37
44	24°37'.76	170°52'.17
45	24°56'.23	171°50'.19
46	25°16'.61	174°24'.84
47	25°29'.56	174°38'.45
48	25°33'.28	174°42'.03
49	25°37'.33	174°45'.20
50	25°41'.68	174°47'.84
51	25°46'.23	174°50'.05
52	25°50'.93	174°51'.77
53	25°55'.80	174°52'.91
54	26°00'.71	174°53'.47
55	26°05'.67	174°53'.61

TABLE D-3—INNER BOUNDARY AROUND LISIANSKI ISLAND, LAYSAN ISLAND, MARO REEF, AND RAITA BANK—Continued

Point	Latitude (N)	Longitude (W)
56	26°10'.59	174°53'.07
57	26°15'.46	174°52'.08
58	26°20'.20	174°50'.57
59	26°24'.75	174°48'.44
60	26°29'.15	174°45'.94
61	26°33'.26	174°42'.96
62	26°37'.11	174°39'.49
63	26°40'.60	174°35'.63
64	26°43'.75	174°31'.43
65	26°46'.49	174°26'.87
66	26°48'.90	174°22'.09
67	26°50'.79	174°17'.03
68	26°52'.20	174°11'.79
69	26°53'.21	174°06'.43
70	26°53'.74	174°00'.98
71	26°53'.74	173°55'.48
72	26°53'.29	173°50'.02
73	26°52'.56	173°44'.58
74	26°51'.85	173°39'.14
75	26°51'.13	173°33'.69
76	26°50'.75	173°30'.87

TABLE D-4—INNER BOUNDARY AROUND GARDNER PINNACLES, FRENCH FRIGATE SHOALS, AND NECKER ISLAND

Point	Latitude (N)	Longitude (W)
1	25°49'.64	167°52'.66
2	25°49'.70	167°52'.65
3	25°48'.99	167°48'.35
4	25°47'.09	167°36'.72
5	25°39'.84	167°26'.48
6	25°35'.10	167°19'.79
7	25°10'.43	166°45'.00
8	24°40'.91	166°03'.36
9	24°35'.64	165°34'.99
10	24°23'.78	164°31'.12
11	24°23'.59	164°31'.14
12	24°23'.31	164°29'.74
13	24°21'.85	164°24'.52
14	24°20'.10	164°19'.39
15	24°17'.75	164°14'.56
16	24°14'.99	164°09'.97
17	24°11'.86	164°05'.69
18	24°08'.30	164°01'.80
19	24°04'.48	163°58'.23
20	24°00'.27	163°55'.22
21	23°55'.85	163°52'.59
22	23°51'.17	163°50'.56
23	23°46'.33	163°48'.98
24	23°41'.37	163°47'.99
25	23°36'.34	163°47'.56
26	23°31'.27	163°47'.60
27	23°26'.27	163°48'.28
28	23°21'.34	163°49'.50
29	23°16'.53	163°51'.14
30	23°11'.96	163°53'.47
31	23°07'.54	163°56'.15
32	23°03'.46	163°59'.38
33	22°59'.65	164°03'.01
34	22°56'.27	164°07'.10
35	22°53'.22	164°11'.49
36	22°50'.60	164°16'.18

TABLE D-4—INNER BOUNDARY AROUND GARDNER PINNACLES, FRENCH FRIGATE SHOALS, AND NECKER ISLAND—Continued

Point	Latitude (N)	Longitude (W)
37	22°48'.48	164°21'.16
38	22°46'.73	164°26'.28
39	22°45'.49	164°31'.60
40	22°44'.83	164°37'.03
41	22°44'.65	164°42'.51
42	22°44'.92	164°47'.99
43	22°45'.11	164°49'.52
44	22°45'.39	164°51'.48
45	22°45'.17	164°51'.53
46	22°50'.26	165°34'.99
47	22°55'.50	166°19'.63
48	22°55'.93	166°23'.32
49	22°57'.41	166°36'.00
50	23°03'.75	166°45'.00
51	23°05'.48	166°47'.45
52	24°12'.70	168°22'.86
53	24°12'.88	168°22'.78
54	24°16'.05	168°27'.28
55	24°19'.15	168°31'.66
56	24°22'.27	168°35'.95
57	24°25'.71	168°39'.94
58	24°29'.51	168°43'.55
59	24°33'.67	168°46'.63
60	24°38'.06	168°49'.29
61	24°42'.68	168°51'.46
62	24°47'.45	168°53'.12
63	24°52'.34	168°54'.28
64	24°57'.32	168°54'.82
65	25°02'.32	168°54'.95
66	25°07'.30	168°54'.43
67	25°12'.19	168°53'.32
68	25°16'.99	168°51'.76
69	25°21'.57	168°49'.60
70	25°25'.94	168°46'.93
71	25°30'.09	168°43'.86
72	25°33'.89	168°40'.42
73	25°37'.37	168°36'.52
74	25°40'.49	168°32'.24
75	25°43'.24	168°27'.68
76	25°45'.57	168°22'.82
77	25°47'.43	168°17'.76
78	25°48'.79	168°12'.47
79	25°49'.72	168°07'.09
80	25°50'.11	168°01'.62
81	25°50'.18	168°00'.09

TABLE D-5—INNER BOUNDARY AROUND NIHOA ISLAND

Point	Latitude (N)	Longitude (W)
1	23°52'.82	161°44'.54
2	23°52'.10	161°41'.20
3	23°51'.18	161°37'.92
4	23°50'.08	161°34'.71
5	23°48'.79	161°31'.58
6	23°47'.33	161°28'.55
7	23°45'.69	161°25'.62
8	23°43'.88	161°22'.81
9	23°41'.92	161°20'.13
10	23°39'.80	161°17'.60
11	23°37'.54	161°15'.21
12	23°35'.14	161°12'.99
13	23°32'.62	161°10'.93
14	23°29'.99	161°09'.05
15	23°27'.25	161°07'.35
16	23°24'.42	161°05'.85
17	23°21'.51	161°04'.54
18	23°18'.52	161°03'.43
19	23°15'.48	161°02'.53
20	23°12'.39	161°01'.84
21	23°09'.27	161°01'.35
22	23°06'.13	161°01'.09
23	23°02'.97	161°01'.03
24	22°59'.82	161°01'.19
25	22°56'.69	161°01'.57
26	22°53'.58	161°02'.15
27	22°50'.51	161°02'.95
28	22°47'.50	161°03'.95
29	22°44'.55	161°05'.15
30	22°41'.67	161°06'.54
31	22°38'.88	161°08'.13
32	22°36'.19	161°09'.90
33	22°33'.61	161°11'.85
34	22°31'.14	161°13'.97
35	22°28'.81	161°16'.25
36	22°26'.61	161°18'.69
37	22°24'.56	161°21'.26
38	22°22'.66	161°23'.97
39	22°20'.92	161°26'.80
40	22°19'.35	161°29'.74
41	22°17'.95	161°32'.78
42	22°16'.73	161°35'.90
43	22°15'.70	161°39'.10
44	22°14'.85	161°42'.37
45	22°14'.20	161°45'.68
46	22°13'.73	161°49'.03
47	22°13'.47	161°52'.41
48	22°13'.40	161°55'.80
49	22°13'.53	161°59'.18
50	22°13'.85	162°02'.55
51	22°14'.31	162°05'.45
52	22°14'.37	162°05'.89
53	22°14'.59	162°06'.88
54	22°15'.87	162°12'.18
55	22°17'.70	162°17'.31
56	22°19'.97	162°22'.20

TABLE D-5—INNER BOUNDARY AROUND NIHOA ISLAND—Continued

Point	Latitude (N)	Longitude (W)
57	22°22'.73	162°26'.84
58	22°25'.88	162°31'.15
59	22°29'.41	162°35'.09
60	22°33'.28	162°38'.61
61	22°37'.47	162°41'.72
62	22°41'.93	162°44'.34
63	22°46'.63	162°46'.47
64	22°51'.48	162°48'.05
65	22°56'.46	162°49'.09
66	23°01'.50	162°49'.58
67	23°06'.58	162°49'.49
68	23°11'.61	162°48'.89
69	23°16'.57	162°47'.70
70	23°21'.36	162°45'.98
71	23°26'.02	162°43'.75
72	23°30'.40	162°41'.01
73	23°34'.51	162°37'.83
74	23°38'.26	162°34'.18
75	23°41'.69	162°30'.18
76	23°44'.72	162°25'.79
77	23°47'.36	162°21'.11
78	23°49'.55	162°16'.16
79	23°51'.24	162°10'.99
80	23°52'.44	162°05'.63
81	23°53'.14	162°00'.25
82	23°53'.36	161°54'.75
83	23°53'.09	161°49'.28
84	23°52'.82	161°47'.09
85	23°52'.39	161°44'.67

■ 6. Add Appendix E to Part 404 to read as follows:

**Appendix E to Part 404—Content and Syntax for Papahānaumokuākea Ship Reporting System**

Immediately upon crossing the reporting area boundary, notification should be sent as a direct e-mail to [nwhi.notifications@noaa.gov](mailto:nwhi.notifications@noaa.gov) in the prescribed format and data syntax shown. Use of batch message routing services which may delay receipt of a report should not be used. Failure to follow the exact format (e.g., extra information, extraneous characters, or double spacing) may cause the automated computer system to reject your report. **Note:** Report transmission costs via INMARSAT-C will be assumed by NOAA.

**E.1 Entry Notification Format**

Immediately upon entering the Reporting Area, vessels required to participate must provide the following information.

TABLE E.1—INFORMATION REQUIRED FOR ENTRY NOTIFICATION

Telegraphy	Function	Information required	Example field text
	System identifier	CORAL SHIPREP //	CORAL SHIPREP //
A	Ship	Vessel name/call sign/flag/IMO number/Federal documentation or State registration number if applicable //	A/OCEAN VOYAGER/C5FU8/BAHAMAS/IMO 9359165//
B	Date, time (UTC), and month of entry.	A 6-digit group giving day of month (first two digits), hours and minutes (last four digits) in coordinated universal time, suffixed by the letter Z (indicating time in UTC), and three letters indicating month //	B/271107Z DEC//

TABLE E.1—INFORMATION REQUIRED FOR ENTRY NOTIFICATION—Continued

Telegraphy	Function	Information required	Example field text
	System identifier	CORAL SHIPREP //	CORAL SHIPREP //
C .....	Position .....	A 4-digit group giving latitude in degrees and minutes, suffixed with the letter N (indicating north), followed by a single /, and a five-digit group giving longitude in degrees and minutes, suffixed with the letter W (indicating west) // [Report in the World Geodetic System 1984 Datum (WGS-84)].	C/2728N/17356W//
E .....	True course .....	3-digit number indicating true course // .....	E/180//
F .....	Speed in knots and tenths.	3-digit group indicating knots decimal tenths // .....	F/20.5//
I .....	Destination and estimated time of arrival.	Name of port city/country/estimated arrival date and time group expressed as in (B) //.	I/SEATTLE/USA/311230Z DEC//
L .....	Intended route through the reporting area.	Route information should be reported as a direct rhumbline (RL) course through the reporting area and intended speed (expressed as in E and F) or a series of waypoints (WP). Each waypoint entry should be reported as latitude and longitude, expressed as in (C), and intended speed between waypoints (as in F) // (Note: As many "L" lines as needed may be used to describe the vessel's intended route.).	L/RL/215/20.5// -OR- L/WP/2734N/17352W/20.5// L/WP/2641N/17413W/20.5// L/WP/2605N/17530W/20.5//
O .....	Vessel draft in meters.	Maximum present static draft reported in meters decimal centimeters //.	O/11.50//
P .....	Categories of Hazardous Cargoes*.	Classification Code (e.g. IMDG, IBC, IGC, INF) / and all corresponding Categories of Hazardous Cargoes (delimited by commas) // Note: If necessary, use a separate "P" line for each type of Classification Code.	P/IMDG/1.4G,2.1,2.2,2.3,3,4.1,6.1,8,9//
Q .....	Defects or deficiencies**.	Brief details of defects, damage, deficiencies or limitations that restrict maneuverability or impair normal navigation // (If none, enter the number zero.).	Q/Include details as required//
R .....	Pollution incident or goods lost overboard**.	Description of pollution incident or goods lost overboard within the Monument, the Reporting Area, or the U.S. Exclusive Economic Zone//(If none, enter the number zero.).	R/0//
T .....	Contact information of ship's agent or owner.	Name/address/and phone number of ship's agent or owner //	T/JOHN DOE/GENERIC SHIPPING COMPANY INC, 6101 ACME ROAD, ROOM 123, CITY, STATE, COUNTRY 12345/123-123-1234//
U .....	Ship size (length overall and gross tonnage) and type.	Length overall reported in meters decimal centimeters/number of gross tons/type of ship (e.g. bulk carrier, chemical tanker, oil tanker, gas tanker, container, general cargo, fishing vessel, research, passenger, OBO, RORO) //.	U/294.14/54592/CONTAINER SHIP//
W .....	Persons .....	Total number of persons on board // .....	W/15//

TABLE E.1 NOTES

\*Categories of hazardous cargoes means goods classified in the International Maritime Dangerous Goods (IMDG) Code; substances classified in chapter 17 of the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code) and chapter 19 of the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code); oils as defined in MARPOL Annex I; noxious liquid substances as defined in MARPOL Annex II; harmful substances as defined in MARPOL Annex III; and radioactive materials specified in the Code for the Safe Carriage of the Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes in Flasks on Board Ships (INF Code).

\*\*In accordance with the provisions of the MARPOL Convention, ships must report information relating to defects, damage, deficiencies or other limitations as well as, if necessary, information relating to pollution incidents or loss of cargo. Safety related reports must be provided to CORAL SHIPREP without delay should a ship suffer damage, failure or breakdown affecting the safety of the ship (Item Q), or if a ship makes a marked deviation from a route, course or speed previously advised (Item L). Pollution or cargo lost overboard must be reported without delay (Item R).

**E.2 Prior Notification of Entry Format**

Vessels of the United States less than 300 gross tonnage that are not equipped with onboard e-mail capability must provide the following notification of entry at least 72 hrs, but no longer than 1 month, prior to entry date, utilizing the data syntax described above. Notification may be made via the following communication methods, listed in order of preference: E-mail [nwhi.notifications@noaa.gov]; fax [1-808-397-2662]; telephone [1-866-478-NWHI (6944), 1-808-395-NWHI (6944)].

TABLE E.2—INFORMATION REQUIRED FOR PRIOR NOTIFICATION

System identifier.	PRIOR NOTICE //.
Items .....	A, B, C (as applicable), I, L, O, P (as applicable), Q, T, U, W.

**E.3 Exit Notification Format**

Immediately upon leaving the Reporting Area, vessels required to participate must provide the following information. Vessels of

the United States less than 300 gross tonnage that are not equipped with onboard e-mail capability must provide the following Exit Notification information within 12 hrs of leaving the Reporting Area. Notification may be made via the following communication methods, listed in order of preference: E-mail [nwhi.notifications@noaa.gov]; fax [1-808-397-2662]; telephone [1-866-478-NWHI (6944), 1-808-395-NWHI (6944)].

TABLE E.3—INFORMATION REQUIRED FOR EXIT NOTIFICATION

Telegraphy	Function	Information required	Example field text
	System identifier	CORAL SHIPREP //	CORAL SHIPREP//
A .....	Ship .....	Vessel name / call sign / flag / IMO number / Federal documentation or State registration number if applicable //.	A/OCEAN VOYAGER/C5FU8/BAHAMAS/IMO9359165//
B .....	Date, time (UTC), and month of exit.	A 6-digit group giving day of month (first two digits), hours and minutes (last four digits), suffixed by the letter Z indicating time in UTC, and three letters indicating month//.	B/271657Z DEC//
C .....	Position .....	A 4-digit group giving latitude in degrees and minutes, suffixed with the letter N (indicating north), followed by a single //, and a five digit group giving longitude in degrees and minutes, suffixed with the letter W (indicating west) // [Report in the World Geodetic System 1984 Datum (WGS-84)].	C/2605N/17530W//
R .....	Pollution incident or goods lost overboard.	Description of pollution incident or goods lost overboard within the Monument, the Reporting Area, or the U.S. Exclusive Economic Zone // (If none, enter the number zero).	R/0//

**E.4 Example Entry Report**

CORAL SHIPREP//  
A/SEA ROVER/WFSU/USA/IMO 8674208/  
DOC 602011//  
B/010915Z JUN//  
C/2636N/17600W//  
E/050//  
F/20.0//  
I/LOS ANGELES/USA/081215Z JUN//  
L/RL/050/20.0//

O/10.90//  
P/IMDG/3,4.1,6.1,8,9//  
Q/0//  
R/0//  
T/JOHN DOE/CONTAINER SHIPPERS INC,  
500 PORT ROAD, ROOM 123, LOS  
ANGELES, CA, USA 90050/213-123-  
1234//  
U/199.90/27227/CONTAINER SHIP//  
W/15//

**E.5 Example Exit Report**

CORAL SHIPREP//  
A/SEA ROVER/WFSU/USA/IMO 8674208/  
DOC 602011//  
B/011515Z JUN//  
C/2747N/17416W//  
R/0//  
[FR Doc. E8-28245 Filed 12-2-08; 8:45 am]  
**BILLING CODE 3510-22-P**



# Papahānaumokuākea

MARINE NATIONAL MONUMENT



## Management Plan Midway Atoll Conceptual Site Plan

U.S. FISH AND WILDLIFE SERVICE • NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION • STATE OF HAWAII



VOL. IV





# Midway Atoll Conceptual Site Plan

**VOLUME IV  
MONUMENT MANAGEMENT PLAN**

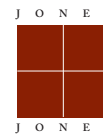
**MIDWAY ATOLL NATIONAL WILDLIFE REFUGE  
BATTLE OF MIDWAY NATIONAL MEMORIAL  
PAPAHĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT**

*produced by*

**Jones & Jones** Architects and Landscape Architects, Ltd.  
Seattle, Washington

for the U.S. Fish & Wildlife Service on behalf of the  
Papahānaumokuākea Marine National Monument Management Board

**December 2008**



## TABLE OF CONTENTS

---

<b>1 Vision</b>		<b>5 Midway Atoll Conceptual Site Plan</b>	
Vision Statements	2	Introduction	48
Protected Area Mission and Purposes	2	Sand, Eastern, and Spit Islands Management Zones	49
Protections and Significance of Midway	3	Sand Island Conceptual Site Plan	50
<b>2 Project Mission / Purpose and Process</b>		Agency Research and Operations Facilities Concept	64
Monument Planning Context and Midway Atoll Conceptual Site Planning	8	Inner Harbor Concept	66
Description of Midway Conceptual Site Planning Process	10	Airport Welcome Center Concept	68
<b>3 Site Overview</b>		<b>6 Priority Actions</b>	
Site Analysis	14	Prioritization and Implementation	72
Challenges at Midway Atoll	29	<b>Resources</b>	
<b>4 Midway Atoll Improvement Guidelines and Principles</b>		Planning Documents	77
Goals	32	Selected References of the Draft Management Plan	79
Design Guidelines and Principles	32		
Management Zones and Site Zones	34		
Alternatives Considered	36		
A Model for Sustainability	38		
Summary of Midway Atoll/Sand Island Conceptual Site Model	42		



## Midway Atoll Vision

1

# 1. Vision

## VISION STATEMENTS

### PAPAHĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT VISION:

To forever protect and perpetuate the ecosystem health and diversity and Native Hawaiian cultural significance of Papahānaumokuākea.

### MIDWAY ATOLL NATIONAL WILDLIFE REFUGE / BATTLE OF MIDWAY NATIONAL MEMORIAL VISION:

As part of the Papahānaumokuākea Marine National Monument, Midway Atoll is a unique and peaceful treasury of wildlife and history in the midst of the Pacific where nature rules, and the health of people, wildlife, and ocean are intrinsically connected. Native habitats and species dominate the Midway landscape, while remnants of the historic Battle of Midway are protected along with rehabilitated historic structures that support a cooperative interagency Monument field station. Coordinated management promotes ecological restoration, research, service-based tourism, and education to preserve and enhance this fragile island and coral reef system. Midway Atoll is the “window” to the Monument that offers people a rare opportunity to immerse themselves in the rich history, culture and ecology of the Northwestern Hawaiian Islands, a remote ecosystem of international significance. As a living classroom, Midway provides restoration and sustainability lessons for current and future generations worldwide to apply to their home communities.



Laysan albatross chick with parent

## PROTECTED AREA MISSION AND PURPOSES

### PAPAHĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT MISSION:

- Carry out seamless integrated management to ensure ecological integrity and achieve strong, long-term protection and perpetuation of NWHI ecosystems, Native Hawaiian culture, and heritage resources for current and future generations.

### MIDWAY ATOLL NATIONAL WILDLIFE REFUGE PURPOSES:

- “...maintaining and restoring natural biological diversity within the refuge;
- providing for the conservation and management of fish and wildlife and their habitats within the refuge;
- fulfilling the international treaty obligations of the United States with respect to fish and wildlife;
- providing opportunities for scientific research, environmental education, and compatible wildlife-dependent recreational activities; and
- in a manner compatible with refuge purposes, ...recognize and maintain the historical significance of the Midway Islands consistent with the policy stated in Executive Order 11593 of May 13, 1971.” (Executive Order 13022, October 31, 1996).

### BATTLE OF MIDWAY NATIONAL MEMORIAL PURPOSE:

- “[S]o that the heroic courage and sacrifice of those who fought against overwhelming odds to win an incredible victory will never be forgotten.” (Secretary’s Order 3217, September 13, 2000)

All activities considered in this Conceptual Site Plan will be consistent with this mission and these purposes.



beach at Rusty Bucket

## PROTECTIONS AND SIGNIFICANCE OF MIDWAY

---

On June 15, 2006, President George W. Bush issued Presidential Proclamation 8031, which designated and protected 139,792 square miles of emergent and submerged lands and waters in the Northwestern Hawaiian Islands as a Marine National Monument. It was renamed in 2007 by Proclamation 8112 as the Papahānaumokuākea Marine National Monument. This action significantly enhanced protection for the region's natural, cultural, and historic resources, and established one of the world's largest marine protected areas. Papahānaumokuākea Marine National Monument is administered jointly by three Co-Trustees – the Department of Commerce, Department of the Interior, and the State of Hawai'i – and represents a cooperative conservation approach to protecting the entire ecosystem. Co-Trustee agencies in cooperation with the Office of Hawaiian Affairs manage the Monument through the Monument Management Board. The Monument area includes the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, Midway Atoll National Wildlife Refuge/ Battle of Midway National Memorial, Hawaiian Islands National Wildlife Refuge, the State Seabird Sanctuary at Kure Atoll, and Northwestern Hawaiian Islands State Marine Refuge.

The Monument designation encompasses and maintains agency management responsibilities for all existing federal and state terrestrial and marine protected areas, including Midway Atoll National Wildlife Refuge (NWR). Midway Atoll NWR is administered by the U.S. Fish and Wildlife Service (FWS) and is part of the Hawaiian and Pacific Islands National Wildlife Refuge Complex, which consists of 19 refuges. The FWS began operating an "overlay refuge" on Midway Naval Air Station in 1988. Administration of Midway Atoll was transferred to the FWS in 1996. In 2000, the lands and waters of Midway Atoll NWR were designated as the Battle of Midway National Memorial.

Midway Atoll plays a key role as a staging ground for multi-agency field operations throughout the Monument and is critical to the operations of the State Seabird Sanctuary at Kure Atoll. Due to its accessibility by airplanes and large vessels, and its existing infrastructure, such as housing, offices, laboratories, and food service, Midway serves as an operational focal point for resource protection, management, research, and education activities in the northern section of the Monument. Additionally, considering Midway's facilities and public interest, the Presidential Proclamation establishes Midway as the only area within the Monument that can support a recreational visitor program. Midway's strategic location and physical assets also make it the ideal location to reinstate dive facilities for conducting shore based marine management in the northern atolls; enhance small boat facilities in support of seasonal enforcement operations; establish a marine research station and short term field school opportunities; and enable a more comprehensive study of maritime heritage resources particularly from World War II.

As one of the Northwestern Hawaiian Islands, Midway Atoll is representative of a remarkably unique and important marine ecosystem. Located near the northern end of one of the highest-latitude coral reef ecosystems in the world, it is bathed in relatively cold water for coral reefs, making it a vital case study in the global incidence of heat-induced coral bleaching. Part of a volcanically created and subsiding island chain, Midway is an example of atoll formation, a poorly understood geological process that can contribute to our understanding of the relationship between climate,



*Midway House*



*Laysan albatross nesting*



# 1. Vision

reef development, and carbon sequestration. Because of its remote location in the middle North Pacific, it is also an important node in the global network of ongoing biogeographical and oceanographic research.

Due to its geographic isolation, Hawai'i in general has a very high percentage of endemism, or occurrence of species that are found nowhere else in the world. Many of these species are threatened or endangered, often as a result of human activity; the isolation of the Monument provides them with a huge refuge habitat. Midway Atoll is host to a wildlife spectacle on land, including the largest colony of nesting albatrosses in the world. More than 20 species of seabirds – as many as 2 million birds – nest or rest at Midway. Finally, the Northwestern Hawaiian Islands are one of the last intact, predator-dominated coral reef marine ecosystems in the United States and the world, making it invaluable to scientists' understanding of marine ecology. It also hosts a high degree of marine endemism, reaching over 50% of fish biomass. The access to this remote ecosystem provided by the infrastructure at Midway enables unparalleled opportunity for studying these isolated marine ecosystems and for providing unique field study and comparative research opportunities.

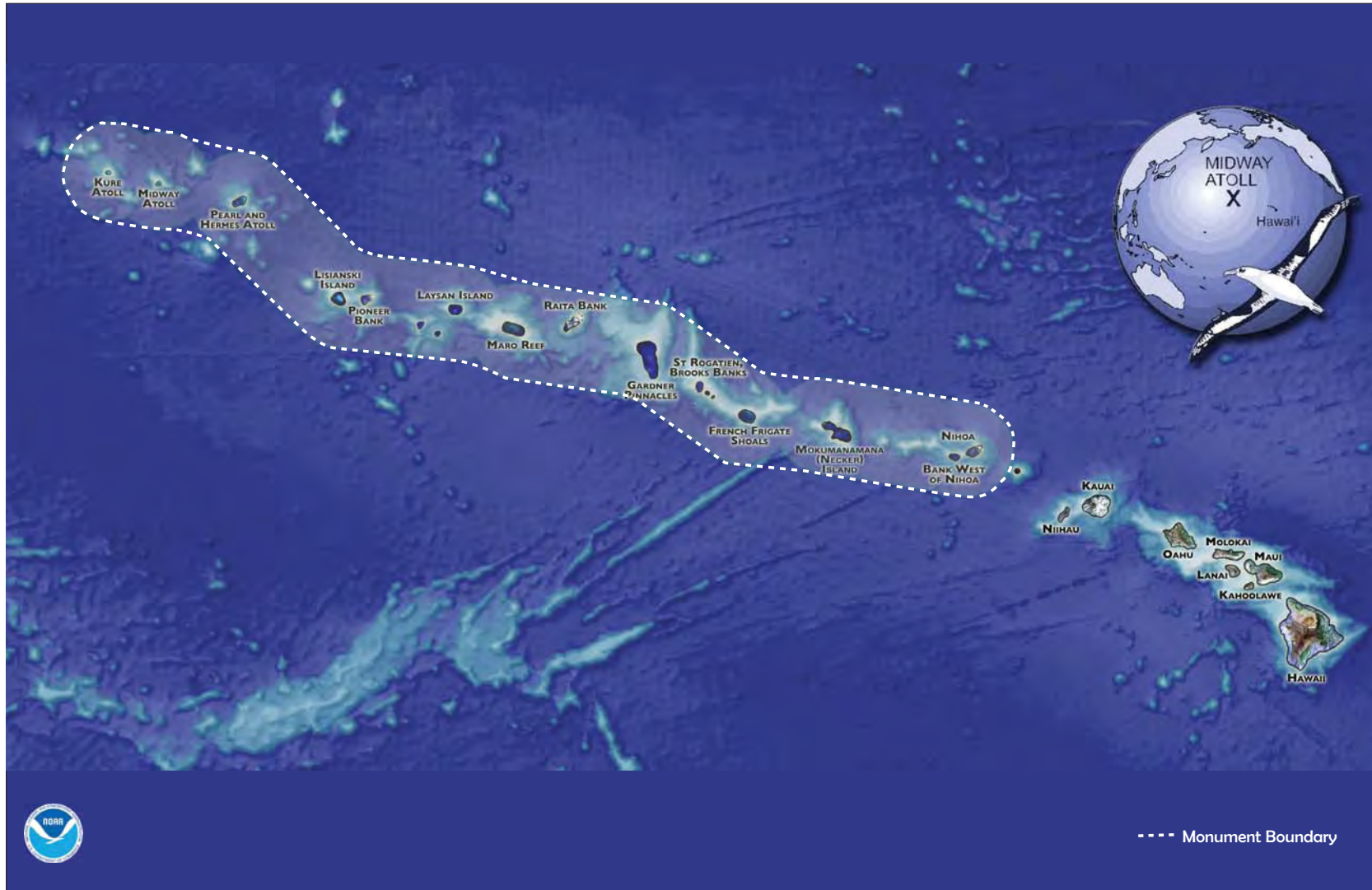
In addition to its rich assemblage of marine life, Midway Atoll contains numerous heritage resources that collectively tell the story of commerce, military, transpacific communication, and human modification of the atoll environment. Despite its small size and remote location, Midway's strategic location in the middle of the Pacific Ocean has drawn great attention over the last 100 years. Notably, Midway's pivotal role in World War II, commonly known as the "Battle of Midway," and the sacrifices of military personnel who fought at Midway, are memorialized in history. Today, Midway contains 63 existing historic properties eligible for the National Register of Historic Places; these include defensive structures, military architecture, both industrial and residential, and architecture from the Commercial Pacific Cable Company period (1903) and World War II period.

The designation of Midway as a special management area of the Monument elevates the atoll's significance regionally and globally. Midway will be a hub of Monument-wide management and operations, and the only atoll where visitors can experience the Northwestern Hawaiian Islands. Bringing people to the place in a way that does not diminish, but rather enhances, the integrity of Midway Atoll is beneficial to the Monument. Equally important is bringing the place to people who cannot visit, so that the valuable lessons and experiences of Midway reach across the world to local communities.

A key question is: How do we tell the amazing story of the natural, cultural, and historic resources of the Northwestern Hawaiian Islands and support Monument operations while preserving the atoll's character and integrity? The Midway Atoll Conceptual Site Plan offers the opportunity to re-envision the island as a powerful case study in how humans can and must live in balance with a delicate ecosystem over a long timeframe. This precept is a vital one where the atoll's remoteness and terrestrial isolation make a model of sustainability essential. In addition, Midway Atoll has a delicate ecosystem and is of a scale where our actions, both positive and negative, quickly have an enormous impact. Midway Atoll can provide a vital biosphere experiment in a natural setting, which if we learn to manage successfully, could become a model of how to take better care of the planet at large, and a great source of environmental public awareness.



*Albatrosses and WWII gun battery on Eastern Island*

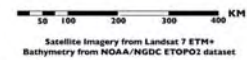


--- Monument Boundary



# PAPAHĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT

## MIDWAY ATOLL CONCEPTUAL SITE PLANNING







*Lumpy rice coral (Montipora turgescens)*

## Project Mission / Purpose and Process

2

## 2. Project Mission / Purpose and Process

### MONUMENT PLANNING CONTEXT AND MIDWAY ATOLL CONCEPTUAL SITE PLANNING

#### MANAGEMENT PLANNING

The Monument Management Board recently completed a Monument Management Plan. To aid in development of the Central Operations and Coordinated Field Operations portions of the Monument Management Plan, the Co-Trustee agencies initiated two successive detailed planning processes. The first endeavor was a Papahānaumokuākea Marine National Monument requirements planning process designed to identify the agencies' existing assets and future infrastructure requirements Monument-wide. This present document, the Midway Atoll Conceptual Site Plan, is the result of the second endeavor. With the full range of agency goals, requirements, and constraints articulated for Midway in the Papahānaumokuākea Marine National Monument infrastructure requirements planning process, the Midway Atoll Conceptual Site Plan focuses with increased specificity on the required infrastructural and operational changes, offering a range of redevelopment options and solutions.



*Sea turtles resting on beach*

#### PAPAHĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT REQUIREMENTS ASSESSMENT AND PLANNING

An important first step in effective site planning is the identification of existing assets alongside current and future field operational requirements. A multi-agency infrastructure requirements planning process took place over the course of six months in 2007, providing a general outline of people, programs, assets, and operations associated with the Monument. It summarized the functions and numbers of personnel along with the types of supporting facilities required at each location within the Monument. Those requirements were then combined to define a "Monument level" requirement at each location.

Recommendations from the requirements planning process guided development of this Midway Conceptual Site Plan. Specifically, the process identified the need for two consolidated operational strategies to be developed: one for Midway and one for the remaining locations within the Monument. The operational strategies will identify the needs of each agency, identify resource-sharing opportunities, and include mutually agreeable cost-sharing guidelines. Agencies are working to develop cooperative agreements that meet these needs.

One goal of the site and operational strategies is to promote a sustainable agenda. The Monument Management Board is working to adopt an aggressive, measurable goal to reduce conventional fuel consumption through a combination of conservation, green architecture, and renewable energy.



*white tern*



## SCOPE OF MIDWAY ATOLL CONCEPTUAL SITE PLAN

Midway Atoll is a hub of operations for all State and federal agencies conducting Monument resource protection, management, education, and research activities. It is the only location in the Monument that allows for recreational visitor experiences. All of these activities occur in an environmentally and historically sensitive area. As such, Midway requires careful and thoughtful conceptual site planning and development to ensure that our current vision for the Atoll's use and management over the next 15 years and beyond is aligned with the mission of the Monument, the purposes of the National Wildlife Refuge and the Battle of Midway National Memorial, and the mission of the National Wildlife Refuge System. Since Midway is the primary hub for agency activities and visitor programs within Monument boundaries and contains the most existing infrastructure, it is important that the conceptual site planning begin here. The lessons drawn from the development of this plan will result in a better process to plan for and coordinate all site infrastructure and field operations needs throughout the Monument to ensure that natural, cultural, and historic resources are minimally impacted, and critical resource protection, management, and research needs and requirements are addressed.



*FWS Planning Team members on Sand Island*

The Midway Atoll Conceptual Site Plan builds on the results of the Monument requirements planning process and the extensive infrastructural repair work that has taken place at Midway over the past 10 years. Since 2003, the Fish and Wildlife Service has implemented recommendations proposed by the Infrastructure Condition Assessment and Modification Report for Midway Atoll National Wildlife Refuge, commonly referred to as the “right-sizing” plan. When the Monument was established in 2006, it was necessary to revisit previous decisions and consider new interests and needs for managing the Northwestern Hawaiian Islands. With the designation, Midway Atoll and the rest of the Northwestern Hawaiian Islands were elevated to a status of national and global significance and public recognition. Under this plan, the Monument Management Board's goal is to protect and enhance the natural, cultural, and historic resources of Midway, while enabling more effective resource management and response to the northern Monument and providing opportunities for the public to experience its lessons and become champions of these special marine ecosystems of the Pacific.



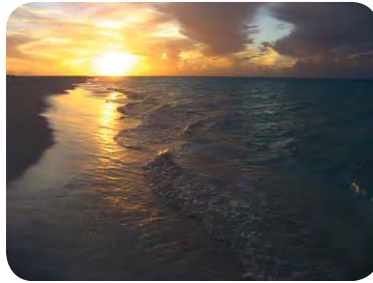
## 2. Project Mission / Purpose and Process

### DESCRIPTION OF MIDWAY CONCEPTUAL SITE PLANNING PROCESS

Midway Atoll conceptual site planning began in Spring 2007 occurring in tandem with the Marine National Monument management planning effort.

Staff and consultants conducted site analysis, document review, workshops, and mapping to identify primary issues and goals specific to Midway design and planning. Key design guidelines and preliminary building programs based upon biological constraints and historic preservation objectives were developed. The team facilitated a workshop in July 2007 to present preliminary concepts and receive input from management partners.

Based on the workshop findings, the Planning Team refined the Midway Atoll alternatives and the preferred site alternative. The draft Midway Atoll Conceptual Site Plan Report was produced and reviewed in three cycles by FWS and the Monument Management Board. The Midway draft report was included within the Draft Monument Management Plan as Volume IV, and distributed for public review. The comments received regarding the draft conceptual site plan and draft management plan (Volume I) regarding Midway were taken into consideration in finalizing this plan.



This Midway Atoll Conceptual Site Plan should be considered as a conceptual document, not as a definitive operational plan or design blueprint. Much more work, including engineering studies, architectural drawings, and specific environmental analyses, will need to be completed prior to construction activities. Even so, this document provides an atoll-wide overview that will guide us into the future. The conceptual plan will be reviewed every five years as part of a review of the overall Monument Management Plan.



*Midway Atoll supports the largest colonies of Laysan and Black-footed albatrosses in the world*







## MIDWAY ATOLL

MIDWAY ATOLL CONCEPTUAL SITE PLANNING



Site Overview



### 3. Site Overview

#### SITE ANALYSIS

Located near the far northern end of Papahānaumokuākea Marine National Monument, Midway Atoll is approximately 1,250 miles northwest of Honolulu, Hawai‘i. The second oldest coral atoll in the NWHI, Midway originated as a volcano approximately 27 million years ago. Midway Atoll comprises an elliptical outer reef nearly 5 miles in diameter, 580,392 acres of submerged reef and associated habitats, and three flat coral islands totaling approximately 1,549 acres. Sand Island (1,117 acres) and Eastern Island (366 acres) are the two most prominent coral islands of the Atoll, while Spit Island is only about 15 acres in size. Sand Island contains the highest number of historic resources as well as all visitor facilities.



Midway Atoll is an unincorporated territory of the United States and is the only atoll/island in the Hawaiian archipelago that is not part of the State of Hawai‘i. Midway Atoll National Wildlife Refuge is owned and administered by the U.S. Fish and Wildlife Service (FWS) on behalf of the American people and has international significance for both its historic and natural resources.

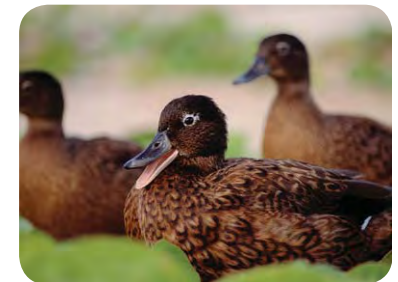
Key Midway Atoll site issues are described on the following pages.

#### BIOLOGICAL

Midway Atoll’s plant and animal species are protected under several Federal laws, including the Endangered Species Act, the Marine Mammal Protection Act, and the Migratory Bird Treaty Act. Twenty-three species of plants and animals listed under the Endangered Species Act are known to occur in the NWHI. These include the Hawaiian monk seal, several turtle species such as the green and loggerhead turtle, whale species, Laysan duck, short-tailed albatross, and a half-dozen native plant species. Midway is also home to several endemic species, found only in Hawai‘i, that merit special protection and management efforts.

Midway Atoll consists of vast expanses of coral reef, sediment beds, and algal substrate that support a wide array of species unique to the Hawaiian Archipelago. The three small, low-lying islands are protected by encircling barrier reefs, and are marine in character: constantly under the influence of ocean weather conditions, susceptible to periodic inundation, and constructed from oceanic materials. The islands support birds and terrestrial wildlife that prey on marine species and contribute to nutrient runoff into the shallows. The interdependence between the land and nearshore waters intrinsically connects the welfare of all Monument wildlife to the health of both terrestrial and marine ecosystems. This simple and profound reality is the underpinning of the integrated approach taken by the Co-Trustees to managing the Monument.

Midway is one of the few remaining predator-dominated coral reef marine ecosystems, an anomaly among modern marine ecosystems, but typical of the Northwestern Hawaiian Islands (DeMartini and Friedlander 2006). Abundant populations of sharks, jacks, grouper, dolphins, and other “top predators” live at Midway Atoll.



*endangered Laysan ducks*





### 3. Site Overview

#### SITE ANALYSIS

---



*1940s Officers' Quarters designed by Albert Kahn*



Approximately 200 Hawaiian spinner dolphins rest within Midway's lagoon and forage outside its reef. Bottlenosed, striped, spotted, and rough-toothed dolphins may occasionally be seen in the open ocean, as well as beaked, pilot, and endangered humpback whales.



*Spinner Dolphins*

Almost 2 million breeding seabirds of 19 species make Midway one of the most important breeding areas of seabird conservation in the Pacific. Midway supports the largest nesting colonies of both Laysan and black-footed albatrosses in the world. Midway's breeding populations of white terns, black noddies, and red-tailed tropicbirds constitute the largest colonies in the Hawaiian archipelago.



*Male frigatebird*

## HISTORICAL/CULTURAL

The first visitors to Midway Atoll were likely Polynesians/Hawaiians exploring the Pacific Ocean in deep-sea voyaging canoes. Although no physical evidence of their visits has yet been found, numerous oral histories and chants refer to distant low-lying islands with abundant birds and turtles providing record of Native Hawaiian knowledge and experience gained through these purposeful journeys. One Native Hawaiian name given to the atoll is "Pihemanu," which means "the loud din of birds." Today, Native Hawaiian history and cultural practices are a vital part of the Monument's management, and education and visitor programs at Midway provide important opportunities to feature the cultural significance of the Northwestern Hawaiian Islands alongside the natural and historic components.

Midway Atoll contains the most historic resources within the Monument. Numerous Federal laws, regulations, and policies mandate the protection and management of historic resources, including the National Historic Preservation Act of 1966, the Archaeological Resources Protection Act of 1979, and the Preserve America Executive Order of 2003 (Executive Order 13287). Historic resources at Midway Atoll include several sites, structures, artifacts, and places representative of the historic periods associated with early 20th Century transpacific communications and military operations. At Midway, there are four types of National Register eligible historic resources including:

1. a National Historic Landmark,
2. Cable Station, 3. Albert Kahn



*Cable Station Building*



*Concrete pillbox on Sand Island*



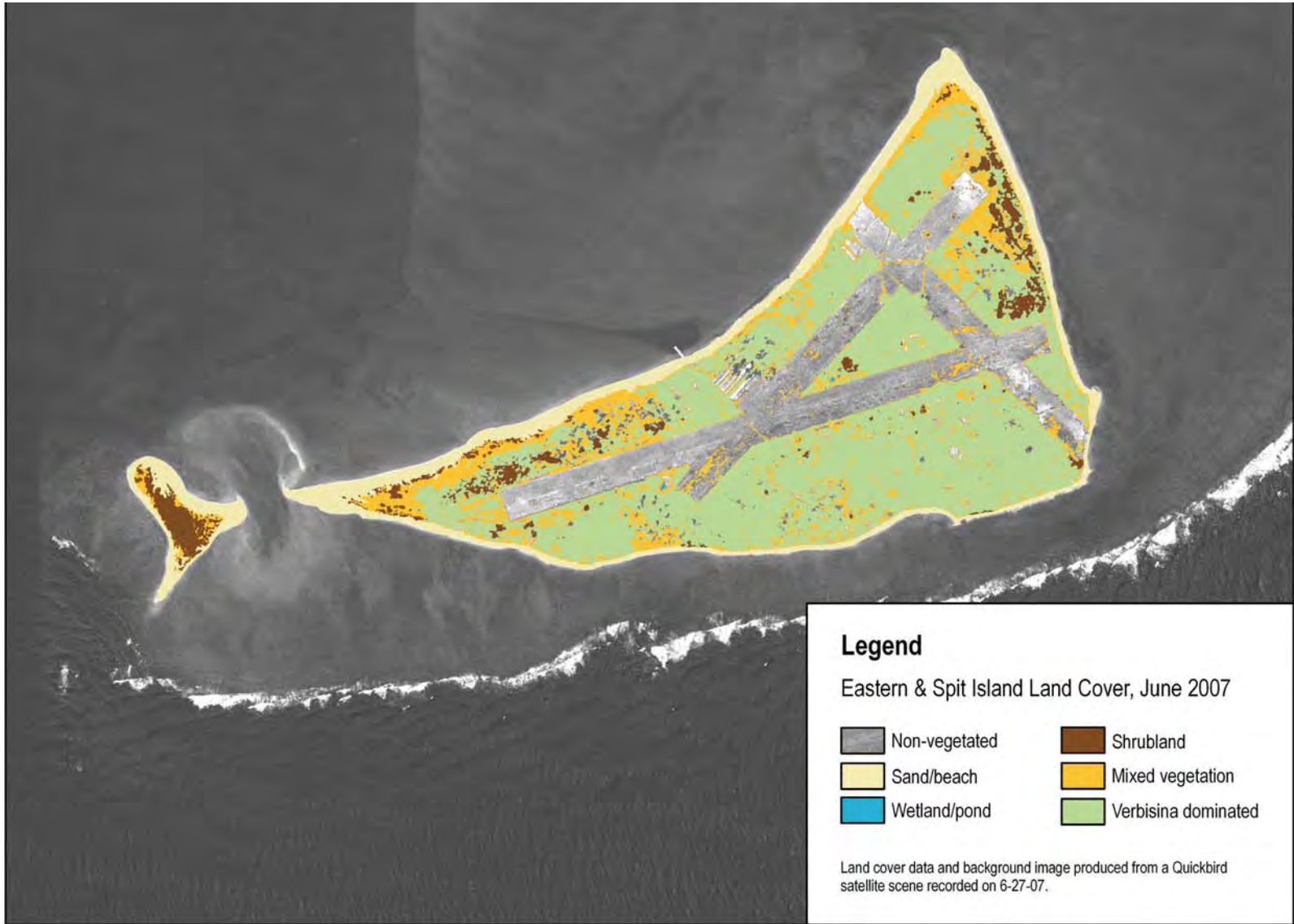
### 3. Site Overview

#### SITE ANALYSIS



## SAND ISLAND LAND COVER MIDWAY ATOLL CONCEPTUAL SITE PLANNING





**EASTERN AND SPIT ISLAND LAND COVER**  
 MIDWAY ATOLL CONCEPTUAL SITE PLANNING



### 3. Site Overview

#### SITE ANALYSIS

residential and industrial architecture, and 4. other historic elements, including Battle of Midway remnants not within the National Historic Landmark.

A Programmatic Agreement (1996) and Historic Preservation Plan (1999) were developed to guide management of the historic properties at Midway Atoll and will be updated to address preservation issues at Midway within the context of the recent Monument designation. The Midway Atoll Historic Preservation Plan focuses on long-term management and treatment for each of the 63 historic properties. It also identifies procedures for treating new discoveries and caring for museum collections, and includes recommendations for interpretation, education, and public outreach.

The Programmatic Agreement and Historic Preservation Plan prescribe one of six different treatment categories to the historic properties. The treatment categories are 1. reuse, 2. secure, 3. leave as-is, 4. fill in, 5. demolish, or 6. relocate. Many factors were used to determine the treatment category to which a historic property was assigned, including historic importance, interpretive value, overall setting, association with key historic themes, and structural integrity. Preservation treatment primarily focuses on adaptive reuse of the historic buildings; reconstruction is generally not viewed as an appropriate treatment.



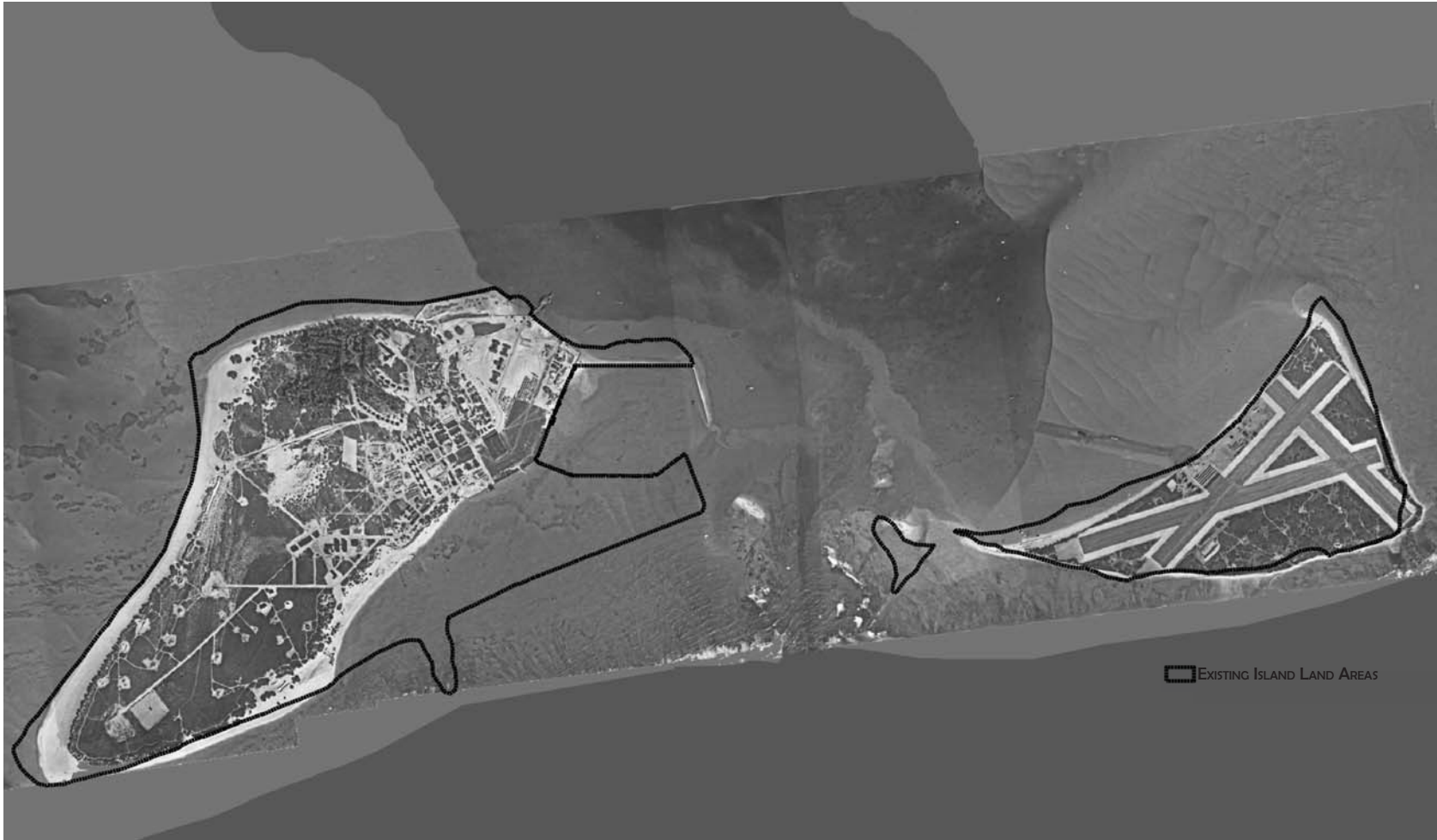
In 2007, a cultural resources team of the FWS Pacific Region conducted further evaluations and provided treatment recommendation for specific buildings. Several buildings are severely deteriorated (e.g., Cable Station) or require significant repair (e.g., Seaplane Hangar). The Cultural Resource Team's recommendations were incorporated into the Midway Conceptual Site Planning process and are reflected in the Building Program and the Preferred Site Plan. Reuse of historic structures is a primary strategy that meets several goals: 1. repair and preserve historic structures, 2. avoid new development that would degrade historic landscape quality or wildlife habitat value, 3. meet agency operations and visitor needs, and 4. be cost-effective compared to new construction costs.

The historic properties require continual repair and maintenance according to the terms of the Historic Preservation Plan and the Secretary of the Interior's Standards for the Treatment of Historic Properties. The effects of weathering and erosion by saltwater, salt spray, salty soils, precipitation, plant growth, termites, solar radiation, and wind continue to threaten the integrity of the historic properties at Midway Atoll. Additionally, lead-based paint must be removed from structures to eliminate a hazardous material that is extremely toxic to the albatross populations.

Submerged historic resources around Midway will require additional understanding and warrant further consideration in their management. A careful study of the wrecks in the lagoon and nearshore rim of the atoll will be conducted. The submerged items need to be accurately identified in order to establish their historical association and eligibility to the National Register. Two Midway maritime heritage sites associated with World War II, the USS Macaw and a World War II-era Corsair, have been preliminarily documented.

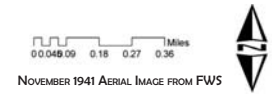






## SAND, SPIT, & EASTERN ISLANDS HISTORIC CONDITIONS

MIDWAY ATOLL CONCEPTUAL SITE PLANNING



### 3. Site Overview

#### SITE ANALYSIS

##### UTILITIES AND OPERATIONS

Midway Atoll is so remote that it must operate independently as a small town. It operates its own power system, water treatment and distribution, facilities maintenance, sewage treatment, waste management systems, communications systems, and all the other operational necessities found in a small municipality.

##### DRINKING WATER SYSTEM

A new drinking water treatment system and distribution main were placed into service in October 2005.

The old system is no longer treated to drinking water standards and was left in place to provide firefighting water. This took care of the major public health-related concerns, but sections of the water delivery system need to be modified to complete the full system upgrade. The new treatment system is sized for a short-term maximum population of 200 persons at a per capita daily use rate of 100-gallons per day, totaling 20,000 gallons per day. However, the actual efficient operating capacity is much lower. A regular on-island population above 120 people will require added capacity.

Rainwater is collected in a pond, and then pumped to storage tanks. The new electrical grid was not extended to provide power for the rain water pumps. The pumps are grossly oversized for current needs and should be replaced with smaller units. Electrical power can be furnished by extending a new electrical grid, by installing a small generator, or by installing renewable energy systems. These pumps are operated infrequently, following significant rainfall events; thus a small portable generator may be an economical way to provide power.



*Caterpillar electric generator*

Stored rainwater is conveyed to the treatment plant via gravity flow through an existing pipeline. Gravity flow allows use of only about half the total stored volume of water. The total storage volume, approximately 12 million gallons, is greatly in excess of current use. Using a daily use rate of 20,000-gal, the system has about 300 days of water accessible via gravity flow. However, this same rainwater storage feeds the “old” water system. The old system leaks approximately 10,000-gpd, so that reduces the storage volume to approximately 200 days.

The existing pipeline that conveys untreated water to the plant is asbestos cement. This pipeline should be replaced. In addition, a small pump should be installed to pump stored water to the treatment plant, thus making the entire storage capacity available.

The new water distribution pipeline was connected to existing lateral service pipes at certain buildings through the core area of town (basically, from the FWS Office northward to the Clipper House restaurant). The distribution system would need to be extended to serve any newly constructed or remodeled facilities located outside the vicinity of the new water main.

The Inner Harbor area and the Cargo Pier area near the old fuel tank farm do not currently have drinking water service. Water that is available comes from the old system and is no longer potable. An evaluation will be conducted to determine whether these areas would be best served by new water pipes, new catchment systems, or left dry.

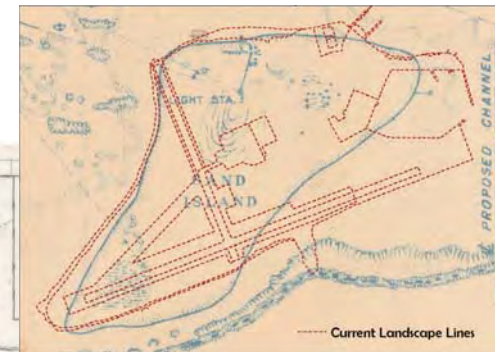
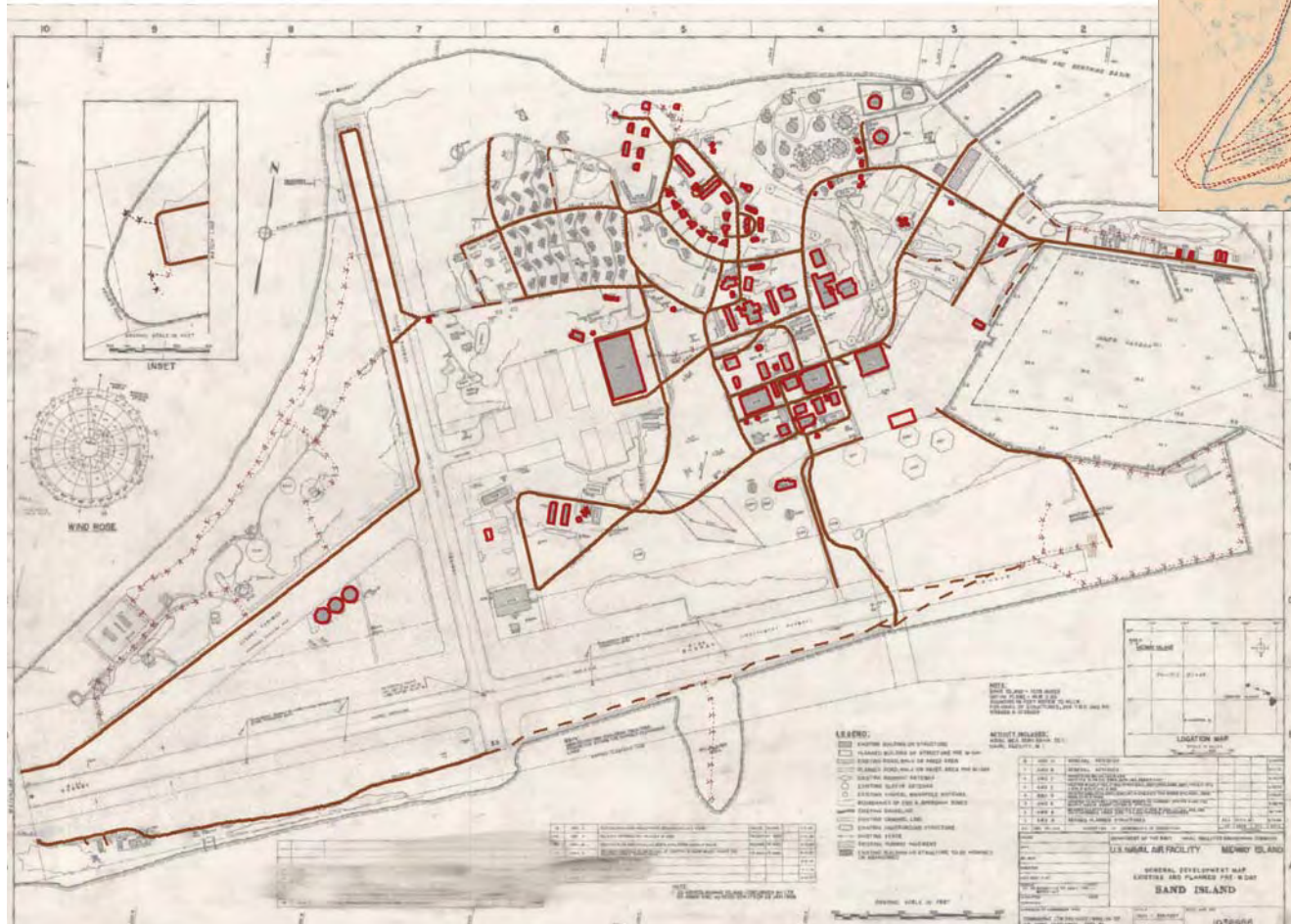


*Water collection tanks*



*Water treatment facility*

MAP OF SAND ISLAND c. 1964



MAP OF SAND ISLAND 1935

- Legend**
- Current Building Structures
  - Current Circulation
    - Foot Traffic
    - Foot and Bike Traffic
    - Foot, Bike and Cart Traffic



### 3. Site Overview

#### SITE ANALYSIS

##### ELECTRICAL GENERATION AND DISTRIBUTION

Electricity for the island is provided by combustion of JP-5 fuel in electrical generators. Two new electrical generator sets were installed to operate in an automatic duplex mode and were placed into service in approximately October 2005. These new generators were downsized from existing systems to better match generator capacity to connected load. For the most part, only one generator is needed to satisfy island electrical demand. When load exceeds the capacity of one generator, the second automatically comes on-line, automatically shutting off again when electrical demand reduces.

Maintenance activities can be accomplished on the “down” generator during that time. When the primary generator is due for service, the roles are switched and maintenance is then performed on the second generator. This style of engine-driven generator cannot be run continuously and must be periodically shut down for maintenance. Every few years, depending on operating hours, they must undergo a major engine overhaul. At that time, or whenever both smaller Caterpillar 3456 units are down, the system is run using the older, larger, but fully functional Caterpillar 3516 unit.

Current capacity for electrical generation is sufficient for existing population demand but nears maximum capacity during times of heavy load (summer). Existing and future projects will be evaluated with a goal to increase energy efficiency and transition to sustainable energy systems. The continuous adoption of energy conservation practices may increase the operational capacity of the existing electrical supply. If island population increases or electrical demand grows to require that two generators must run continuously, additional electrical generation would be necessary. This could be accomplished either by operating other existing generators or by installing sustainable energy



*Electrical switch gear*

generating devices such as solar water heaters, solar electric panels, incinerators, or gasification systems. The latter may also have the added benefit of using marine debris, solid waste, and alien species biomass to generate energy.

A new electrical distribution grid was constructed and placed into service in late 2006. The extent of this new grid was downsized in comparison to the existing old grid. The new grid was designed to supply electricity to only those facilities identified for future use, based on what was foreseeable in early January 2006. Facilities connected to the old grid are currently provided power through a backfeed to the old grid. The materials and equipment of the old grid are aged, in disrepair, and some are obsolete. As long as there are no failures in the old grid, all island facilities will continue to have electricity. When a failure occurs, it most likely will not be able to be repaired and all facilities connected to that portion of the old grid will go “dark.” The new grid does not extend services to the peninsula with the tug pier and finger piers, the old Fuel Farm area, or the large hangar. Either the new grid would have to be extended to serve any new developments or the facilities would be designed to generate their own energy. The same applies for any remodeled facilities that are currently connected to the old grid.

##### WASTEWATER SYSTEM

The current wastewater treatment and disposal system (central septic tanks with drainfield) is overloaded by storm water intrusion and suspected groundwater infiltration. A new sewer system and treatment and disposal system have been designed to meet a goal of efficiency and water conservation. The design serves only certain facilities located in the core area of town. Some work is being accomplished to eliminate storm water intrusion. Dispersed septic design as opposed to centralized septic is preferable for fitting smaller wastewater treatment clusters around sensitive habitat areas and avoiding bird nesting sites. Estimated construction cost of new wastewater system is approximately \$2 million. Implementation of a graywater utilization system and composting toilets will be considered with a goal of reducing demand on a wastewater system in new construction.



### SOLID WASTE DISPOSAL

General waste is collected and burned in an incinerator when adequate waste fuel is available, or in an open air pit when fuel is not available. Ashes are buried in the existing small landfill/dump. Aluminum cans are collected, compacted, and periodically sent (via barge) to a recycling facility in Hawai'i. Glass is collected, crushed, and buried in the landfill/dump. There is no adequate system in place to deal with hazardous waste (asbestos and lead specifically). This issue will be addressed before any planned reuse, renovation, remodeling, or removal of existing structures takes place.



*New fuel tanks lead industry in spill protection*

An incinerator or gasification system that could burn the waste as fuel to generate power is the type of technology needed on Midway to handle the island's waste long-term. It could also be modified to burn marine debris collected throughout the Monument. Several such machines are under development in the U.S. at this time but none are currently commercially available. Development of such incinerators should be tracked as plans for Midway develop, since burning waste for power would be a powerful cost and carbon-emissions savings.

### FUELING FACILITIES

Midway's fuel supply is delivered by barge approximately once a year. It is used to refuel aircraft, ships, and motor vehicles, as well as provide all of Midway's electricity. Roughly 65 percent of Midway's fuel is currently used to generate electricity.

A new modular fuel tank system became operational in October 2007. Storage capacity for fuel is currently 450,000 gal. That amount is anticipated to meet

FWS and Coast Guard annual fuel needs at present consumption levels. An additional tank for gasoline and a new fuels lab are scheduled for completion in late 2009. More fuel storage capacity will be installed to meet NOAA and State needs, largely for the operation of small boats and equipment for land-based marine research and management operations.

### TELECOMMUNICATIONS

A new fiber optic distribution system was constructed during 2006/2007. The satellite antenna was relocated and partially refurbished in October 2007. Satellite service is in the process of being upgraded. These upgrades will only moderately improve telecommunications for the existing island population and are not designed to allow expansion of the system to additional customers. Any new offices/programs on Midway will have to invest in additional upgrades/additions to the system in order to meet their telecommunication needs.

In 2008 and in partnership with the Midway Atoll National Wildlife Refuge, NOAA's Office of National Marine Sanctuaries purchased an additional antenna for installation on Midway, including T1 speed communications capacity for education, outreach, and research purposes. In 2009 the link will be used for telepresence to classrooms and schools from Midway Atoll, and will provide capacity for remote wildlife viewing via wildlife cams in the near future. The new equipment will also provide emergency fail-over for existing satellite equipment in case the primary link goes down.

Due to its isolation in the North Pacific, Midway is an important location for many types of data collection. In order to realize its scientific, enforcement, and educational potential, Midway will require additional data transmission capabilities, such as Internet 2 links.



*Satellite telecommunications*

### 3. Site Overview

#### SITE ANALYSIS

##### AVIATION AND MARINE TRANSPORTATION

Midway Atoll is accessible by two transportation modes: aviation and marine vessel. Currently there is no visitor welcome area at either Henderson Airfield or the Inner Harbor.

Midway is used as a required emergency landing site for extended twin-engine operations (ETOPS) flights across the Pacific Ocean. Under current regulations, twin-engine aircraft must be within a maximum of 180 minutes from a Part 139 certified airfield in case of an emergency. Midway's 7,900-foot runway is capable of handling almost any type of aircraft.

Relatively few flights are conducted in the Monument, and most of them are to and from Midway Atoll. Henderson Airfield on Sand Island handled a total of 86 flights during 2007. Most of these, 51 flights, were by Gulfstream aircraft operated by Maritime Air, the charter company used by FWS/FAA. The next largest user is the U.S. Coast Guard, which had 18 flights to Midway in 2007. The remaining flights were a mix of military and civilian aircraft, most associated with special events held during the year. A new airport operations center was constructed southwest of the current hangar in 2007.



*Most visitors arrive by plane to Midway Atoll*



*Cruise ships occasionally visit Midway Atoll NWR*

Marine traffic in the waters around Midway Atoll primarily consists of research ships, merchant ships, and occasionally Coast Guard vessels, recreational boats, and passenger vessels. Midway Atoll receives day visitors mainly via a small number of vessels. Three passenger vessels visited Midway Atoll in 2004. In 2005, 2006, and 2007, one passenger vessel visited the atoll each year (Maxfield 2007 pers. com.). No passenger vessels visited in 2008. Due to port security requirements at Midway, when large passenger vessels do visit they offload passengers 3 to 4 miles outside the lagoon and transport them ashore in small boats.

##### POLLUTANTS AND TOXIC MATERIALS

###### Building Materials

All historic buildings on Sand Island contain hazardous materials such as lead-based paint or asbestos. These toxic materials pose health and safety concerns for humans and wildlife. Lead paint flakes are ingested by albatross chicks, causing growth deformities and mortality. Lead-based paint abatement is a high priority action for Sand Island structures.

###### No Dig/Landfill Areas

"No Dig" areas, found on both Sand and Eastern Islands, are Land Use Controls remaining from the closure of the Navy base. Areas identified for land use restrictions are former landfills or areas where contamination or solid waste was left in place at or below 4 feet from the surface. Restrictions were placed on these sites to avoid future exposure of humans or wildlife to potentially contaminated soil or groundwater. Human activities that expose potentially contaminated soil or groundwater within the site footprints would transfer the responsibility for the site from the Navy to FWS. Although the



*Old fuel tanks located in "no-dig" area*

contaminants are expected to degrade through time, the amount and rate of degradation are unknown. Therefore, these land use restrictions will remain in place in perpetuity to protect humans and wildlife.

One area on Sand Island that needs continued monitoring and potentially further remediation is known as the Old Bulky Waste Landfill. This site is an uncharacterized landfill that was created by the disposal of scrap metal, used equipment, and unconsolidated waste off the south shore of Sand Island to create a peninsula approximately 1,200 feet long by 450 feet (average) wide by 9 feet high (Navy 1995). It is surrounded on the three seaward sides by an approximately 10-foot-thick band of concrete and stone rip rap. Wastes known to have been deposited in the landfill are metals (lead, cadmium, chromium, and nickel), gasoline, battery acid, batteries, mercury, lead-based paint, solvents, waste oil, PCBs, dioxins, furans, transmission and brake fluids, vehicles, equipment, tires, and miscellaneous debris (BRAC SI 1996 vol. 1). The landfill was covered in approximately 2 to 2.5 feet of soil in an attempt to contain the waste. Currently the Old Bulky Waste Landfill is eroding, and the soil placed on top is sifting into the debris, causing large holes to open up around the edge and in the center of the landfill. Additionally, burrowing birds are bringing up buried soil and nesting below the cover. Over 500 bird burrows have been counted in the landfill.

### Marine Debris

Marine debris accumulation on the reefs and beaches of NWHI is a staggering problem, and an estimated 57 tons of new debris enters NWHI on an annual basis (Dameron et al. 2007). Marine debris, especially derelict fishing nets and gear, plastics, and hazardous materials, is a severe chronic threat to shallow ecosystems such as Midway Atoll. It adversely impacts the endangered Hawaiian monk seal, threatened and endangered sea turtles, albatrosses, and other wildlife species which become entangled in or ingest these materials. Large masses of fishing nets degrade coral reef health by shading, abrading, or dislodging fragile corals or by preventing reef regeneration.

Over 15 agencies and partner groups have worked since 1996 to remove large accumulations of marine debris. The total debris removed from 1996 to 2008 in NWHI was 610 tons. Midway staff periodically clean the beaches and reefs to remove entanglement hazards and collect the ongoing accumulation of plastics, glass, and metal for eventual disposal in Honolulu, sent by barge at great expense. As discussed in the **Electrical Generation and Distribution** section, this cost may be defrayed through on-site incineration or gasification, generating electricity as a byproduct.

### TERRESTRIAL ALIEN SPECIES

Human occupation and development at Midway Atoll has transformed the atoll since the Commercial Pacific Cable Company established its operation on Sand Island in 1903. The cable company attempted to make the “sand spit” as self-sufficient as possible through the cultivation of gardens and small livestock. Due to the lack of organic soil on the islands, barge loads of soil were brought from O’ahu and Guam, and contained not only the organic matter that made gardening possible, but also all the associated soil organisms such as ants, centipedes, fungi, and other nonnative species.

Additionally, trees and ornamentals were planted on Sand Island, such as ironwoods, eucalyptus, and acacia. So successful were these introductions that, by 1922, an estimated two-thirds of Sand Island was covered with imported vegetation. The black rat (*Rattus rattus*) was successfully exterminated on Midway in 1997; however, mice (*Mus musculus*), along with various species of ants, termites, wasps, ticks, and mosquitoes, continue to infest the island. Mosquitoes are of special concern as they are potential vectors for diseases such as West Nile virus, avian malaria, and avian pox. Termites have compromised most of the historic wooden buildings on Midway.



Tons of marine debris pollute Pacific Ocean and islands

### 3. Site Overview

#### SITE ANALYSIS

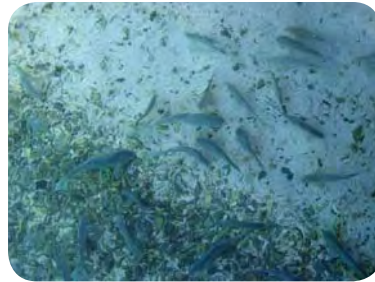
The number of alien land plants in the NWHI varies from only 3 introduced at Nihoa to 249 introduced at Midway Atoll. The level of threat from introduced plants also varies between species. For example, the invasive plant golden crownbeard (*Verbesina encelioides*) displaces all native vegetation in nesting areas, causing entanglement and heat prostration and killing hundreds of albatrosses each year (J. Klavitter, pers. com. 2007).

#### MARINE ALIEN SPECIES

Several alien species also threaten Midway's waters and reefs. One alien fish species and four alien invertebrate species are known to exist at Midway. One additional alien invertebrate species was found on a ship's hull at Midway and is thought not to be established at Midway. Although the ecological implications are unclear so far, at a minimum these species compete for resources with native species. Two of the invertebrate species have the potential to change the character of coral reefs where they become established.

Several other species have been identified as potential threats to Monument waters including Midway, having been documented in the main Hawaiian Islands or isolated locations in the Northwestern Hawaiian Islands. These include two fish species, one octocoral species, two algae species, and two invertebrate species. In particular the octocoral and algal species have the potential to alter the character of coral reefs where they become established.

Although marine alien species have been found at Midway, they are not believed to currently impact its infrastructure.



*Fish school in Eastern Island shallows*



*Golden crown-beard is a major invasive plant*

#### CLIMATE CHANGE AND SEA LEVEL RISE

Sea level rise is expected to have significant effects on the islands within Papahānaumokuākea Marine National Monument (Baker et al. 2006). Projected terrestrial habitat loss by 2100 among French Frigate Shoals, Pearl and Hermes Atoll, and Lisianski is expected to be 3 to 65% under a median scenario (48 cm rise), and 5 to 75% under the maximum scenario (88 cm rise). Spring tides would probably periodically inundate all land below 89 cm (median scenario) and 129 cm (maximum scenario) in elevation. Although Midway Atoll was not included in this study, Sand and Eastern Islands are more similar to Lisianski Island, which is expected to lose about 5% of its land area by 2100 (Baker et al. 2006). The environmental consequences of island inundation would likely be greater for Midway, with its buried toxic materials.

Changes in sea surface temperatures have been demonstrated to cause coral bleaching. Mass coral bleaching in the NWHI occurred in 2002, and was most severe in the three northernmost atolls, including Kure, Pearl and Hermes, and Midway. The occurrence of coral bleaching in the cool waters of the Northwestern Hawaiian Islands has been interpreted by some as indicative of climate change (Kenyon et al. 2006).

The measured increase of carbon dioxide in the atmosphere has been linked to ocean acidification, which slows the growth of coral reefs, and in some cases is predicted to dissolve them (Fine and Tchernov 2007). This is of great concern for Monument managers.



*Shoreline access is restricted to protect wildlife*



*C5 plane amid gooney birds*



## CHALLENGES AT MIDWAY ATOLL

Midway Atoll is a highly unique setting that presents tremendous challenges and issues that must be considered in all planning and design efforts. This Conceptual Site Plan, along with ongoing work by Co-Trustee and other agencies, begins to suggest some creative solutions to address these compelling problems. Some of the key challenges specific to Midway include the following points:

- Sand Island and Eastern Islands are highly disturbed landscapes greatly impacted by human use since the early 1900s. Dredging and filling of the land and water environments, nonindigenous plant and animal species introduction, and disruption of native species habitats are some indicators of the tremendous manipulation of the atoll.
- Global impacts adversely affect Midway Atoll's biological health. These adverse effects include marine debris accumulation (several tons of plastic washed up to shore annually), sea level rise, elevated sea surface temperatures, sea water acidification, and the possibility of changing ocean currents and wave patterns.
- Midway Atoll contains both historically and biologically unique features. Preservation and enhancement of the historic and ecological systems must be carefully evaluated from the lens of both perspectives.
- Carrying capacity is very limited on Midway Atoll due to its small land mass, sensitive biological and historic resources, and limited infrastructure. This capacity may be slightly increased, but human activities such as on the ground management and restoration activities, research, education, recreation, etc., must fit within this overarching constraint.
- Creative education and interpretation opportunities such as remote learning offsite, or sustainable tourism onsite, must be developed that help elevate public awareness while not creating impacts.
- Toxicity and hazardous materials cleanup at Midway Atoll is a major priority for ecological health, historic preservation, and public safety.
- Remote location of Midway Atoll creates impediments to transporting goods, materials, and people on- and off-island. Modes of travel to Midway and related logistical constraints are pivotal issues. Disposal and removal of surpluses or damaged items or materials is also problematic as the expense involved in proper disposal is prohibitive.
- High construction costs due to logistics
- Limited construction techniques
- Harsh climate conditions for materials
- Severely deteriorating buildings and infrastructure
- Limited staff and funding
- Development restrictions based on contaminants, historic conditions, and wildlife



*Plastics ingested by albatross*



*Peeling lead-based paint*



*Deteriorated bulkhead on Inner Harbor*





## Midway Atoll Improvement Guidelines and Principles

4

## 4. Midway Atoll Improvement Guidelines and Principles

### GOALS

---

Design and planning goals developed for Midway Atoll are aligned with the Papahānaumokuākea Marine National Monument Management Plan goals.

**GOAL 1**—Protect, preserve, maintain, and where appropriate restore the physical environment and the natural biological communities and their associated biodiversity, habitats, populations, native species, and ecological integrity.

**GOAL 2**—Support, promote, and coordinate research, ecosystem characterization, and monitoring that increases understanding of the NWHI, improves management decision-making, and is consistent with conservation and protection.

**GOAL 3**—Manage and only allow human activities consistent with Proclamation 8031 to maintain ecological integrity and prevent or minimize negative impacts for long-term protection.

**GOAL 4**—Provide for cooperative conservation including community involvement that achieves effective Midway Atoll operations and ecosystem-based management.

**GOAL 5**—Enhance public understanding, appreciation, and support for protection of the natural, cultural, and historic resources.

**GOAL 6**—Support Native Hawaiian practices consistent with long-term conservation and protection.

**GOAL 7**—Identify, interpret, and protect Monument historic and cultural resources.

**GOAL 8**—Offer visitors opportunities at Midway Atoll to discover and appreciate the wildlife and beauty of the NWHI, enhance conservation, and honor its unique human history.

### DESIGN GUIDELINES AND PRINCIPLES

---

The Planning Team developed Design Guidelines and Principles that will inform appropriate design and planning efforts at Midway Atoll. These guidelines reinforce the key concept that Midway will become a “model of sustainability.” They provide the framework for preserving and enhancing Midway’s ecological and historic values in the course of implementing the Monument Management Plan at the Midway site-scale.

Several of these principles are mutually reinforcing, with each principle independently pointing to a common solution. For example, removing lead-based paint from historic structures removes a toxic substance that directly impairs wildlife and human health while preserving the historic integrity of these buildings. Adaptively reusing existing historic structures prolongs their life cycle and preserves their historic value while also meeting lodging, operations, research, and visitor services needs, simultaneously reducing the need for new construction that would adversely impact native species and habitat. Generating electricity with localized alternative energy devices to reduce carbon emissions and increase energy efficiency may save the cost of wiring the structure to the existing utility grids. Similarly, installing an incinerator or gasification system in order to avoid the high costs and carbon emissions of burning transported fuel reduces the need to ship much of Midway’s waste to Honolulu. Building new structures on existing concrete pads within the historic core/redevelopment zone helps to meet the “no net habitat loss” principle while also staying in character of Midway’s historic development patterns.

Design solutions such as these which meet several of the stated principles should permeate the Midway Atoll redesign plans. Midway Atoll is sufficiently small that opportunities exist to design ‘closed’ systems, minimizing required inputs, wastes, and operational costs.

Overarching design principles also include compliance with numerous Federal requirements, including those for accessibility such as the Rehabilitation Act of 1973 (as amended), Section 504 and 508; and the Architectural Barriers Act (ABA) of 1968.

### PROTECT HISTORIC STRUCTURES & LANDSCAPES

- ✓ Protect, maintain, and interpret historic resources.
- ✓ Follow Secretary of the Interior Standards to protect and maintain buildings that maintain integrity and/or identified as historically significant and eligible for or listed on the National Historic Register.
- ✓ Follow Secretary of the Interior Standards to protect historic landscape features and characteristics
- ✓ Follow National Historic Preservation Act (36 CFR Part 800) to document historic buildings and structures that do not exhibit integrity and will be secured in place (building envelope is sealed) or demolished. Salvage materials and leave footprints or ruins for interpretation that are safe and compatible with wildlife.
- ✓ Explore adaptive re-use of historic buildings

### PROTECT HABITAT & BIOLOGICAL RESOURCES

- ✓ Adhere to National Wildlife Refuge System principle "Wildlife comes first"
- ✓ Protect, maintain, enhance habitat and biological resources
- ✓ No net loss of habitat
- ✓ Construct new structures in footprints, building foundations, or pads of non-historic footprints
- ✓ Remove invasive species
- ✓ Protect nest sites
- ✓ Reduce high structures to minimize bird strikes
- ✓ New construction will not interfere with wildlife
- ✓ Remove pollutants (lead based paint, shore debris, toxic substances)
- ✓ Protect shallow water systems and reef sites
- ✓ Restore native habitat where feasible

### ALTERNATIVE ENERGY SYSTEMS & WASTE REDUCTION

- ✓ Reduce consumption
- ✓ Use energy efficient strategies and alternative energy systems
- ✓ Consolidate power generators and power sources
- ✓ Construct new structures that are energy-efficient or generate own energy
- ✓ Recycle materials for construction or enhancement projects
- ✓ Evaluate the use of alternative fuels for transportation and equipment

### OPERATIONS AND MAINTENANCE

- ✓ Address current and future maintenance needs
- ✓ Communicate management plan to staff, e.g., training in historic resource protection, biological resource protection
- ✓ Consolidate development (utilities, infrastructure, buildings)
- ✓ Appropriate infrastructure matched to current/new development and operations

### SUSTAINABLE ARCHITECTURE & LANDSCAPE ARCHITECTURE

- ✓ Re-use existing structures that still have integrity
- ✓ Sustainable design (materials, energy, etc.)
- ✓ Recycle materials, e.g., scrap metal, glass, ropes, etc.)
- ✓ Construct pre-fabricated components off-site
- ✓ Apply Performance Standards for new construction
- ✓ Apply sustainable design standards such as LEED
- ✓ Use termite-resistant building materials

### DESIGN AESTHETICS

- ✓ Maintain historic character
- ✓ Build new structures in the historic or tropical vernacular
- ✓ Reduce noise pollution
- ✓ Reduce light pollution

### VISITOR USE & EXPERIENCE

- ✓ Limit human presence to appropriate visitation levels
- ✓ Zones of use (direct visitor uses while protecting wildlife and habitat)
- ✓ Regenerative design, e.g. hydroponic gardens
- ✓ Develop facilities to accommodate visitors
- ✓ Eco-tourism focus: wildlife/historic landscape immersion experience; interpretation/education
- ✓ Service and volunteer work opportunities offered to visitors
- ✓ Midway Site will be a demonstration model for sustainability
- ✓ Develop opportunities for people who cannot visit to learn about Midway Atoll (e.g., website, cam, online environmental data)

### BUILD PARTNERSHIPS AND MANAGEMENT-DRIVEN RESEARCH

- ✓ Collaborative management and development (FWS/NOAA/State of Hawai'i)
- ✓ Develop new partnerships and alliances
- ✓ Corporate sponsorships
- ✓ Research opportunities



DECEMBER 2008

## DESIGN GUIDELINES & PRINCIPLES

### MIDWAY ATOLL CONCEPTUAL SITE PLANNING

## 4. Midway Atoll Improvement Guidelines and Principles

### MANAGEMENT ZONES AND SITE ZONES

#### SAND ISLAND MANAGEMENT ZONES

The Planning Team delineated Management Zones for Midway Atoll, including Sand Island, Eastern Island, and Spit Island. These zones show the physical areas where specific management, planning, and development activities occur.

The zones are as follows:

##### Marine Protection Zone

Protected shoreline and marine habitat that supports bird, wildlife, and fish species, and their critical life activities such as resting, feeding, nesting, fledging, migrating, etc. No public access is allowed.

##### Revegetation/Habitat Zone

Midway Atoll is a highly disturbed system that hosts pervasive invasive plant species, toxic materials, and human development remnants that, taken together, have created significant adverse impact on indigenous species and their habitat. Most of the islands within Midway Atoll are designated as the Revegetation/Habitat Zone to focus efforts on restoring atoll habitat and enhancing species populations.

##### Beach Zone

Shoreline that is open to the public for passive recreation and educational activities such as walking, bird and wildlife watching, and beach viewing. Primarily this zone occurs on the north beach of Sand Island. No beach access is available on Spit Island, and the only access allowed on Eastern Island is via the boat dock.

##### Inner Harbor Zone

This zone includes the historic Inner Harbor and its associated shoreline, piers, and facilities. One of two approaches to the island (by boat or airplane), the inner harbor zone is critical to visitor arrival, transportation of services and goods, and water-based activities (e.g., ecotourism via passenger vessels, marine research, rescue operations, security).

#### Airfield Operations Zone

The Airfield Operations Zone on Sand Island comprises the active Henderson Airfield and includes the new operations center, the old hangar, the active runway, and inactive runway portions. One of two approaches to the island (by boat or airplane), the airfield operations zone is critical to visitor arrival, transportation of services and goods, and aviation activities (ecotourism via air travel, research, emergency operations, security).

#### Freshwater Protection Zone

The Freshwater Protection Zone is a large triangular portion of the runway area from which surface water is collected in the catchment basin and then pumped into the three freshwater storage tanks.

#### Historic and Primary Development Zone

The Historic and Primary Development Zone designates Sand Island's historic core and redevelopment area. It delineates an area that is highly significant in terms of historic development patterns on Sand Island related to the Cable Company historic period (early 1900s) and World War II historic period (1940s). Several historic structures and features are contained within this zone. Conversely, this zone indicates the primary area where development of new facilities or adaptive reuse of existing or historic structures is an appropriate activity.



*Albatrosses and people*



*BEQ Barracks: replace with "green-designed" multi-plex units*





## 4. Midway Atoll Improvement Guidelines and Principles

### MANAGEMENT ZONES AND SITE ZONES

#### No Dig Areas/Landfill Zone

The “No Dig” areas are sites that contain contaminated soils or other materials, and cannot be built upon or otherwise disturbed. These sites include Old Bulky Waste Landfill on the south beach point, and the old fuel farm on the north beach.

The “No Dig” areas were designated in the Base Realignment and Closure process (BRAC) as Land Use Controls where digging below 4 feet is prohibited (or FWS assumes all responsibility). These areas, and several landfills, were determined to not necessitate further cleanup unless the controls were not effective. The Old Bulky Waste Landfill, however, is an example where the control is not sufficient and further remediation needs to be addressed through the BRAC process.

#### Sand Island Building Treatment and Site Zones

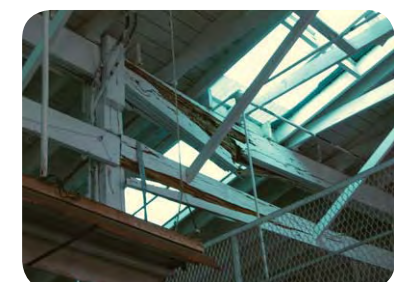
The Planning Team assessed site zones and building treatment opportunities within Sand Island’s Core Historic Zone. Evaluation factors included the following: 1. FWS historic treatment recommendations; 2. current and historic functions as well as potential future uses; 3. architectural and structural integrity; and 4. spatial organization of roads, operations, buildings, and landscape.



BOQ barracks



Cable Station building complex



Termite damage to structural roof members of historic Machine Shop

### ALTERNATIVES CONSIDERED

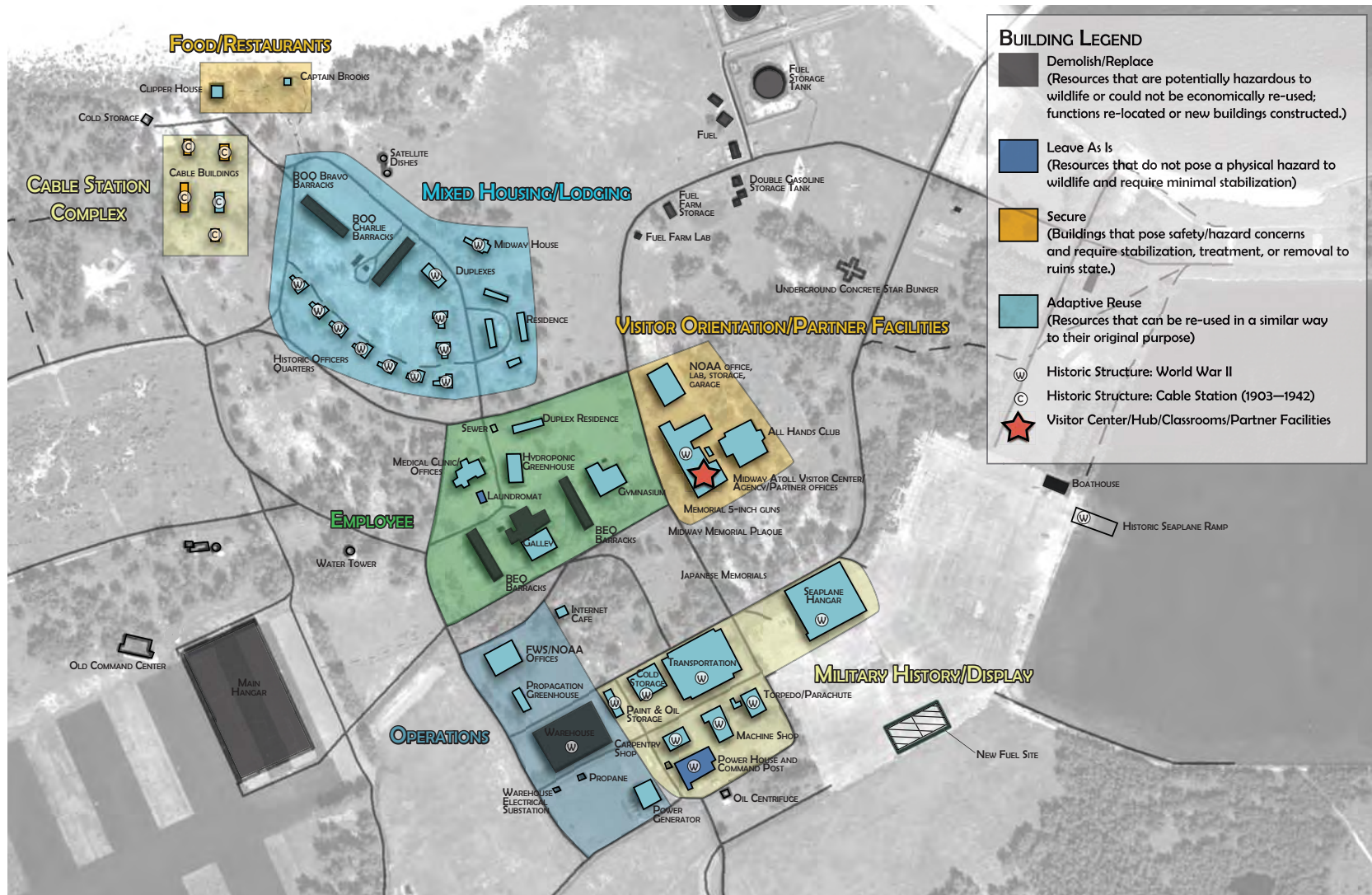
In the draft conceptual site plan, three alternatives were considered. Based on that analysis and the public comments received, Alternative B, “Model for Sustainability” was selected for this final plan.

In brief, Alternative A would have maintained current management activities in place at Midway at the time of the Proclamation. Alternative C was focused on accelerated restoration of Midway Atoll habitat and species, as well as on historic preservation efforts. As much onsite treatment as possible would have occurred under Alternative C. Resources, staff, facilities, and programs would have been primarily dedicated to restoring Midway Atoll’s natural habitat and historic landscape to the highest functioning state over the next 15 years. The maximum overnight population would have increased to 180 persons, and ecotourists would have been replaced by volunteer service workers.



Officers' Quarters





## 4. Midway Atoll Improvement Guidelines and Principles

### A “MODEL FOR SUSTAINABILITY:” INTEGRATED BIOLOGICAL, HISTORIC, AND VISITOR PROGRAMS (PREFERRED ALTERNATIVE)

This model, identified in the draft plan as Alternative B and the ‘preferred alternative’, provides an integrated approach for enhancing protection and understanding of biological and historic resources at Midway Atoll/Sand Island while providing a moderate increase in visitor services and interpretive, educational, and research programs and facilities. It also provides an operational hub for agencies within the Monument.

Resources will be allocated to elevating the programs and facilities in three areas: 1. biological protection, understanding, and restoration; 2. historic resource preservation and adaptive reuse; and 3. visitor education and interpretation.

Short-term overnight visitation will not exceed 50 people, while seasonal or long-term contractors and researchers will not exceed 100 people, thus totaling

no more than 150 people on any given night. The increased island population from the current regular capacity of 120 people will require enhancements in utility systems infrastructure. Up to three large groups of day visitors per year will primarily access the island via passenger vessel or aircraft, and generally no more than 400 people will be on-island at any one time.

New facilities and systems will utilize green design and energy principles. Midway’s physical structures as well as interpretive and education programs will emphasize the atoll’s sensitive resources and its role in worldwide resource conservation and human history.

Key activities implemented under this model include the following:

- Treat, stabilize, and clean-up all World War II-era historic buildings (e.g., rehabilitation, lead-based paint removal) to use for lodging, operations, and visitor services (approximately 18 buildings)
- Rehabilitate/repair Cable building #643 for interpretation. Partially dismantle other four Cable Station historic structures to ensure human and wildlife safety, leaving the concrete cores for interpretive purposes. Salvage recyclable materials such as windows and doors for use in Cable building #643
- Demolish B, C, and BEQ Barracks (4 buildings total) and replace in same footprint with smaller scale, energy-efficient multiplex units
- Construct low-impact-style shelters (< 200 sf) on existing concrete pad(s) or demolished building footprints as temporary lodging or ecotourism overnight facilities
- Reuse one Officers Quarters building as a hostel to accommodate overnight visitors
- Rehabilitate historic Midway Mall to serve as the new “Midway Atoll Visitor Center;” facility will be a multi-purpose center containing visitor facilities, multi-agency offices, and classrooms



Green turtle © James Watt





## 4. Midway Atoll Improvement Guidelines and Principles

### A “MODEL FOR SUSTAINABILITY:” INTEGRATED BIOLOGICAL, HISTORIC, AND VISITOR PROGRAMS (PREFERRED ALTERNATIVE)

---

- Demolish nonhistoric structures or structures that do not meet the Secretary of the Interior Standards for historic preservation, and create habitat in vacated areas
  - Expand biological enhancement, marine management, and research programs as part of multi-agency and partnership effort
  - Plan, design, and build a marine laboratory/quarantine facility
  - Construct a Hawaiian monk seal captive care facility
  - Remediate all lead-based paint and other toxic materials related to structures, facilities, and soils that are creating exposure hazards to humans and wildlife within 15 years
  - Monitor landfills and, if necessary, enact further remediation within 15 years
  - Construct a new boathouse, dive center, and storage facility to facilitate marine-based activities
  - Expand the new fuel farm to meet Co-Trustee needs
  - Construct new ramp/boat dock near location of historic seaplane ramp
  - Construct two welcome facilities for visitors arriving by ocean vessel and by airplane
  - Replace and upgrade finger piers in the Inner Harbor
  - Expand drinking-water capacity to meet needs for 30 additional people
  - Expand sewage and solid waste disposal capacity
  - Install new satellite antenna for telepresence, remote wildlife viewing, and research use
- Benefits of implementing this model include:
- o Visitation volumes do not exceed Midway Atoll’s carrying capacity
  - o No further net loss of biological and historic resources occurs
  - o Significant improvements are implemented to enhance biological and historic resources
  - o Midway’s exceptional historic resources are preserved and interpreted
  - o Facilities and infrastructure are upgraded to meet projected lodging, operations, visitation, safety, and maintenance needs
  - o Several biological research and habitat initiatives are implemented, e.g., Hawaiian monk seal captive care facility
  - o Educational and interpretive program is greatly enhanced; public outreach and stewardship opportunities are actively promoted at local, onsite scale to global, remote scale
  - o Partnerships and coalitions encouraged under this site plan may attract more funding dedicated to biological and historic preservation activities on Midway and throughout the Monument, e.g., development of a marine lab or research station, programming for field schools and other education programs
  - o Sustainable low-impact development at Midway will serve as a model of sustainability for remote field operations fostering conservation, recycling, and reduction of fossil fuel use
  - o Facilities, whether renovated or new, will incorporate sustainable design principles to enable the reduction of fossil fuel usage
  - o Implementation of priority projects will enable Co-Trustee investment in the atoll, greatly enhancing the field operational capacity of the Monument overall



*Midway Atoll provides important habitat for albatrosses*



## 4. Midway Atoll Improvement Guidelines and Principles

### SUMMARY OF MIDWAY ATOLL/SAND ISLAND CONCEPTUAL SITE MODEL

---

#### **MAXIMUM POPULATION ON MIDWAY ATOLL**

As indicated in the following table, the maximum overnight population allowed on Midway Atoll will be 150 people, which at any one time may include transient, short-term, seasonal, and permanent personnel. The average daily population range is expected to be between 100-120 people during the year. Total visitation to Midway is constrained by the existing infrastructure; levels above 120 people will require additional infrastructure support on the island as outlined in Chapter 3 of this document, **Site Overview**. The personnel requirements for Midway were developed through a multiagency requirements planning process. They will be regularly assessed and may be modified in light of evolving agency needs and infrastructural constraints at Midway to ensure that each agency's goals continue to be achieved and mandates satisfied.

At varying times of the year, Midway's overnight population may be comprised of different types of users, which are described below. Although the combined totals of personnel may seem to exceed the daily maximum capacity, proper scheduling will minimize overlap of these various groups to ensure that the overall overnight population does not exceed 150 people.

**Transient use.** Individuals stay on Midway less than 1 week, and typically include VIPs and agency representatives, such as employees departing or joining a NOAA, Coast Guard, or military vessel stopping at Midway or State personnel en route to Kure Atoll. They may also include agency personnel or contractors with a specific assignment on Midway, such as repairing or installing infrastructure or supporting a large group of day visitors. Since most of the field activities within the Monument occur during the summer and early fall, it is likely transient use will peak during the months of July through October. The maximum number of transients on island will depend upon the availability of housing, but the typical daily maximum will likely be fewer than 15 people.

**Short-term use.** Individuals stay on Midway from 1 to 4 weeks, and include agency staff and visitors participating in the approved visitor program. The number of people participating in the visitor program may not exceed 50 at any one time, and generally is much lower. The number of visitors usually peaks during albatross season, November through June. Short-term agency staff would likely include researchers, biologists, or marine debris cleanup personnel conducting projects at Midway Atoll; such use is concentrated in the summer and fall months. The maximum number of short-term visitors on island will depend upon the availability of housing, but the typical daily maximum will likely be fewer than 50 people.



*Black-footed albatross chick*



*Green turtle*



**Seasonal use.** Individuals stay on Midway from 1 to 8 months, and include agency staff and volunteers. Agency staff are typically involved in leading the visitor program, habitat restoration, seabird monitoring, or Hawaiian monk seal monitoring and captive care programs, while volunteers assist in these efforts. During major construction projects, seasonal use may also include contractors. The maximum number of seasonal personnel on island will depend upon the availability of housing, but the typical daily maximum will likely be fewer than 30 people.

**Permanent use.** Individuals stay on Midway more than 8 months during the year, and consist of FWS or NOAA staff (including enforcement personnel) and FWS contractors operating the atoll's infrastructure. The maximum number of permanent staff on island will depend upon the availability of suitable housing, but could be up to 20 agency staff and 65 contractors. Combined, the typical daily maximum will likely be fewer than 80 people.

**Day use.** In addition to overnight use of Midway, the Co-Trustees have established a limit on the number of day-use-only visitors to the atoll. A maximum of three large groups (50-800 people) of day visitors per year may visit the atoll. These visitors typically stay no more than 4 to 8 hours and arrive via aircraft or large passenger vessel. No more than 400 day visitors may be on the island at one time, unless specific arrangements have been approved for a special event, such as a ceremony commemorating an anniversary of the Battle of Midway.

If in the future the Co-Trustees desire to increase the maximum overnight population level above 150 people or the day visitor limit above 800 people, FWS would first need to determine that such use would be compatible with the purposes of the Refuge and the mission of the National Wildlife Refuge System, as required by the National Wildlife Refuge System Administration Act of 1966, as amended. Such proposals also would require analysis under the National Environmental Policy Act, as well as potentially the Endangered Species Act and other applicable laws.



*Coral reef and shallow water protection is a vital activity*

## 4. Midway Atoll Improvement Guidelines and Principles

### SUMMARY OF MIDWAY ATOLL/SAND ISLAND CONCEPTUAL SITE MODEL

Description/Theme	Integrated Biological, Historic, and Visitor Programs
	Coordinated management and operations program at Midway
Maximum overnight population	150
Average Population Range	100–120
Day Visitors	Up to 3 large groups of <800 annually; <400 ashore at once
<b>UTILITY SYSTEMS</b>	
Drinking Water	Increase capacity for up to 30 added people during regular periods
Electricity	Increase capacity for up to 30 added people during regular periods
Sewage	Increase capacity for up to 30 added people during regular periods
Solid Waste Disposal	Increase capacity for up to 30 added people during regular periods
<b>LODGING FACILITIES</b>	
<i>Officer Quarter Residences</i>	
	Reuse 1 officer quarter structure as hostel for short-term visitors
	Reuse 1 structure for short-term visitors
	Reuse 7 structures for seasonal or permanent staff

Description/Theme	Integrated Biological, Historic, and Visitor Programs
<i>Barracks</i>	
BOQ Bravo	Replace B barracks structure with (2) cable-style multiunit 2-story structures for short-term visitor lodging
BOQ Charlie	Repair C barracks to maximize capacity for interim. Eventually replace barracks structure with (3) multiunit 2-story structures for short-term visitor lodging
BEQ Barracks (1)	Replace barracks structure with (3) 8-plex 1 or 2-story structures for employees
BEQ Barracks (2)	Replace barracks structure with (3) 8-plex 1 or 2-story structures for employees
<i>Duplexes</i>	Maintained as seasonal/permanent staff lodging
<i>Low-Impact Shelters</i>	Up to 12 new primitive shelters constructed
<i>Midway House</i>	Maintained as FWS Midway Manager residence
<b>NUMBER OF HOUSING UNITS</b>	
Hostel style 1200 sf	2
Duplex Style <900 sf	11
2-story 12 x 24 Units 330 sf	48–56
8-plex 1 or 2-story structures <340 sf	48–96
Officers Quarters residences	8
Low impact shelters<200 sf)	3
<i>Total Number of Housing Units</i>	123-179

## 4. Midway Atoll Improvement Guidelines and Principles

Description/Theme	Integrated Biological, Historic, and Visitor Programs
Cable Station Buildings	Repair one cable station building (#643). Remaining cable structures partially dismantled for safety, historic landscape is interpreted
<b>FOOD SERVICE AND ENTERTAINMENT FACILITIES</b>	
Clipper House	Expand or replace for additional kitchen, and cold storage and dining facilities
Captain Brooks	Maintained as is
Galley Bldg	Reuse as café/store/entertainment center
All Hands Club	Demolished or reused for partner facilities; functions moved to other buildings (e.g., Galley)
<b>AGENCY OFFICES AND VISITOR FACILITIES</b>	
FWS Office Building	Agency offices and visitor services move into Midway Mall Visitor Center; maintain existing office building
Midway Mall	Midway Atoll Visitor Center established with visitor services, agency offices, and classrooms
Contractor Admin Building	Maintained as is
Gymnasium	Repaired and operational; used for emergency shelter

Description/Theme	Integrated Biological, Historic, and Visitor Programs
<b>RESEARCH/LAB/STORAGE</b>	
Old Commissary Building	Reused for agency offices, and shared research facilities e.g., cold storage/lab
Equipment Storage	Expanded in existing structures
Seaplane Hangar	Use for equipment storage; replace roof and restore glass façade for interpretation and/or exhibitory
Educational Classrooms/lab/library/ workroom	Phase I of Midway Mall Visitor Center
Monk Seal Holding Tanks	Yes
Biological Quarantine Facility	Yes
Monk Seal Captive Care Facility	Yes
<b>BOATING FACILITIES</b>	
Large Dock for Barges or Ships	Cargo pier maintained as is; fuel pier abandoned—disposition TBD
Midsized Dock for medium research vessels	Existing tug pier rehabilitated Tug pier replaced and upgraded
Seaplane/boat ramp for small vessels	New dock constructed in Inner Harbor; new dock/ramp built near seaplane ramp
Finger Docks for small vessels	Replace & upgrade finger piers in the Inner Harbor
Boat House	Replaced with new facility combined with dive infrastructure

## SUMMARY OF MIDWAY ATOLL/SAND ISLAND CONCEPTUAL SITE MODEL

---

Description/Theme	Integrated Biological, Historic, and Visitor Programs
<b>AIRPORT FACILITIES</b>	
Runway	North strip removed and restored to habitat within 10 years
Main Hangar	Demolished and restored to habitat within 10 years
Airport Terminal Welcome Building and Staging Area	Constructed
<b>HABITAT ENHANCEMENT</b>	
Old Fuel Tank Area	Demolished and area restored to habitat; new fuel tank area located south of seaplane hangar
Abandoned, derelict, or non-historic structures	Reuse, maintain as is, or demolish
Vegetative Buffer in Inner Harbor Area	Yes
Upland Habitat	Invasive vegetation removed and restored to native habitat (controlled w/in 15 yrs)
Shoreline Edge	Additional protection to direct public access away from sensitive areas
Coral Reef System	Investigate coral reef habitat improvements; metal wreckage removal

## Midway Atoll Conceptual Site Plan

5

## 5. Midway Atoll Conceptual Site Plan

### INTRODUCTION

---

The Planning Team selected the “Integrated Biological and Historic Preservation and Visitor Services—A Model for Sustainability” for implementation. This model provides an integrated approach for enhancing protection of biological and historic resources at Midway Atoll/Sand Island while providing a moderate increase in visitor services and interpretive and educational programs and facilities. The model meets the Monumentwide vision to “forever protect and perpetuate the ecosystem health and diversity and Native Hawaiian cultural significance of Papahānaumokuākea” by focusing on species and habitat recovery. The concept also recognizes Midway’s special role as a hub of the Monument for resource protection, management and research activities, and as the only atoll open to the public, the touchstone where humans can be immersed in the Northwestern Hawaiian Islands’ rich history, wildlife, and Pacific marine environment.

Resources will be allocated to elevating the programs and facilities in three primary areas: 1. biological and ecological understanding, protection, and restoration; 2. historic resource preservation and adaptive reuse; and 3. visitor education and interpretation.

Protection, research, and restoration of atoll systems and species, and protection of historic resources are promoted activities within the appropriate level of human interaction. Consideration is given to the atoll’s carrying capacity—how many people, structures, and facilities the island system can support without adverse impact to its health. Visitation will be increased approximately 16% over the recommended capacity targeted in the Interim Visitors Services Plan. Short-term overnight visitation will not exceed 50 people, while seasonal or long-term contractors and researchers will not exceed 100 people, thus totaling no more than 150 people on any given overnight. Day visitors will continue to visit the island with a maximum of three large groups of no more than 800 people per year, and generally no more than 400 visitors on Sand Island at any one time. Maximum overnight population will increase from the current level of 120 people to 150 people.

The focus of management and development of Midway facilities and programs will be on sustainability and sustainable tourism; creating the lowest carbon footprint possible on Midway Atoll is a primary goal. New and adapted facilities and systems will utilize green design and energy principles, and reduce consumption and waste. Midway’s physical structures in combination with its interpretive and education programs will emphasize the atoll’s sensitive resources and its role in worldwide conservation, ecological systems, and human history.

Patterns of uses are grouped into Site Zones:

- Visitor Orientation and Partner Facilities
- Mixed Housing/Lodging
- Employee
- Cable Station
- Food/Restaurants
- Military History and Display
- Operations

Each primary building within the Historic and Primary Development Zone is identified by color code in the map on page 51, in terms of appropriate historic treatment. The treatment categories are: 1. demolish and replace functions to another building, or replace existing structure; 2. leave as is, and stabilize structures that do not pose threats to wildlife or humans; 3. secure structures that pose hazards to wildlife or humans; and 4. adaptive reuse of structures that have sufficient historic or structural integrity to be used as a Midway Atoll facility.



## SAND, EASTERN, AND SPIT ISLANDS MANAGEMENT ZONES

As described in Chapter 4, Sand Island is zoned according to the following physical areas where specific management, planning, and development activities are appropriate: Marine Protection Zone, Revegetation/Habitat Zone, Beach Zone, Inner Harbor Zone, Freshwater Protection Zone, Airfield Operations Zone, No Dig/Landfill Zone, and Historic and Primary Development Zone.

The Historic and Primary Development Zone designates Sand Island's historic core and redevelopment area; it delineates an area that is highly significant and contains several historic structures and features eligible for listing on the National Register of Historic Sites. This zone indicates the primary area where development of new facilities or adaptive reuse of existing or historic structures should occur. This proposal will not only help preserve the integrity of the historic landscape, but will also protect wildlife and their habitat by limiting development to existing structures or impacted areas.

Specific activities for Sand Island are described in detail in the following section, **Sand Island Conceptual Site Plan**.

### EASTERN ISLAND

Eastern Island is primarily zoned in Marine Protection Zone and Revegetation/Habitat Zone. No new major development or structures are proposed for this unoccupied island, which provides critical shoreline and island habitat for birds and marine wildlife. Limited human access is provided via a boat dock and trails. Eastern Island's role during World War II is instrumental in the interpretation of Midway Atoll's incredible history. Numerous historic features remain, including the World War II runway, artillery, bunkers, and sand dune airplane revetments.

Eastern Island has been the focus of successful restoration and wildlife enhancement efforts. Volunteers and staff have removed large areas of the exotic species *Verbesina encelioides* and have planted native bunchgrass (*Eragrostis*) species. Biologists successfully created freshwater wetlands and established a Laysan duck population on Eastern Island.

Ongoing activities will continue to focus on habitat protection and restoration, and the interpretation of historic and biological features. No overnight visitation occurs on Eastern Island, and visitors will arrive for day visits only for the purpose of interpretation, volunteerism, or study of the island's history and ecology.

Activities for Eastern Island include the following:

- Continued restoration of native habitat and species (e.g., remove invasive plants, enhance bird habitat, reintroduce native species, etc.)
- Participatory restoration and research programs
- Build upon Eastern Island historic interpretation and educational program, guided tours, and protection and rehabilitation of historic sites
- Reconstruct sand dune airplane revetment with built-in crew/sleeping area
- Improved trail system linking historic features and memorials
- Determine appropriate treatment of historic runway, e.g., trails, historical interpretation, or partial habitat restoration
- Installation of remote wildlife viewing cameras for monitoring and educational purposes

### SPIT ISLAND

Spit Island is primarily zoned in Marine Protection Zone and Revegetation/Habitat Zone. It is important habitat for monk seals, sea turtles, birds, and other wildlife. No public access is allowed, and no development will occur on Spit Island to promote thriving wildlife populations and habitat. Spit Island will continue to support research and biological programs.



WWII airplane revetment on Eastern Island

## 5. Midway Atoll Conceptual Site Plan

### SAND ISLAND CONCEPTUAL SITE PLAN

#### MARINE AND SHORELINE PROTECTION

The Marine Protection Zone designates protected shoreline and fringing marine habitat on Sand Island that supports wildlife and their critical life activities such as resting, feeding, nesting, fledging, migrating, etc. Public access is generally not allowed in these sensitive shoreline areas, and these areas will remain undeveloped. However, biological programs, research, and management activities will continue to occur. Key actions for this zone are as follows:

- Limit human access mainly to the pursuit of biological programs, research, and management
- Install permanent moorings at regularly used anchorages to prevent coral reef damage
- Conduct coral reef rehabilitation projects when and where appropriate, using the best available information about predisturbance conditions.
- Reinforce, repair, or improve limited trail access, viewpoints, and signage, create viewing stations for wildlife watching
- Evaluate the potential for natural beach restoration, particularly along hardened or rip-rapped shorelines such as the South Beach, and the shoreline near Turtle Beach. Further studies are required to determine feasibility.

Reef habitat recommendations from the Monument Management Plan include the following strategies and activities from section 3.2.3, **Habitat Management and Conservation Action Plan** (HMC):

**Strategy HMC-1:** Within 15 years, develop and implement a strategy for restoring the health and biological diversity of the shallow reefs and shoals where anthropogenic disturbances are known to have changed the ecosystem, using best available information about predisturbance conditions.

**Activity HMC-1.1:** Identify and prioritize restoration needs in shallow water reef habitats impacted by anthropogenic disturbances within 5 years.

**Activity HMC-1.2:** Analyze historical and present impacts on reef growth at Midway Atoll and determine factors limiting nearshore patch reef growth to facilitate restoration of natural reef building.

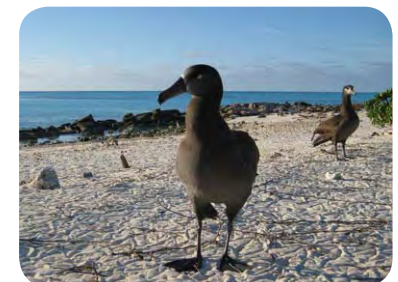
**Activity HMC-1.3:** Where feasible, implement appropriate restoration activities.

#### HABITAT RECOVERY

Despite the incredible abundance of terrestrial and aquatic wildlife, wonderful beaches, and crystal clear water, Midway Atoll is a highly disturbed atoll system containing invasive plant and animal species, toxic materials in building materials and soils, and human developments that have created significant adverse impact on indigenous species and their habitat. Most of the Midway Atoll is designated as the Revegetation/Habitat Zone in this Conceptual Site Plan to focus efforts on restoring atoll habitat and enhancing species populations.

The conceptual plan for habitat management and restoration at Midway Atoll over the next 15 years is to increase the amount of habitat available for all species of breeding seabirds, overwintering migratory birds, Laysan ducks, and potential future translocated native birds by removing nonhistoric abandoned structures and pavement installed by the U.S. Navy, controlling and eradicating nonnative vegetation, and planting and seeding appropriate native plants.

As described in the Monument Management Plan's section 3.3.2, **Alien Species Action Plan**, FWS will control or eradicate golden crown-beard (*Verbesina encelioides*), ironwood (*Casuarina* spp.), haole koa (*Leucaena leucocephala*), castor bean (*Ricinus comunus*), Spanish needle (*Bidens* sp.), lantana (*Lantana camara*), pluche ( *Pluchea indica*), cheeseweed (*Malva parviflora*), poinsettia (*Euphorbia cyathophora*), Guinea grass (*Panicum maximum*), vervain



Black-footed albatrosses





## 5. Midway Atoll Conceptual Site Plan

### SAND ISLAND CONCEPTUAL SITE PLAN

(*Verbena litoralis*), umbrella plant (*Cyperus alternifolius*), nonnative morning glory (*Convolvulaceae*), ivy gourd (*Coccinia grandis*), black mustard (*Brassica nigra*), buffel grass (*Cenchrus ciliaris*), New Zealand spinach (*Tetragonia tetragonioides*), Chinese banyan (*Ficus microcarpa*), sand bur (*Cenchrus echinatus*), and spiny pigweed (*Amaranthus spinosus*).

Over the 15-year life of the plan approximately 937 acres of nonnative vegetation (coastal mixed grasses and shrubs) will be restored to a native dominated landscape. Native species used for restoration will be chosen on the basis of historical records at Midway and historical and pollen records from Laysan Island and will include bunchgrass (*Eragrostis variabilis*), naupaka (*Scaevola sericea*), morning glory (*Ipomoea pes caprae*, *I. indica*), *Solanum nelsonii*, *Capparus sandwichiana*, *Chenopodium oahuense*, and *Lepidium bidentatum*.

Approximately 118 acres of abandoned buildings and paved areas will be removed and converted into useable habitat. Demolition costs are estimated at several million dollars, however, so this will likely be a longer-term activity. The refuge will remediate lead-based paint from buildings and the surrounding soil to prevent adverse effects to wildlife.

Additionally, the Monument Management Plan includes the following activities related to habitat recovery in Midway Atoll (for detailed information, see section 3.2.3, **Habitat Management and Conservation Action Plan (HMC)**):

**Strategy HMC-4:** Within 10 years, restore and maintain coastal mixed grasses and shrubs on all the coralline islands and atolls of the Monument using best available historical information about the original indigenous ecosystem.

**Activity HMC-4.1:** Propagate and outplant native species chosen on the basis of historical records at Midway and historical and pollen records from Laysan Island in 250 acres of vegetated area at Midway Atoll, focusing on the original footprint of the island and then moving to the dredge spoils section.

**Strategy HMC-8:** Maintain no more than 150 acres of ironwood woodlands on Sand Island, Midway Atoll, to provide seabird nesting and roosting habitat for the life of the plan.

**Activity HMC-8.1:** Remove ironwood on Sand Island from 50 acres outside designated woodland and control young ironwood in areas managed for grass and shrubs.

**Strategy HMC-2:** Within 10 years, investigate, inventory, and map sources of known contamination from historical human uses of the NWHI and, where appropriate, coordinate with responsible parties to develop plans and complete cleanup actions.

**Activity HMC-2.7:** Conduct ecological risk assessment to determine allowable lead levels in soils at Midway and remove lead from buildings and soils to nonrisk levels.

#### No Dig Areas/Landfills

The “no dig” areas are sites that contain contaminated soils or other materials that cannot be disturbed. These sites include the Old Bulky Waste Landfill on the South Beach point and the old fuel farm on the North Beach.

The “No Dig” areas were designated in the Base Realignment and Closure process (BRAC) as Land Use Controls where digging below 4 feet is prohibited (or FWS assumes all responsibility). These areas, and several landfills, were determined to not necessitate further cleanup unless the controls were not effective. The Old Bulky Waste Landfill, however, is an example where the control is not sufficient and further remediation needs to be addressed through the BRAC process.



South point at Old Bulky Waste landfill



To the extent feasible, it is recommended that the “No Dig/Land Fill” areas that contain contaminated soils and/or facilities be enhanced for habitat. The largest area is in the vicinity of the old fuel tanks in the northeastern part of Sand Island. It is proposed that the tanks and associated facilities be removed, and nonnative vegetation be replaced with native vegetation. Further plans and procedures for remediation of an area such as the fuel farm are required to ensure that contaminated areas are clean and will not impair wildlife.

Additionally, the Monument Management Plan includes the following activities related to land fills and dumps in Midway Atoll (see section 3.2.3, **Habitat Management and Conservation Action Plan (HMC)**):

**Strategy HMC-2:** Within 10 years, investigate, inventory, and map sources of known contamination from historical human uses of the NWHI and, where appropriate, coordinate with responsible parties to develop plans and complete cleanup actions.

**Activity HMC-2.2:** Work with partners and responsible parties to verify the integrity of known landfills and dumps and to conduct additional remediation if necessary.

## HISTORIC RESOURCES

Within the Monument Management Plan (see section 3.1.3, **Historic Resources Action Plan (HR)**), five strategies affecting historic resources at Midway Atoll are identified for achieving the desired outcome of identifying, interpreting, and protecting historic resources in the NWHI.

**Strategy HR-1:** Update the Midway Atoll Historic Preservation Plan to meet the present needs of the Refuge and Monument within 1 year.

**Strategy HR-2:** Implement, supervise, and monitor the historic preservation treatments identified in the Midway Atoll Historic Preservation Plan at two historic properties each year.

**Strategy HR-3:** Prepare an updated Battle of Midway National Historic Landmark nomination within 4 years.

**Activity HR-3.4:** Implement repair and maintenance treatments at National Historic Landmark features within 6 years.

**Strategy HR-4:** Improve the function and capacity of the Midway museum within 8 years.

**Activity HR-4.1:** Prepare a Scope of Collections Statement within 5 years.

**Activity HR-4.2:** Remodel the Midway museum space within 7 years.

**Activity HR-4.3:** Organize and curate collections within 8 years.



Midway Mall interior: ideal space for offices, classrooms, and visitor services



Native bunchgrass successfully restored on Eastern Island



Midway Atoll offers important historic preservation and interpretation opportunities



Historic WWII Torpedo shop with parachute tower

## 5. Midway Atoll Conceptual Site Plan

### SAND ISLAND CONCEPTUAL SITE PLAN

---

**Strategy HR-6:** Conduct archaeological and historical research on the historical events and structures at Midway Atoll NWR within 15 years.

**Activity HR-6.2:** Conduct archaeological investigation of the Commercial Pacific Cable Station site within 10 years.

Additional strategies and activities targeted at understanding and protecting Midway Atoll's submerged historic resources are found in the Monument Management Plan in Section 3.1.4, **Maritime Heritage Action Plan** (MH):

**Strategy MH-1:** Document and inventory maritime heritage resources throughout the life of the plan.

**Activity MH-1.2:** Plan and carry out coordinated field mapping surveys of selected sites annually.

#### COORDINATED FIELD OPERATIONS

As a hub of operations for the Monument, Midway Atoll is the primary focus of the Coordinated Field Operations Action Plan in the Monument Management Plan. The following activities related to an integrated program in Midway Atoll are included (see section 3.6.3, **Coordinated Field Operations Action Plan** (CFO), for details):

**Strategy CFO-1:** Conduct necessary site planning and infrastructure improvements to increase safety and enhance Monument field operations capacity over the life of the plan.

**Activity CFO-1.1:** Initiate and complete necessary planning to implement the Midway Atoll Conceptual Site Plan.

**Activity CFO-1.3:** Develop alternative energy systems and waste reduction strategies for the Monument within 2 years.

**Activity CFO-1.4:** Plan for use of sustainable engineering, technology, and landscape architecture for facilities and assets throughout the Monument.

**Strategy CFO-3:** Maintain and improve housing and field camp safety and operational efficiency using short-, medium-, and long-term approaches to protect Monument resources across the life of the plan.

**Activity CFO-3.1:** Design and construct pilot low-impact shelter.

**Activity CFO-3.2:** Utilize the existing footprint of Bravo Barracks for replacement housing at Midway Atoll.

**Activity CFO-3.3:** Utilize the existing footprint of Charlie Barracks for replacement housing at Midway Atoll.

**Activity CFO-3.4:** Rehabilitate "Officers Row" Housing at Midway Atoll.

**Strategy CFO-4:** Meet fuel requirements for aircraft, vessel, utility, and equipment needs at Midway Atoll to support operations to protect and manage Monument resources.

**Activity CFO-4.1:** Maintain recently replaced fuel farm at Midway Atoll.

**Activity CFO-4.2:** Develop biodiesel fuel capacity or other sustainable fuel types at Midway Atoll within 2 years.

**Strategy CFO-5:** Rehabilitate critical utility systems and ailing structures and facilities at Midway Atoll within 5 to 15 years.

**Activity CFO-5.1:** Rehabilitate water catchment and distribution system.

**Activity CFO-5.2:** Rehabilitate septic and wastewater systems.

**Activity CFO-5.3:** Treat all wooden historic structures at Midway Atoll for termites.

**Activity CFO-5.4:** Evaluate and optimize food services as necessary.

**Activity CFO-5.5:** Rehabilitate seaplane hangar.

**Activity CFO-5.6:** Repair inner harbor sea wall.

**Strategy CFO-6:** Within 5 years, improve the small boat operational capacity to enable quick, reliable access to the region in support of protection and management and continue to enhance the program throughout the life of the plan.

**Activity CFO-6.1:** Inventory, maintain, and coordinate the use of small boats and related field resources.



**Activity CFO-6.2:** Within 2 years, station additional vessels at Midway for use during the summer marine research field season.

**Activity CFO-6.3:** Within 5 to 10 years, station a small research/enforcement vessel at Midway Atoll.

**Activity CFO-6.4:** Construct new finger piers inside of Midway's inner harbor.

**Activity CFO-6.5:** Redevelop existing boathouse at Midway into a multiuse facility.

**Activity CFO-6.6:** Evaluate needed improvements to Pier No. 1 in the ship basin and the Tug Pier at Midway Atoll.

**Activity CFO-6.7:** Make needed improvements to or replace the pier at Eastern Island.

**Strategy CFO-8:** Develop a safe and comprehensive dive operations program for Monument management activities within 5 years.

**Activity CFO-8.1:** Refurbish or replace the dive recompression chamber at Midway.

**Activity CFO-8.3:** Incorporate a dive operations center into the refurbished boathouse facility at Midway.

**Strategy CFO-9:** Provide for necessary research, education, visitor, and administrative facilities that will further the protection of Monument resources across the life of the plan.

**Activity CFO-9.1:** Design a marine laboratory at Midway and develop in phases.

**Activity CFO-9.2:** Complete planning for and construct a captive care monk seal facility on Sand Island.

**Activity CFO-9.4:** Complete Phase I rehabilitation of Midway Mall and the commissary building.

**Activity CFO-9.5:** Construct airport welcome center on Sand Island within 2 years.

## **SAND ISLAND BUILDING PROGRAM**

The four guiding principles of architectural design and construction on Midway are defined as: Sustainability, Historical Integrity, Biological Integrity, and Tropical Aesthetic.

Each construction project at Midway will be considered through the lens of sustainability and a low carbon footprint, taking into account use of nontoxic, durable materials; recycling building materials; natural solar and ventilation techniques; high energy efficiency; shared facilities and infrastructure; low massing of smaller buildings in place of cumbersome 3-story structures; on-site renewable power generation, on-site water catchment, and on-site waste treatment at each building; etc.

The Historic and Primary Development Zone designates Sand Island's historic core and redevelopment area; it delineates an area that is highly significant in terms of historic development patterns. Several historic structures and features are contained within this zone. This zone indicates the primary area where development of new facilities or adaptive reuse of existing or historic structures is an appropriate activity. Reusing existing historic structures is a very high priority to protect the cultural landscape and historic structures. Reuse of existing structures or the construction of new structures will fit the historic character of Sand Island (1900s Cable House style or 1940s Albert Kahn style), and will have either no impact or a positive impact on wildlife and habitat.

Design of new or renovated buildings will also take into account the tropical building vernacular, including platform construction, peaked roofs, and overhangs.

## 5. Midway Atoll Conceptual Site Plan

### SAND ISLAND CONCEPTUAL SITE PLAN

---

Clustering development to reduce the extent of disturbance and create efficiencies in infrastructure and operations is a key recommendation. Reusing existing facilities and keeping the building program within the “Historic Zone” is another sustainability strategy in that it reduces the requirement to extend utilities, roads, equipment, and resources across the island.

With the limited window for construction and the likelihood that any construction will have to be tightly contained with limited areas for staging because of albatross habitat, the need for quality premanufactured, component construction would be desirable. This is not to be confused with mobile trailer type construction, which is contrary to the building guidelines that gained general acceptance with the client group.

Performance Standards for New Construction should be applied, as follows:

1. Energy-Efficiency Measures—Areas for Energy Savings:
  - Conservation through Building Design: Reduce Energy Consumption
  - Insulated building envelope, possibly “green roofs”
  - Weatherproofing
    - Airtight seals at windows and doors
  - Energy-efficient window glazing (Low-E)
  - Optimize daylighting strategies
  - Optimize natural ventilation strategies
  - Economize heating/cooling system
  - Energy-efficient equipment and appliances
    - Energy Star rated
2. Landscape and Site Design
  - Wind protection
    - Native landscape plantings clustered around buildings
    - Earthen berms to provide wind protection
  - Solar orientation

3. Alternative Energy Systems

- Solar hot water heater
- Full photovoltaic system
- Fuel cells
  - Powered by hydrogen generated from electrolysis
  - Only if system does not impact local coral reef ecosystems

#### STRATEGIES TO ADDRESS SEA LEVEL RISE AND CLIMATE CHANGE

Midway power currently relies entirely on fossil fuel. Alternative energy systems should be explored, such as solar power, hydrogen fuel cells, or water-powered micro-turbines. Further study is required to measure the benefits of these alternative energy methods and their potential impacts to wildlife, birds, and marine systems. A goal for Sand Island is to have a plan in place within 15 years for alternative energy system(s) such as solar to replace the current power generation.

Midway’s islands will be affected by sea level rise through loss of land and higher spring tides, therefore restoration activities should be focused on the highest elevational areas and the original footprints of the islands. One possible mitigation measure to counter the effects of sea level rise in the NWHI may be beach nourishment, whereby sand is strategically deposited onto beaches (Baker et al. 2006).

Selective removal of rip-rap and bulkheads to restore natural beach deposition processes and shoreline habitat is one strategy that has successfully been applied to marine shorelines. It is recommended that a shoreline restoration/stabilization study be performed within the next 5 years. Careful study is required to assess the current condition of seawalls, and to determine which seawalls need to be retained to protect the structures and landfill behind them, and which shoreline sections may be restored to a natural beach condition.

Managing a significant portion of the atoll as native grass and shrublands and a smaller portion of the atoll as ironwood will not only be beneficial to seabirds for breeding and resting habitat but will also demonstrate a commitment for carbon sequestering whenever possible (Conant et al. 2001; Shan et al. 2001).

Acquisition of a new airplane and small research vessel would enable fewer overall trips and increased transportation efficiency. Vessels should also be fueled by appropriately sourced biodiesel or other fuels if possible.

### **SAND ISLAND BUILDING PROGRAM WITHIN CORE HISTORIC/DEVELOPMENT ZONE** **Lodging**

The Planning Team evaluated visitor capacity, visitor type, and length of stay in considering lodging needs. The maximum total population for any given overnight is set for 150 people. Short-term lodging is required for visitors, researchers, agency staff, and others who stay on Sand Island from 1 night to 2 weeks. Longer-term lodging is required for volunteers, staff, researchers, and others who stay on the island on a seasonal or permanent basis from 2 weeks to year-round. Additionally, emergency overnight lodging may be required due to the island's remoteness and isolation.

Given the varying lodging needs, the Planning Team identified a range in housing facility types to accommodate these diverse visitors while maximizing the existing structures and minimizing development impacts. Refer to Summary Table for details on housing units and visitor capacity. Housing facilities will



*Cable House architectural vernacular may be applied to new lodging design*



*Energy efficient and smaller scale multiplex units will replace BOQ barracks*



*Officers' Quarters rehabilitated as residences*

comply with accessibility requirements included within the Rehabilitation Act of 1973 (as amended), Section 504 and 508; and the Architectural Barriers Act (ABA) of 1968. The lodging types are as follows:

**Officers' Quarters**—Reuse eight historic officers' quarters as residences (approximately 1,600 sf each) for visitors, seasonal, or permanent staff. Convert one building into a bunkhouse with limited amenities to accommodate overnight visitors. The bunkhouse could accommodate about 14 people.

**Duplexes**—Repair and maintain existing duplexes (approximately 900 sf per unit). Duplexes can accommodate about 11 people, generally seasonal or permanent staff.

**2-Story Cable-Style Units**—Construct module units in place of Charlie and Bravo Barracks. Make structural repairs to Charlie Barracks immediately, and replace within 15 years. Replace Bravo Barracks by year 2010. New module structures will be constructed on existing pads, but designed in smaller units. The possibility of constructing buildings on pilings to allow better flow of wildlife and habitat and higher energy efficiency will be evaluated. These units will primarily house short-term visitors, researchers, and staff, but could easily accommodate seasonal or permanent staff and volunteers as well. Space and capacity: 12' x 24' units at 330 sf will house 48–56 people.

**8-plex 1 or 2-story Units**—Construct 1- or 2-story 8-plex units in place of BEQ Barracks 1 and 2. New module structures will be constructed on existing pads,

## 5. Midway Atoll Conceptual Site Plan

### SAND ISLAND CONCEPTUAL SITE PLAN

but designed in smaller units and potentially on pilings to allow better flow of wildlife and habitat, and higher energy efficiency. These units will primarily house seasonal or permanent staff. Space and capacity: 12' x 25' units at 340 sf will house 48–96 people, depending on whether the structure is a single- or double-story building.

**Low-Impact Shelters**—As an optional short-term shelter type, construct clusters of low-impact shelters on existing concrete pads or on pads of demolished buildings within the residential district. Potential sites will be evaluated to rule out conflict with wildlife. These shelters will incorporate the design principles of Pacific Island regional architecture, e.g., simple structures, durable, nonpolluting and/or recycled materials, etc. These shelters will not be air-conditioned spaces. Natural ventilation, cooling, and weather protection will be designed into the structures. The footprint of each structure will be <200 square feet. These units will provide lodgings for ecotourists, visitors staying less than 1–2 nights, or emergency guests, and will demonstrate sustainable design principles. A pilot low impact structure/shelter will be developed within 4 years to determine the feasibility of such a design. The pilot will be constructed within the Sand Island housing zone.

**Emergency Shelter**—The existing gymnasium could be used for emergency shelter. Repairs to the gymnasium are required, e.g., roof replacement.

#### OTHER SAND ISLAND BUILDINGS

**Cable Station Buildings**—Most of these early 1900s structures are in extremely derelict condition and pose hazards to birds, wildlife, and humans. However, they are critical to telling the early Midway story related to the Commercial Pacific Cable Company period. FWS Cultural Resources staff has assessed these structures and their recommendations are incorporated into a proposal to the State Historic Preservation Office. All but one structure (#643) would be partially dismantled due to safety issues for people and wildlife. Building materials would be removed and recycled, as well as hazardous paint and materials, yet the structures' remnants would remain in place for the preservation and

interpretation of the historic landscape. Further assessment is required to determine the exact extent and methods for deconstruction. Building #643 would be stabilized and repaired to a level where the structure does not pose safety or toxicity hazards, and could be interpreted.

**Seaplane Hangar**—Repair of the roof is required to maintain the current structure. The Seaplane Hangar will be rehabilitated to the extent feasible to achieve functions of storage and potential military display. For example, the glass façade may be replaced.

**Military Historic Structures**—Several World War II-era structures still exist that historically were and still are part of island maintenance and operations. These include, among others, the Paint Shop, the Metal Shop, and the Carpentry Shop. These structures require repair and maintenance to protect the historic integrity of the buildings, and to remove hazardous materials, such as lead-based paint and asbestos, that pose threats to wildlife and humans.

#### VISITOR SERVICES AND FACILITIES

**Midway Atoll Visitor Center**—The Midway Mall will be rehabilitated and reused as the hub of Midway Atoll. It will become a multifunctional building, including visitor center, educational facilities and classrooms, museum/library, agency offices, and partner offices. Designed by 1940s industrial architect Albert Kahn, Midway Mall offers a lot of character and interest, and has a large amount of space to accommodate diverse activities. Its strategic location in the core historic/development area and easy access for Sand Island visitors are also positive features.



Midway Atoll Visitor Center: hub of agency offices, educational facilities, and visitor services

**Visitor Welcome Centers**—Welcome centers are required at the Inner Harbor and at Henderson Airfield, to greet, orient, and stage visitors arriving by boat or airplane. These centers will be modest, possibly open-air structures that would likely include interpretive exhibits.

Additionally, the Monument Management Plan and Visitor Services Action Plan recommend the following strategies and activities (see section 3.4.3, **Midway Atoll Visitor Services Action Plan (VS)**):

**Strategy VS-1:** Implement the Midway Atoll Visitor Services Plan, providing visitor opportunities for up to 50 overnight guests at any one time.

**Activity VS-1.1:** Provide visitors with opportunities for wildlife-dependent recreation to enhance their knowledge and appreciation of the Monument's natural resources.

**Activity VS-1.2:** Provide visitors with opportunities to learn about and appreciate the Monument's cultural and historic resources.



*Clipper House*



*Captain Brooks*

## FOOD SERVICES

**Clipper House**—The Clipper House presently serves as the primary food service facility for Midway. Overall food services will need to be expanded to accommodate future population increases and enlargement of the Clipper House, reuse of older existing food service facilities, or construction of a new dining facility will be evaluated.

**All Hands Club**—Structure will be reused for agency operations and management due to its proximity to Midway Mall. Alternatively, the existing structure will be demolished and the area restored for habitat. Current functions will be moved to other facilities, e.g., the Galley building or Captain Brooks.

**Captain Brooks**—Will be maintained as is.

**Galley Building**—Galley Building will be reused as gift shop, snack bar, and Internet service for both visitors and staff. The rear half of the structure is in poor condition and will be demolished.

**Hydroponic Greenhouse**—Hydroponic greenhouse is used for growing produce so that Midway is more self-sufficient in terms of food production.

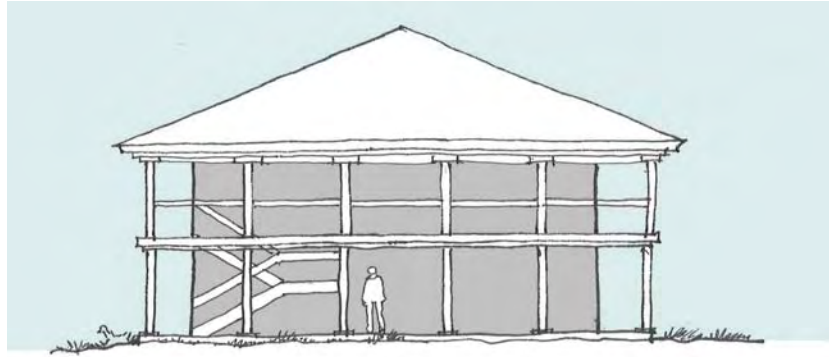


*Sand Island transportation: foot, cart, or bicycle*

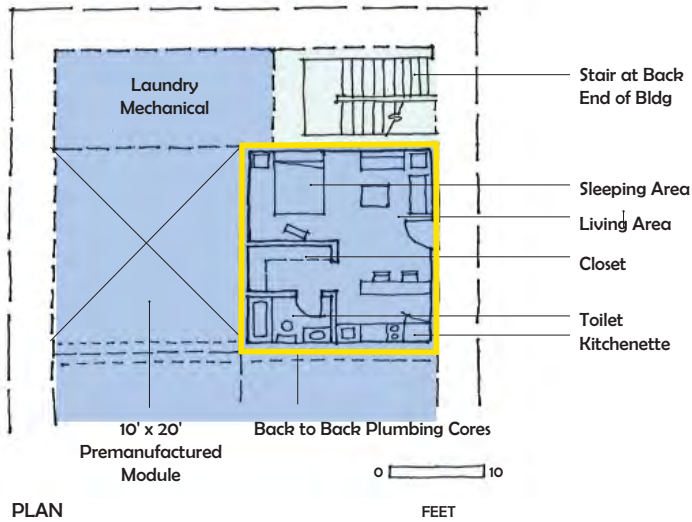


# 5. Midway Atoll Conceptual Site Plan

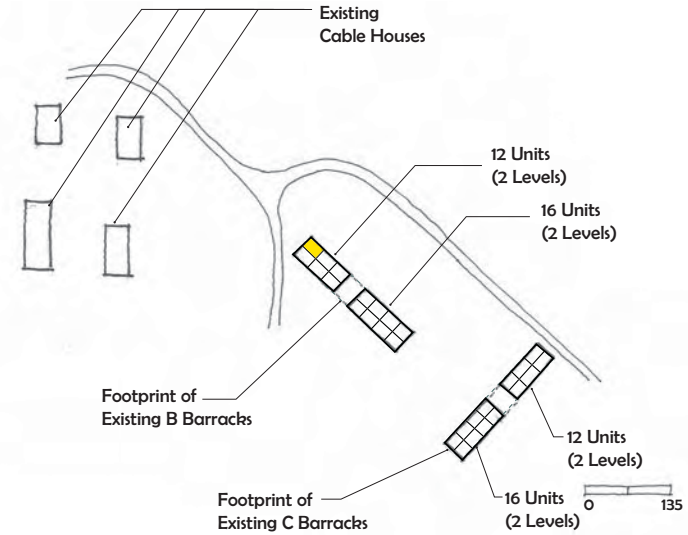
## SAND ISLAND CONCEPTUAL SITE PLAN



ELEVATION



PLAN



SITE PLAN

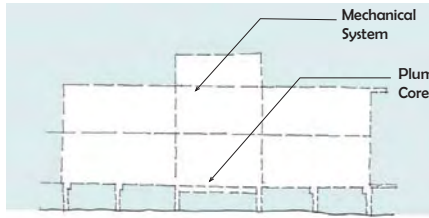
### CABLE HOUSE STYLE ~ 1900S

- CONSTRUCT ON EXISTING CONCRETE PADS OR PADS OF DEMOLISHED BUILDINGS
- INCORPORATE DESIGN AESTHETIC OF HISTORIC CABLE STATION BUILDINGS
- SMALLER UNITS ALLOW HIGHER ENERGY EFFICIENCY AND FLOW OF WILDLIFE
- PROVIDE LODGING FOR SHORT-TERM VISITORS, VOLUNTEERS, AND STAFF, OR SEASONAL AND PERMANENT STAFF



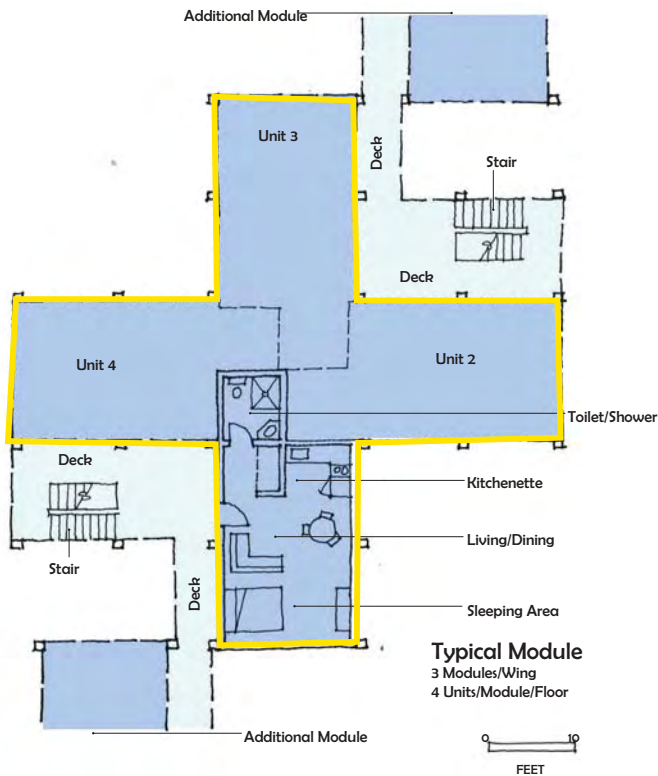
## ARCHITECTURAL CONCEPT FOR NEW LODGING: CABLE HOUSE VERNACULAR MIDWAY ATOLL CONCEPTUAL SITE PLANNING



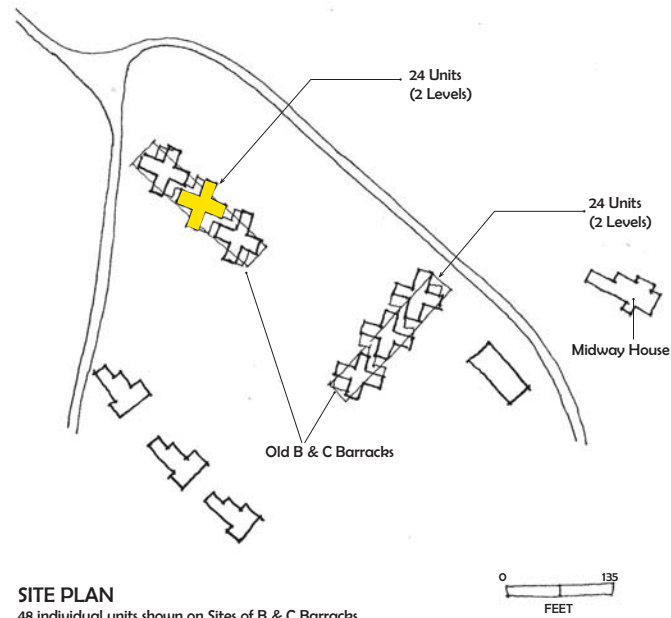


With "piling" design, this could be built in many locations without major disruption of the Albatross. This plan better reflects the Kahn Buildings. No attempt was made to express architectural character.

DIAGRAMMATIC ELEVATION



PLAN



SITE PLAN

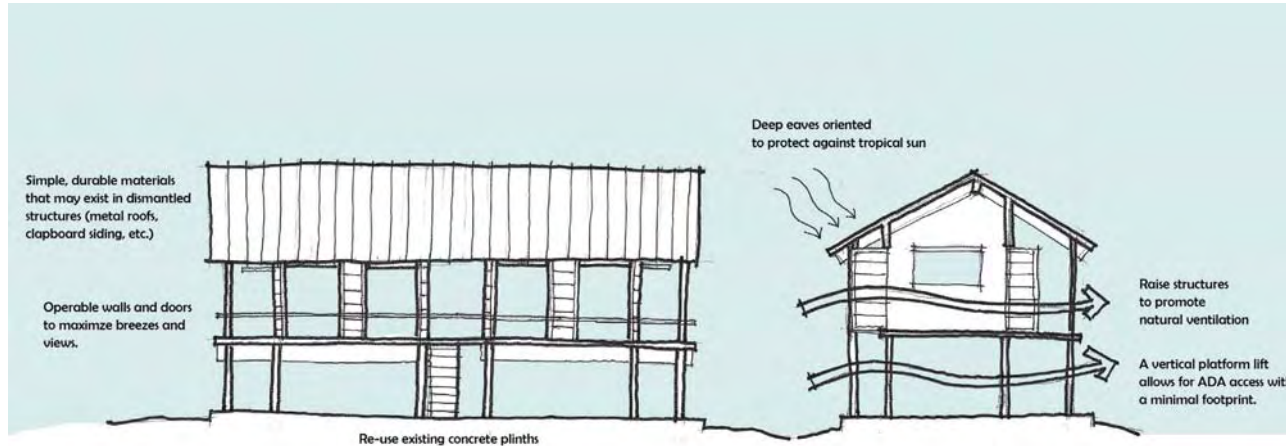
48 individual units shown on Sites of B & C Barracks

### KAHN MODULES ~1940s

- CONSTRUCT ON EXISTING CONCRETE PADS OR PADS OF DEMOLISHED BUILDINGS
- INCORPORATE DESIGN AESTHETIC OF ARCHITECT ALBERT KAHN
- SMALLER UNITS ALLOW HIGHER ENERGY EFFICIENCY
- PROVIDE LODGING FOR SEASONAL OR PERMANENT STAFF

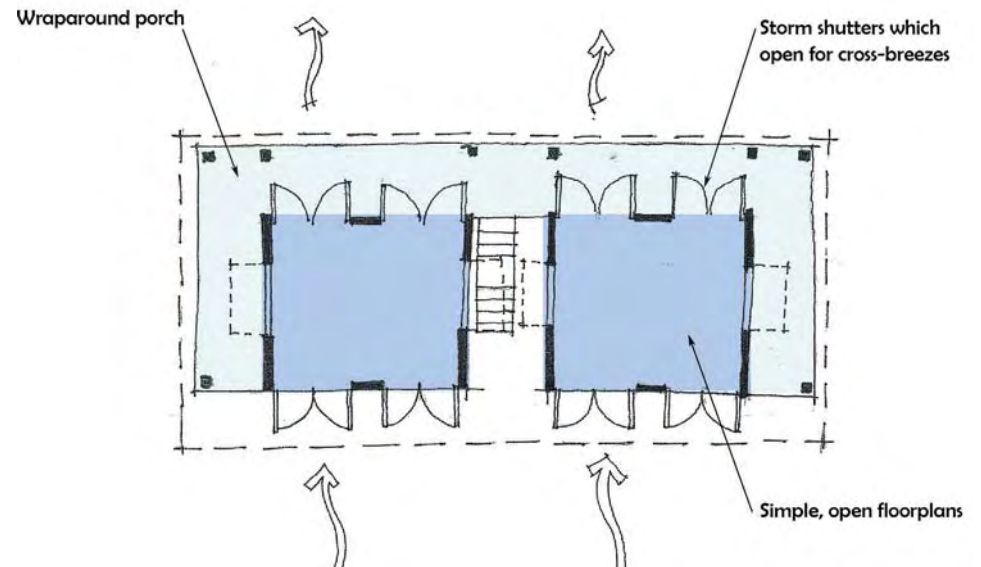
# 5. Midway Atoll Conceptual Site Plan

## SAND ISLAND CONCEPTUAL SITE PLAN



### LOW IMPACT SHELTERS

- CONSTRUCT ON EXISTING CONCRETE PADS OR PADS OF DEMOLISHED BUILDINGS
- INCORPORATE DESIGN PRINCIPLES OF PACIFIC ISLAND REGIONAL ARCHITECTURE
- NATURAL VENTILATION, COOLING, AND WEATHER PROTECTION
- DEMONSTRATE SUSTAINABLE DESIGN PRINCIPLES
- PROVIDE LODGING FOR ECO-TOURISTS, VISITORS STAYING FEWER THAN 1-2 NIGHTS, OR EMERGENCY GUESTS



DECEMBER 2008

## ARCHITECTURAL CONCEPT FOR NEW LODGING: TROPICAL VERNACULAR MIDWAY ATOLL CONCEPTUAL SITE PLANNING



*Albatross chick*

## 5. Midway Atoll Conceptual Site Plan

### AGENCY RESEARCH AND OPERATIONS FACILITIES CONCEPT

---

**Midway Mall**—Co-Trustee offices and other partner facilities move into Midway Mall, which will also provide visitor services, classrooms, and other functions. Midway Mall is the hub of agency operations on Midway Atoll and field operations in the northern part of Papahānaumokuākea Marine National Monument. The primary hub of operations for NWHI is based in Honolulu FWS, NOAA, and State offices.

**Fish and Wildlife Services Office**—FWS office retained for additional office facilities.

**Marine Laboratory**—Wet lab, dry lab, refrigeration, quarantine, and office space will be integrated into a Marine Laboratory building. The Old Commissary Building's proximity to Midway Mall suggests reuse of the building for agency research or biological programs. However, several buildings will be evaluated for this purpose.

**Monk Seal Captive Care Facility**—NOAA has expressed interest in creating a new Monk Seal Captive Care Facility on Sand Island. A suggested location for this facility is near the Inner Harbor on existing asphalt pad. This location is close to water, transportation, and the agency facilities housed in Midway Mall.

The following are the NMFS monk seal research program facilities needs:

#### SEAL HOLDING

- a. For the first 5 years seal holding will consist of pools sufficient to hold 10–12 seals and the potential to isolate individuals. This could be accomplished with four 20' diameter holding tanks each enclosed with dry resting area to a combined foot print of 30' x 30' for each of the four tanks.
- b. It is anticipated that after 3–5 years, twice that holding would be used.
- c. The total footprint in the first phase will be about 4,500 sq ft with an addition expandable capacity to approximate total of 8–9,000 sq ft.

#### WATER

- a. Source—1000–1200 gpm sea water for 10–12 juvenile seals.
- b. Semi-open or closed systems could be considered when conducting environmental analysis.

#### ANCILLARY STRUCTURES

- a. Fish prep—200 sq ft area will be necessary to support the 10–12 seals
- b. Freezer—seal food will depend on the potential schedule of resupply.
- c. Housing for 6 animal care personnel and 2–3 associated seal scientists/biologists

**Quarantine Facility**—required for biological species protection and recovery programs administered by FWS and/or NOAA.

**Holding Tanks**—required for biological species protection and recovery programs administered by FWS and/or NOAA.



*Midway Mall interior*



*Midway Mall reused as Midway Atoll Visitor Center*



*Monk seal*



*Chugach offices and Medical Clinic*



*Biological research is a vital Midway Atoll activity*



*Nursery pen for Laysan duck reintroduction on Sand Island*



## 5. Midway Atoll Conceptual Site Plan

### INNER HARBOR CONCEPT

The Inner Harbor area includes the historic Inner Harbor and its associated shoreline, piers, and facilities. One of two approaches to the island (by vessel or aircraft), the Inner Harbor zone is critical to visitor arrival, transportation of services and goods, and water-based activities (e.g., ecotourism via passenger vessels, marine research, rescue operations, security).

Several improvements to the Inner Harbor zone are recommended. The current seawall around the perimeter of the basin is extremely degraded and requires assessment and repair. Additionally, concrete rubble and other materials in-water near the west docking area impede vessel travel and anchoring; these materials need to be removed after determination of toxicity issues.

A new ramp and pier is proposed at or near the vicinity of the historic seaplane ramp in the west Inner Harbor area. The presently used ramp is too shallow to launch or load boats onto trailers without “floating the trailer out” beyond the launching vehicle. Further historic analysis is needed to determine if the seaplane ramp may be redesigned as a ramp suitable for boat launching, or whether it should remain in place and a new ramp and pier be constructed nearby. Additionally, a series of finger piers are needed to accommodate small or mid-sized boats.

If an additional mid-sized pier is required to separate uses (e.g., operations versus visitors), a second pier could potentially be sited in the inner harbor.

Further analysis will be necessary to finalize the location of any new infrastructure in the inner harbor.

The existing boathouse is periodically flooded by surface flows across the large asphalt surface. The structure will be resited further upland and possibly elevated on the existing concrete pad and reconstructed as a new boathouse/dive center to meet interagency needs. The boathouse will include a dive center, storage for marine-associated equipment, and potentially a temporary bunkhouse space for short-term use and limited interim lab space until other facilities are renovated or reconstructed.

A small welcome kiosk may be appropriate onshore in the Inner Harbor in the northwest corner of the Inner Harbor to greet and orient visitors arriving by water. Paths and circulation routes to the Midway Atoll Visitor Center will be clearly delineated along existing or historic routes.



Visitor arrival by boat



Historic seaplane ramp and existing boathouse

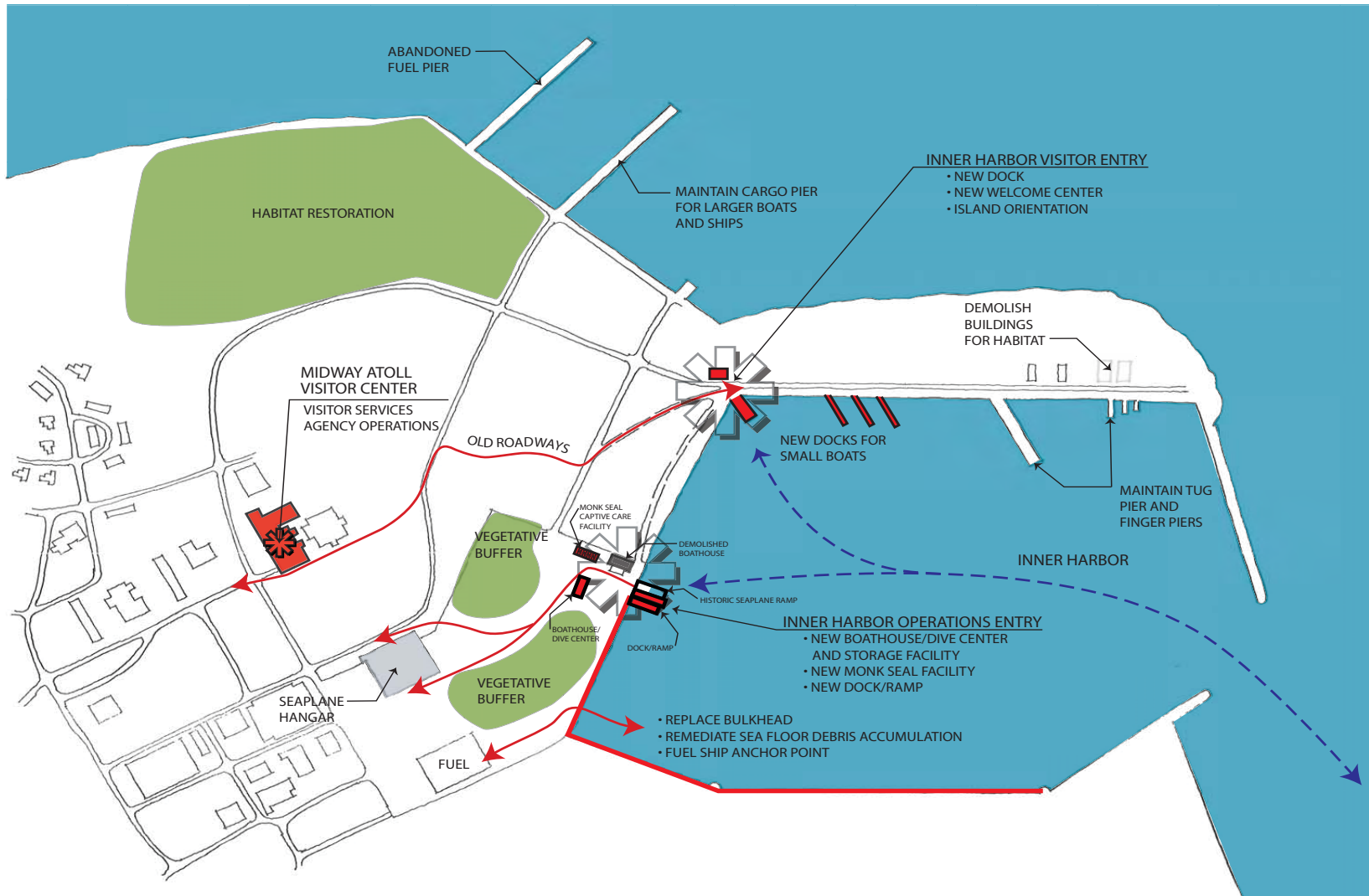


Inner Harbor seawall



new FWS boat





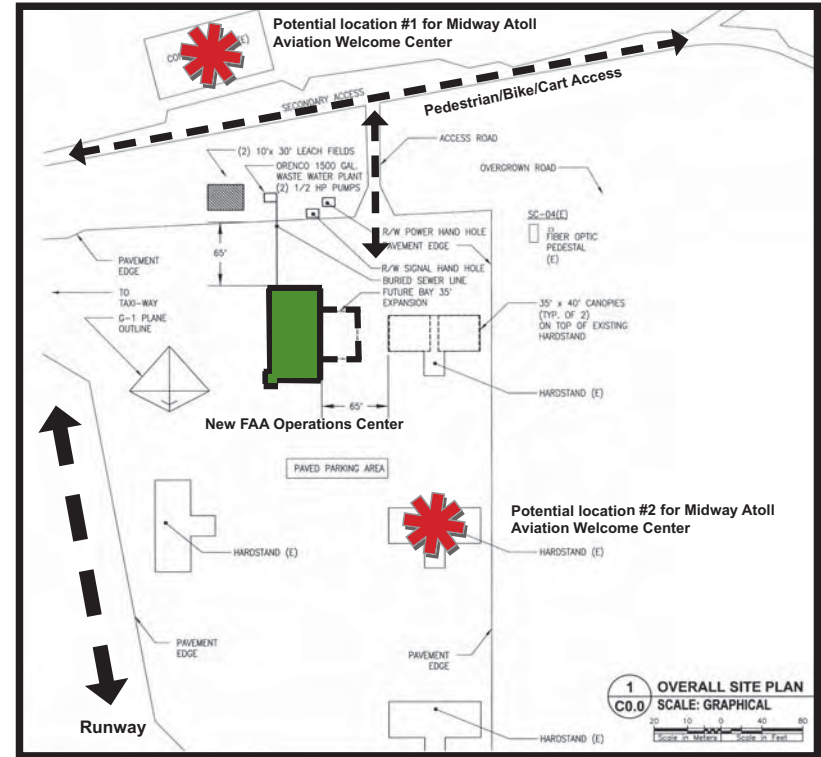
**INNER HARBOR CONCEPTUAL PLAN**  
**MIDWAY ATOLL CONCEPTUAL SITE PLANNING**

# 5. Midway Atoll Conceptual Site Plan

## AIRPORT WELCOME CENTER CONCEPT

The Airfield Operations Zone on Sand Island includes the runway and the new Henderson Airfield operations center. One of two approaches to the island (by boat or aircraft), the Airfield Operations zone is critical to visitor arrival, transportation of services and goods, and aviation activities (ecotourism via air travel, research, emergency operations, security).

A new small Welcome Center will be appropriate to greet and orient visitors arriving by airplane. While the new operations center is now in place, there is no shelter to gather or greet visitors. Preliminary concepts for a Welcome Center indicate two potential locations that may be appropriate to build this facility. The proposed alternatives locate the structure on existing concrete or asphalt pads that are in close proximity to existing circulation routes but avoid conflict with airplane operations. Further analysis and coordination with FAA and Midway operations will be necessary to finalize the location of the Welcome Center.



Midway Atoll Aviation Node



Visitor arrival on Sand Island is a big event







## Priority Actions and Next Steps





## 6. Priority Actions and Next Steps

### PRIORITIZATION AND IMPLEMENTATION

This Plan provides long-term guidance for management decisions at Midway, including best estimates of future needs and project activities. These estimates are substantially above current construction budget allocations, and are included primarily for strategic planning and program prioritization purposes, although they also serve to make the public aware of the costs of possible actions. This plan does not constitute a commitment of funds, or a commitment to request funds, by Federal or State agencies. All funding for actions included here is subject to the budgeting and appropriations processes.



The following narrative provides a preliminary framework for beginning to organize actions in terms of implementation schedule. Agency partners will work together to identify project priorities, roles and responsibilities, potential funding sources, and comply with appropriate environmental assessment requirements. These projects are important to support Monument operations as a whole, benefiting all of the agencies involved with its management.

#### ANNUAL MAINTENANCE

Through the Base Operations and Support Services (BOSS) contract for operation of Midway, FWS and the Federal Aviation Administration (FAA) fund routine cyclical preventive maintenance and minor repairs of equipment and facilities. Larger maintenance projects, such as roofing replacement, are also routinely completed as an addition to the contract. Both FWS and FAA add funds for routine maintenance projects that are over and above the scope of the BOSS contract.

These two funding sources allow for required maintenance work to be completed over the course of a year to both historic and nonhistoric buildings and facilities. This ongoing program will continue throughout the life of the plan to ensure that Midway's infrastructure is maintained in the best possible condition within available funding.

Larger, more expensive projects are either:

- a) Developed and put into the Service's database for Deferred Maintenance projects for which the Service receives an annual appropriation from Congress. Midway's extensive infrastructure needs have provided justification for those larger Midway projects and their resultant funding. This has allowed the Service to systematically work toward reducing the large maintenance backlog at Midway, and it is anticipated that this level of support will continue throughout the life of this plan.
- b) Funded by the FAA's Airport Capitol Improvement Program. Funding is provided to the FWS to support the design and construction of new airfield infrastructure (Airport Operations Building), or the improvement of existing facilities (resurfacing the runway).

#### HISTORIC RESOURCES

Maintenance of many of Midway's significant historic buildings and facilities is included in the BOSS contract described above and as such is ongoing. However, it does not include all the historic elements as described in the Historic Preservation Plan, which makes maintenance of those elements outside the scope of the contract and a management challenge for the Service. As outlined in the Monument Management Plan (Section 3.1.3 Historic Resources Action Plan), the Historic Preservation Plan will be rewritten





within the next year to be consistent with this Conceptual Site Plan and reflect the Service's commitment to reuse as many of Midway's historic buildings as possible to meet the Monument's and Refuge's needs at Midway. To maintain those buildings, structures, and facilities, additional funding must be found. The Service will work with other federal agencies, private organizations, veterans' groups, and others to find the support needed to maintain these important aspects of Midway's history.



### **PRIORITY MAINTENANCE/CONSTRUCTION PROJECTS AT MIDWAY ATOLL**

#### ***Design and Construct Airport Welcome Center on Sand Island***

\$500,000 — 2 years

A small passenger terminal/welcome facility will be constructed at the airport to handle passenger arrival and departures from Midway. This simple facility will offer restrooms, baggage handling, information, and a waiting area for staging passengers out of the weather.

#### ***Develop Biodiesel Fuel Capacity or Other Sustainable Fuel Types***

\$750,000 — 2 years

In an effort to advance the use of sustainable technologies at Midway, small boats, vehicles, and heavy equipment will be evaluated and, where feasible, transitioned to the use of biodiesel. This fuel could be stored on the existing concrete pad along the north wall of the inner harbor. Alternatively tanks could be located near the newly constructed fuel farm on the southwest corner of the inner harbor.

#### ***Utilize Existing Footprint of Bravo Barracks for Replacement Housing***

\$10 million — 3 years

Demolition costs for existing building must be included in construction cost. Bravo Barracks replacement is essential in order to provide safe housing for permanent island residents and transients working on future maintenance/construction projects.

#### ***Complete Phase I Rehabilitation of the Commissary Building and Midway Mall***

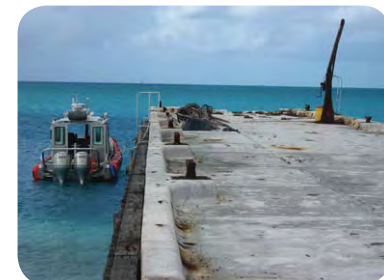
\$2 million — 3 years

Collectively the commissary building and the Midway Mall present ideal central locations for Co Trustee and partner office, classroom, storage, and basic laboratory space. Phase I rehabilitation of the commissary will include cleaning and maintenance, construction of office and classroom space, and a feasibility study of how best to incorporate solar power and other sustainable design principles. The Midway Mall will require more substantial design and a preservation plan for renovation to provide basic office and storage space along with visitor information.

#### ***Design and Construct a Pilot Low Impact Shelter***

\$1.3 million — 4 years

Construct a low impact shelter for short term housing in the housing zone. The housing will be constructed as a sustainable design pilot project intended to showcase the synergistic potential of innovative design on the island. The design may elevate the building off the ground, providing for human habitation while increasing the total amount of available wildlife habitat, and providing environmental security from tsunamis and storm surges. This structure will incorporate



## 6. Priority Actions and Next Steps

### PRIORITIZATION AND IMPLEMENTATION

Pacific Island regional design principles to consider local wind and sunlight patterns, will aim to be nonpolluting, and will incorporate recycled materials. The use of solar power, composting toilets, and, if needed, a small rain catchment system will be explored in an effort to sustain the building off the power grid and minimize wildlife impacts.

#### **Treat All Wooden Historic Structures for Termites**

\$2 million — 5 years

By treating all wooden/historic structures immediately we buy ourselves 5–10 more years to find funding for ultimate rehabilitation/restoration. Without treatment these structures either need to be rehabilitated immediately or abandoned forever.



*Metal pillbox, Eastern Island*

#### **Rehabilitate Water Catchment/Distribution System**

\$3 million — 5 years

Reliable water will be required to support any future build-up.

#### **Rehabilitate Septic/Wastewater Systems**

\$2 million — 5 years

Reliable septic/wastewater systems will be required to support any future build-up. To reduce the required capacity and cost of the system, on-site composting and waste reduction will be considered.

#### **Redevelop Existing Boathouse into New Boathouse, Dive Center, and Water-based Storage Facilities**

\$1.5 million — 5 years

Redevelop the existing boathouse at Midway into a multipurpose boathouse, dive center, and storage facility to support agency operations in the northwestern end of the Monument. The facility will have

maintenance bays and equipment for servicing small boats; a dive locker including a compressor, recompression chamber; and appropriate storage and work areas. The dive center may also support the visitor program. The building will be re-sited or reconstructed and potentially raised to address concerns of flooding on the seaplane pad.

#### **Rehabilitate/Replace Finger Piers along the Inner Harbor**

\$450,000 — 5 years

To meet small boat needs, within 5 years construct/rehabilitate three finger piers. These piers may be used for fueling, loading, and short-term in-water storage of vessels. These vessels will be used to support programs at Midway and neighboring atolls in the future.

#### **Design a Marine Laboratory and Develop in Phases**

\$2.25 million — 5 years

A variety of needs will be met by a marine laboratory at Midway. An evaluation and planning effort will help determine if the research and educational needs of potential users will be best met by developing several small facilities over time, or by a modular design that allows new requirements to be filled as they arise. Initially the lab would provide basic amenities to augment research and education capacity including field schools, seasonal research, and long-term monitoring. Wet/dry lab infrastructure, quarantine standards, and possibly freezer space will be included in the plan. Several locations are well-suited for a small laboratory, including the old commissary building adjacent to the Midway Mall, as well as several sites on the seaplane apron. The commissary building may be ideal for a first phase location and could help support the Hawaiian monk seal captive care program.



*Green turtle on Eastern Island*

### ***Complete Full Rehabilitation of Midway Mall***

\$8 million — 10 years

Midway Mall would be rehabilitated as the “Midway Atoll Visitor Center” and would be used as Co-trustee office space and for other potential partner personnel, as well as a hub for visitor services, classrooms, and education. Phase I rehabilitation would allow for agency offices and be completed within 3 years.

### ***Rehabilitate Officers’ Row Housing***

\$5 million — 10 years

The 10 historic Officers’ row houses serve as examples of historic Albert Kahn architecture and will be restored. This increased housing capacity will accommodate increased agency and partner personnel.

### ***Remodel or Replace Clipper House***

\$1.75 million — 10 years

The Clipper House presently serves as the primary food service facility for Midway. Overall food services will need to be expanded to accommodate future population increases and enlargement of the Clipper House, reuse of older existing food service facilities, or construction of a new dining facility will be evaluated.

### ***Rehabilitate Seaplane Hangar***

\$2.5 million — 10 years

Due to its size (large enough to hold heavy equipment, boats, workshops, etc.), its location (short distance from inner harbor and boat ramp) and its historic significance (designed by Albert Kahn, still contains scars from the Battle of Midway), this building needs to be utilized and preserved. Rehabilitation work will be guided by a detailed preservation plan.

### ***Utilize Existing Footprint of Charlie Barracks for Replacement Housing***

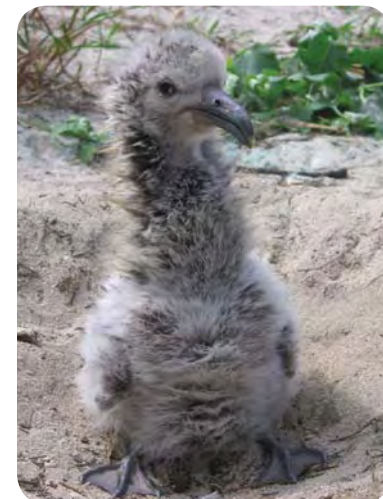
\$10 million — 10 years

Charlie Barracks replacement is essential in order to provide safe housing for island visitors and transient personnel. Demolition costs for the existing building must be included in the construction cost. This replacement is expected to take place within 10 years.

### ***Repair Inner Harbor Sea Wall***

\$20 million — 15 years

The harbor is critical to operations at Midway. Any future expansion of docking/pier facilities in the harbor must be preceded by the repair of the existing sea wall.



## 6. Priority Actions and Next Steps

### PRIORITIZATION AND IMPLEMENTATION

---

#### REQUIREMENTS PLANNING PROCESS

Many of the priority projects listed above are the result of a Monument-wide field requirements planning process that took place in the fall of 2007. The goals of this process were to outline general infrastructure requirements within the Monument by matching projected field requirements with priority management needs. During this process the Monument Management Board analyzed current and future management needs and projected personnel, infrastructure, and equipment requirements to meet them. In addition, efforts were made to identify areas of overlap that could be consolidated to make field operations as efficient as possible.

The results of this process constitute a detailed vision of the long-term field requirements, primarily for Midway and neighboring atolls, but also for the Monument as a whole. These detailed requirements must have the appropriate infrastructure such as buildings, power, and water; as well as associated means of transportation, such as vessels and aircraft. The priority maintenance and construction projects listed above along with the activities in the Monument Management Plan's section 3.6.3, Coordinated Field Operations Action Plan, will support these requirements over the next 15 years.

Specific field requirements that were identified during the field requirements planning process include increases in visiting and permanently stationed personnel to oversee regular research, education, cultural, historic, management, and protected species work based out of Midway, but servicing neighboring atolls as well. Activities associated with this work will be phased in over time as the attendant infrastructure and modes of transport are developed in a way that is compatible with resource protection. The small boat and diving assets, supply needs, air transport, laboratory facilities, housing, and visitor outreach needs that were coarsely defined during the requirements process have been refined in the Midway Conceptual Site Plan and will be thoroughly evaluated and acted upon based on the strategies and activities found in the Monument Management Plan.

#### ASSESSMENT OF MIDWAY CONCEPTUAL SITE PLAN DURING THE MANAGEMENT PLAN 5-YEAR REVIEW

The Monument Management Plan will be reviewed every 5 years. The review represents an essential element of the adaptive management process and includes public involvement, characterization of issues, and review and evaluation of action plans. The Midway Atoll Conceptual Site Plan is part of the Monument Management Plan and will be assessed as part of this broader five-year plan review, or as needed, to determine if changes need to be made to this 15-year conceptual plan. This will also provide an opportunity to review the Midway Conceptual Site Plan after other site plans (i.e., Tern Island, Kure Atoll) are developed.

#### SUMMARY

Several other high-priority projects (habitat, cleanup, and visitor services projects) have been identified for Midway Atoll during the process of developing this Conceptual Site Plan and the larger Monument Management Plan. For detailed information on these projects, please refer to the appropriate Actions Plans contained in the Monument Management Plan.

As the Monument Management Board and partners work toward implementation of the Monument Management Plan, it is important for all parties to find ways to make incremental steps that will lead toward the many larger projects described in this document and the Plan. By working together and combining resources to achieve common goals, agencies and partners can realize the benefits and synergy that come from people working together. This Conceptual Site Plan offers an achievable view of Midway's future considering the resources that already exist and those that hopefully will be available in the future. The vision of Midway as presented in this plan is something that can be completed within the next 15 years—it will be a challenge and an opportunity for all involved to be a part of that transformation.

# Resources

## PLANNING DOCUMENTS

---

1991, January. *Natural Resources Management Plan for Naval Air Facility, Midway Island*. U.S. Fish and Wildlife Service Hawaiian Islands National Wildlife Refuge. Honolulu, Hawai'i.

1995. *Midway Atoll NWR Annual Narrative Report 1994*. U.S. Fish and Wildlife Service.

1995. *Sand and Eastern Islands, Midway Atoll Infrastructure Evaluation*. Prime Engineering, Inc. Atlanta, Georgia.

1995–1999 *Baseline Surveys for Alien Species in Marine and Terrestrial Habitats on Midway Atoll National Wildlife Refuge*. Remote Islands Team, Ecological Services, U.S. Fish and Wildlife Services.

1996, April. *Final Environmental Assessment for the Proposed Refuge Logistics and Operations Support and Public Use Program, Midway Atoll NWR*. U.S. Fish and Wildlife Service.

1997, August. *Operations and Maintenance Plan for Midway Atoll NWR*. U.S. Fish and Wildlife Service.

1998. *Interpretive Prospectus for Midway Atoll National Wildlife Refuge*. U.S. Fish and Wildlife Service, Pacific Regional Office Visitor Services Branch.

1998, October. *Naval Air Facility (NAF) Midway Island Land Use Restrictions (Draft)*. Ogden Environmental and Energy Services Co, Inc. Honolulu, Hawai'i.

1999. *Midway Atoll National Wildlife Refuge Historic Preservation Plan*. U.S. Fish and Wildlife Service, Pacific Region.

2003, May. *Midway Atoll National Wildlife Refuge and Battle of Midway National Memorial—A Summary of Midway's Natural and Historic Resources*. U.S. Fish and Wildlife Service.

2003, August 29. *Infrastructure Condition Assessment and Modification, Midway Atoll National Wildlife Refuge*. GeoEngineers, Inc., Honolulu, Hawai'i.

2005, April 12. *Midway Atoll National Wildlife Refuge—Visitor Program Market Analysis and Feasibility Study*. Pandion Systems, Inc. Gainesville, Florida.

2006. *Northwestern Hawaiian Islands Proposed National Marine Sanctuary, Draft Environmental Impact Statement and Management Plan, Vol. II of II*. National Oceanic and Atmospheric Administration. National Ocean Service, National Marine Sanctuary Program.

2006. *Henderson Airfield Master Plan*. PND Engineers, Inc., Anchorage, Alaska.

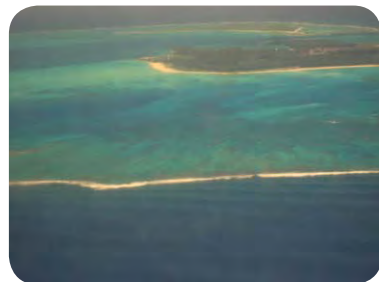
2006. *Midway NWR Vision, Goals and Objectives Exercise*. U.S. Fish and Wildlife Service.

2006. *Draft Interim Visitor Services Plan for Midway Atoll NWR, the Battle of Midway National Memorial, and the Northwestern Hawaiian Islands Marine National Monument's Midway Atoll Special Management Area*. U.S. Fish and Wildlife Service, Pacific Islands, Division of External Affairs and Visitor Service.

2007, March 27. *RONS (Refuge Operational Needs System) Project List, Midway Atoll NWR*. U.S. Fish and Wildlife Service. 9 pages.

2007, March 27. *SAMMS (Service Asset Maintenance Management System) Deferred Maintenance & Construction Projects, Midway Atoll NWR list*. U.S. Fish and Wildlife Service. 8 pages.

*Midway Operations Contract—Statement of Work*. U.S. Fish and Wildlife Service. (for "Chugach" contract). 7 pgs.



Laysan ducks in created wetland



# Resources

## PLANNING DOCUMENTS

---

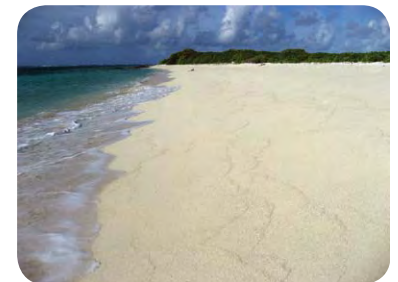
2007, May 23. *Interim Visitor Services Plan for Midway Atoll National Wildlife Refuge and the Battle of Midway National Memorial and the Papahānaumokuākea Marine National Monument's Midway Atoll Special Management Area.* U.S. Fish and Wildlife Service Midway Atoll National Wildlife Refuge and Pacific Islands Division of External Affairs and Visitor Services.

2007, June 1. *Papahānaumokuākea Marine National Monument Draft NOAA Interim Management Plan.* National Oceanic and Atmospheric Administration (NOAA). Honolulu, Hawai'i.

2007, July. *Building Foundations for the Future: Historic Preservation on Midway Atoll NWR.* U.S. Fish and Wildlife Service, Pacific Region.

2007, November 14. *Papahānaumokuākea Marine National Monument Preliminary Draft Management Plan.* National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service, State of Hawai'i. Honolulu, Hawai'i. 3rd Draft.

2008, December. *Papahānaumokuākea Marine National Monument Management Plan.* National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service, State of Hawai'i. Honolulu, Hawai'i.





## SELECTED REFERENCES OF THE MONUMENT MANAGEMENT PLAN

---

- Aeby G.S., J.C. Kenyon, J.E. Maragos, and D.C. Potts. 2003. First record of mass coral bleaching in the Northwestern Hawaiian Islands. *Coral Reefs* 22:256.
- Aeby, G.S. 2006. Baseline levels of coral disease in the Northwestern Hawaiian Islands. *Atoll Research Bulletin* 543:471-488.
- Antonelis, G.A., J.D. Baker, T.C. Johanos, R.C. Braun, and A.L. Harting. 2006. Hawaiian monk seal: status and conservation issues. *Atoll Research Bulletin* 543:75-102.
- Baker, J.D., C.L. Littnan, and D.W. Johnston. 2006. Potential effects of sea level rise on the terrestrial habitats of endangered and endemic megafauna in the Northwestern Hawaiian Islands. *Endangered Species Research* 4:1-10.
- Blackburn, T.M., P. Cassey, R.P. Duncan, K.L. Evans, and K.J. Gaston. 2004. Avian Extinction and Mammalian Introduction on Oceanic Islands. *Science* 305:1955-1958.
- Boland, R.C., and M. Donohue. 2003. Marine debris accumulation in the nearshore marine habitat of the endangered Hawaiian monk seal, *Monachus schauinslandi* 1999-2001. *Mar. Poll. Bull.* 34 46(11): 1385-1394.
- Citta, J. M., Reynolds, and N. E. Seavy. 2006. *Seabird Monitoring Assessment for Hawai'i and the Pacific Islands*. USGS Pacific Island Ecosystems Research Center. Unpubl. Rept. to U.S. Fish and Wildlife Service, Migratory Birds and Habitat Programs, Portland, Oregon.
- DeMartini, E.E. and A.M. Friedlander. 2006. Predation, endemism, and related processes structuring shallow-water reef fish assemblages of the NWHI. *Atoll Research Bulletin*. 543: 237-256.
- Eldredge, L. 2005. *Assessment of the potential threat to the introduction of marine non-indigenous species in the Northwestern Hawaiian Islands*. Final Report Prepared for Environmental Defense. Contribution No. 2005-001 to the Hawaii Biological Survey. Bishop Museum, Honolulu.
- Fine and Tchernov. 2007. Scleractinian Coral Species Survive and Recover from Decalcification. *Science* 315: 1811.
- Finkelstein, M.E., K.A. Grasman, D.A. Croll, B.R. Tershy, B.S. Keitt, W.M. Jarman, and D.R. Smith. 2007. Contaminant-associated alteration of immune function in Black-footed Albatross (*Phoebastria nigripes*), a North Pacific Predator. *Environmental Toxicology and Chemistry* 26:1896-1903.
- Friedlander, A., G. Aeby, R. Brainard, A. Clark, E. DeMartini, S. Goodwin, J. Kenyon, R. Kosaki, J. Maragos, and P. Vroom. 2005. The State of Coral Reef Ecosystems of the Northwestern Hawaiian Islands. Pp. 270-311. In: J. Waddell, Ed. *The State of Coral Reef Ecosystems of the United States and Pacific Freely Associated States: 2005*. NOAA Technical Memorandum NOS NCCOS 11. NOAA/NCCOS Center for Coastal Monitoring and Assessment's Biogeography Team. Silver Spring, Maryland. 522 pages.
- Hope, B., S. Scantolini, E. Titus, and J. Cotter. 1997. Distribution patterns of polychlorinated biphenyl congeners in water, sediment, and biota from Midway Atoll (North Pacific Ocean). *Marine Pollution Bulletin*. 34(7):548-563.
- Intergovernmental Panel on Climate Change (IPCC). 2007. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Solomon, S, D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor, and H.L. Miller, Eds. Cambridge University Press, Cambridge, United Kingdom; and New York, NY, USA. 996 pages.
- Kenyon, J.C., G.S. Aeby, R.E. Brainard, J.D. Chojnacki, M.J. Dunlap, and C.B. Wilkinson. 2006. Mass coral bleaching on high-latitude reefs in the Hawaiian Archipelago. *Proceedings of the 10th International Coral Reef Symposium Okinawa* 2:631-643.
- Kenyon, J.C. and R.E. Brainard. 2006. Second recorded episode of mass coral bleaching in the Northwestern Hawaiian Islands. *Atoll Research Bulletin* 543:505-523.
- Ludwig, J.P, C.L. Summer, H.J. Auman, V. Gauger, D. Bromley, J.P. Giesy, R. Rolland, and T. Colborn. 1997. The roles organochlorine contaminants and fisheries bycatch in recent population changes of Black-footed and Laysan Albatrosses in the North Pacific Ocean. In G. Robinson and R. Gales, Eds. *Albatross Biology and Conservation*. Surrey Beatty & Sons, Chipping Norton. Pp. 225-238.

# Resources

## 2. SELECTED REFERENCES OF THE MONUMENT MANAGEMENT PLAN

---

Michener, W.K., E.R. Blood, K.L. Bildstein, M.M. Brinson, and L.R. Gardner. 1997. Climate change, hurricanes and tropical storms and rising sea level in coastal wetlands. *Ecological Applications* 7:770-801.

Mooney, H.A. and E.E. Cleland. 2001. The evolutionary impact of invasive species. *Proceedings of the National Academy of Science* 98:5446—5451.

Nishida, G. 1998. Midway Terrestrial Arthropod Survey, Final Report prepared for USFWS, by Hawai'i Biological Survey, Bishop Museum, Honolulu, Hawai'i.

Nishida, Gordon, 2001. *Terrestrial Arthropods of the Northwest Hawaiian Islands (excluding Midway)*. Prepared for the US Fish and Wildlife Service. Hawai'i Biological Survey, Bishop Museum, Honolulu, Hawai'i.

NOAA 2003. Atlas of the shallow-water Benthic Habitats of the NWHI (Draft). 160 pp. National Ocean Service. Silver Spring, MD.

Ogden Environmental and Energy Services Co., Inc. 1996. *Naval Air Facility (NAF) Midway Island Site Inspection (SI) Report*. January. As cited in *U.S. Navy 2001*.

Ogden Environmental and Energy Services Co., Inc. 1997. *Remedial Investigation (RI) Report for Naval Air Facility (NAF) Midway Island, Volume I: Technical Report*.

Parrish, F.A., K. Abernathy, G.J. Marshall, and B.M. Buhleier. 2002, Hawaiian monk seals (*Monachus schauinslandi*) foraging deepwater coral beds. *Marine Mammal Science* 18:244-258.

Rehkemper, C. and E. Flint. 2002. Control and Eradication of the introduced grass, *Cenchrus echinatus*, at Laysan Island. In Veitch, C.R. and M.N. Clout, Eds. *Turning the tide: the eradication of invasive species*. IUCN SSC Invasive Species Specialist Group, IUCN, Glad, Switzerland and Cambridge, UK. 414 pages.

Shea, E. L, G. Dolcemascolo, C. L. Anderson, A. Barnston, C. P. Guard, M. P. Hamnett, S. T. Kubota, N. Lewis, J. Loschnigg, and G. Meehl. 2001. *Preparing for a Changing Climate: The Potential Consequences of Climate Variability and Change*. Published Report. East-West Center, Honolulu, Hawai'i. 100 pages.

Smith, S.V and R. M. Buddemeier. 1992. Global Change and Coral Reef Ecosystems. *Annual Review of Ecology and Systematics* 23:89-118.

Stambler, N. 1999. Coral reefs and eutrophication. *Marine Pollution (July)*:360-361.

State of Hawai'i, U.S. Department of the Interior U.S. Fish and Wildlife Service, and the U.S. Department of Commerce National Oceanic and Atmospheric Administration (2006). *Memorandum of Agreement (MOA) for Promoting Coordinated Management of the Northwestern Hawaiian Islands Marine National Monument (MOA)*. December 8, 2006. Honolulu, Hawai'i.

USCG. 2003. Tern Island Ecological Risk Assessment Addendum-Bulky Dump. Technical Memorandum. CH2M Hill for U.S. Coast Guard Civil Engineering Unit Honolulu.

U.S. Fish and Wildlife Service (FWS). 2004. *Draft Revised Recovery Plan for the Laysan Duck (Anas laysanensis)*. U.S. Fish and Wildlife Service, Portland, Oregon. vii + 94 pages.

U.S. Navy, Bureau of Yards and Docks. 1947. *Building the Navy's Bases in World War II*. Two vols. Washington Government Printing Office.

U.S. Navy. 2001. *Action Memorandum for Time-Critical Removal Action of Abandoned Tug and Barge, LCM, Boiler, and PCB-Contaminated Marine Sediment Bulky Waste Landfill, Midway Atoll*.

U.S. Navy. 1995. *Technical Memorandum for Evaluation of Remedial Alternatives Naval Air Force (NAF) Midway Island*. Ogden Environmental and Energy Services Co., Inc. Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract No. N62742-90-D-0019 Cto No. 0136.

Vitousek, P. M. 1994. Beyond global warming: ecology and global change. *Ecology* 75:1861-1876.

Woodbury, D.O. 1946. *Builders for Battle. How the Pacific Naval Air Bases Were Constructed*. E.P. Dutton and Company, NY. 415 pages.





JONES & JONES

*Architects and Landscape Architects, Ltd.*

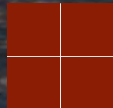
105 South Main Street Suite 300

Seattle, Washington 98104

tel 206 624 5702 • 206 624 5923 fax

[www.jonesandjones.com](http://www.jonesandjones.com)

J O N E S



J O N E S



# Papahānaumokuākea

MARINE NATIONAL MONUMENT



## Management Plan Response to Comments

U.S. FISH AND WILDLIFE SERVICE · NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION · STATE OF HAWAII



VOL. V



# Papahānaumokuākea Marine National Monument

## Response to Comments

December 2008

Prepared by:

Papahānaumokuākea Marine National Monument

United States Fish and Wildlife Service  
300 Ala Moana Boulevard., Room 5-231  
Honolulu, Hawai'i 96850



National Oceanic and Atmospheric  
Administration  
6600 Kalaniana'ole Highway, Suite 300  
Honolulu, Hawai'i 96825



Hawai'i Department of Land and  
Natural Resources  
1151 Punchbowl Street, Room 130  
Honolulu, Hawai'i 96813





---

**TABLE OF CONTENTS**

Section	Page
Acronyms and Abbreviations.....	iii
Public Comments and Responses.....	1
Introduction.....	1
Comment Response.....	2
Comment Category 1 - Advisory Body/Public Involvement.....	4
Comment Category 2 - Agency Coordination.....	17
Comment Category 3 - Alien Species.....	32
Comment Category 4 – Carrying Capacity.....	44
Comment Category 5 - Ecosystem Health.....	53
Comment Category 6 - Education.....	67
Comment Category 7 - Emergency Response.....	74
Comment Category 8 - Endangered Species.....	77
Comment Category 9 – Enforcement.....	97
Comment Category 10 - Fishing.....	110
Comment Category 11 - Global Impacts.....	126
Comment Category 12 - Habitat Restoration.....	143
Comment Category 13 - Historic Resources.....	145
Comment Category 14 – Infrastructure.....	150
Comment Category 15 - Marine Debris.....	153
Comment Category 16 - Midway.....	166
Comment Category 17 - Military.....	186
Comment Category 18 - Native Hawaiian.....	213
Comment Category 19 - Open Process.....	245
Comment Category 20 - Other.....	248
Comment Category 21 - Outreach.....	257
Comment Category 22 - Permitting.....	261
Comment Category 23 - Pollution.....	279
Comment Category 24 - Prioritization.....	286
Comment Category 25 – Research.....	289
Comment Category 26 - Tourism.....	301

---

**TABLE OF CONTENTS** *(continued)*

Section	Page
Comment Category 27 – Transportation.....	317
Comment Category 28 - Volunteers .....	320
Comment Category 29- Cumulative Impacts .....	322

---

**LIST OF TABLES**

Table	Page
Table 1 Public Comment Meetings.....	1
Table 2 Other Comments .....	2

---

**APPENDICES**

---

Appendix A: Agency Comments and Response Letters

Appendix B: NGO and General Public Comment Letters

Appendix C: Comments Received via E-Mail

Appendix D: Public Meeting Comment Sheets

Appendix E: Individuals Submitting E-Mail Form Letter Comments Through NGO Websites

---

**ACRONYMS/ABBREVIATIONS**

Acronym	Full Phrase
AC	Agency Coordination
AIRFA	American Indian Religious Freedom Act
APPS	Act to Prevent Pollution from Ships
ARPA	Archaeological Resources Protection Act
AS	Alien Species
ATBA	Areas to be Avoided
BMPs	Best Management Practices
CBO	Constituency Building and Outreach
CCP	Comprehensive Conservation Plan
CD	Compatibility Determination
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFO	Coordinated Field Operations
CFR	Code of Federal Regulations
CO	Central Operations
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
DLNR	Department of Land and Natural Resources (State of Hawai'i)
DOCARE	Division of Conservation and Resources Enforcement
DOD	Department of Defense
DOT	Department of Transportation (State of Hawai'i)
EA	Environmental Assessment
EEZ	Exclusive Economic Zone
EN	Enforcement
EPA	Environmental Protection Agency
ER	Ecological Reserve
ERAT	Emergency Response and Assessment Team
ESA	Endangered Species Act
ETOPS	Extended Twin Engine aircraft operations
EV	Evaluation
FAA	Federal Aviation Administration
FFS	French Frigate Shoals
FWS	U.S. Fish and Wildlife Services
GIS	Geographic Information Systems
HABS	Historic American Buildings Survey

---

**ACRONYMS/ABBREVIATIONS**

Acronym	Full Phrase
HCZMP	Hawai‘i Coastal Zone Management Program
HMC	Habitat Management and Conservation
HR	Historic Resources
HRS	Hawai‘i Revised Statutes
ICC	International Code Council
ICOADS	International Comprehensive Ocean-Atmosphere Data Set
ICS	Incident Command System
IMaST	Information Management and Spatial Technology
IMO	International Maritime Organization
LME	Large Marine Ecosystem
LORAN	Long Range Aid to Navigation
LUCs	Land Use Controls
MARPOL	International Convention for the Prevention of Pollution from Ships 1973
MB	Migratory Bird
MCS	Marine and Conservation Science
MD	Marine Debris
MH	Maritime Heritage
MMB	Monument Management Board
MMPA	Marine Mammal Protection Act
MOA	Memorandum of Agreement
MPRSA	Marine Protection, Research and Sanctuaries Act
MSD	Marine Sanitation Device
MTA	Marine and Transportation Action Plan
MVSP	Midway Visitor Services Plan
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Protection Act
NHCH	Native Hawaiian Culture and History
NHCI	Native Hawaiian Community Involvement
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Services
NOAA	National Oceanic and Atmospheric Administration
NWHIRAMP	Northwestern Hawaiian Islands Reef Assessment and Monitoring Program
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places

---

**ACRONYMS/ABBREVIATIONS**

Acronym	Full Phrase
NRSP	Natural Resources Science Plan
NWHI	Northwestern Hawaiian Islands
NWR	National Wildlife Refuge
NWRSAA	National Wildlife Refuge System Administration Act
OEL	Ocean Ecosystems Literacy
OHA	Office of Hawaiian Affairs
ONMS	Office of National Marine Sanctuaries
OSHA	Occupational Health and Safety Administration
PAHs	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PDO	Pacific Decadal Oscillation
PHRI	Public Health Research Institute
PIMS	Papahānaumokuākea Information Management System
PSSA	Particularly Sensitive Sea Area
RCRA	Resource Conservation and Recovery Act
ROI	Region of Influence
ROV	Remotely Operated Vehicle
SAFE	Secure Around Flotation Equipped
SARA	Superfund Amendments and Reauthorization Act
SCUBA	Self-Contained Underwater Breathing Apparatus
SHIELDS	Sanctuaries Hazardous Incident Emergency Logistics Database System
SHPD	Hawai'i State Historic Preservation Division
SHPO	State Historic Preservation Officer
SMA	Special Management Area
SPA	Special Preservation Area
TCP	Traditional Cultural Properties
TES	Threatened and Endangered Species
TSCA	Toxic Substances Control Act
UNESCO	United Nations Educational, Scientific, and Cultural Organization
USCG	United States Coast Guard
USDA	U.S. Department of Agriculture
VMS	Vessel Monitoring System
VOIP	Voice Over Internet Protocol
VOS	Volunteer Observing Ship
VS	Visitor Services

# PUBLIC COMMENTS AND RESPONSES

## INTRODUCTION

In accordance with the National Environmental Policy Act (NEPA) of 1969 and Hawaii Revised Statutes (HRS) Chapter 343 Environmental Impact Statement Law, this final environmental assessment provides responses to comments on the four volume draft document, which included the Monument Management Plan, its associated compliance documents and the environmental assessment (EA). In compliance with those regulations, Volume V of the final document includes a list of agencies, organizations, and individuals commenting on the Draft EA (DEA), copies of their comments, and responses to the substantive environmental issues raised in the comments.

The DEA for the implementation of the Papahānaumokuākea Marine National Monument Management Plan in the Northwestern Hawaiian Islands was circulated for public review and comment from April 23, 2008, to July 23, 2008. Public meetings were held during the review period to provide the public with the opportunity to ask questions about the project and to comment on the DEA. As summarized in Table 1, a total of ten meetings were held on six different Hawaiian islands and in Washington, DC, as follows: three meetings on O‘ahu, two meetings on the Island of Hawai‘i, and one meeting each on Maui, Lāna‘i, Moloka‘i, and Kaua‘i and in Washington, DC. With a grand total of 231 people attending the public meetings, 87 individuals provided public testimony. Comments given at these public meetings were recorded in transcripts taken by court reporters.

<b>Date</b>	<b>Location</b>	<b>Number of Attendees</b>	<b>Number of Speakers</b>
June 9, 2008	Wai‘anae Parks and Recreation Complex 85-601 Farrington Highway, Wai‘anae, O‘ahu	12	3
June 11, 2008	Auditorium, Main Interior Building 1849 C Street NW, Washington, DC	10	1
June 12, 2008	Maui Arts and Cultural Center One Cameron Way, Kahului, Maui	15	7
June 13, 2008	Lāna‘i High and Elementary School 555 Frasier Avenue, Lāna‘i City, Lāna‘i	3	2
June 16, 2008	Kūlana ‘Oiwī Hālau 610 Maunaloa Highway, Kaunakakai, Moloka‘i	12	9
June 17, 2008	He‘eia State Park 46-465 Kamehameha Highway, Kāne‘ohe, O‘ahu	20	6
June 18, 2008	King Kamehameha Hotel 75-5660 Palani Road, Kailua-Kona, Kona, Hawai‘i	35	22
June 19, 2008	Mokupāpapa Discovery Center 308 Kamehameha Ave., Suite 109, Hilo, Hawai‘i	36	9
June 23, 2008	Hilton Kaua‘i Beach Resort 4331 Kauai Beach Drive, Līhu‘e, Kaua‘i	28	11



June 24, 2008	Japanese Cultural Center 2454 South Beretania Street, Honolulu, O'ahu	60	17
---------------	--	----	----

In addition to comments received at public meetings, written comments were accepted via e-mails, individual letters, and form letters throughout the review period. A total of 6,347 written comments were received. Table 2 shows a breakdown of the written comments received.

<b>Table 2</b>	
<b>Other Comments</b>	
E-mails	74
Letters	27
Form letters/e-mail	6,246
Total	6,347

The following pages show comments received that relate to the four-volume Monument Management Plan/EA and the Monument Management Board's (MMB) responses to those comments. The MMB reviewed and considered all comments and determined whether or not they were substantive and warranted further analysis and documentation. While the MMB greatly appreciates the participation of all those who commented, not all comments required further analysis or changes to the Final EA. The MMB noted in the individual responses when further analysis or changes were made.

#### **COMMENT RESPONSE**

This section contains comments made by individuals and the respective MMB responses. Based on their content, comments are organized with regard to the comment categories. Within comment categories, comments were further organized into summarized comments and unique comments. Summaries of some comments were developed, where several individual comments expressed the same concern. The response to these summarized comments received the same response. Other comments were grouped. These grouped comments are numbered within the table and then received a response that applies to all of the comments in the group. Unique comments were comments which were not similar to other comments received and merited unique responses. In addition, some comments that we received were not relevant to the MMP (i.e. comments about past DoD NEPA documents, activities that occur outside the Monument), such comments are not included here.

<b>Comment Category 1 - Advisory Body/Public Involvement</b>	
<b>Summarized Comments</b>	
1-01. Comment	<p>Many comments were received stating that the Monument should establish some sort of citizen-based advisory body to ensure continued public participation in the management of the Monument. The comments provided many different ideas and descriptions for various types of public advisory bodies and offered in-depth suggestions relating to member representation, composition, roles, and responsibilities.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) I support full public participation in the management of our public trust resources. Please establish a citizen’s advisory council.</li> <li>2) To maintain a transparent and accountable decision-making process, the meetings of the MMB must be open to public participation and scrutiny. We strongly advocate that the MMB include public representatives and the meeting themselves be open to the public, including public comment and access to meeting minutes.</li> <li>3) The DMMP fails to establish a meaningful form of citizen advisory body. The DMMP must include a public Monument Advisory Council (“MAC”), which operates under sunshine laws, and includes Native Hawaiians, representatives of the conservation community who have been active in NWHI protections, independent scientists not affiliated with or employed by the Trustees or “Trustee partners” and independent educators as voting members of the council. Additionally, the placement of at least two members of the MAC on the Monument Management Board (“MMB”), by amendment to the Memorandum of Understanding (“MOU”) would ensure public oversight and participation in management decisions.</li> <li>4) The DMMP must include a public Monument Advisory Council, which operates under sunshine laws, and includes Native Hawaiians, representatives of the conservation community who have been active in NWHI protections, independent scientists not affiliated with or employed by the Trustees or “Trustee partners” and independent educators as voting members of the council. Outlined below are proposed terms of membership based in large part on the membership requirements of the current Reserve Advisory Council (RAC): 1. 3 Native Hawaiian representatives, including one elder, with experience or knowledge regarding Native Hawaiian subsistence, cultural, religious, or other activities in the Northwestern Hawaiian Islands 2. 3 representatives from the non-federal science community with experience specific to the NWHI and with experience in at least one of the following areas: marine mammal science, coral reef ecology, native marine flora and fauna of the Hawaiian Islands, oceanography 3. 3 representatives from non-governmental wildlife/marine life, environmental, and/or conservation organizations 4. one citizen at large representative.</li> <li>5) The Papahānaumokuākea Marine National Monument is a treasure belonging to all Hawaiians and the Nation. I</li> </ol>

**Comment Category 1 - Advisory Body/Public Involvement**

am very concerned that you have failed to build an advisory body, similar to the Research Advisory Council, and a robust public-comment process into the management plan. The public and stakeholders must be given the opportunity to provide input to and review of the management of the monument if it is truly going to be the nation's Monument.

- 6) Please establish a citizen's advisory council
- 7) Please let the concerned public have participation in the decisions of our beloved marine ecosystem and wildlife!!! Mahalo nui loa!
- 8) Then I have assorted concerns I'll go through. One is I tried to understand all the ins and outs but I kind of gave up. Basically I think in the management of the Monument there should be Native Hawaiians and there should be citizens involved. A long time ago I worked on a disability committee, a state committee. The agency staff and the citizens had equal standing on the committee. So there were folks with disabilities there. The agency staff would come and say, "Oh, we've got this wonderful program and it's doing this and that." And a person with disabilities would speak up and say, "Hey, you know what? By the time your program gets down to me this is what actually happens in the real world." I think with that involvement of the people who are being affected and the people that know what's going on who have a totally different perspective is really valuable. Let's see. A lot of my comments are from KAHEA, the Hawaiian Environmental Alliance. And they felt that the vision of the plan should include perpetuating Hawaiian culture. And I agree with that. That should be there from the get-go, from the top down.
- 9) And I strongly object to watering down any public or citizen-based or participation in decision-making. In fact the public should be involved for both advice and consent just like the congress does, not just "Here's our mana'o" and the agencies can choose to follow it or not. It's very important that Native Hawaiians and the public be included because they're the right-holders. They're not the stakeholders. They're the right-holders.
- 10) There was enthusiastic and widespread public participation and informed comment during the preparation of the former Draft Plan lead by an effective Reserve Advisory Council composed of representatives of all of the stakeholders generated solid support, as the public "bought in" to the evolving Plan. Withdrawal of the Department of Commerce to draft a substantially different new plan behind closed doors, for two years absent any public or agency input or oversight, and the virtual disbanding of RAC, turned public support to suspicion and guaranteed that the new Management plan would be greeted by a solid phalanx of critics (9). By spurning all advice, this tactic repels all help, especially now, when help is crucial to acceptance. Restoration of the Reserve Advisory Council, with provision for meaningful input into all aspects of Monument planning, permitting, activities and regulation, and maximum transparency of all Monument activities, is essential to regaining

**Comment Category 1 - Advisory Body/Public Involvement**

credibility, political support and future funding. The Proclamation mandates and the Management Plan recognizes the need for transparency and public involvement in planning process and rule making, and yet NOAA suspended RAC oversight and public scrutiny while drafting this Plan, and has no plan for reactivation of RAC or a Monument Advisory Council.

- 11) There should be a citizen-based public commission/council comprised of a cross-section of the public and government representatives, a member from each main Hawaiian island, an educator, a member of OHA, an artist, writer, a journalist, and fishermen all to be members of this commission with legal authority to grant all permits.
- 12) Also an independent citizen-based advisory council should be involved in decisions including all permitting.
- 13) There is an obligation to ensure that the public is informed and able to participate in decision-making about the management of the Monument. Throughout the Management Plan there is a commitment to keep the public informed of activities affecting the Monument. It is important that there is meaningful public participation with adequate notice and opportunity for comment. At present, management decisions, including permit processing, are decided by a board. Board meetings should be open and accountable to the public and board members should be guided by strict conflict of interest standards. Additionally, permit applications should be announced in the Federal Register and the public given an opportunity to comment prior to any authorizations. To ensure the protection of the Monument's sensitive wildlife and habitat, it is vitally important that the permit process be subject to public and environmental review.
- 14) I think having a public participation and, you know, people from various sectors being involved in the ongoing management in the sense of giving comments or recommendations is really important. If there is some way of having an advisory council that is collaborative of all the agencies, not just one, I think that would be something that can worth pursuing.
- 15) I'd like to echo the calls for having a Monument Advisory Council. I believe the Council has to be citizen based. The council has to be full participation, has to advise all three agencies. We respect the idea of Friends of the Monument which it's a great idea. It's a great idea it doesn't take the place of something that provides oversight for legal authority, legal responsibility. The only thing I would ask in commenting on the state's draft is make enhancements, meeting fairly regularly. Something that meets once a year is not sufficient, needs to meet far more often, quarterly at the least. Part of that should also include the opportunity for members of the advisory council to attend the Monument nature board meetings. Sort of close the loop of public transparency. Ensure there's oversight, and accountability in every decision that's made.

**Comment Category 1 - Advisory Body/Public Involvement**

- 16) I think it's going to be a real challenge to figure out whether you want an advisory, and in what capacity, and who individuals would change in that position. But it's really critical, in my opinion, if you have both the well-informed advice from a variety of folks, but you also have an opportunity for people to show their appreciation and interest in the area as friends groups do so effectively in refuge system and the parks system and other places. I think a friends group at Midway is a good example of people who have really come together to exercise their support for that.
- 17) So I thank everybody for, you know, coming out and allowing the public process. And yes, like Dave Rainey said, we did want a national-monument status, though some kind of an advisory body should have been incorporated.
- 18) The Draft Management Plan does not meet the public's long-standing demand that the management of the Northwestern Hawaiian Islands empower Hawaiian decision-makers to protect Hawai'i's public trust resources for generations to come. This plan closes the door on meaningful public participation in management decisions. Without a citizen-based Monument advisory council with the legal authority to oversee and advise on management activities, this plan will continue the same flawed system that has granted unlimited access to the Northwestern Hawaiian Islands and will dump the precautionary principle like dirty bilge water by failing to find out the total human impact in the region or assess its carrying capacity.
- 19) And you must have a community advisory team working side-by-side with you so that we can know that this area is really being protected and not just going to be rubber stamped.
- 20) We fully support a Monument Advisory Council as an effective means of meeting the unique public participation issues related to the Monument.
- 21) First of all, we also strongly support the establishment of a Monument Advisory Council similar to the Reserve Advisory Council which is citizen based. These are citizen resources. These are public resources. And I think as good as the people are in the state and federal government they can't forget that we care about this resources and they belong to all of us. And I think, you know, tapping into the citizens' body of knowledge or expertise is really a good thing. So we'd like to see a little more citizen participation in a very formalized way such as a MAC I guess it would be instead of RAC.
- 22) There's a question here: Why can't isn't there any public involvement in this, in the Management Planning process? And it says: Well, it will just be basically, essentially too much of a hassle to allow the public involvement. That's really shocking. It's only because of public involvement you have these protections.
- 23) Fourth, I'd like to talk briefly about the Citizen Advisory Council. You know, the importance, again when we

**Comment Category 1 - Advisory Body/Public Involvement**

talk about stepping beyond administrative boundaries to, like, really be able to get together and figure out a way to have an advisory council that's both, um, has enough weight to be a true advisory body but also has enough autonomy to really reflect what the public wants in a sort of grass roots way.

- 24) I'd also like to just share a bit of an anecdote of a story that I had the opportunity to testify in Washington, DC as well. I will say this on behalf of everyone in this room this is a great turnout compared to what we had there in the public. I was the only person who testified in Washington, DC. After I was done there was a bit of a Q and A sort of session. There was a gentleman from the Ocean Conservancy that asked a question. And it points to something that has been brought up thus far by some of the other testifiers. He asked why the Reserve Advisory Council wasn't recommended to be extended in the current Management Plan. And the response from the gentlewoman from NOAA was that the intention was to have something like that. I want to applaud that idea. It was a little bit confusing because I didn't understand why it wasn't in there. She said, "Yeah, we really want to do that." I want to say please do that and create a Monument Advisory Council. And I guess I was curious why it wasn't in there in the first place. So I had concern that even though the folks who put together the Management Plan had interest in doing that and were willing to go on record to say that they wanted to see that. But I didn't understand why it wasn't in there. So that was a concern but also something that I was excited to hear that they did want to actually include that as well.
- 25) I think the Citizens Advisory Group being taken out of this is a big mistake. We need people involved, the public involved and informed because agencies have political pressures put on them. They're not completely free from those contradictions. With the public you can at least have a more independent voice that's also advocating for the resource. The Native Hawaiians constituency must also have, I think, an effective role in determining decisions about the Monument. That means not just an advisory role, not just an educational role but actually having an impact on decisions that will affect the resource.
- 26) It's also why we're asking to have the public more involved. These are public trust resources. We love the Northwestern Hawaiian Islands. It has captured people's hearts. We need to be involved. There was a point in time when the Reserve Advisory Council was more active and people were involved. We were focused on bringing the place to the people. People were engaged. But since the establishment of the Monument things have gone quiet. In the last two years you've been able to develop this Management Plan with no public input. I think it's part of the reason why it's impossible to expect that people will be able to review all of the documents that are in here. We're talking six, eight major documents in just 75 days. That's not meaningful public participation. That's why we're also asking for the establishment of a Monument Advisory Council. People have spoken eloquently to the need to have these citizen experts provide an independent oversight and advice to the



**Comment Category 1 - Advisory Body/Public Involvement**

managers.

- 27) A citizen's advisory council with voting rights and authorities is truly shared governance of the NM. Interest groups with no authorities are not effective and only serve to cloud the issue of true citizen involvement.
- 28) The citizen based advisory council must be included as a partner equally in all dealings with the public. After all, citizen participation is one of the key roots of our democratic process.
- 29) Finally, we believe that continued discourse with the public on the future of the monument is vital to its success. While we recognize that the monument staff can draw upon a number of conceptual paradigms which will encourage public input and dialogue, we feel strongly that the creation of a Friends group, with its membership open to interested and concerned citizens, represents the most effective and democratic model available. Through the creation of a Friend-style organization for the Papahānaumokuākea Marine National Monument a wide array of constituencies can be represented, including native Hawaiians, former military personnel, birders, photographers, scientists and concerned citizens from across the nation. While the Friends of Midway Atoll National Wildlife Refuge will always be a distinct entity, we encourage the creation of a Friend-like organization for the monument. We believe such an organization would have a broad scope, mandate and membership.
- 30) There must be a citizen-based public commission Council comprised of a cross section of the public and government representatives. A member from each main Hawaiian Island, an educator, a member/representative of OHA, an artist/writer, a journalist, and a fisherman all to be members of this commission with legal authority to grant all permits.
- 31) Please establish a Monument Advisory Council with the authority to oversee and advise all three co-Trustees and with the same strict conflict of interest requirements that made the original Reserve Advisory Council so successful.
- 32) Please also include 2 public seats on the currently closed Monument Management Board.
- 33) On Jan 22, 2004, the citizen based Reserve Advisory Council approved some goals and objectives that should be reinstated into this management plan. These goals and objectives were developed over years in a transparent, public, and aboveboard process. It is curious that these have been taken out. The public needs to be the major part of this process. I do not feel confident that The Secretaries of Commerce (United States military), Governor of The State of Hawaii (tourism, University of Hawaii research groups), and OHA (States interests- not Hawaiians) as trustees will put resource protection as the main priority or “primary purpose” in managing the NWHI. It is unreasonable to have us believe given their track records that these stakeholders would put

**Comment Category 1 - Advisory Body/Public Involvement**

protection before profit.

- 34) Again, clearly the mission, the goals, and the objectives that were established through an open and public process by the Reserve Advisory Council have been substantially weakened. This is the heart. This is the constitution of this protected area. If that's weakened we don't really have anything to talk about as a basis. So we need to reinstate that.
- 35) The establishment of the Papahānaumokuākea Marine National Monument was preceded by years of input from the public and stakeholder groups that identified several key principles to be incorporated into the Monument's goals. Those principles included: a. Making protection of the Northwestern Hawaiian Islands, their wildlife, and ecosystems the core and preeminent purpose of the Monument, and that all other considerations and activities must not impair this purpose; and b. Maintaining the "natural character" of the Northwestern Hawaiian Islands. I am distressed to see that these principles, and others, are not incorporated into the draft Monument Management Plan, which leaves the Northwestern Hawaiian Islands incompletely protected and open to activities that will impair their health and resilience.
- 36) The RAC is concerned that an Alliance based on the "Friends" model could end up being dominated by the larger, wealthier NGOs who can afford to travel to and attend meetings, and lobby for their particular interests as well as for funds for the Monument. However, the RAC does like the fact that the "Friends" groups often has an office within the FWS's office and its can and do communicate regularly with the FWS staff. Ultimately the RAC concluded that the advantages of an Advisory Council (AC) model outweigh those of the Friends model. Therefore, the RAC recommends that Constituency Building and Outreach Action Plan Activity CBO-3.5 be amended as follows.

Council: After considering input from the Secretary of Commerce, the Secretary of the Interior, and the Governor of the State of Hawaii, the Monument Management Board (MMB) shall establish a thirteen-member Monument Advisory Council (Council) pursuant to Proclamation 8031 of June 15, 2006 and section 315 of the National Marine Sanctuaries Act (16 U.S.C. 1445a) as amended, to provide citizen input, recommendations and assistance regarding the protection and management of the Papahānaumokuākea Marine National Monument. The Federal Advisory Committee Act (5 App. U.S.C.) shall not apply to the Council.

Functions: The Council shall: (A) review reports, plans, and permitted activities pursuant to the purposes, policies, and management requirements of the Monument, other pertinent laws, and international conventions; (B) recommend to the Secretaries, the Governor, and to other agency officials such steps as it considers necessary or desirable for the protection, conservation, and management of the natural, cultural and historical

**Comment Category 1 - Advisory Body/Public Involvement**

resources of the Monument; and (C) in cooperation with the National Oceanic and Atmospheric Administration (NOAA), the US Fish & Wildlife Service (FWS), and the State of Hawaii, recommend such measures as it considers necessary or desirable to further the purposes and policies of Presidential Proclamation 8031, Executive Orders 13178 and 13196, the National Marine Sanctuaries Act, the National Wildlife Refuge System Administration Act as amended by the National Wildlife Refuge System Improvement Act, the State of Hawaii rules establishing the Northwestern Hawaiian Islands Marine Refuge, and all other applicable laws and regulations, including provisions for the protection and exercise of the traditional cultural practices of Native Hawaiians.

Voting members: The Council shall include thirteen voting members: (A) Three Native Hawaiian representatives, including one Native Hawaiian elder with experience or knowledge regarding Native Hawaiian subsistence, cultural, and religious practices in the Northwestern Hawaiian Islands. (B) Three representatives from the science community with experience specific to the Northwestern Hawaiian Islands and with expertise in at least one of the following areas: (i) marine mammal science (ii) coral reef ecology (iii) native flora and fauna of the Hawaiian Archipelago (iv) oceanography (v) any other scientific discipline the Secretaries and the Governor determine to be appropriate (C) Three representatives from nongovernmental wildlife, marine life, environmental, or conservation organizations with a demonstrated interest in conservation and protection of Monument resources, (D) two education and outreach representatives (E) one representative from the ecotourism industry, and (F) one citizen at large. No employee of the Departments of Commerce, Interior, or the State of Hawaii shall be eligible to fill a voting seat on the Council. However, a person working under a government-supported grant or contract involving no more than 19 hours of work per week may be eligible. The RAC recommends that 13 alternates that meet the above qualifications also be appointed. The alternates shall represent constituents in their particular area of expertise, but not any particular Council member. Co-trustees and other agency representatives may participate in Council meetings as ex-officio members, but shall not vote as they have other avenues for input into the management process. The Council as a whole shall meet at least three times a year, with any additional work done between meetings by Council subcommittees. The Council shall elect a Chair, Vice Chair, and Secretary to serve as the Executive Committee of the Council and to act in its behalf as needed. The RAC recommends that the Co-Trustees request Congress to exempt the Council from the Federal Advisory Committee Act.

Compensation and Expenses: The voting members of the Council shall be reimbursed for actual expenses incurred in the performance of their duties, including travel expenses and per diem in lieu of subsistence

Staffing, Assistance and Communication: The MMB shall provide administrative support for the Council,

<b>Comment Category 1 - Advisory Body/Public Involvement</b>	
	<p>convene meetings of the Council and its subcommittees, and make available to the Council such staff, information, administrative services, office space, or assistance that they determine are reasonably required to enable the Council to carry out its functions and communicate effectively</p> <p>The MMB shall keep Council members informed of Monument activities and operations during and between Council meetings, including research plans and results, permits, reports and assessments, and other matters and shall solicit Council input on and help with such matters. The RAC believes that the Council could be particularly helpful in reviewing cumulative impact assessments, annual reports on permitted activities, and conducting evaluations, including the 5-7 year management review plans. A Council representative should be invited to attend meetings of the MMB. The RAC believes the Council can serve as an informed and influential voice at meetings of the State of Hawaii Board of Land &amp; Natural Resources</p> <p>Public Participation and Procedural Matters: The RAC recommends that the following guidelines be adopted with respect to the conduct of business meetings of the Council: (A) Each Council meeting should be open to the public, and interested persons should be permitted to present oral or written statements on items on the agenda at designated and appropriate times. (B) Emergency meetings may be held at the call of the chairman of the Council or presiding officer. The Council may establish subcommittees to facilitate its work. (C) Minutes of each meeting of the Council should be kept and contain a summary of the attendees and matters discussed.</p>
1-01. Response	<p>As stated in CBO-3.5, the Co-Trustees are committed to establish a Monument Alliance within 1 year, composed of individuals who represent communities and stakeholders interested in the Monument’s stewardship. The Alliance will provide individual advice and recommendations to the Monument management agencies regarding the management of Monument resources over which the Co-Trustees have responsibilities. It will serve as a community-based forum to exchange information; provide community input and individual recommendations on Monument policies, activities, and management; advocate for Monument conservation; and enhance broader community and public understanding. Within 2 years after the release of the Monument Management Plan, the Co-Trustees will charter the Alliance as an advisory committee under the Federal Advisory Committee Act (FACA), or as a FACA-exempt advisory body, in order to allow the Alliance to provide consensus advice to the Co-Trustees, per the amended Memorandum of Agreement. Meetings of the Monument Alliance will be convened on a regular basis, with specific topics identified for each meeting. The meetings will be well publicized and open to the public, and will be held at various locations to facilitate participation by a broad range of constituents.</p>
1-02. Comment	<p>Several comments were received suggesting the public comment period be extended to allow more time for public comment.</p>

**Comment Category 1 - Advisory Body/Public Involvement**

## Comments:

- 1) We're given a three minute timing to make comment on 1200 pages in a public forum. That's a little bit of a problem. I would like to echo Dave Raney's statement, a plea for more time for an extension of public comment period. What we are finding -- I have been working along with KAHEA, also working on this for about 10 years -- what we're finding going over it is that sentence-by-sentence some of the most important protective language has been stripped out of what was in there originally. The original draft Management Plan had aban, for example, on bioprospecting. That language has been removed from the original. The Reserve Council -- the Northwestern Hawaiian Islands Reserve Council which first developed goals and objectives weakened by NOAA in 2005 and absolutely further weakened sentence-by-sentence through this interagency process that has happened over the past year. So there's a great deal of concern about the 3 minute limit. Even -- it sounds generous to have 75 days. But you know these guys had three years to go through the 1200 pages. We are looking at the Reserve Advisory Council and their efforts to grapple with this.  
  
I attended the meeting, the first meeting where the RAC really discussed this. They only made it through a fraction of the comments that they themselves had submitted. And I would say admittedly they themselves probably haven't even read the 1200 pages of this thing. Again, a strong plea for a much longer public process and a chance to provide full input. There are a lot of concerns which we'll be submitting in written comments. But just to flag some of them.
- 2) The importance of public input has been mentioned earlier but there has been two years now elapsed where the public has largely been excluded from the development plans that we're reviewing tonight. We were given a quite ample 75-day period. That is good. But I note that the Reserve Advisory Council has really only recently begun to develop its comments on the draft plan. Sierra Club would like the benefit of reviewing the Reserve Advisory Council comments as we prepare ours. And if the Reserve Council needs more time to complete its review of these documents and prepare its comments and recommendations, then I request that the deadline for comments be extended as necessary.
- 3) One thing that keeps coming up over and over again over the last couple of months is that people have no idea what's going on. They think the Monument's protected. But there's a lot to review in here basically. There's a lot. And it's not in layman's terms. It's not at 6th grade reading level like all newspapers. It's just not accessible information. I think there should be more time for the public to review it.
- 4) Finally, the DMMP would greatly benefit from the expertise and unique perspective of a thorough public review. Therefore, we request an extension of the public comment period. The DMMP includes several major

<b>Comment Category 1 - Advisory Body/Public Involvement</b>	
	<p>documents, including 22 action plans, ## compatibility reviews, an Environmental Assessment, a Cultural Impact Statement, the Draft Midway Visitor Services Plan, and a Conceptual Site Plan for the development of Midway. These documents, totaling 1,200 pages in length, were developed over a 2-year process by the Co-Trustees without the benefits of public participation. Adequate review and effective comments cannot be achieved in only 75 days. The low attendance at the recent public hearings in Hawai'i and Washington D.C. is an indication that the community is not yet sufficiently engaged in this crucial decision-making process.</p> <p>5) To have a 1200-page document that the public has 75 days to comment on is sort of inadequate. We know that you yourselves having put together this document can appreciate the difficulty. And we ask that you really respect the intelligence of the public. People can, given enough time, given help and facilitation can understand what's going on and have things to say about it and have really strong ideas about what should be going on in the Northwestern Hawaiian Islands. We ask that you extend the 75-day comment period.</p>
1-02. Response	The 75-day public comment period was extended by an additional 15 days, for a total of 90 days, in order to give people additional time to review the document and submit comments. In addition to opportunities to provide comments during public meetings, there were ample opportunities to provide comments during the 90-day public comment period.
<b>Unique Comments</b>	
1-03. Comment	So I really appreciate your coming out to Kaua'i and taking public comments and sharing with us. Also, really hard for me to come up, speak in an air conditioned room and sit and listen. So I want to share kind of an afterthought. But I look around, there's not much of my peers in this room here. And, it's our generation that's going to continue to move whatever we come up with this plan forward and enforce it and just perpetuate it. So the thought was that maybe next time if we can have some warm mamaki tea and some awa, sit in a circle on a mat, talk story where I know my generation would be very comfortable with that. It would open our hearts and our minds up, could articulate a little better. Really show our, the manana'o from our hearts. It's really hard for me to come up to the mic.
1-03. Response	During the 90-day public comment period, people could provide comments in one of several ways: submit written comments (via letter, fax, or e-mail), submit written comments at any of the 10 public hearings, provide oral testimony at any of the 10 public hearings, or tape record oral comments at any of the 10 public hearings. In addition, before each of the 10 public meetings, Monument staff provided an open house forum where information corresponding to the action plans was available and staff was present to answer specific questions. Staff will consider other ways to involve the public in the future, including smaller working groups.
1-04.	Section 3.6 Achieving Effective Monument Operations



<b>Comment Category 1 - Advisory Body/Public Involvement</b>	
Comment	Based upon the enthusiastic, universally positive and thoughtful suggestions made at the well attended first round of public hearings on a Draft Monument Plan, whereas the new Draft Plan has drawn very sparse attendance and universally critical comments, it is clear that the public buys into and supports plans and policy where they have played an effective role in formulation, but rejects as “not made here” plans and policy formulated in private with little to no transparency. In order to regain credibility, and political and financial support, it is imperative that the RAC be reconstituted and reconvened to consider the comments and criticisms of this new Plan, to offer consensus amendments, and for RAC suggestions to be seriously considered.
1-04. Response	The Reserve Advisory Council (RAC) was established by Executive Order 13178 in December 2000 to provide advice and recommendations to NOAA on the development of the Northwestern Hawaiian Islands Coral Reef Reserve Operations Plan and designation and management of any Sanctuary. While, the RAC is not an advisory body for the Monument or the other Co-Trustees, NOAA convened the RAC during the public comment period to review and provide specific comments to NOAA on the Draft Monument Management Plan. The three Co-Trustees are legally required to consider all public comments received, including those by the RAC, and, as necessary and appropriate, to revise the draft documents. This task cannot be delegated to a nonagency entity.
1-05. Comment	The RAC recommends that until a Native Hawaiian co-trustee is added, the interim OHA representative should continue to convene meetings of the Native Hawaiian Cultural Working Group and forward its recommendations to the MMB.
1-05. Response	The MMB commits to regular consultation and engagement with Native Hawaiians and to the formal establishment of the Native Hawaiian Cultural Working Group, which was convened originally as part of the RAC. The working group is now convened by OHA and is consulted on permit applications and other issues; the group will continue to be convened and formalized (see Strategy NHCI-1 and Activity NHCI-1.1). This provides one of many methods for involving Native Hawaiians. Those volunteer members of the working group have already made a large commitment to accept responsibility for the protecting and perpetuating Papahānaumokuākea and Native Hawaiian cultural connections to this place.
1-06. Comment	On top of that I think there should be working groups that allow the public, that guide the public through those volumes. That would also include the Navy EIS Range Expansion Plan. Yeah, there’s realistic working groups that can put a little bit of this information in terms that people that would want to care about it if they knew they should care about it, can understand. And giving them community involvement in decisions like the Monument Advisory Council.
1-06. Response	During the 90-day public comment period, 10 public hearings were held. Before each public meeting, Monument staff provided an open house forum where information corresponding to the action plans was available and staff answered

<b>Comment Category 1 - Advisory Body/Public Involvement</b>	
	<p>specific questions. In the future, staff will consider other ways, including establishing working groups or holding additional information meetings, to help the public better understand the documents. The Monument Management Plan is a roadmap, and many of the activities will involve other opportunities for the public to be involved and to provide input. In particular, the Action Plan on Community Building and Outreach (CBO) includes a number of strategies and activities involving the public that we envision over the life of the plan. Finally, the plan will be reviewed every five years.</p>
1-07. Comment	<p>We are also concerned that some of the key concepts developed by the Reserve Advisory Council and included in the draft Sanctuary Goals and Objectives appear to be missing from the Draft Monument Management Plan. Specifically, we support:</p> <ul style="list-style-type: none"> <li>• restoring language requiring maintaining the “natural character” of the NWHI as part of the Monument mission;</li> <li>• including language pertaining to the “public trust” nature of the NWHI;</li> <li>• restoring the core principle requirement that officials “authorize only uses consistent with the primary purpose of resource protection;”</li> <li>• making clear that all research permits must demonstrate that permitted activities are “necessary for effective management of the region;”</li> <li>• restoring the requirement that permits shall be authorized “only if such uses do not threaten the natural character or biological integrity of any ecosystem of the region.”</li> </ul> <p>Because the Monument vision, mission, guiding principles and goals provide the basic framework for all management activities, it is particularly important that this section of the DMMP respect the years of hard work of the Reserve Advisory Council with regards to these overview issues.</p>
1-07. Response	<p>As required by Presidential Proclamation 8031, the draft plan for the proposed National Marine Sanctuary was modified to create the Monument Management Plan. Thus, much of the Reserve Advisory Council’s previous work is still found within the plan. In response to these comments, the MMB modified the Vision, Mission, and Goals 1, 2, and 3 in Table 2.1 to better reflect a commitment to resource protection. In addition, the MMB has identified eleven guiding principles for managing the Monument. The seventh guiding principle “errs on the side of resource protection when there is uncertainty in available information on the impacts of an activity“ and honors the approach of “do no harm.“ This is consistent with the precautionary principle in which historic, cultural, and natural resource protection and integrity is favored.</p>
1-08.	<p>To maintain a transparent and accountable decision-making process, the meetings of the MMB must be open to public</p>

<b>Comment Category 1 - Advisory Body/Public Involvement</b>	
Comment	participation and scrutiny. We strongly advocate that the MMB include public representatives and the meeting themselves be open to the public, including public comment and access to meeting minutes.
1-08. Response	The MMB was established under the December 2006 MOA. Membership does not include public representatives because the MMB was designed to provide those agencies with management responsibilities a forum to achieve the requirements of Proclamation 8031 and objectives in the MOA. The MMB provides a necessary forum for the agencies to deliberate together and do their job. Although MMB meetings to date have not included a public comment component, in the future, the MMB may consider holding open house meetings and other venues for providing information to the public (see Vol. I, Constituency Building and Outreach, Activities CBO-3.1 and CBO-3.2).
1-09. Comment	Table 2.1: Change the Language in Goal 4 to: “Provide for cooperative conservation including community involvement and stake-holder input that achieves affective Monument operations and ecosystem-based management.”
1-09. Response	We recognize that stakeholders, including rights holders, have played a crucial role in seeking greater protection for the Monument. As part of the broader community, we will continue to seek stakeholder input. The MMB believes that existing language referring to community involvement includes stakeholders, so no change is warranted.

<b>Comment Category 2 - Agency Coordination</b>	
<b>Summarized Comments</b>	
2-01. Comment	<p>The comments below suggest the Draft Monument Management Plan allows activities that would not be allowed under state law in the NWHI refuge (e.g., special ocean uses, recreation, research, and education) and that State regulations are not being adequately represented.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) The questions and answers paper that was handed out in this meeting is quite alarming in that, for example, there’s a question: How can I visit the Monument? And it states that: All of these things can be carried out in Monument waters including special ocean uses, recreation, research and education. There’s no mention that state waters do not allow those activities. This is just one example of the way that state rules are not represented.</li> <li>2) We’d also like to see a better incorporation of sort of the state regulations and state protection for the refuge, the state refuge. In the Management Plan there’s a little bit of a disconnect there. Of course the state is a co-manager. But when you read the plan, at least sort of the management actions in the plan I think there does need to be a little bit better coordination because some of the state protections are stronger than what are being proposed in</li> </ol>

<b>Comment Category 2 - Agency Coordination</b>	
	<p>the plan.</p> <ol style="list-style-type: none"> <li>3) The state refuge, which was the first solid attempt at setting this place aside, needs to be an equal partner in this Monument management scheme. The state refuge regulations aren't even in the appendices of this Management Plan which goes to show how forgotten it is.</li> <li>4) When we're looking at the modifications that have been made to the draft Management Plan over the last couple of years, the action plans themselves do not seem to include the state requirements.</li> </ol>
2-01. Response	<p>The State of Hawai'i Administrative Rules, Title 13, Chapter 60.5, established the NWHI Marine Refuge “to support, promote, and coordinate appropriate scientific research and assessment, and long-term monitoring of the refuge resources.” State refuge regulations specifically allow for persons to enter the Refuge for the purposes of scientific research, education, and subsistence and cultural practices by Native Hawaiians. State prohibitions and regulations will continue to apply in state waters that are within the Monument. The proclamation specifically states that nothing in this proclamation shall be deemed to diminish or enlarge the jurisdiction of the State of Hawai'i.</p>
2-02. Comment	<p>The comments below concern how the Co-Trustees will accomplish seamless integrated management of the Monument and its resources.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) I applaud your commitment to “seamless integrated management” between the Co-Trustees, but I remain skeptical about your ability to pull it off. The Management Plan makes confusing references to the “primary” responsibilities of each Trustee and states that “each agency retains their spheres of jurisdiction, responsibility, and expertise.” Yet, the Plan does not explain, in real world terms, how that will be accomplished. Also, the Plan does not explain the function and scope of responsibility for each of the various boards and committees.</li> <li>2) I'm interested in, quite frankly, in how well this concept of seamless integrated management will work. They're nice words, but I'm sure you can appreciate better than any of us what it means to work together in areas of confusing jurisdiction. I give you real credit for trying, and I hope it succeeds. If it does, it will be a first time this sort of thing worked that way. I do point out there were some -- there is still some confusion -- it would be surprising if there wasn't -- in the document about overlapping jurisdictions and how you can reconcile in one place saying no one has primary responsibility or the state has primary responsibility and somewhere else describe things in geographic terms that are so confusing. So I would urge you to try and give that the sort of layman test and see if people who haven't been caught up in all this bureaucracy so long can really understand what it means when I say this is how the jurisdiction is now split in the Northwestern Hawaiian Islands.</li> </ol>

<b>Comment Category 2 - Agency Coordination</b>	
2-02. Response	<p>The three principal entities with responsibility for managing lands and waters of the Monument—NOAA, USFWS, and the State of Hawai‘i (collectively, the Co-Trustees)—have developed the Monument Management Plan and other mechanisms, such as coordinated permit, education, research, and communications programs. The seven agencies that make up the MMB are the NOAA National Marine Sanctuary Program, NOAA National Marine Fisheries Service, FWS National Wildlife Refuge System, FWS Pacific Islands Fish and Wildlife Office, Hawai‘i DLNR Division of Aquatic Resources, Hawai‘i DLNR Division of Forestry and Wildlife, and the Office of Hawaiian Affairs. The agencies meet regularly to coordinate their respective activities, priorities, and permit reviews. This relationship is further described in section 2.2 (Policy Framework) and in a Memorandum of Agreement among the Co-Trustees (see Volume III, Appendix F). Furthermore, the MMB is developing a charter for the MMB, which will provide specifics on the roles, responsibilities, and activities for the MMB.</p>
2-03. Comment	<p>The comments below seek further clarification on the roles and responsibilities of the Co-Trustees, MMB and ICC in the management of the Monument and its resources.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) It’s created a unique opportunity for agencies to come together and manage this resource and it’s probably unprecedented in any place that I can think of in the world where this has happened in such a short time. The things that I have noticed that concern me is it’s still NOAA’s efforts and the Fish and Wildlife’s efforts. This is the same ecosystem but we really do need to, I think separate -- stop separating -- there’s still seal camps and then there’s Fish and Wildlife camps. So at some point it would be nice to have Monument camps. So that’s something -- that would be -- it’s difficult to shake off the old places that you come from. And it would be nice to get, start changing some of the names.</li> <li>2) It wasn’t clear to me what the distinction between the Monument Management Board and the Interagency Coordinating Committee is. And I talked to a few folks during the break to try and get some insight into that.</li> <li>3) In line with this concern is how the agencies involved will interact, so as to really care for and respond to needs or necessities {things that can’t ‘wait’} of the Monument and the life within, as well as the human management side of things. And to make sure there isn’t too much if any lack as any change happens. Often this will be on several levels, so a real substance to “smooth” transition requires a lot more than what is being offered. Even with educated volunteers or willing experts, in small or larger numbers. Communication and cooperation in a bureaucracy is shaky at best, which bodes not well for the NWHI if things go wrong especially. If setting it up is so complex and detailed, how much more so will managing it be? Especially with the changing or integrating of laws and other to theoretically connect them all. Especially if it concerns non-U.S. groups. It may not be possible</li> </ol>

<b>Comment Category 2 - Agency Coordination</b>	
	<p>to just connect anything like that. If it depends on law and policy it will be hard, at best. And nearly impossible at worst, and of course worst case scenario means impossible at it's most severe. At each listed step major agencies and sometimes more than one, are involved in a stated step, this makes just setting it up very complex. That only states that it will be that much more so for the users and those who apply for permits. When it's hard at the top, it'll be as difficult at the bottom or worse. The last part of the Interagency concerns is AC-3.3, the World Heritage issue. Should this occur, it will be that much more complex for all involved. If you've ever heard of red tape, that will be a forest in a jungle of it. Meaning any who use or pass through it, whether for official, casual or purposeful reason, will be potentially scared off before they can get in. Which in some cases may be the intent, as sad and regretful as that may be. People in power have hardly changed since known time, it's only the ways used rather than the views. The use of law goes on the assumption that nobody will follow good actions or intent if it isn't there or that control is necessary, and as often it's those in power that abuse it, which makes things worse. Hopefully it won't be as bad for the NWHI. Bureaucracy is red tape applied, only time will tell.</p>
<p>2-03. Response</p>	<p>The three Co-Trustees, U.S. Department of Commerce, U.S. Department of the Interior, and the State of Hawai'i signed a MOA in 2006, which provided for coordinated administration of all federal and state lands and waters within the boundaries of the Monument. The MOA established the seven-member MMB to coordinate day-to-day management at the field level. The MMB is composed of the NOAA National Marine Sanctuary Program, NOAA National Marine Fisheries Service, FWS National Wildlife Refuge System, FWS Pacific Islands Fish and Wildlife Office, Hawai'i DLNR Division of Aquatic Resources, Hawai'i DLNR Division of Forestry and Wildlife, and the Office of Hawaiian Affairs. While each agency remains responsible for carrying out its statutory responsibilities, the MMB meets regularly to promote interagency coordination and strives to achieve successful collaboration across multiple agencies. The Co-Trustees are committed to work together to improve agency coordination, communications, efficiency, and resource and facility sharing.</p> <p>The MOA also established an Interagency Coordinating Committee (ICC) to help coordinate state and federal agency activities that occur in the Monument, to facilitate getting information from these other agencies about Monument resources that could help in the management of the site, and, when feasible, to obtain assistance in implementing various strategies and activities contained in the Monument Management Plan. This is a forum to exchange information, to promote collaboration, and when necessary, to discuss and resolve issues. Unlike the MMB, the ICC does not have a fixed membership; it meets periodically or as specific topics require, and participation is based on the relevancy of their activities or mandates within the Monument and the specific need for agency expertise to address specific issues. Representation on the ICC has included the MMB agencies plus the Coast Guard, Environmental Protection Agency, US Geological Survey, and Department of Defense. Information about the ICC can be found in the Monument</p>



<b>Comment Category 2 - Agency Coordination</b>	
	Management Plan Agency Coordination Action Plan, Activities AC-2.2, 2.3, 2.4, and 3.1.
2-04. Comment	<p>The comments below recommend the Monument Management Plan be consistent with the precautionary principle, in which historic, cultural and natural resource protection and integrity be favored when not enough information is known about potential effects of particular undertakings.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) HHF recommends that the Management Plan make an explicit commitment to the precautionary principle, in which historic, cultural and natural resource protection and integrity be favored when not enough information is known about potential effects of particular undertakings. The approach of “do no harm” in the face of uncertainty will help to protect the resources for which the monument is created.</li> <li>2) The precautionary principle approach includes: a duty to take anticipatory action to prevent harm; a duty to consider all the reasonably foreseeable costs and benefits, in the short and long term, when making decisions; a duty to make decisions in a transparent, participatory and informed manner with the best available information; and a duty to select the option with the least potential impact on the environment. This approach to decision-making must be properly explained and followed throughout in the DMMP.</li> <li>3) The precautionary principle, as so many have said before, is the cornerstone of making sure we do not make the same mistakes in the Northwestern Hawaiian Islands that we made in the main Hawaiian Islands.</li> <li>4) Restructure the Action Plans to ensure they abide by the Precautionary Principle, Executive Orders, and the State “do no harm” standard.</li> </ol>
2-04. Response	<p>The MMB has identified eleven guiding principles for managing the Monument. The seventh guiding principle “Errs on the side of resource protection when there is uncertainty in available information on the impacts of an activity.” It honors the approach of “do no harm,” which is consistent with the precautionary principle in which historic, cultural, and natural resource protection and integrity is favored.</p>
2-05. Comment	<p>The comments below concern the methods for handling disagreements that may arise between Co-Trustee agencies.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) 3.5.1 Agency Coordination Action Plan                      Ocean Conservancy supports the stated desired outcome of this plan to: “Successfully collaborate with government partners to achieve publicly supported, coordinated, coordinated successful/effective management in Papahānaumokuākea Marine National Monument.” [emphasis added] We recommend adding the additional adjectives “successful” and/or “effective” as modifiers for “management” to further strengthen this plan. The</li> </ol>

<b>Comment Category 2 - Agency Coordination</b>	
	<p>Action Plan itself is somewhat limited and unclear and would benefit from some additional detail and development, especially given inherent challenge of multiple agencies working together. As we stated in the above section on “Management Framework”, one important means to address challenges of working together would be to identify and develop a fair and effective method of addressing differences of opinion between the Co-Trustees in a timely manner.</p> <p>2) The MOA lays out an internal method of handling management disagreements that may arise between the Co-Trustees:</p> <p>“If the members of the MMB disagree on an issue of Monument resource management, they shall present their differences to each other in writing, and they shall discuss them. The MMB should be the first body to attempt resolution of any disagreement. If the MMB fails to resolve their differences within 30 days after identification of the disagreement, or immediately upon determination that the MMB has reached an impasse, the matter shall be elevated to the SEB for resolution.” However, the MOA does not provide guidance for determining how to resolve such differences of opinion if the Co-Trustees do not agree at the SEB level. Given the likelihood of differences of opinion amongst agency staff, Ocean Conservancy recommends that the Co-Trustees identify and agree in advance to a process for handling disputes that cannot be quickly resolved by the SEB. Specifically, we are concerned that potential disagreements not result in delays or inaction on important management issues pending resolution of any disputes. We recommend that disagreements amongst the Co-Trustees be resolved in a manner that favors the more protective management option under consideration. We further recommend that the Draft Monument Management Plan specifically identify a fair and effective method of addressing differences of opinion between the Co- Trustees in a timely manner. For example, in many instances, a simple majority vote of the three Co-Trustees might be sufficient. More significant disagreements could potentially be resolved by the Council on Environmental Quality. We advise that specific mechanisms for effectively resolving disputes be spelled out clearly in the Draft Monument Management Plan and agreed to by the Co-Trustees.</p>
2-05. Response	<p>Although in almost all cases, agreements are being reached at the MMB level, standard federal processes for resolving issues between federal agencies would be used if necessary. In the case of the Monument, the federal agencies would also be coordinating closely with the State of Hawai‘i in any decision making.</p>
2-06. Comment	<p>The comments below seek clarification on how lead agencies were determined for some of the management activities.</p> <p>Comments:</p> <p>1) It’s not clear from the narrative how the assignment of “lead” was determined for some of the management activities. For example, why was NOAA assigned the lead for the unified permit application process, the</p>

<b>Comment Category 2 - Agency Coordination</b>	
	<p>emergency response activity and the science action plans? It seems to me that leadership for these activities should be shared.</p> <p>2) Table 3.1.1: Summary of Strategies...Science (p. 115) - In the table on page 115 we note that the lead agency for Activity MCS-1.1: Continue to characterize types and spatial distribution of shallow-water marine habitats, is NOAA. Shouldn't the Department of Land and Natural Resources be the lead agency for shallow water studies? Near shore waters are the jurisdiction of the state and they should be the lead agency on monitoring that takes place in state waters.</p>
2-06. Response	<p>At the end of each Action Plan is a summary table that lists which agency has the lead for coordinating each activity. The lead agency is responsible for providing much of the staff and other resources (such as funding, volunteers, infrastructure, vessels, and aircraft) to implement the activity and is responsible for coordinating with other agencies to monitor and report the progress of the project(s). Other MMB agencies may participate in shared decision making and implementation of the activity, depending in their respective mandates and agency resources.</p>
2-07. Comment	<p>The comments below suggest the Monument Management Plan does not include the requirements of the other Executive Orders (EO) that apply to the Northwestern Hawaiian Islands. These orders were not rescinded by the Proclamation, yet some of the action plans contain language which does not fulfill the requirements of existing EO protections.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) The EO's, the executive orders, need to be carried forward. The language from the executive orders needs to be articulated in the Management Plan.</li> <li>2) They also do not seem to include the requirements of the executive orders. This Management Plan was initially drafted when the federal agencies were hoping that the executive orders which established reserve protections would be withdrawn and removed. Those orders were not withdrawn yet the language still remains in some of the action plans which absolutely does not fulfill the requirements of the existing executive order protections. Let's see. Just touch on some of the brief, brief concerns here.</li> </ol>
2-07. Response	<p>Presidential Proclamation 8031 directed the Secretaries of Commerce and Interior to review and modify, as appropriate, the interagency agreements developed for the coordinated management of the Hawaiian Islands Coral Reef Reserve and to modify, as appropriate, the plan developed by NOAA's National Marine Sanctuary Program through the public designation process. The proclamation also prescribed specific actions in regard to public access, vessel monitoring systems, restrictions, armed forces actions, commercial fishing, sustenance fishing, and permitting. These provisions were codified in a final rule for the Monument (71 FR 51134). The Monument Management Plan was developed to be consistent, as much as possible, not only with the protections outlined in the Hawaiian Islands Coral Reef Ecosystem</p>

<b>Comment Category 2 - Agency Coordination</b>	
	Reserve Executive Orders (13178 and 13196), but other applicable federal and state regulations that apply to the Co-Trustees management agencies and the specific requirements of the Presidential Proclamation. The proclamation prescribes certain uses that are not contemplated by the other Executive Orders, and as such the original mission, vision, goals and objectives prepared for the Reserve were appropriately modified.
<b>Unique Comments</b>	
2-08. Comment	<p>The State of Hawaii led the way towards the designation of this Monument by establishing the visionary NWHI State Marine Refuge. This Refuge is the largest “do no harm” area in all of Hawaii and it specifically protects Native Hawaiian cultural access rights, prohibits commercial extraction - like fishing- and allows only appropriate scientific research. It enforces these standards through a one-strike rule that bars future permits to any applicant that has violated a past permit.</p> <p>Although the State of Hawaii is an equal partner in the management of the Monument, as outlined in the Memorandum of Agreement between the three Co-Trustees, the DMMP barely acknowledges the State Refuge in the 22 action plans to manage the Monument. If the State Refuge is not only fully integrated in the management of the Monument, then it will ultimately become an after-thought of forgotten protections with no funding or administrative support.</p>
2-08. Response	The State of Hawai‘i is and will remain an integral Monument Co-Trustee and will partner in implementing many of the strategies and activities listed in the Management Plan, as resources and staffing allow. The Monument Management Plan incorporates applicable state requirements and activities into relevant strategies and activities, and is fully consistent with the requirements of the NWHI Marine Refuge and the State Seabird Sanctuary at Kure Atoll, as set forth in the Hawaii Administrative Rules Title 13. Activities prohibited by state regulations will remain prohibited in those areas.
2-09. Comment	And then, finally, it’s just a comment, many of us worked really hard in State and in the Federal agencies on the statewide Conservation -- no, statewide Comprehensive Wildlife Conservation Strategy. That’s not mentioned in this. And there’s over 100 pages of documentation on actions to be taken for the Northwest Hawaiian Islands and for the very same species listed in your management plan. And I think they should be somehow integrated. I don’t think there’s a huge amount of overlap.
2-09. Response	The statewide Comprehensive Wildlife Conservation Strategy is an initiative led by the Department of Land and Natural Resources. This Monument Management Plan is consistent with the requirements of the NWHI Marine Refuge and the State Bird Sanctuary at Kure Atoll, set forth in the Hawai‘i Administrative Rules Title 13, Chapters 60.5 and 125. The Monument Management Plan was developed in close coordination with the State of Hawai‘i Department of Land and

<b>Comment Category 2 - Agency Coordination</b>	
	Natural Resources staff to ensure consistency with state requirements. Many of the specific strategies and activities are fully consistent with the provisions of this wildlife conservation strategy. Further, the State of Hawai‘i is and will remain an integral partner and participant in implementing many of the strategies and activities listed in the Monument Management Plan and will look to ensure that Monument activities are complementary to the plan. Links to the statewide Comprehensive Wildlife Conservation Strategy are now incorporated in Action Plan 3.2 of the Monument Management Plan.
2-10. Comment	Table 3.1.2: Summary of Strategies . . . And History (pp. 126-127) On the second page of the table, Activity NHCH-5.1: Integrate Native Hawaiian values and cultural information into general outreach and education programs, the lead agency listed is NOAA. Shouldn't the lead agency be the Office of Hawaiian Affairs which would have a better understanding of Hawaiian Culture and how it may be interpreted through outreach and educational programs? At the very least, some local entity should be the lead in carrying out this activity not a federal agency.
2-10. Response	The Office of Hawaiian Affairs (OHA) only within the last 18 months became an active and engaged agency in the conservation and protection of the NWHI. OHA provides part of a staff member's time to participate on the MMB but beyond this has yet to dedicate any full-time staff to Papahānaumokuākea. Many of the strategies and activities in the Monument Management Plan are designed to build capacity within Native Hawaiian communities and organizations to conduct outreach and education programs to support Papahānaumokuākea. NOAA ONMS is the agency with the most institutional knowledge and experience in working with Native Hawaiian communities related to the Monument. In addition, capacity building is needed across all agencies.
2-11. Comment	Where the management plan calls for additional plans or research, including a preservation plan for the monument generally and an updated preservation plan for Midway Atoll, meaningful public input and participation is necessary. Historic Hawai‘i Foundation would like to be a consulting party in the preservation planning, as well for specific undertakings that may affect historic resources.
2-11. Response	The MMB is committed to working with appropriate user groups, stakeholders, and the general public to develop future natural resource and historic research and preservation plans. At the appropriate time, Monument staff will welcome such input from interested parties.
2-12. Comment	The Management of the Monument must fully implement the permit requirements, penalty structure, and prohibitions against sustenance fishing and waste dumping.

<b>Comment Category 2 - Agency Coordination</b>	
2-12. Response	The Monument permitting process is detailed in Volume III, Appendix A. The MMB meets regularly to review and apply the criteria before issuing any permits. Likewise, the MMB is working with each agency's law enforcement office and its respective legal counsel to ensure that all prohibitions are enforced.
2-13. Comment	The proposed management plan for the Papahānaumokuākea monument is fundamentally flawed because it is a piecemeal multi-governmental mess of jurisdictions and regulations. The only solution will be the creation of an independent agency to manage the monument. The sooner this is realized the better. The current structure and the proposed structure of a management body will only continue the dysfunctional and inadequate protection of the monument. At the recent International Coral Reef Symposium Dr. Terry Hughes, ARC center of Excellence for Coral Reef Studies, noted that the most significant factor for the management of the Great Barrier Reef (GBR) in Australia was the wise move by the government to create the GBR Authority with independent control over the management of the reefs. Dr. Hughes noted the dysfunction and overall failure of the US Coral Reef Task Force as an example of how not to manage a reef ecosystem. The current and proposed management plans for the NWHI resemble the US Coral Reef Task Force in its complexity and vulnerability to multi-agency conflicts and politics.
2-13. Response	The MOA identified three Co-Trustees (NOAA, FWS, and the State of Hawai'i) with the responsibility for managing the Monument. Subsequently, through an MOA, management responsibility was expanded to a seven-member board of the NOAA National Marine Sanctuary Program, NOAA National Marine Fisheries Service, FWS National Wildlife Refuge System, FWS Pacific Islands Fish and Wildlife Office, Hawai'i DLNR Division of Aquatic Resources, Hawai'i DLNR Division of Forestry and Wildlife, and the Office of Hawaiian Affairs.
2-14. Comment	Institutional Arrangement for Management (pp. 81-82) It is unclear from the description of the institutional arrangement for management how decisions will be made by the Senior Executive Board (SEB). Will they make decisions by consensus, by majority vote or by some other method? Who calls meetings of the SEB and who chairs them? We are also curious as to how the Monument Management Board (MMB) will function. Who chairs this group and how will they operate? How will the SEB, the MMB and the interagency coordinating committee interact with each other and with the staff? With so many layers of management it seems likely that problems will occur.



<b>Comment Category 2 - Agency Coordination</b>	
2-14. Response	<p>As stated in the MOA among the Co-Trustees for promoting coordinated management of the Monument (Appendix F), the SEB provides policy guidance to their respective agency staff assigned to carry out Monument management activities. The day-to-day management and decisionmaking of the Monument is the responsibility of the MMB agencies, but if there are conflicts or disagreements, the SEB provides a means to resolve such disputes. As the primary purpose of the SEB is to provide interagency guidance and resolve internal agency policy issues and disputes, meetings are scheduled only as needed. Because the purpose of these meetings is not to convey information to the public or to get public input or comment, they are not open to the public.</p> <p>However, in order to foster greater public involvement, the Co-Trustees are committed to establish a Monument Alliance within 1 year, composed of individuals who represent communities and stakeholders interested in the Monument’s stewardship responsibilities. The Alliance will provide individual advice and recommendations to the Monument management agencies regarding the management of Monument resources over which the Co-Trustees have responsibilities. It will serve as a community-based forum to exchange information; provide community input and individual recommendations on Monument policies, activities, and management; advocate for Monument conservation; and enhance broader community and public understanding. Within 2 years after the release of the Monument Management Plan, the Co-Trustees will charter the Alliance as an advisory committee under the Federal Advisory Committee Act (FACA), or as a FACA-exempt advisory body, in order to allow the Alliance to provide consensus advice to the Co-Trustees, per the amended Memorandum of Agreement. Meetings of the Monument Alliance will be convened on a regular basis, with specific topics identified for each meeting. The meetings will be well publicized and open to the public, and will be held at various locations to facilitate participation by a broad range of constituents.</p>
2-15. Comment	<p>...all I see in there are we’re going to go this in two years or three years or four years. I think it would be very important and crucial step to actually say we need to have this done by this date. So you can mark it on the calendar and say it needs to be done at this point in time. Because, you know, you look at that and say done in two years, done in two years starting when? When the final draft is done? Starting two years from when you start the project? So you could put that off forever. So I think it’s just a important thing to have it set in stone.</p>
2-15. Response	<p>Most strategies in the Action Plans have a projected timeline for completion, which begin once the Monument Management Plan has been approved for implementation.</p>
2-16. Comment	<p>Page ES-2 of the draft management plan states that “The management framework for the Monument includes key elements to move toward an ecosystem approach to management.” OHA is pleased by this sentence and urges the coordinated management of this area to consistently bear this mind. OHA also is pleased by the intent to adhere to the</p>

<b>Comment Category 2 - Agency Coordination</b>	
	<p>National Wildlife Refuge (NWR) system principle of “wildlife comes first.” The opening paragraph on page two of the draft management plan begins with: Proclamation 8031 states that the Secretary of Commerce, through NOAA, has primary responsibility regarding the management of the marine areas of the Monument, in consultation with the Secretary of the Interior. The Secretary of the Interior, through FWS, has sole responsibility for the areas of the Monument that overlay the Midway Atoll National Wildlife Refuge, the Battle of Midway National Memorial, and the Hawaiian Islands National Wildlife Refuge, in consultation with the Secretary of Commerce. Nothing in the Proclamation diminishes or enlarges the jurisdiction of the State of Hawai‘i. The State of Hawai‘i, through the Department of Land and Natural Resources, has primary responsibility for the Northwestern Hawaiian Islands Marine Refuge and State Seabird Sanctuary at Kure Atoll.</p> <p>OHA is understanding of this bit of jurisdictional wrangling and appreciates that this confusing picture was painted for us; however, we will hold the co-managers to their stated goal of creating “a comprehensive and coordinated management regime to achieve the vision, mission, and guiding principles of the Monument and to address priority management needs over the next 15 years.” OHA understands the vision to be to forever protect the health, diversity, and resources of the area and the mission to be to carry our “seamless” integrated management to protect area ecosystems, Native Hawaiian resources, and heritage resources for all time.</p> <p>OHA is hopeful that the co-managers of this area will gain valuable experience that can be applied to other remote Pacific Island complexes that sorely need an integrated management regime that focuses more on the resources and less on jurisdiction.</p>
2-16. Response	The Co-Trustees are committed to working together to achieve a mutual goal of creating “a comprehensive and coordinated management regime to achieve the vision, mission, and principles of the Monument and to address priority management needs over the next 15 years.”
2-17. Comment	p. 155 ln 24 Change from: “promote streamlining among the action agencies and consulting agencies,” To: “promote timely and effective coordination among the action agencies and consulting agencies,”
2-17. Response	We have made the suggested change to Volume I (see Threatened and Endangered Species Action Plan - Strategy TES-8).
2-18. Comment	First, we need to better incorporate the executive orders and the state regulations. Classic example, independent teams. There’s no state regulations. So you have Monument regulations. You have no laws and things that have to be followed but the Refuge is part of the Monument to the extent the state determines the Refuge regulations have to be exercised.
2-18.	The Monument boundary includes state waters, including the NWHI State Marine Refuge and the State Bird Sanctuary

<b>Comment Category 2 - Agency Coordination</b>	
Response	at Kure Atoll. Nothing in the Presidential Proclamation diminishes or enlarges the jurisdiction of the State of Hawai‘i, which has primary responsibility for managing the state waters of the Monument. The Monument Management Plan is fully consistent and complementary with the requirements of the NWHI Marine Refuge and the State Bird Sanctuary at Kure Atoll, as set forth in the Hawaii Administrative Rules Title 13, Chapters 60.5 and 125. All other applicable state regulations and laws will continue to apply in state waters in addition to Monument regulations. Further, the Monument Management Plan was developed in close coordination with the Hawai‘i Department of Land and Natural Resources and Office of Hawaiian Affairs staff to ensure it coordinated and was consistent with state requirements. On August 29, 2006, NOAA and FWS published a final rule in the <i>Federal Register</i> (71 FR 51134) to codify the federal provisions of the Presidential Proclamation to provide additional notice to the public and other interested parties of the terms of the proclamation and activities that are prohibited or regulated and thereby facilitate improved compliance.
2-19. Comment	<p>3.5.1 Agency Coordination Action Plan</p> <p>Furthermore, we recommend the following improvement to Strategy AC-3: “Promoting international, national, and local agency and non-governmental collaborations to increase capacity building and foster networks that will improve management effectiveness “ [emphasis added] In addition to governmental agencies, there are many stakeholder, non-governmental groups working towards and addressing the goals of this strategy across the Pacific. Ocean Conservancy would like to see the Monument actively engaged in such initiatives. The Co- Trustees currently are members of the Hawai‘i Conservation Alliance and work with many stakeholder groups, and thus are already engaged in collaborations with stakeholders that could be expanded. One such effort currently underway involves the International Union for Conservation of Nature (IUCN), Ocean Conservancy, and Stanford University’s Center for Ocean Solutions. Dubbed the “Pacific Ocean Initiative”, this effort will join together business leaders, non-governmental organizations (NGOs), and governments of all levels (cities, states/provinces, and nations) around the Pacific to tackle the major threats to our ocean health in a coordinated and cooperative plan of action — comparable to the International Climate Action Partnership — that builds upon and coordinates existing state and federal programs in the U.S. and their analogs in other Pacific countries. The Co-Trustees should actively participate in this important effort.</p>
2-19. Response	The Agency Coordination Action Plan focuses on coordination among state and federal government agencies. Support for initiatives such as the Pacific Ocean Initiative is included under Constituency Building and Outreach, Activity CBO-3.3, Continue to seek out and support partnership opportunities that focus on Oceania-related issues.
2-20. Comment	It is not clear who is included as “monument staff” and who is not. Are all NOAA, FWS and DLNR employees, staff or is it a smaller group of staffers hired specifically for the monument office? This needs to be clarified as many activities in this and other sections are attributed to the “monument staff” (e.g. providing data on seabird population and status,

<b>Comment Category 2 - Agency Coordination</b>	
	<p>collecting and fingerprinting washed up oil, etc) but it is unclear who is actually performing this work.</p> <p>In addition, the agency actually conducting the work and/or analyses in each action should be identified so that readers and decision-makers can understand how the agencies are working together and whether their combined resources are being be used effectively and efficiently (and whether they would be so used under each of the action alternatives). The use of the generic term “MMB“ obscures these details and is a disservice to readers and decision makers, especially in these times of limited agency resources and large environmental changes. For example, if one agency has a research program in place, it would be wasteful for another agency to obtain the resources and scientific expertise to establish its own program as opposed to supporting the already existing program. The current text does not allow readers to review or provide comments on this important issue.</p> <p>References to “monument staff” need to be clarified as above and the actual agency that would do each task needs to be clearly identified so that readers and decision-makers can understand how the agencies are working together and whether their combined resources are being be used effectively and efficiently (and whether they would be so used under each of the action alternatives). The use of the generic term “MMB“ obscures these details and is a disservice to readers and decision makers, especially in these times of limited agency resources and large environmental changes. For example, if one agency has a research program in place, it would be wasteful for another agency to obtain the resources and scientific expertise to establish its own program as opposed to supporting the already existing program. The current text does not allow readers to review or provide comments on this important issue.</p>
2-20. Response	<p>Under the new paradigm of Papahānaumokuākea Marine National Monument, the three Co-Trustee agencies will be working together and pooling resources to the extent possible. The Monument Management Plan includes an agency lead for each of the activities. Each of the other agencies will participate in activities as time, funding, interest, and mandate dictate. It is impossible to predict exactly which staff members will be tapped to work on the varied tasks of the Monument Management Plan. The intent of the Monument Management Plan is to allow for the pooling of the limited agency resources and avoid duplicative efforts.</p>
2-21. Comment	<p>Ocean Conservancy strongly supported the bid for World Heritage Site status for the Monument and will continue to advocate for Activity AC-3.3: Support the bid for World Heritage Site status. There are few places in the United States or the World that have the combined environmental and cultural significance to the planet that is found within the Papahānaumokuākea Marine National Monument. It is only appropriate that these areas be recognized internationally for the unique world resource that it is.</p>
2-21. Response	<p>We agree and will continue to work toward gaining World Heritage status for the Monument.</p>

<b>Comment Category 2 - Agency Coordination</b>	
2-22. Comment	Table 2.1: Change the Mission Statement to: “Carry out seamless integrated management to restore natural biological communities and achieve strong, long-term protection and perpetuation of NWHI native ecosystems, Native Hawaiian traditional and customary cultural and religious practices, and heritage resources for current and future generations.”
2-22. Response	We have modified the Mission Statement to say, “Carry out seamless integrated management to ensure ecological integrity and achieve strong, long-term protection and perpetuation of NWHI ecosystems, Native Hawaiian culture, and heritage resources for current and future generations.”
2-23. Comment	<p>Agency Coordination Action Plan – Section 3.5.1</p> <p>We applaud the initiatives to facilitate inter-agency cooperation and establish a process to learn from mistakes and amend agreements. The Draft Plan allows agreements discussed in Activity AC-2.1 to specify “crosscutting budget initiatives.” Instead of allowing such initiatives, the Management Plan should require formalization of inter-agency budget requests and expenditures. Given the crucial role of funding to the success of the Plan and protection of the NWHI ecosystem and cultural resources, a mere discussion is insufficient. On a similar note, Activity AC-2.2 should contain deadlines for development of needed interagency agreements, grants, and memoranda of agreement. The sooner these arrangements are developed, the more smoothly, efficiently, and successfully the Monument will be run.</p>
2-23. Response	<p>Agreements are in place among some of the Co-Trustees that allow for the efficient exchange of resource sharing, including funds as appropriate. For Activity AC-2.2, the MMB agencies are already working on many of the agreements as staff time allows during this planning phase. The MMB agrees that expediting these agreements will help the Monument function more smoothly, efficiently, and successfully.</p> <p>Prioritization of activities in the management plan is not a linear process, nor is it necessarily measured by the amount of funds allocated. Several factors apply when setting the implementation schedule and allocating funds; these include available resources (but are not limited to natural, cultural, and historic resource needs), funding, agency capacity, completion of necessary planning and environmental review, and community input and support. Each MMB and partner ICC agency develops annual budget projections and priorities and allocates funds based on its own programmatic, legal, and policy requirements. The cycle and timelines for funding and planning vary.</p> <p>The management agencies coordinate in areas where program priorities overlap. For example, one agency may take the lead on behalf of all responsible agencies that have a common mandate. In other areas of overlap, multiple agencies may share responsibility for carrying out the activities to address core management needs, thereby creating a strengthened and shared focus. Doing so creates synergy and uses public funds more efficiently within the co-management structure. The seven MMB agencies are committed to annually sharing implementation schedules and priorities to identify</p>

<b>Comment Category 2 - Agency Coordination</b>	
	opportunities where coordination and efficiencies would apply.
2-24. Comment	In talking about how much public input and passion are put into this over the years. So the testimony based on regional councils worked to develop vision, mission, goals, objectives. These need to be better reflected in the management plan. These are documents that were already vetted, already approved, voted on, very lengthy public open process, took a lot of work. And according to proclamations those should have been the foundation of the document that we have before us today. Unfortunately it is not. So I would encourage the managers to go back to those original documents, those original vision statements, mission statements and then have those be the foundation.
2-24. Response	<p>As described in Section 2.1 of the Monument Management Plan, Executive Order (EO) 13178, as amended by EO 13196, established the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve and directed NOAA, in consultation with state and federal partners, to develop a plan to guide the operations of the reserve. EO 13178 also established a RAC to provide advice and recommendations on the development of a reserve operations plan and the designation and management of any sanctuary. The reserve operations plan was finalized in 2005 and is the foundation for the development of the draft Sanctuary management plan. When the Monument was designated in lieu of a Sanctuary, the Presidential Proclamation directed the Co-Trustees to modify the draft Sanctuary management plan in developing a plan to manage the Monument. In November 2006, Co-Trustee agency representatives met to review the vision, mission, and goals and modified them to reflect Proclamation 8031 and to be consistent with the policies, mandates, rules, and regulations of each agency. While changes were made to the earlier vision, mission and goal statements, the negotiated language is consistent with them. Within the management plan, many of the original objectives have been incorporated at the action plan level, but again some strategies and activities were modified to be consistent with the Proclamation and the FWS Comprehensive Conservation Plan requirements.</p> <p>In response to these comments, the MMB modified the Vision, Mission, and Goals 1, 2, and 3 in Table 2.1 to better reflect a commitment toward resource protection.</p>

<b>Comment Category 3 - Alien Species</b>	
<b>Summarized Comments</b>	
3-01. Comment	<p>The comments below concern the use of <i>Gambusia affinis</i> as an approach for the eradication of mosquitoes.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) Pg 197 - Using mosquito fish displaces mosquitoes (they just go some where else), and is an ineffective management method. Introducing mosquito fish to new areas also depletes any remaining native (aquatic)</li> </ol>



### Comment Category 3 - Alien Species

invertebrates that may still be there.

- 2) Page 197 Line 18: The eradication of mosquitoes at Midway Atoll should be a high priority, since mosquitoes are also human disease vectors. Use of mosquito fish, *Gambusia affinis*, is an antiquated and ineffective control that simply displaces mosquitoes to inaccessible sites (pipes, cisterns, drains, and ephemeral wetlands). *Gambusias* decimate aquatic invertebrates and compete with endemic and migratory waterfowl, and shorebirds for aquatic invertebrates. Introduced fish should not be employed within the National Monument when other methods are available for mosquito control. Where possible, *Gambusia* should be removed from habitat created specifically to support brood rearing by endangered Laysan ducks, since this invasive fish competes directly for aquatic invertebrates important for the downy duckling life stage, and degrade wetland habitat for migratory species
- 3) I am writing to express my opposition to the use of *Gambusia affinis* and BTI to eradicate mosquito populations in Activity AS-5.3: Control and if possible eradicate the two introduced mosquito species at Midway Atoll within 10 years using methods prescribed in the integrated Alien Species Management Plan. Several studies have demonstrated that *Gambusia affinis* are ineffective controls for mosquito populations (Hoy et al. 1972, Bence 1988, Courtenay and Meffe 1989, Blaustein 1992), in fact there is an excellent technical report that was published by the Michigan DNR as to whether or not they should use *Gambusia affinis* as a mosquito control. (Haas et al. 2003) that can be found online at:  
<http://www.michigandnr.com/PUBLICATIONS/PDFS/ifr/ifrilibra/technical/reports/2003-2tr.pdf>  
 They concluded not to use them after a thorough review of the literature that demonstrated the ineffectiveness of *Gambusia affinis* at reducing mosquito populations. In fact, *Gambusia affinis* has been shown to actually increase mosquito populations by preying upon natural mosquito predators, such as damselfly and dragonfly larvae that are likely to inhabit water bodies in Midway (Bence 1988). The presence of *Gambusia affinis* has also been shown to decrease the amount of time it takes for mosquito pupae to develop, a mechanism that increases their chances of survival to emergence (Blaustein and Karban 1990). Other studies have shown that ponds with *Gambusia affinis* support lower duckling/brood densities of Laysan ducks (M. Reynolds, pers comm.) as well as lower populations of koloa ducks (K. Uyehara pers comm.). Finally, I have been conducting studies that have correlated *Gambusia affinis* densities to increased total nitrogen concentrations in the water column. As many coastal ecosystems tend to be limited, increased N will likely increase algal and microbial production, further decreasing the habitat value for waterfowl and increasing a food source for mosquito larvae.  
 I am also concerned about the use of BTI. Studies have shown that BTI can significantly reduce other non target nematoceros flies, such as chironomids (Hershey et al. 1998), that are known to be important food sources for

<b>Comment Category 3 - Alien Species</b>	
	nesting and migrating birds. I hope that you will reconsider using these techniques for the eradication or control of mosquitoes, especially the introduction of <i>Gambusia affinis</i> . I think one of the best control techniques is the removal of standing water, which is also suggested as a technique.
3-01. Response	The military introduced the mosquito fish ( <i>Gambusia affinis</i> ) to control mosquitoes. These fish are currently found in the water catchment area, the water supply ponds, the water pipes and drains, and approximately half of the natural and man-made wetlands on Sand Island. There are no plans to distribute them further. While there are other methods of mosquito control, none are without some hazard to nontarget invertebrates. The Integrated Alien Species Management Plan will lay out an approach for mosquito eradication at Midway Atoll that optimizes safety to all components of the ecosystem and effectiveness in reducing or eradicating mosquitoes.
3-02. Comment	<p>The comments below concern whether the protocols identified in the Monument Management Plan would be implemented at all sites in the Monument to prevent the introduction of marine alien species.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) p. 197 ln 25-33 “To better understand the threat and respond to the invasive grasshopper <i>Schistocerca nitens</i>, a “Workshop to Identify Research and Mitigation Measures to Address the <i>Schistocerca nitens cricis</i> on Nihoa Island, Northwestern Hawaiian Islands” was held in 2005 (Gilmartin 2005). Addressing one of the recommendations, Monument staff will continue....”</li> <li>2) Pg 68 - Wouldn’t you prevent further importation of exotics if Midway and Tern were quarantined?</li> <li>3) Pg 89 - Wouldn’t you need to make Midway and Tern quarantined to “Prohibit introducing alien species from within or into the Monument”?</li> <li>4) Pg 161 - If “alien species are one of the greatest threats” then why no quarantine on Midway or Tern?</li> <li>5) OHA is aware that strict protocols are enforced for any visitors to Papahānaumokuākea to prevent further importation of invasive plants, animals, or insects. We are pleased that this dangerous threat is being approached with due care. However, we were surprised to read on page 68 of the draft management plan that these protocols are not used for Midway Atoll and Tern Island. Midway is certainly the place where the highest risk for introduction of invasives presents itself, and as such we inquire as to why protocols are not being used there.</li> <li>6) Under Activity AS-1.1: Complete an Integrated Alien Species Management Plan, the DMMP requires development of a plan that, “will incorporate individual Co-Trustee guidelines, as appropriate, for the most effective and collaborative efforts possible. Memoranda of agreement will be developed as necessary to adopt and implement agency guidelines...” Ocean Conservancy urges that the Integrated Alien Species Management</li> </ol>

<b>Comment Category 3 - Alien Species</b>	
	<p>Plan adopt the strictest guidelines of the three Co-Trustees and follow the precautionary approach when implementing these guidelines for all visits to the NWHI. Coordination of this effort is critical. The Monument should operate under one consistent set of best management practices to reduce confusion and increase likelihood of compliance. We recognize that best management practices may appropriately vary from island to island but urge that one set of rules be in place that governs the entire Monument rather than overlapping and possibly contradictory regulations.</p> <p>7) Activity AS-1.2: Develop best management practices to prevent, control, and eradicate alien species identifies that “One concern the plan will address is the need to prevent the spread of alien species within the NWHI, especially from Midway Atoll.” Since Midway Atoll is the most frequently visited area of the Monument, it is also the area most likely to serve as a gateway to introduction of alien species. Ocean Conservancy is concerned that although the Alien Species Best Management Practices are detailed and extensive as they apply to inter-island visits and activities at the more remote islands. They appear much weaker for Midway, where risk of introduction is highest. We urge implementation of more stringent protocols for all visitors and vessels entering Midway to avoid introductions at Midway that then may spread to other islands. Specifically, we recommend appropriate quarantines, freezing, or other treatment of luggage for employees, contractors, researchers, and visitors and that all aquatic gear for visitors is subject to the similar treatment of research gear in Appendix I. One simple way to reduce risks associated with aquatic gear would be to prohibit use of personal gear and require use of gear that remains on Midway.</p> <p>The DMMP states that “In addition, aircraft landing within the Monument are subject to inspection, as are all visitors and their luggage.” Ocean Conservancy urges adoption of a mandatory inspection policy. Given the predicted increase in visitors to Midway it is important that the Monument adopt an effective method of addressing the threats presented by a large number of transient visitors. We recommend development and adoption and strict enforcement of a comprehensive set of best management practices that cover all potential vectors of introduction including aircraft, luggage, shoes, clothing, equipment and vessels large and small, including cruise ships.</p>
3-02. Response	<p>Protocols for preventing marine alien species are identical for all the sites in the Monument. The Monument Management Plan text did not accurately reflect protocols also being employed at Tern and Midway.</p> <p>The text in Section 1.4 has been modified to state, “To prevent further importation of invasive organisms, mandatory quarantine protocols are enforced for any visitors to the NWHI. At all of the islands and atolls, except Midway and Tern, these include requiring the use of brand new or island-specific gear at each site and treatments, such as cleaning, using insecticide, and freezing, to minimize the transport of potentially invasive species to the islands. Protocols at</p>

<b>Comment Category 3 - Alien Species</b>	
	Midway and Tern Island are modified as necessary to accommodate the greater volumes of material coming in, but all possible procedures are still used to minimize additional introductions at these two sites.”
<b>Unique Comments</b>	
3-03. Comment	<p>The other one is -- pertains to alien species. And I am on -- I’m the vice chair of the Maui Invasive Species Committee pretty much since its inception, and I am the chair of the Vertebrate Subcommittee. So looking at what is provided in the action plans for alien species, I still think there needs to be more biosecurity measures. And, let’s see, I think I might remember more if I read it. I fully commend the management plan on the thoroughness and extreme important -- and the extremely important and sensitive issues incorporated into alien species treatment. I nevertheless feel that for each activity and alien taxa that appropriate rapid-response planning must be more fully explored, more formally -- formalized and funded. Active alien species surveillance with adequate funding to assure necessary equipment -- and readiness of trained staffing for rapid response to future new incursions is paramount to maintaining the integrity and biodiversity of the monument.</p> <p>To help guarantee success, there needs to be a well outfitted and equipped Papahānaumokuākea National Monument alien species rapid-response team functioning much on the same level with as much sophistication as the Brown Tree Snake Rapid Response Team does for the brown tree snake or the Oil Spill Response Workers for oil-spill incidents. And then, finally, with the alien species concern, I believe that in one section under AS-1.1, “Complete an Integrated Alien Species Management Plan, it is paramount to have an Alien Species Management Plan for the monument; however, for some invasions a time limit of two years to proceed to process -- excuse me -- for two years to process pesticide use proposals and Section 7 consultations will be too late to begin acting. Provision for preemptive pesticide use proposals and Section 7 consultations for all likely scenarios and circumstances should be added into the management plan needs and completed. These could then be shelved until actively needed. So there’s only a range of issues that -- you know, what pesticides might be used for an insect. And can we do the reviews, all the legal documentation and then shelf it so that when it’s needed, it can simply be pulled off the shelf and say, Okay. We’ve already approved it. Let’s go with it. That sort of preventive thing should be --</p>
3-03. Response	We agree with the level of detail and analysis you suggest for an adequate approach to biosecurity in the Monument and feel that the Integrated Alien Species Management Plan proposed in Activity AS-1.1 is the proper place for that planning. Two years is the estimated time frame for completing all necessary compliance documents regarding the situations and tools we can anticipate. Many of those are already in place and others are in progress.
3-04. Comment	Pg 172 - Ironwoods also take plenty of nesting habitat away from seabirds?

<b>Comment Category 3 - Alien Species</b>	
3-04. Response	We agree that ironwood ( <i>Casuarina</i> ) woodlands are not preferred habitat for many species of seabirds nesting at Midway. That is why we have identified it as a high priority for removal from most of the land areas at Midway Atoll where it occurs. We do recognize that these trees are providing nesting habitat for the largest colony of white terns ( <i>Gygis alba</i> ) in the central tropical Pacific, so it is imperative that adequate native species alternatives be provided for this population as their nest trees are removed.
3-05. Comment	I am very pleased that the plan recognizes the threat posed by invasive species and hope that sufficient resources will continue to be devoted to this vital set of activities.
3-05. Response	Development of a rapid response team was considered to be part of our rapid response action plan for alien species and is now explicitly included in Activity AS-1.2: Develop best management practices to prevent, control, and eradicate alien species.
3-06. Comment	Pg 198 - Mowing verbesina is an ineffective management tool. Mowers run over seabirds and crush burrowing seabirds while dispersing seeds.
3-06. Response	We agree that mowing is a tool that should be used only in circumstances where hazards to seabirds, seabird burrows, and Laysan ducks can be avoided. Mowing before verbesina has set seeds reduces the seed bank and has been used effectively for years.
3-07. Comment	Marjorie and others mentioned the risk of alien species, invasive species. We see that there really has been very little monitoring of cumulative impacts. There really has been no meaningful risk assessment. We are looking at this since the Reserve was established in 2000. We sort of see a pattern. We have seen the state refuge established with much stronger protections than in federal waters. And yet within a year of state refuge protection the new Monument Plan, the Coast Refuge Management Unit has actually served to further weaken efforts in state waters.
3-07. Response	Over the past several years the Monument has been addressing the issues of alien species introduction and working toward developing the Integrated Alien Species Management Plan. An initial study of marine invasive species, with recommendations for reducing the potential impact, was completed in 2006. An additional report on the specific locations of known alien species was completed in 2007. In addition alien species were included in the threat analysis that HIMB completed for the Monument.  The MMB recognizes the importance of evaluating the cumulative impacts of human activities conducted in the Monument and has begun to collect data for this analysis. Assessing and analyzing required permit reports for all permitted Monument human activities will be a primary means for resource managers to understand the cumulative

<b>Comment Category 3 - Alien Species</b>	
	impact of ongoing activities (see Activity P-2.2, Analyze permit data to inform management decision making). In addition, information about past activities, such as military uses and fishing, is critical to our understanding of the Monument's ecosystem and to establish a baseline for evaluating the health and condition of its natural, cultural, and historic resources and analyzing how current activities, either individually or cumulatively, are impacting Monument resources. Such past activity data is one of the many sources that will be incorporated into the PIMS (Activity IM-1.1, Activity IM-1.4, and Activity P-2.1).
3-08. Comment	Page 71 Line 28: The risk of mammalian predators and other predatory or competitive species, new diseases and disease vectors could devastate the fauna of the Monument. The impacts and risk of rats and other accidental introductions should be emphasized here. Again action plans for each island are needed for quick response to catastrophic species introductions.
3-08. Response	A "rat spill" plan to address preparation for rapid response in the event of an accidental release of rodents on Monument islands will be included in the Integrated Alien Species Management Plan. (AS 1.1), Similar quick response plans will be developed for the range of likely introductions in this plan.
3-09. Comment	Section 3.3 Reducing Threats to the Ecosystem. <sup>2</sup> Alien Species are most often introduced in ballast discharge or by tourists to Midway in Vol. IV. Disinfection protocols must be in place before any ships should be allowed entry to Monument waters.
3-09. Response	Best management practices for ballast water will be consistent with the State of Hawai'i comprehensive ballast water regulations (see Vol. III, Appendix G) and hull fouling program that is in preparation. They also are consistent with the Coast Guard's Mandatory Ballast Water Management Program for US waters, which requires that a vessel-specific ballast water plan be followed.
3-10. Comment	I fully commend the draft MMP on the thoroughness of the extremely important and sensitive issues incorporated in alien species treatment. I nevertheless feel that for each activity and alien taxa that appropriate rapid-response planning must be more fully explored, formalized and funded. Active alien species surveillance, with adequate funding to assure necessary equipment and readiness of trained staffing for rapid-response to future new incursions, is paramount to maintaining the integrity and biodiversity of the Monument. To help guarantee success, there needs to be a well out-fitted and equipped Papahānaumokuākea National Monument alien-species rapid-response team, functioning much on the same level with as much sophistication as the Brown Tree Snake Response Team does for the snake, or Oil-Spill Response Workers for oil-spill incidents.
3-10.	As part of the Integrated Alien Species Management Plan (AS 1.1), we will prepare contingency plans, with detailed



<b>Comment Category 3 - Alien Species</b>	
Response	response actions for all conceivable types of alien species infestations. Also, we considered developing a rapid response team to be part of our rapid response action plan for alien species, and it is now explicitly included in Activity AS-1.2: Develop best management practices to prevent, control, and eradicate alien species.
3-11. Comment	Regarding the mice on Sand Island, by all means, get rid of them. And clean out rodents on any other islands in the archipelago. I would think that it would take a lot less than five years to find a rodenticide that would not harm the birds.
3-11. Response	Sand Island, Midway Atoll, is the only island in the Monument that still has any rodents, so all additional rodent management besides eradicating house mouse is to prevent future rat and mouse introductions and to ensure that specific and detailed plans are in place to respond to any future rodent “spills.” Alien species control beyond the Monument is beyond the scope of this plan.
3-12. Comment	Nonnative problem species (such as rodents, nonnative plants) should be slated for removal throughout the archipelago. Great care should be instituted to prevent introduction of nonnative organisms, especially to the more pristine islands.
3-12. Response	The MMB agrees that the removal and prevention of nonnative species is a priority, and we included an Alien Species Action Plan (3.3.2) to address the detection, eradication, and where possible, continued prevention of invasive species.
3-13. Comment	Please do not allow military & commercial persons or equipment, tourists or divers to use NWHIs. Even research needs to be limited to minimize the risk of invasive seaweeds.
3-13. Response	In 2007, the MMB adopted the Disease and Introduced Species Prevention Protocols (see Vol. III, Appendix G.), which are applied to all permitted activities in the Monument. These strict protocols deal explicitly with dive gear, and all other equipment used in the water, including tender vessels that travel among the NWHI and between the NWHI and the main islands.
3-14. Comment	And also on the verbesina control, the funding goes up and down. We need to get a better source of funding to have a concerted effort to get Pearl, Hermes and Midway get this weed under control.
3-14. Response	We agree. The inclusion of Activity AS-6.1 in the plan to eradicate verbesina throughout the Monument affirms that consistent funding for this project is needed.
3-15. Comment	Last, we are concerned about invasives getting up there, even just accidentally by well-intended people. I think most of the Northwestern Hawaiian Islands are rat free or I think they’re rat free now. We don’t want to get to the point where we have rats again. All you need is a shipwreck with some rats onboard. That’s likely. We don’t want to spread more

<b>Comment Category 3 - Alien Species</b>	
	species of ants up there. The ants chew up the chicks and eat ‘em alive. We don’t want to lose seabirds to invasive ants. We’re very concerned about the more people go up there the more likely you’re going to have invasives established.
3-15. Response	We agree. Strategy AS-3 contains activities to prevent introducing or reintroducing alien species of all kinds.
3-16. Comment	What will happen when alien species and rat and mice populations infest the atolls, killing nesting birds, hatching turtles, plant root systems that act as cover and nesting structure for birds? Fire ants are a prime example of a noxious alien species introduced into Hawai‘i.
3-16. Response	We agree. All these threats, existing and potential, have serious consequences for Monument habitats and wildlife. How these invasive species are being removed and prevented is discussed in the Alien Species Action Plan.
3-17. Comment	Section 3.1 (New) Remediation and Restoration Plan. Removal of non indigenous terrestrial flora & fauna including ironwood, habitat restoration and reintroduction of endemic biota should be planned and proceed immediately following remediation. When the remediation and restoration has been completed, and the former terrestrial and marine ecosystems restored, a new plan for the Protection, Conservation and non consumptive use of Midway Atoll can be written, this time with public comment and RAC oversight and preventive measures to preclude further introduction of invasive exotic species. All cruise ships should be excluded from Monument waters until pending regulations intended to prevent unlawful discharge of wastes have been shown to be effective, and have been incorporated into the Plan and Permit system. All military artifacts deemed of historic value should be “curated” (removed from Monument islands and waters).
3-17. Response	The purpose of the Alien Species Action Plan is to detect, eradicate where possible, control, and prevent the introduction of alien species. Sand and Eastern Islands are highly disturbed environments that require extensive effort. It is unlikely with foreseeable budgets that they could ever be restored, particularly without violating historic preservation mandates. The Integrated Alien Species Management plan will prioritize eradication projects to eliminate alien species, focusing first on those that disrupt community species composition and ecological structure and function most severely.
3-18. Comment	Alien Species Action Plan: We recommend that NOAA take immediate steps to require any fishing vessel still allowed to fish in the area to have its hull thoroughly and completely cleaned before entering Monument waters. Fines for private vessels entering the Monument with their hulls still fouled should be set at very high levels so as to act as a real deterrent.
3-18.	All vessels are prohibited from releasing alien species in the Monument. We have shared this comment with the

<b>Comment Category 3 - Alien Species</b>	
Response	National Marine Fisheries Service, which manages the federal fishery that operates in the Monument and is a part of the MMB.
3-19. Comment	According to the DMMP, the development of the Integrated Alien Species Management Plan (Activity AS-1.1) will be led by FWS and the best management practices (Activity AS-1.2) will be led by FWS and NOAA (Table 3.3.2). Given the critical importance of these plans, Ocean Conservancy recommends that they be developed by the MMB in consultation with both terrestrial and marine experts.
3-19. Response	Although one agency might be listed as the lead, all other MMB members will be fully involved in developing and approving any step-down plan. We will involve both terrestrial and marine experts as appropriate and necessary.
3-20. Comment	p. 200 ln 18 "...require systematic investigations as outlined for the Nihoa grasshopper invasion on Nihoa (Gilmartin 2005) into..."
3-20. Response	An investigation for the grasshopper invasion on Nihoa is outlined in Activity AS-8.2.
3-21. Comment	p. 200 line 36 "...and best management practices (e.g. video title, author)..."
3-21. Response	We have modified the text in Activity AS-9.1 to say, "The outreach may consist of printed materials and videos, as well as presentations that are part of the permit application process and taxonomy training for staff and volunteers."
3-22. Comment	Strategy AS-4: should read "Eradicate nonnative mammals"
3-22. Response	There are no other species of nonnative mammals left in the Monument other than the house mouse. In the quarantine and prevention sections we generalize to include all mammals.
3-23. Comment	<p>3.3.2 Alien Species Action Plan</p> <p>In a recent survey of 25 scientific experts on the NWHI, alien species were identified as one of the top three threats to the NWHI.<sup>35</sup> In spite of the remoteness of the NWHI, eleven different alien marine invertebrate, fish and algal species have already been documented in Monument waters. With visitation to the Monument expected to increase, the risk of additional introductions is extremely high. Alien species infestations can permanently alter the Monument's ecosystem and, once introduced, these species are often impossible to eradicate completely. Prevention is therefore critical. Ocean Conservancy supports the regulatory prohibition on the release or introduction of alien species into the Monument and</p>

<b>Comment Category 3 - Alien Species</b>	
	implementation of best management practices such as mandatory hull inspections designed to avoid introductions. However, given the seriousness of the risk, it is critical that the alien species action plan is effective, enforceable and strictly enforced. It is not sufficient to rely on management measures (like ballast exchange protocols and best management practices) that may or may not actually be followed in practice. What is needed is essentially a zero tolerance approach to alien species with strict enforcement of all measures designed to avoid introductions.
3-23. Response	We agree and intend to fully enforce all regulations and protocols to prevent the introduction of alien species into the Monument.
3-24. Comment	In the section Activity AS-1.1: Complete an Integrated Alien Species Management plan it is paramount to have “An Integrated Alien Species Management Plan for the Monument” however, for some invasions a time limit of 2 years to process pesticide use proposals and Section 7 consultations will be too late to begin acting. Provision for Pre-emptive Pesticide Use proposals and Section 7 consultations for “likely scenarios and circumstances” should be added into the Management Plan needs, and completed, then shelved until actively needed.
3-24. Response	The IASP and associated compliance requirements will be updated every five years and will include such components as obtaining pesticide use permits and conducting ESA Section 7 consultations before they are needed to facilitate rapid response. See Monument Management Plan Activity AS-1.1.
3-25. Comment	Pg 155 - Sand Island should be taken off the list unless the Maui sp of <i>Pritchardia</i> is removed.
3-25. Response	We have modified the text to state, “Factors to consider include avoiding impacts on native species at establishment sites, finding suitable habitat, and choosing areas accessible enough to allow for planting and monitoring introduced populations. Mokumanamana, Laysan Island, Kure Atoll, and Eastern and Sand Islands at Midway Atoll should be considered as potential sites, providing there is no chance of interference with species endemic to the translocation sites and no related species at the destination site that might hybridize with the translocated plants.”
3-26. Comment	Page 67 Line 42: <i>Pluchea indica</i> is classified as a noxious weed known to negatively impact wetlands. The primary impact of introduced ants on Laysan Island is not their impact on Laysan’s seabirds, but their impact on the native endemic terrestrial invertebrate fauna (especially endemic lepidopteran larvae), and other important prey for to migratory and land birds, or ecosystem function.
3-26. Response	We have added this sentence to this paragraph in Section 1.4, “Invasive ant species have been detected at all of the islands in the Monument and pose threats to many components of the terrestrial ecosystem, most notably native

<b>Comment Category 3 - Alien Species</b>	
	terrestrial invertebrates (e.g., endemic lepidopteran larvae) and native plants. They also have been observed preying on the eggs and chicks of seabirds in the Monument.”
3-27. Comment	Within Strategy AS-5: add to existing text “Ensure that pesticide protocols include evaluation of potential impacts on native aquatic and marine species.”
3-27. Response	Pesticide use proposals are required for all pesticide applications in the Monument. These proposals require an analysis of all potential impacts to terrestrial and aquatic (freshwater and marine) species.
3-31. Comment	<p>3.3.2 Alien Species Action Plan</p> <p>In a recent survey of 25 scientific experts on the NWHI, alien species were identified as one of the top three threats to the NWHI.<sup>35</sup> In spite of the remoteness of the NWHI, eleven different alien marine invertebrate, fish and algal species have already been documented in Monument waters. With visitation to the Monument expected to increase, the risk of additional introductions is extremely high. Alien species infestations can permanently alter the Monument’s ecosystem and, once introduced, these species are often impossible to eradicate completely. Prevention is therefore critical. Ocean Conservancy supports the regulatory prohibition on the release or introduction of alien species into the Monument and implementation of best management practices such as mandatory hull inspections designed to avoid introductions. However, given the seriousness of the risk, it is critical that the alien species action plan is effective, enforceable and strictly enforced. It is not sufficient to rely on management measures (like ballast exchange protocols and best management practices) that may or may not actually be followed in practice. What is needed is essentially a zero tolerance approach to alien species with strict enforcement of all measures designed to avoid introductions.</p>
3-31. Response	We agree and intend to fully enforce all regulations and protocols to prevent the introduction of alien species into the Monument.

<b>Comment Category 4 – Carrying Capacity</b>	
<b>Summarized Comments</b>	
4-01. Comment	<p>The comments below express concern about the overall number of people accessing the Monument.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) Please establish a numerical carrying capacity for the region based upon the Precautionary Principle and immediately conduct a cumulative assessment of the risks and impacts of human activity in the Monument.</li> <li>2) Fails to set a protective limit on all human activity in this delicate area, including military exercises, research, and tourism</li> <li>3) To add to that understanding cumulative impacts. So part of creating these, creating these priorities, thinking about what should go on up there is talking about cumulative impacts. What’s the carrying capacity of this resource? What can we realistically do up there? How many people can it take? How much vessel traffic can it take before we really start to see impacts? This is intimately related to the precautionary principle, and intimately related to how we implement this permitting system.</li> <li>4) We see an honest assessment of what the true intentions are for the Monument on page D-31, where language describes the expectation that research will greatly increase in the next ten years. This anticipated increase in research, which we find to be out of alignment with the vision and purpose of the Monument, also means more employees, visitors and impacts and thereby creates the need for greater scrutiny to be given to the cumulative impact analysis. We also see on page D-53 a statement that there is an expectation of future requests to grow in regards to commercial photography, videography, filming, audio recording, etc. This again call for greater scrutiny than currently exists in the cumulative impact analysis. Page D-80 creates a strong argument for why a more complete cumulative impact analysis is necessary, it states: “Although research projects for a single year may cause few, if any, negative resource impacts, it may in fact cause cumulative impacts over multiple years or when considered additively with all research projects in the Monument.” Yet despite this seemingly insightful awareness, there appears to be a strong and disturbing trend towards approving increasing and ongoing activity in the Monument that needs to be addressed.</li> <li>5) Conduct a comprehensive assessment of the risk and cumulative impact of past and proposed human activity in the Monument. This will require the Co-Trustees to prioritize who is allowed to enter this fragile area and for what reasons. This is especially important for research activities in the NWHI, which should only be allowed if they further a specific management goal and can demonstrate no harm to any Monument resources.</li> </ol> <p>Papahānaumokuākea is not a “natural laboratory,” as the DMMP describes it. It is a place of refuge, where no</p>



<b>Comment Category 4 – Carrying Capacity</b>	
	<p>human activity should be allowed unless absolutely necessary.</p> <p>6) Assess the risk and cumulative impact of all human activities affecting the region, including global warming. The current environmental assessment fails to adequately review the past, present, and likely future impacts of the human presence in the Monument. This information is crucial for proper management and should serve as the basis for numerical carrying capacity.</p> <p>7) The last point is that the plan proposes an increase in human activity. It should be looked at rather carefully if that's warranted.</p> <p>8) There must be a limit determined for the year in advance by the citizens council on the number of permits allowed for groups of tourists, scientific researchers, study groups and fishermen.</p> <p>9) There must be a limit on the number of tourists and researchers each year.</p> <p>10) To add to that understanding cumulative impacts. So part of creating these, creating these priorities, thinking about what should go on up there is talking about cumulative impacts. What's the carrying capacity of this resource? What can we realistically do up there? How many people can it take? How much vessel traffic can it take before we really start to see impacts? This is intimately related to the precautionary principle, and intimately related to how we implement this permitting system.</p> <p>11) Set a numerical carrying capacity based on the precautionary principle that to limit the number of people and vessels accessing this fragile region.</p>
4-01. Response	<p>Protecting the health, diversity, and resources of the NWHI ecosystems is the MMB's constant and highest concern. Although currently there are no specific annual limits on the number of people accessing the Monument, all human activities in the Monument are closely managed and monitored through the interagency permitting process (Strategy P-2 and Appendix A), the Papahānaumokuākea Information Management System (Activity IM 3.6.2), and the Evaluation Action Plan (Section 3.6.4). In addition, while the MMB restricts visitor access to Midway, it does not limit the total number of yearly visitors to Midway. However, the Midway Atoll Visitor Services Plan (Section 3.4.3, Appendix B) requires visitors to obtain a permit and sets limits on the number of overnight visitors and the number and size of large group visits. Data about the number, activities, and potential impacts of visitors is maintained in the Information Management System.</p> <p>The MMB recognizes the importance of evaluating the cumulative impacts of human activities conducted in the Monument and is collecting data for this analysis. Assessing and analyzing required permit reports for all permitted Monument human activities will be a primary means for resource managers to understand the cumulative impact of ongoing activities (see Activity P-2.2, Analyze permit data to inform management decision making). In addition,</p>

**Comment Category 4 – Carrying Capacity**

information about past activities, such as military uses and fishing, is critical to our understanding of the Monument’s ecosystem and to establish a baseline for evaluating the health and condition of the its natural, cultural, and historic resources and analyzing how current activities, either individually or cumulatively, are impacting Monument resources. Such past activity data is one of the many data sources that we will incorporate into the Information Management System (Activity IM-1.1, Activity IM-1.4, and Activity P-2.1).

A fundamental component of any threat or risk assessment is to have a baseline understanding of the Monument ecosystems and how these may be influenced by natural and human activities. Strategies MCS-1, Continue and expand research, characterization and monitoring of marine ecosystems, and MCS-2, Assess and prioritize research and monitoring activities, will provide the fundamental monitoring data and information that is essential, along with the human use and impact data described above, to conduct such assessments. While data is mostly collected and analyzed for local areas in the Monument, collectively it supports other efforts to evaluate the threats to the NWHI at a Monument or regional scale. In response to the comments, we have changed the text to the Monument Management Plan in Section 3.4.1, Permitting Action Plan, Permit Tracking, and Activity P-2.2.

Until a comprehensive analysis of threats, including human uses, is completed, the MMB as a matter of policy seeks to ensure that access is consistent with Proclamation 8031 and that, wherever possible, activities are combined to limit multiple visits to a given area. Carrying capacity could need to be assessed for biological, ecological, cultural, physical, social, infrastructure, and other conditions for any given area. However, the MMB must first focus its efforts on establishing baseline parameters for measuring changes to the health, quality, or function of Monument resources; then, we must assess the relative individual and cumulative impacts from human activities on these resources. Information collected and analyzed will depend on the activity and the specific ecosystem that the activity is conducted in. The results from the cumulative impact analysis, the risk assessment, and the monitoring conducted in the Monument will help define these values over time. It will not be possible to consider various carrying capacities for the Monument resources until these data can be analyzed. It will also be important that these values be regularly revisited as we learn more about the ecosystem and the changing environment.

As it pertains to the precautionary principle, the MMB has identified eleven principles for managing the Monument. The seventh Guiding Principle (Errs on the side of resource protection when there is uncertainty in available information on the impacts of an activity) honors the approach of “do no harm,” consistent with the precautionary principle in which historic, cultural, and natural resource protection and integrity is favored.

Presidential Proclamation 8031 prescribes numerous prohibitions and regulated activities to protect the Monument’s resources. However, as protective as these provision are, the Proclamation never intended to prohibit all human use and access to the Monument. The Proclamation made specific allowances for continuing a small, permitted commercial

<b>Comment Category 4 – Carrying Capacity</b>	
	<p>bottomfishery until 2011, limited sustenance fishing (if consumed in the Monument), vessel transit, and armed forces actions. The Proclamation also established a permit system to allow a narrow range of other activities, provided there is a finding that the activity is research designed to further understanding of the Monument resources and qualities, that it furthers educational value of the Monument, that it assists in the conservation and management of the Monument, and that it allows Native Hawaiian practices, special ocean use, and recreation. These permitted activities will be allowed only if there are adequate safeguards for the resources and ecological integrity of the Monument, and if the activity meets the findings of the proclamation (see Proclamation 8031, and Vol. III, Appendix D).</p> <p>We have changed the Monument Management Plan to address the concern about a natural laboratory.</p>
4-02. Comment	<p>The comments below stated that no humans should be allowed within the Monument.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) No humans.</li> <li>2) Keep the marine Monument free from all human footprint. This is the most biologically diverse ecosystem on the planet. The critically endangered species struggling to survive in a marine environment which is increasingly unhealthy due to human actions, marine mammals, turtles and birds are dying of plastic ingestion and entanglement in plastics as well as discarded fishing nets and gear by the hundreds of thousands every year. In certain areas of the ocean the suspended plastic particles outnumber plankton six to one. Overfishing is causing a devastating collapse of fish stocks and entire marine ecosystems. Fifty-two percent of the world’s fisheries are fully exploited and 24 percent are overexploited, depleted or recovering from collapse. The global fishing fleet is two to five times larger than what the oceans can sustain or support. Seventy-two percent of the world’s marine fish stocks are being harvested faster than they can reproduce. A full one fourth of all total catch, 27 million tons, is unintended bycatch. We’re wiping out the entire fish populations. Marine biologists say that the stocks of large ocean going fish have fallen by 80 to 90 percent. The critically endangered Hawaiian Monk seal’s dropping 4 percent a year. With under only 200 left that gives us less than 20 years to save this endemic rare species. Ninety percent of the Monk seals population lives in the Northwestern Hawaiian Islands.</li> <li>3) I am concerned about the use of this place. Every place, especially those sacred places, have a job, a role, something to teach. Papahānaumokuākea is considered wao akua, wao akua, sacred place. Wao akua were left wild and were seldom accessed by people because of their critical role in the process of life, death or creation and afterlife. I believe this is one of those places. It has been assigned many jobs over the years: Military, tourism, science and contemporary educator. It has been working very hard for a very long time trying to meet man’s needs. Now it deserves a rest, a time to recover and recoup. I ask all of us to reflect, slow the train, take</li> </ol>

<b>Comment Category 4 – Carrying Capacity</b>	
	<p>this time to think. This unique global universal resource deserves, requires new thinking about issues such as environmental justice, intellectual property rights and indigenous knowledge and needs.</p> <p>Any use of this sacred resource is a taking. And compensation should be paid possibly funding a study to better understand the akule fishery, a vital food in Hawai‘i. We don’t have much experience with places like this place. We must not get stuck on the steps we are comfortable with. We need to build new ones. Contemporary laws and timelines are not appropriate here. Let’s begin with rest. Do nothing until you and we are certain we have a pono plan. Give this place a break from all impacts. This is a sacred resource and it deserves nothing less. Do nothing. Respect it with rest.</p> <p>4) I would like to see the place kept absolutely empty. It was mentioned the navy being there, you know, they have a -- I can see the navy turning the whole place into kind of their private R &amp; R thing with hamburgers and hot dogs, vacation zone. And, you know, I think that it should be just left empty. There’s so much going on in the world that is of such pressing importance right now and if this could just do whatever it needs to do by itself with the exception of maybe divers going in and cutting nets and keeping that plastic coming out of the reefs and whatnot.</p> <p>5) No human footprint in NW Hawaiian Islands.</p> <p>6) My concern is too many people on fragile, fragile lands. I want to relate two stories of my life. I grew up in California. And from the mid ‘60s to the mid ‘80s I spent sometime every year in the High Sierras backpacking. Over those years as the population of California and the western United States increased obviously the numbers of people in the High Sierras increased. It’s devastating to see what had happened with that increase in pop -- in a very fragile environment. That’s one issue.</p> <p>The other, I grew up on the coast in California, Santa Barbara, California off of the Channel Islands. When I was a young boy you could go down on low tides and clam and take abalone from the rock, catch lobsters in shallow waters. That’s all gone. Not only is it all gone from along the coast but in the ‘50s, and ‘60s they cleaned pretty much the Channel Islands of all of the abalone and ruined a lot of the fisheries. So this is population. And this is what we’re talking about, population and fragile islands out here. The only way to protect ‘em is to put them off limits.</p>
4-02. Response	<p>Although the Monument is in a pristine condition, compared to the main Hawaiian Islands, the islands and atolls already have been impacted by humans. It is our responsibility to lessen those impacts and restore habitats, to the extent possible. We also need to understand the natural, cultural, and historic resources in order to best protect them. Outside influences, such as marine debris, alien species, and climate change, would continue to impact the Monument even</p>

<b>Comment Category 4 – Carrying Capacity</b>	
	without human presence. Also, by managing visitation, the MMB provides opportunities for the public to better understand the unique biological, cultural, and historic treasures of the Monument. The best opportunity to protect this area comes through the limited human activities included within the Monument Management Plan. Proclamation 8031 requires activities to be conducted with adequate safeguards for the resources and ecological integrity of the Monument.
<b>Unique Comments</b>	
4-03. Comment	In many cases, the individual project analysis represents a highly biased and incomplete measurement of the actual and potential negative impacts from proposed actions and is thus a misrepresentation of the interactive and cumulative impacts with a definite slant towards the beneficial impacts from the proposed projects. Among the many cumulative effects that are essentially disregarded include the negative impacts of proposed construction activities, increased visitor and tourist activity on Midway and throughout the Monument, dilution of, and transgressions against, Native Hawaiian Culture, and issues of fairness and equality in access to the Monument.
4-03. Response	<p>The Monument Management Plan includes a description of several strategies and associated activities the agencies will implement in the Monument over the next 15 years. In Volume 2 of the environmental assessment is a discussion about the potential environmental impacts from any of the Monument Management Plan strategies and activities. Although the Monument Management Plan and the associated environmental assessment describe these activities and their impacts in general terms, they cannot, for the most part, fully analyze the impacts of every action that will be taken or authorized by the agencies over the next 15 years. Agency actions are subject to NEPA and HRS Chapter 343. Each action will be reviewed and further NEPA compliance will be undertaken as appropriate. Some of these activities will be eligible for a categorical exclusion, while others will require the preparation of an environmental assessment or environmental impact statement, depending on the significance of the impacts. Volume 2, Section 1.8 describes the categorical exclusions for each of the agencies.</p> <p>Although the Monument Management Plan describes some general planning documents or conceptual site plans for Midway and other infrastructure projects that may include construction, the environmental assessment does not fully assess their environmental impacts. Such projects would require separate NEPA and HRS Chapter 343 analyses, including an assessment of compliance with state water quality standards and consultation with the US Army Corps of Engineers.</p>
4-04. Comment	There should be no more extractive research, no more tourism, no more military, no more footprints on the Northwestern Hawaiian Islands. You have a big responsibility to protect this very, very important area for all of us. You know, it will be on your conscience. When there is pilikia and problems up there it is you that are supposed to be

<b>Comment Category 4 – Carrying Capacity</b>	
	watching out for our best interests in protecting that area in the spirit of aloha `aina.
4-04. Response	<p>The overall emphasis on protecting the health, diversity, and resources of the NWHI ecosystems is our constant and highest concern. Although we have not included specific annual limits on the number of people accessing the area in the Monument Management Plan, we will be closely monitoring activities through the permitting process, the Papahānaumokuākea Information Management System, and the Monument evaluation process. The number of tourists visiting the Monument at any one time is also limited through the Midway Atoll Visitor Services Plan.</p> <p>Presidential Proclamation 8031 prescribes numerous prohibitions and regulated activities to protect the Monument’s resources. However, as protective as the provisions are, the Proclamation was never intended to prohibit all human use and access to the Monument. The Proclamation made specific allowances for the continuation of a small, permitted commercial bottom fishery until 2011, vessel transit, and armed forces actions. The Proclamation also established a permit system to allow a narrow range of other activities, provided there is a finding that the activity is research designed to further understanding of the Monument resources and qualities, that it furthers educational value of the Monument, that it assists in the conservation and management of the Monument, and that it allows Native Hawaiian practices, special ocean use, and recreation. These permitted activities will be allowed only if there are adequate safeguards for the resources and ecological integrity of the Monument, and if the activity meets the findings of the Proclamation (see Proclamation 8031, and Volume III, Appendix D).</p>
4-05. Comment	<p>A general and often used description of the anticipated impacts of the uses exist on page D-67. These sections list most, if not all, of the critical habitat and species within the monument and in many cases how they have been negatively impacted in the past, mostly through human activity. In particular the examples of coral reef devastation in Guam paint a horrifying picture of how the smallest error could produce catastrophic effects on the entire ecosystem. Most of these potential impacts are just acknowledged and then responded to by stating that USFWS will work to mitigate and does not foresee a problem. If these areas are so critical and sensitive, how is it that USFWS cannot foresee any problems arising from the myriad uses that they find to be compatible, especially when most negative impacts in the past or in similar environments are man made.</p>
4-05. Response	<p>The FWS considers activities in the National Wildlife Refuges of the Monument through the Compatibility Determination and permitting processes. Consideration is based on the benefits to protect, understand, and manage the NWHI ecosystems and to provide access in accordance with the proclamation, the National Wildlife Refuge System Administration Act, and other applicable laws. However, protecting the health, diversity, and resources of the NWHI ecosystems is our constant and highest concern. Foreseeable potential impacts are weighed against the foreseeable potential benefits. Through the compatibility determination and permitting processes, managers may allow activities</p>



<b>Comment Category 4 – Carrying Capacity</b>	
	and establish terms and conditions under which the activities are conducted so they do not materially detract from our ability to meet our primary conservation mission. Appendix C, Specific Terms and Conditions, provides some examples of terms and conditions for the compatibility determination mentioned.
4-06. Comment	Finally, on page D-151, we see an example of a signed refuge determination, which is what would be expected for a document of this importance. Strangely though, most of the others included in this appendix do not bear such marks and are simply left blank where signatures are called for. Does this render these determinations inadequate, incomplete or perhaps worse, not actually in accord with what the wishes and understandings of the necessary leaders whose signatures are conspicuously absent? For examples of unsigned documents please see D 8, 17, 27, 38, 49, 60, 74, 86, 110, 124.
4-06. Response	In accordance with National Wildlife Refuge System guidance, compatibility determinations are released for public review and comment before they are approved and signed. As indicated in the compatibility determinations for Midway Atoll Interim Visitor Service Plan in Appendix C, the signed compatibility determinations included within the Monument Management Plan were approved in May 2007 as part of the Midway Atoll Interim Visitor Services Plan. They remain valid until their specified reevaluation date. All compatibility determinations in the Monument Management Plan have been reviewed based on public comments, approved by the appropriate FWS officials, and signed.
4-07. Comment	The Monument is of cultural and religious significance to Native Hawaiians, not only at designated archeological sites but also throughout the entirety of its borders. USFWS needs to make greater efforts to be cognizant of the impacts that visitors will have, regardless of their “reason” for being in the Monument, on the inherent cultural value of this special place to Native Hawaiians. We see language in the Justification section on page D-25 that uses the phrase “may be enjoyed” when referencing Monument staff and managers relationship to the resources, which coincidentally precedes “protected in perpetuity.” This is indicative of treating the Monument as more of a playground than a Sanctuary.
4-07. Response	Under Presidential Proclamation 8031, recreational visitation within the Monument is limited to Midway Atoll. This visitor program enhances our ability to share the importance of the NWHI, as well as its sacred status to Native Hawaiian communities, and to share this with a broader group of people. We have modified the Operations of Monument Co-Managing Agencies compatibility determinations to remove the phrase “may be enjoyed.”
4-08. Comment	The protections afforded to a Monument seem to be less than those afforded to a Sanctuary, which concerns us.
4-08.	There are differences between protections afforded under Proclamation 8031 and those that would have been afforded

<b>Comment Category 4 – Carrying Capacity</b>	
Response	under the NMSA. However, much of the language of Proclamation 8031 was based on preliminary work done to propose the NWHI as a National Marine Sanctuary.
4-09. Comment	What will happen when increased demands of tourism (the cash crop) up the count of daily arrivals causing increased on the natural life of the atolls? Tourism never decreases, only increases.
4-09. Response	The Midway Atoll Visitor Services Action Plan and its associated Midway Atoll Visitor Services Plan will allow the program to grow from the current level of 40 overnight visitors to 50 overnight visitors within existing infrastructure limitations, at least for the next 15 years. We have not planned for expanding beyond that level.
4-10. Comment	Then I would also echo the other comments made here that we have a cap on the total number of tourists that are going to the Monument. People do not fight so hard to have a space if it's to be a place for the rich and famous. That's one of those political will things.
4-10. Response	We agree that the number of visitors at Midway should be limited. In the Midway Atoll Visitor Services Action Plan and its associated Midway Atoll Visitor Services Plan, we set that limit at no more than 50 overnight visitors at any one time, and no more than 800 day visitors (400 on-island at a time) at any one time for large-scale events (limited to no more than three per year).
4-11. Comment	And then later on they're talking about another picture of a house they're going to remodel, the Clipper house. The Clipper house presently serves the primary food service facilities for Midway, although the food service will need to be expanded to accommodate future population increases. Now, I suppose this thing they're talking about back here, the maximum of one hundred fifty people, that's one hundred fifty people for today, tomorrow, next year. But who's -- they said they're increasing it sixteen percent already to get up to one hundred fifty. They originally were one hundred and twenty. I'm wondering who's going to legislate whether it will be two hundred and fifty or three hundred people ten years from now? So I'm concerned about the numbers of people and how much of this stuff is going to be cleaned up. I guess that's my comments.
4-11. Response	The Midway Atoll Conceptual Site Plan, as part of the Monument Management Plan, proposes a 150-person maximum overnight population on Midway, an increase of 30 people over the current capacity. As Midway develops into an operational hub for the Monument, we envision an increased presence by NOAA and state staff, in turn requiring additional FWS contractor and staff support. The potential increase in the number of visitors from 40 to 50 also contributes to the increased population. Although the infrastructure, such as the Clipper House, may need to be enlarged to accommodate an increased population, the Co-Trustees support these enhancements as a means to improve Monument management.

<b>Comment Category 5 - Ecosystem Health</b>	
<b>Summarized Comments</b>	
5-01. Comment	<p>The comments below suggest the No Take Policy be considered in the implementation of the activities in the Monument Management Plan to ensure protection of resources in the Monument.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) Starting with the first sentence (1) and often reiterated throughout the entire Draft Management Plan, and, with strict limits, by the Proclamation 8031 (2), the mandate is that the entire Monument is a “fully protected marine conservation area,” warranting the “highest levels of protection possible” (3). This constitutes a No Take Policy within the Monument, consistent with the interpretation and enforcement of such designation in National Monuments, Refuges and Sanctuaries elsewhere and with the Marine Life Protection Act, and with law and policy of the State of Hawaii. “Thou Shalt Not Kill” or even remove any nonliving resources, is the acknowledged mandate, and the precautionary principal requires implementation of all measures necessary to preclude any potential take. This is very strong, even extreme law, but given Papahānaumokuākea’s irreplaceable biological treasure, cultural heritage and strategic importance to our very survival, a No Take Policy is not extreme, or even just prudent, it is fundamental to the motivation for the creation of the Monument, and consistent with the Native Hawaiian call for a pu‘uhonua, a place of refuge for the indigenous species of Paphanaumokuakea.</li> </ol> <p>Therefore, it is quite dismaying to find that No Take Policy is disregarded by large sections throughout the Plan, resulting in numerous, predictable, avoidable, and significant adverse environmental impacts unassessed by the “Environmental Assessment,” and numerous other substantial and predictable impacts being overlooked entirely. It makes no attempt to catalog these adverse impacts of Management Plan opening up the Monument to broad reaching human activities, as required by NEPA to constitute an Environmental Impact Statement, nor does it include the NEPA required avoidance and/or mitigation measures for resultant adverse impacts.</p> <ol style="list-style-type: none"> <li>2) Section 3.4 Managing Human Activities</li> </ol> <p>No Take Policy constitutes a Prime Directive to Trustees, management and staff to manage human activities to prevent adverse impacts on indigenous populations, to achieve maximum sustainable populations of endemic life forms, to restore, enhance and protect sustaining habitats, and to erase existing and prevent human footprints. While this leaves a wide latitude for non invasive observational activities and research endeavors, it also imposes heavy responsibilities on Monument Trustees and management to strictly regulate human activities to assure compliance with the Directive.</p>

<b>Comment Category 5 - Ecosystem Health</b>	
5-01. Response	In a system that has already suffered human impacts and continues to be exposed to stressors from outside the Monument, it is necessary to maintain some management presence and activity in order to gather information needed to improve protection, to understand the native biota, and, if possible, to restore habitats that have been damaged previously. Sometimes, this work involves the limited take of living resources, subject to all applicable laws.
5-02. Comment	<p>The comments below refer to the discussion of Pelagic Habitats in Volume I, section 1.1 of the Monument Management Plan.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) Volume I, page 22, lns 39: abyssal plains need an entirely separate heading.</li> <li>2) Volume I, page 23, ln 1: Most of the area can be considered pelagic habitat or deep-sea benthic habitat. These are not the same types of habitat.</li> <li>3) Throughout the plan there seems to be little mention of geological, chemical and physical oceanography of the PMNM. These variables are integral components to habitat characterization and activity in these areas should be specified in MCS-1.3.</li> </ol> <p>Not all deep-sea habitats are described in the plan. Each island receives a section but the various deep water habitats are not similarly treated. The section on banks and seamounts is good. However, all other deep water habitats are clumped together under “pelagic habitats.” In particular the treatment of abyssal habitats in this section is poor. For instance, it states on page 23 “The next zone is the abyssopelagic zone (13,123 to 19,685 feet) (4,000 to 6,000 meters), where there is extreme pressure and the water temperature is near freezing. This zone does not provide habitat for very many creatures except small invertebrates such as squid and basket stars.” Basket stars are not abyssopelagic but benthic. More importantly, this statement that the habitat does not provide habitat for many creatures is incorrect. Many creatures could imply numbers of taxa or numbers of individuals. Our baited camera work to 4000m last summer clearly showed an active assemblage of fishes and invertebrates at all depths (Yeh and Drazen, in press, see attached photo from 4000m of P&amp;H). Work in the abyssal plains of the Pacific, Atlantic, and elsewhere continue to show an astonishing diversity of small sediment dwelling animals. A diversity that has been compared to that in tropical rain forests. Some speculate that there could be million of species! In terms of abundance yes the numbers of animals are low. A distinction between numbers of taxa and numbers of individuals should be made. Most importantly the abyssal plains should be a separate habitat heading. This benthic habitat is probably the single largest in the PMNM.</p> <p>Volume I, page 23, ln 17: This is incorrect. The abyssal plains harbor an amazingly diverse fauna which has never been examined in the waters of the PMNM. In terms of abundance yes the numbers of animals are low. A</p>

<b>Comment Category 5 - Ecosystem Health</b>	
	distinction between numbers of taxa and numbers of individuals should be made. See my comments (major point) at beginning of management plan.
5-02. Response	There is not enough known about the abyssal plain to warrant a separate summary. However, the point is well taken that nonpelagic habitats, such as banks, are referenced in this section, so we have broadened the section heading to Pelagic and Deep-Water Habitats. We have also included relevant and appropriate text changes.
5-03. Comment	<p>The following comments were received referring to the discussion of Pelagic Habitats in section 1.1 of the Monument Management Plan.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) Volume I, page 6, lns 63-64: deep pelagic basins gives attention to the water column but the term abyssal plains should be applied to describe the benthic habitat</li> <li>2) Volume I, page 23, lns 1-3: total area of monument is 362061 so this is 84% of the monument area.</li> <li>3) Volume I, page 23, ln 18: basket stars don't live in the pelagic.</li> <li>4) Volume I, page 27, lns 4-6: geomorphology of PMNM also includes abyssal plains and submarine canyons</li> <li>5) Volume I, page 110, ln 27: this statement should also include abyssal plains.</li> <li>6) On page 9 it is stated that "Even deeper yet, the abyssal depths of the Monument, while harboring limited biomass, are home to many odd and poorly documented fishes and invertebrates, many with remarkable adaptations to this extreme." The biomass density is low however, due to its large area within the monument the total biomass of the abyssal community is quite large. I have used biomass estimates for large invertebrates (echinoderms, crustaceans, cnidarians) and fishes on the abyssal plain north of the NWHI (Smith 1992) to estimate the biomass on the abyssal plains of the monument. This estimate probably underestimates the biomass density in PMNM which is predominantly shallower than this station (5700 m). The estimate is 68900 to 74600 g wet mass km<sup>-2</sup>. This is a low density but with an area of 304,000 km for depths &gt; 2000m this yields a total PMNM deep-sea biomass of 21000 to 23000 metric tons. This "back of the envelope" calculation gives a good minimum estimate to be refined by additional research. Most importantly, it should illustrate that the statement in the draft management plan must be carefully reworded to illustrate both the low biomass density yet considerable biomass monument wide in abyssal habitats.</li> </ol> <p>Volume I, page 9, lns 22-25: The biomass density is low however, due to its large area within the monument the total biomass of the abyssal community is quite large. I have used biomass estimates for large invertebrates (echinoderms, crustaceans, cnidarians) and fishes on the abyssal plain north of the NWHI (Smith 1992) to</p>

<b>Comment Category 5 - Ecosystem Health</b>	
	estimate the biomass on the abyssal plains of the monument. This estimate probably underestimates the biomass density in PMNM which is predominantly shallower than this station (5700 m). The estimate is 68900 to 74600 g wet mass km <sup>-2</sup> . This is a low density but with an area of 304,000 km for depths > 2000m this yields a total PMNM deep-sea biomass of 21000 to 23000 metric tons. This “back of the envelope” calculation gives a good minimum estimate to be refined by additional research. Most importantly, it should illustrate that the statement in the draft management plan must be carefully reworded to illustrate both the low biomass density yet considerable biomass monument wide in abyssal habitats.
5-03. Response	<p>The following changes have been made to the Monument Management Plan in response to the comments above:</p> <ol style="list-style-type: none"> <li>1. In response to Comment 6, the sentence has been reworded and expanded to two sentences: “Ever deeper yet, the abyssal depths of the Monument harbor low densities of organisms, and yet because of the large area of this habitat type within the Monument, the total biomass of the abyssal community is quite large. Occupying this habitat are odd and poorly documented fishes and invertebrates, many with remarkable adaptations to this extreme environment.”</li> <li>2. In response to Comments 4 and 5, the sentence has been reworded to: “Habitats contained within the Monument include deep pelagic basins, abyssal plains, submarine escarpments, ...”</li> </ol> <p>We agree with your comment and abyssal plains and submarine canyons have been included.</p>
<b>Unique Comments</b>	
5-04. Comment	Page 39 Terrestrial Invertebrates are mentioned; however the unique WETLAND invertebrates are ignored. Wetland invertebrates of the National Monument are unique resources and provide prey for migratory shorebirds, water birds, and endangered land birds.
5-04. Response	“Terrestrial” in this section refers to all invertebrates (insects and spiders) found in freshwater habitats and on dry land. In this case “terrestrial” is used to distinguish them from marine invertebrates, such as crustaceans (lobsters and crabs, for example).
5-05. Comment	My input on the management plan for Papahānaumokuākea Marine National Monument is that all land and ocean components should be managed for the benefit of native species of sea and bird life as well as other natural resources such as geological formations. As rising ocean levels is reducing land areas of the islands, management should include cooperating with international efforts to reduce global warming.
5-05.	The Monument Management Plan describes all general MMB management activities for the next 15 years. Describing



<b>Comment Category 5 - Ecosystem Health</b>	
Response	all the specific efforts needed to monitor and manage the direct and indirect effects of climate change on individual species, assemblages, and ecosystems is too detailed for this plan. Many of these activities will be detailed in the Natural Resources Science Plan (Activity MCS-2.1), which will be developed in the first year of implementation. Table 2.1, Monument Vision, Mission, Guiding Principles, and Goals, provides a framework for how the MMB manages the resources to protect natural and cultural resources. In order to carry out these purposes, the MMB is committed to cooperating with national and international entities to help implement the management plan to understand and address some of the global impacts on the Monument resources, such as marine debris and climate change. We have added language addressing global threats to Strategy MB-3.
5-06. Comment	Pages 72-73, lns 8-45 and lns 1-4 Discussion of lights and noise impacts fails to accurately capture the entire range of light and noise sources including an analysis of ambient light noise levels. “Noise” in the water is more accurately described as “energy” in the water. The discussion also inappropriately focuses on sonar by noting that it is of “particular concern.” This untoward singling out of the issue du jour should be deleted. This lack of analysis does a disservice to the species and the National Monument by ignoring all other sources and fails to provide an in-depth discussion of the entire range of sources, discussion of peer-reviewed scientific articles detailing why energy in the water is or may be an issue of concern and how energy in the water may or may not affect the many species that inhabit the National Monument.
5-06. Response	We have changed “noise” to “sound” in this section of the Monument Management Plan. This section includes a description of man-made sources of sounds in the marine environment, so the discussion of sonar in this section is appropriate.
5-07. Comment	Because unless you have a plan for restoring the fishery, unless you’re restoring lobsters you’re still going to have seal pups that are run down, alternative lunch. All of that also looks -- a few years ago when we were here it was pointed out that CPR, the island’s conservation, preservation, restoration. Yet restoration is virtually absent from the plan. Unless CPR as it says in the start it’s a management plan not a plan for protection. This is perhaps the biggest inconsistency you have. If you look at the first paragraph in your introduction your thoughts about, it talks about maximum protection for this resource. And yet we have a plan that emphasizes management. A lot of it from my way of thinking not too wise.
5-07. Response	The Society for Ecological Restoration defines ecological restoration as an “intentional activity that initiates or accelerates the recovery of an ecosystem with respect to its health, integrity, and sustainability.” Ecological restoration includes a wide scope of projects, including erosion control, nonnative species and contaminant removal, disturbed area revegetation, and native species reintroduction. The portions of the plan that include the greatest number of specific

<b>Comment Category 5 - Ecosystem Health</b>	
	<p>activities relating to restoration are the Habitat Management and Conservation Action Plan, the Threatened and Endangered Species Action Plan, and the Alien Species Action Plan. Strategy TES-1 specifies that the Monument should support activities that advance recovery of the Hawaiian monk seal, including investigating food limitations and taking action to increase juvenile survival.</p> <p>In response to several comments about the need to protect resources, the MMB has modified the Vision, Mission, and Goals 1, 2, and 3 in Table 2.1 to better reflect a commitment toward resource protection.</p>
5-08. Comment	I'm concerned about commercial activity flying airplane routes, flying above the area and other commercial activity that's passing through it and how they impact on the environment.
5-08. Response	The Maritime Transportation and Aviation Action Plan (3.3.3 MTA) describes actions to identify, investigate, and reduce threats to the Monument from maritime and aviation traffic.
5-09. Comment	The Kaua'i chapter of the Surfrider Foundations and National Coastal Environmental Group, 65 chapters in the United States, and we have one on Kaua'i, Maui and O'ahu. Our view of this draft plan is that it doesn't stress the things that we would hope were important for a marine protected area and national monument. That is it's a resource management plan, not a conservation plan. We're looking at leaving those islands alone and getting people out of there and letting nature restore itself. All that is all about building incinerators and having Navy guys there and shooting sonars, fishing and all kinds of extractive and disturbing things. Our view is that there are very few natural island chains left anymore. It's time that we stop taking, taking, taking all the time and just let nature restore itself. That's a big picture answer to your four-volume deal. I think we're all -- in the Surfrider Foundation we're all very disappointed that it's so extractive, disturbing and human centered. So that's our two cents.
5-09. Response	Presidential Proclamation 8031 requires the Co-Trustees to develop a management plan for the Monument. This plan was designed to incorporate the planning needs of all agencies. Although the Monument is pristine, compared to the main Hawaiian Islands, the islands and atolls already have been impacted by humans. It is our responsibility to lessen those impacts and restore habitats to the extent possible. We also need to understand the natural, cultural, and historic resources to best protect them. Outside influences, such as marine debris, alien species, and climate change, would continue to impact the Monument even without human presence. Also, by managing visitation, the MMB provides opportunities for the public to better understand the unique biological, cultural, and historic treasures of the Monument. The best opportunity to protect this area comes through the limited human activities included within the Monument Management Plan. Proclamation 8031 requires activities to be conducted with adequate safeguards for the resources and ecological integrity of the Monument.

<b>Comment Category 5 - Ecosystem Health</b>	
5-10. Comment	Page 63 Diseases: The avian diseases impacting or potentially impacting the endangered Laysan duck are omitted. These include Avian Botulism, and Echinuria identified by the NWHL (Dr. Thierry Work). Both pathogens have the potential to decimate shore and waterfowl populations of the National Monument. The risk of Avian Flu and West Nile or other emerging disease should be mentioned as risks.
5-10. Response	Readers are referred to the Laysan Duck Draft Revised Recovery Plan (FWS 2004) for more detail on pathogens and parasites that threaten this species and other migratory bird species see Section 3.2.2, the Migratory Birds Action Plan). Newly emerging diseases borne by insects are discussed in the Alien Species Action Plan (3.3.2)
5-11. Comment	The whole reason for a marine monument is TO PRESERVE, the reefs, seals, turtles, seabirds and of course fish and sharks. Any person who really sees and understands that environment up there in the Northwestern Hawaiian Islands knows that the GREATEST THREAT are the MASSIVE sections of broken off ghostnets. We cannot monitor this without some presence in the NW Hawaiian Islands, because satellite imagery will not show the monofilament nets. It is time for government to work hand in hand with industry to monitor and ensure that area remains in its most pristine condition. The coral gets snapped off and damaged, the seabirds, turtles, seals and all fish in the area of the ghost nets are threatened.
5-11. Response	We agree that one of the most significant threats to the NWHI is marine debris. The Marine Debris Action Plan (3.3.1) describes a range of activities proposed and ongoing in the Monument to secure and remove all kinds of marine debris, including derelict fishing gear such as nets.
5-12. Comment	I'm curious to know what is really being done about preserving our natural resources there. I care about the lobsters. You know, Wespac did a good job of destroying that fishery. And I'd like you to look into the kapu system. Because we have the kapu system now on the bottom fishing in the summer when they spawn and when we wouldn't fish for them anyway. And we lift it in the winter when the fish is very expensive. That's when the big money is made. So it just didn't make sense.
5-12. Response	Proclamation 8031 prescribes that all commercial fishing will end in June 2011. Other human uses are managed through a joint Monument permit system.
5-13. Comment	OHA also notes that page 155 of the draft management plan proposes to hybridize local endangered fauna with closely related species in order to save them. OHA has concerns about this proposal on its face. We seriously question the wisdom of hybridizing plant species and wonder, if we can save the hybrid, why we cannot save the original. This, too, begs potential cultural questions about genetically manipulating genealogical relations to native Hawaiians, and the potential for preserving our siblings in whole, rather than in part.

<b>Comment Category 5 - Ecosystem Health</b>	
5-13. Response	There is no proposal for any hybridization of species to save them in the plan. The recovery action of establishing new colonies of three Nihoa endemics ( <i>Amaranthus brownii</i> , <i>Schiedea verticillata</i> , and <i>Pritchardia remota</i> ) would be evaluated with respect to the risk of any of those species hybridizing with related species on another island. Actions would be taken to prevent any risk of hybridization. We have provided clarifying language in on page 155.
5-14. Comment	The prospect of having the entire Northwest Hawaiian Islands under federal protection is an incredibly significant stride forward for preservation of the ecological integrity and biological diversity of the marine and terrestrial environments. We believe that through federal protection and continued management, the monument has the potential to provide refuge for a number of endangered and threatened species, as well as species which are critical to a healthy ecosystem. We strongly recommend ongoing habitat and ecological restoration projects which will ensure the perpetuation of the broad diversity of floral and faunal species, many of which are endemic to the monument.
5-14. Response	Restoration and protection are the way toward perpetuating biodiversity in the NWHI. We have added language the plan affirming the role of ecological restoration.
5-15. Comment	The Monument Management Plan provides a good framework that COULD eventually lead towards conservation of its ecosystem and resources therein. Your Marine Debris Action Plan is a good example of what other action plans should strive for to achieve the necessary degree of conservation.
5-15. Response	We note your comment. The NWHI are under both federal and state protection.
5-16. Comment	Page 105, line 32 states that one of the desired outcomes of the action plans are to increase understanding of the distribution, abundances and functional linkages of organisms and their habitats in space and time to improve ecosystem based management in the Monument.  Comment: In numerous instances, the Monument Management Plan refers to the NWHI as the world's largest marine protected area and an area of global biodiversity conservation. As the world's largest marine protected area, the Monument can also provide insight for improved management throughout the Hawaiian Archipelago. As the Monument comprises nearly four fifths of the Hawaiian archipelago, we recommend that the Monument Management Plan include strategies to address the benefits to the MHI resulting from the spillover of reef and bottomfish and provide a means of measuring these benefits should they exist.
5-16. Response	The purpose of the Monument Management Plan is to describe strategies and activities that directly relate to the Monument's vision, mission, and goals. While some of the strategies and activities may have spillover effects that

<b>Comment Category 5 - Ecosystem Health</b>	
	benefit adjacent areas, including the MHI, it is outside the scope and authority of the Monument and this plan to include strategies to address benefits outside this area.
5-17. Comment	Second, remediation of past injury and restoration of habitat and populations to nominal levels must be the focus and priority.
5-17. Response	We agree. Restoration and protection are the way toward perpetuating biodiversity in the NWHI. We have added language to the plan affirming the role of ecological restoration. We revised Section 3.2.3, Habitat Management and Conservation Action Plan, to indicate that restoration will be undertaken using best available information about predisturbance conditions. This is discussed in Action Plans 3.2.1 and 3.2.3.
5-18. Comment	Based on CEQ regulations implementing the National Environmental Policy Act (NEPA), implementing the Monument Management Plan would be considered a major federal action (40 CFR § 1508.18). In terms of NEPA, an Environmental Impact Statement (EIS) should have been prepared to provide the public with a clear understanding of the environmental and socio-economic benefit of implementing the Monument and Monument Management Plan. Instead, an Environmental Assessment (EA) was prepared. However, the EA does not discuss or nor attempt to analyze the significance (overall or otherwise) of the proposed action to the protection of natural resources, marine heritage sites, the State of Hawaii and to the United States.
5-18. Response	The EA presents an analysis of the impacts of implementing the two alternatives. An EA is prepared to determine whether or not the action significantly impacts the environment, and, if so, an EIS should be prepared. Our conclusion is contained in the Finding of No Significant Impacts that accompanies the Monument Management Plan.
5-19. Comment	To rebuild the environments if possible, but also to alter them to “assure” the survival of some species by translocating them. Which may have consequences of its own even if the efforts are successful or don’t seem to have changing affects on the new placement. Part of this means, in detail, to use herbicides and other such substances, usually artificial. Is this for species survival or the humans’ comfort? Although it may help the animals or species in a given situation, even if it has no direct or immediate adverse affects that can be seen, that doesn’t mean it’s good. A minor affect that appears at first may alter the potential of restoring habitat further. In many ways stated intent is to restore in many cases and balance, but in the same ones or others at a given time set to add one feature or another to transplant a species to theoretically keep the species alive alters that given environment even so. There are no details, even theories, only ideals that are desired to be used, to control temporarily allowed alien species within the Monument before replacing them with “native alternatives” in some cases, those that exist, for both land and species management to keep land from being lost, to restore species numbers or to rebuild certain features. Would that not alter the landscape, even with any good results? To propagate species is an ideal action, but where and how are concerns. Why is also an issue, this is where

<b>Comment Category 5 - Ecosystem Health</b>	
	<p>details are necessary. And in some ways as often ignored for that purpose. Ideals are easier to justify. And where many plans, proposals, propositions and other enquiries usually falter, including in this one. Propagating other birds and other species on other islands, besides altering the land that's there, is also potentially damaging. Immediate or not isn't the point. What if a given chosen environment with the monument is adaptable, but acts as an invasive species in another way. Much further down the line within or beyond the 15-year period of the plan as it is. And an invasive species may not appear to do too much damage, too. But invasive means just that. Invasive, introduced. Throughout the MMP it frets over changes done in this way or that way. Just because an adoption in a given setting is possible doesn't mean it's not harmful. Another alteration it is, and therefore potential damage if done even so.</p>
5-19. Response	<p>Translocation as an ecological restoration tool is done only after intense analysis of all possible effects on other native species and habitats. In most cases it is considered as a method to reintroduce a species to a part of its former range. In other cases it may be a species that is a close relative to another that has gone extinct, so the translocation may serve to restore an ecological function and help to recover the translocated species. A species is never relocated without careful environmental review. There are no activities in the sections dealing with the Conservation of Wildlife and Habitats or the Alien Species Action Plan that are being proposed for human comfort.</p>
5-20. Comment	<p>First and foremost, I would like to say that it is of the utmost importance that Papahānaumokuākea and its inhabitants (birds, Monk Seals, fish, flora, fauna, etc.) on and around The NWHI receive the MAXIMUM PROTECTIONS. In reading this document I see a lot of focus on making The NWHI accessible to researchers, tourists, scientists, contractors, military, etc. I do not see resource protection as the "primary purpose" as the language would indicate.</p>
5-20. Response	<p>Access to the Monument is highly limited. In order to achieve the vision, mission, and goals of the Monument there must be some human presence, primarily to restore and correct previous human disturbance. The large amount of information in the document relating to human activity is there to ensure that there are strict controls on that activity that minimize harm to the Monument.</p>
5-21. Comment	<p>Habitat Management and Conservation Action Plan – Section 3.2.3</p> <p>The "active management" discussed in the introduction for this plan is precisely the type of management we applaud in the Monument. It is important that the Monument pursue active management, as appropriate, rather than just observed and researched, in order to achieve eternal protection of the NWHI ecosystem. At the same time we are concerned that some of the active management discussed in this plan is more hands-on and invasive than necessary. Management should avoid invasive research that is not closely associated with management priorities. When research is identified in the Management Plan, it would be beneficial to also identify how management actions will be influenced by the research priorities. As always, the focus should be on protection, not on research for research's sake. Research in the Monument</p>



<b>Comment Category 5 - Ecosystem Health</b>	
	<p>must have tangible benefits to NWHI ecosystem that the Monument was established to protect.</p> <p>While the activities discussed in Strategy HMC-8 for control of ironweed are necessary, there is no activity identified to replace this invasive with appropriate native species. In order to maintain appropriate habitat and prevent erosion, reintroduction of natives should go hand in- hand with removal of invasive species.</p>
5-21. Response	All research proposed for the Monument will be evaluated and prioritized with respect to its relevance for conservation. Activity HMC-4.1 provides for the propagation and out-planting of some native substitutes for alien plants that are slated to be removed at Midway.
5-22. Comment	Volume I, page 21, lns 30-32: abyssal plains in the monument have NEVER been studied
5-22. Response	Jeff Drazen’s drop-camera bait station has been deployed on a limited basis on the abyssal plain. Nevertheless, your point is well taken that very little work has been done on abyssal fauna. We have reworded this sentence as follows: “Deep-water banks, seamounts, and the abyssal plain are among the least studied environments of the NWHI.”
5-23. Comment	The final management plan for the Monument must have a vision statement that equally embraces the cultural and ecological significance of the region, such as: “that the health, diversity and resources of the vast NWHI - its unique wildlife and cultural significance - be protected forever.”
5-23. Response	We have amended the Monument’s Vision Statement, in part, on your suggestions. The MMB agrees that Native Hawaiian traditional knowledge is imperative to the management and understanding of all of the resources of Papahānaumokuākea, as recognized throughout the Management Plan. Please see, in particular, Activity NHCH-3.4 and Strategy NHCI-3, with its associated activities.
5-24. Comment	In Vol. I, section 2.5, page 99, lines 7-11 add “and function” into the existing text as follows (IN CAPITAL LETTERS). “Development and implementation of threat reduction protocols and monitoring are needed to protect, preserve, maintain and, where appropriate, restore natural communities, including habitats, populations, native species, and ecological processes, AND FUNCTION as a public trust for current and future generations”
5-24. Response	We have added the suggested text, “and function,” to section 2.5.
5-25. Comment	We believe it is important to add more details on deepwater corals in the monument to the “corals” section that starts on page 27. There is a lot of very valuable information provided in Parrish and Baco (2007) including the number of species of deepwater corals that have been documented in the Hawaiian Archipelago to date (137 gorgonian octocorals

<b>Comment Category 5 - Ecosystem Health</b>	
	and 63 species of azooxanthellate scleractinians), past harvesting techniques, stressors, etc. Just last November, two new potential genera of deepwater bamboo corals were collected by submersible at a single site off Twin Banks (Watling, pers comm).
5-25. Response	We have added additional information on deepwater corals to section 1.2.
5-26. Comment	One is the general concern that ecosystem function is not mentioned as one of the main guiding principles for Papahānaumokuākea, and I think that's very important. Restoring ecosystem function or having that as a goal is something that's not captured in the document. It might free up powers in the agencies to look at moving Cenchrus from island where it still is to islands where it is not because it's been there. Or moving birds that would bring a certain ecosystem function back to life. All those things should be urgently considered. And some of those moves might include translocations of birds, some of which have been named in the 1998 document for Laysan Island, which I think has been pretty much captured in your management plan, and also a document that's much newer, 2007, done by Marie Morin and Sheila Conant for translocations. I think that needs to be looked at again in terms of urgency. And I know how our agencies move. I think the urgency question is really important if there is changes in sea level and that it be looked at in view of an urgent matter.
5-26. Response	We have revised Goal number 1 to include the physical environment and additional language of ecological integrity (see definition in glossary). We have revised "ecosystem integrity" to "ecological integrity" to correspond with Monument regulations. In addition, ecological restoration has been added to the glossary.
5-27. Comment	Page 67 Line 30: omit the word "all". Recommend changing "kills 100's" to "believed to contribute to Albatross mortality". Since, this has never been quantified. The sentence describing the impact of seasonal dieback on Pearl and Hermes should be a separate sentence.
5-27. Response	We have replaced this sentence with, "For example, the invasive plant golden crownbeard ( <i>Verbesina encelioides</i> ) displaces almost all native vegetation in some nesting areas. This plant causes entanglement of albatross adults and chicks and increases chick mortality due to heat stress by reducing the birds' ability to use convective cooling for thermoregulation. At Southeast Island, Pearl and Hermes Atoll, verbesina has displaced almost all native vegetation. When it dies back each year the endangered Laysan finches ( <i>Telespiza cantans</i> ) suffer severe food and cover restrictions."
5-28. Comment	In regard to the Migratory Birds Action Plan, as part of MB-3.1, standardized monitoring plans must be carefully designed and implemented so that the data collected permit statistical analyses that can detect changes in population size

<b>Comment Category 5 - Ecosystem Health</b>	
	and key demographic parameters over time, such as reproductive success and survival. As part of MB-3.2, the monitoring of changes in habitat quality through monitoring bird reproductive performance and diet must be accompanied by the monitoring a suite of habitat variables including climatic variables, since climate change will impact the Monument’s bird species.
5-28. Response	We agree. Activities MB-3.1 and MB-3.2 prescribe monitoring of populations and breeding and foraging habitats for seabirds. Using these data to ascertain the effects of anthropogenic climate change on migratory birds will be a high priority.
5-29. Comment	Table 2.1: Goal 1: Protect, preserve, maintain, and where appropriate restore the physical environment and the natural biological communities and their associated biodiversity, habitats, populations, native species, and ecological processes as public trust resources.
5-29. Response	Table 2.1, Goal 1 now reads accordingly: “Protect, preserve, maintain, and where appropriate restore the physical environment and the natural biological communities and their associated biodiversity, habitats, populations, native species, and ecological integrity.”
5-30. Comment	...it feels as if you’ve separated, it’s almost like Papahānaumokuākea separate from Hawaii nei. It feels like that. For me, Hawaii nei is Hawaii nei, yeah? From way on top to all the way on the bottom. And I think we gotta look at it that way. So when we look at our ecosystem, we cannot just concentrate on the Northwest Hawaiian Islands or just our main Hawaiian islands. We need to look at the whole ecosystem as a whole. And I wish that we would put more effort into doing so, yeah?
5-30. Response	An understanding of the geological, biological, and cultural continuity of Hawai‘i is important for realizing the value that the NWHI have for informing us about all of Hawai‘i.
5-31. Comment	The use of Rodenticide is banned and forbidden by the Kupuna Council anywhere in the Northwestern Hawaiian Islands. Concern has been raised over the Draft Plan of the Northwestern Hawaiian Islands because it includes many practices that are against our cultural beliefs and are not viable solutions to solving problems. One such practice is invasive species program that allows the use of Rodenticide on the entire island to get rid of the name, “mouse.” This is absolutely in violation of the Executive Order that states, “The Hawaiians can indeed practice their age-old traditions in the Northwestern Hawaiian Islands.” The use of any toxic materials, herbicides Round-up or Rodeo, insecticides or other toxins interferes with our cultural practices. Due to the fact that the Northwestern Hawaiian Islands Management Plan is a federal undertaking, the use of poison is challenged because it is an “Adverse effect.” And in the Federal Planning and Historic Places text, that’s this one here, and in Federal Planning in section 106 by Thomas King it gives

<b>Comment Category 5 - Ecosystem Health</b>	
	an example of the use of poison and filing under section 800.5(a)(1). Also, if the Native Hawaiian organizations and the Kupuna Council are stating that they are against the use of poison, the federal agents must listen to our claims. Use of poison would also render a situation of neglect, due to unknown toxins and avoidance of the area it would cause. Site identity changes and contamination of the food chain render those projects unacceptable.
5-31. Response	<p>We share your concerns regarding the use of poisons, and we are taking the utmost care to ensure beneficial effects outweigh any potential harms. In this case, the nonnative invasive species are so abundant and virile that our options have become limited. Poisons are a necessary tool to prevent the loss of native ecosystems to invasive nonnative species, such as mice. However, when poisons are used, it is with caution, care, and concern for the biological and cultural resources that we are mandated to protect.</p> <p>As you referenced, under the National Historic Preservation Act (NHPA), if a federal undertaking may impact properties that either already are National Historic Properties or that may become so, a Section 106 consultation must be conducted. Until a programmatic agreement is executed for Monument management, each proposed activity within the Monument that may impact such properties has undergone, and will continue to undergo, Section 106 consultation. For example, both the FWS and the National Marine Fisheries Service have fulfilled Section 106 consultation requirements for management and conservation activities proposed on Nihoa and Mokumanamana. The State Historic Preservation Division is Hawai‘i’s State Historic Preservation Office, and the Office of Hawaiian Affairs is listed in the NHPA as a Native Hawaiian organization that must be consulted during any Section 106 process in Hawai‘i. Both of these agencies, as well as other Native Hawaiian organizations and individuals, have been, and will continue to be, consulted during the Section 106 processes mentioned above.</p>
5-32. Comment	Briefly, OHA notes that page 63 of the draft management plan states that “Increased carbon dioxide can also influence photosynthetic rates in plants, change plant species composition, lower nutrient levels, and lower weight gain by herbivores.” OHA was unaware of any herbivores in Papahānaumokuākea and we ask what they are.
5-32. Response	In this sentence “herbivore” means any organism that consumes living plants (including limu) or their parts. That would include everything from zooplankton that eat phytoplankton to marine and terrestrial snails, to sea urchins, to algae-eating fish, such as the yellow tang (lau-i-pala), to honu (green turtles) in the water and various insects and the Laysan finch and Nihoa finch on land.

<b>Comment Category 6 - Education</b>	
<b>Summarized Comments</b>	
6-01. Comment	<p>The comments below suggest the Monument staff develop educational materials, including traveling teacher boxes, a textbook, curricula, experiential learning opportunities, school visits, and teacher workshops.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) Greater Monument focus or presence at teacher workshops and environment, science and education conferences.</li> <li>2) We need help for all our islanders, educate our own islanders.</li> <li>3) Development of traveling teacher boxes with pre-done lesson plans and supplies that can travel to schools in the outer islands. In my experience I have found that there is a serious disconnect with the kids and the knowledge that the Northwestern Hawaiian Islands even exists. This disconnect is more prevalent on islands besides Oahu which is often targeted in outreach.</li> <li>4) Emphasize experimental learning using both Northwestern Hawaiian Islands and Main Hawaiian Islands connections</li> <li>5) Use a rotating “guest” for school visits on the islands outside of Oahu</li> <li>6) I think funds should be available to contract educators to run teacher workshops in the CONTENTIAL U.S. to introduce teachers to the myriad of educational resources available relating to the monument. There has to be more than just curriculum on a website to educate the public about the monument and help them understand its enormous ecological value.</li> <li>7) Please help our young people on Kauai and throughout Hawaii learn more about the importance of the ocean, and especially about how to support visiting scientists. We need programs in our schools to teach our young people about our coasts, the ocean, and how to take care of it.</li> <li>8) Greater Monument focus or presence at teacher workshops and environment, science and education conferences.</li> <li>9) Programs that can help with teaching and reinforcing the correct values will go a long way in preparing our youth to become successful in all aspects of life. Papahānaumokuākea, like the main Hawaiian Islands, are one of the greatest community classrooms on the planet. The monument represents an outstanding opportunity to cultivate students through an experience that is unmatched in the world. The connection to the host Hawaiian culture through both management and education strategies need to be at the forefront in this management plan. Culture-based education and leadership models already exist that can and need to be incorporated into both a short and long-term management plan. It will be a critical investment and hopefully a model for others on the planet to follow. The Census 2000 was the first national census taken that was able to aggregate data on Native</li> </ol>

<b>Comment Category 6 - Education</b>	
	<p>Hawaiians and Pacific Islanders. The results showed that Native Hawaiians and Pacific Islanders are underrepresented in nearly all areas of business, professional and scientific areas of employment. This needs to change. While not everyone will have an opportunity to live or work within the monument boundaries, innovative culture based education strategies have increased student achievement and a motivation to learn and dream. Management of the monument needs to sustain and integrate these strategies so that future natural resource managers, marine scientist, cultural preservationist and conservationist can pursue their dreams to give back to their own home communities through the inspiration of experiencing Papahānaumokuākea first hand. In conclusion, I would like to see more opportunities created for Native Hawaiians and Pacific Islanders to be involved in education programs, internships, research, employment and stewardship of the monument longterm. Our Foundation is ready, willing and able to partner with managers that have been entrusted with this responsibility to help integrate successful models and create new ones as needed.</p>
6-01. Response	<p>Since 2002 the multi-agency Navigating Change Educational Partnership has implemented a comprehensive educational project titled “Navigating Change.” This effort focuses on raising awareness and motivating people to change their attitudes and behaviors to better care for Hawai‘i’s land and ocean resources. By comparing and contrasting the coral reef and island ecosystems of the main Hawaiian Islands with the Monument’s healthier ecosystem, one can be inspired by this place that has much we can learn from. Highlighting these key messages have been a five-part video, standards immersed educational curriculum, and teleconferences with the traditional Polynesian voyaging canoe Hokule‘a during its 2004 expedition. Crafted by the multi-agency partnership, the Teacher’s Guide to Navigating Change has been implemented through hosting teacher workshops on every main Hawaiian island and through oral presentations at national and international conferences. Future plans continue to support these efforts. In addition, Educator and Class at Sea programs provide intensive experiences either onboard ship or while on Midway Atoll. The Co-Trustees plan to continue to offer these opportunities annually. While initially focused on reaching out to elementary school students and teachers, current and future efforts are building on and expanding an ocean stewardship program to give middle and high school students real-world, hands-on science- and culture-based experiences. The newly designed educator’s workshop on Midway will have openings specifically for community or business leaders who teach other than science and who show a keen interest in garnering support for restoring a healthy ecosystem in their own community.</p>
6-02. Comment	<p>A number of commenters expressed interest in the provision of opportunities for the public to visit Papahānaumokuākea, specifically mentioned groups include students, Native Hawaiians, teachers, and policymakers.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) So one of my ideas was, hopefully, some way we can, maybe not real soon, but in the long term we can get our</li> </ol>



<b>Comment Category 6 - Education</b>	
	<p>students out there, so they can make a comparison to what we have here. ‘Cause a lot of people say in the Hawaiian islands, Molokai is one of the best managed resources and we have lots of fish, and ‘opihi, and crab, and those types of things, so maybe we can go up there and make a comparison to see a place that hasn’t been fished at all.</p> <ol style="list-style-type: none"> <li>2) Creation of a pacific teachers cruise, bring together teachers from all over the pacific to do outreach work and traditional connecting/learning in the Monument.</li> <li>3) Student/Teacher visits from all disciplines should be allowed.</li> <li>4) Facilitate University of Hawaii classes on Midway Atoll. And finally, a positive suggestion: all effort - funding, organizing, administration, etc. - should be made to re-open University of Hawaii marine science classes on Midway. My first visit to Midway Atoll was through a U.H. class on seabirds taught on Midway in June of 2000. Others should have this opportunity to experience the beauty, isolation and peace of Midway. And I would love to return for another class myself! (N.B. Classes should not be limited to the marine science department. English, Biology, Environmental sciences, Agriculture, etc., could benefit from this unique setting.)</li> </ol>
6-02. Response	<p>To adequately protect the fragile coral reef ecosystem of the Monument, general public visitation is permitted only at Midway Atoll National Wildlife Refuge. The Monument’s educational goal is “to bring the place to the people versus the people to the place,” thus much of the Co-Trustees educational work has been focused on crafting educational projects that inspire students to take better care of their resources back home. One such project is titled, “Navigating Change,” which includes a teacher’s guide that inspires students to take better care of their resources through contrasting and comparing the Marine Monument ecosystem with their ecosystem back home. We are also planning to implement long-distance learning technologies that could video stream live footage so students can experience the Monument through a Web site. As addressed in the management plan, the Co-Trustees will be hosting educator workshops on Midway Atoll with the intent to inspire teachers who can reach hundreds of students through their experiential hands-on knowing and learning. Although it is not reasonable or financially feasible at this time to offer an opportunity to a few students, we will add language to consider expanding our teacher workshop audience on Midway to include a few students, or perhaps to host twelve students for a workshop solely designed for students. It is an expensive trip, with a minimum cost of \$3,500 per person per week, including airfare on a fifteen-passenger private G-1 Gulfstream aircraft.</p>
<b>Unique Comments</b>	
6-03. Comment	<p>p. 273 Add Strategy OEL-2 and OEL-3 as national and international education efforts and make current OEL-2 --&gt; OEL-4.</p>

<b>Comment Category 6 - Education</b>	
6-03. Response	We do not think it is necessary to add separate strategies to expand education to international audiences because these are already encompassed within current strategies, Strategy OEL-2.
6-04. Comment	<p>One way of telling the story of Midway month-by-month as we go forward and even to recreate some of the history is you can do it through video. I don't know what telecommunication format we're working with today. But you could do a program that shows maybe monthly back to our islands here and even to the mainland.</p> <p>People could get onto the Internet. You could educate people would having their footprints in the sand. I think that might be a way of doing it.</p>
6-04. Response	We concur with your comments and hope one day to do as you suggested through telepresence technology, as stated in Strategy OEL-2, Activity OEL-2.2, for education and outreach within five years. The activity descriptor goes on to state such technologies as underwater video, real-time video, virtual field trips, formal distance learning programs, Web site interfaces, and exhibits in discovery centers can play an important role in educating students and the public about the NWHI. The Co-Trustees of the Monument have been working diligently to explore the possible technology available to upgrade the Midway Atoll's telecommunication to specifically increase our educational potential to stream video segments to the public via the Internet. A separate satellite dish will be installed soon that will allow us to do live stream video almost solely for educational purposes at least three months out of the year. We will continue to explore technology options as we are able to financially upgrade our systems to allow such to occur year-round. Currently, to run both a phone and Internet system that can send video year-round would require installing an additional T-1 communication line at the cost of \$10,000 a month. We will continue to explore ways to provide seasonal or monthly updates via streaming live video or adding standard still video clips pending staff available to implement such to our standard Web site.
6-05. Comment	Creation of a Northwestern Hawaiian Islands ocean sciences textbook to be used in schools.
6-05. Response	The Co-Trustees provide input to contractors who have the lead in developing Hawai'i Department of Education marine science curriculum, and in the future we would be available to assist other entities specifically in crafting a marine science textbook. Taking the lead to develop a Department of Education sanctioned textbook would not be a viable option due to the labor intensive time and money necessary to write, illustrate, and publish such an extensive project. Currently, Monument staff develop and administer marine-based teacher workshops on all islands by implementing the Teacher's Guide to Navigating Change.
6-06.	I'm part of the Midway Alaka'i Program and the management plan states that only members will run successive

<b>Comment Category 6 - Education</b>	
Comment	workshops – this is not correct. It should read that members of the Midway Alaka‘i Program will MENTOR new members in the years after they participate in the education program on Midway. A number of resource personnel from NOAA, USFWS and related community groups may run the workshops for the program.
6-06. Response	The Midway Alaka‘i Program will mentor versus run the successive workshops.
6-07. Comment	How do I get kids there to do hands on activities? Resource monitoring?
6-07. Response	To provide adequate protection to the fragile coral reef ecosystem of the Monument, general public access is permitted only in the Midway Atoll National Wildlife Refuge. The Monument’s educational vision is “to bring the place to the people versus the people to the place,” thus much of the Co-Trustees’ educational work has been focused on crafting educational projects that inspire students to take better care of their resources back home. One such project, entitled Navigating Change, includes development and dissemination of the Teacher’s Guide to Navigating Change, which immerses students in how to use resource monitoring tools and techniques to better take care of their resources in their own community. We are also planning to implement long-distance learning technologies that could stream live footage so students can experience the Monument via a Web site. Currently, interested families can visit Midway Atoll National Wildlife Refuge through organizations with Monument recreational permits. In the future it is our intention to offer independent tours, classes, and educational camps.
6-08. Comment	Junior scientists shadowing program – have management employees and scientists related to the Monument interact with Hawaii students, have them job shadow, learn what the job entails and provide internships for local students
6-08. Response	We are implementing a Pacific America Foundation internship program in the fall 2008 on Midway Atoll that will be a conduit for Native Hawaiian students to work side-by-side with scientists. Ideally we would also provide avenues for other up-and-coming students in addition to Native Hawaiians. Because this is a newly implemented program, language will be added in the Monument Management Plan that describes this new initiative.
6-09. Comment	3.5 Coordinating Conservation and Management Activities Education and outreach efforts should be extended beyond the Hawaii population and visitors to the discovery centers and the Monument itself to the U.S. mainland and internationally. The goal is to create greater awareness for this refuge, coral reef ecosystems worldwide, and reduce the effects of detrimental human-caused activities inside and outside the Monument (e.g., marine debris, global climate change, illegal fishing, dumping, etc) that will result in degradation of the Monument resources. Perhaps some formal program competition could be run, much like taking a science teacher on the

<b>Comment Category 6 - Education</b>	
	space shuttle, where a teacher (and class?) could be introduced to the Monument as part of a research cruise or land expedition. To have wider impact, this competition would not be restricted to those located in Hawaii. There could be dual awards for Hawaii and the mainland (or other). Funding for this program could either be built into the annual Monument budget or proposals could be written to other line office RFPs or agencies.
6-09. Response	See Activities OEL-1.5, OEL-1.8, and NHCH-2.3. These activities allow students and teachers educational opportunities in the Monument and do not preclude participation by the international community. Activity OEL-1.8 has been revised as follows: “Facilitate at least two opportunities per year for educational groups, private/nonprofit environmental or historical organizations to conduct wildlife-dependent or historical courses or to administer informal educational camps, within two years.
6-10. Comment	But at the same time I’m an educator. I know it’s really difficult to have people care so deeply about a place they’ve never been to, never touched or may never know. So I really think that having an education workshop or workshops for educators is very important. We’re glad to see that it’s included in the plan. But the understanding it’s maybe once every two years. I think maybe once a year -- would be a good idea to have it more often. And to have positions that are dedicated to education is important. So I’m not sure how many positions are already allocated but if there could be as much as the budget can allow. It should be the 5 percent of the budget. It really is important to help people understand how important this place is. Education is a way to do it.
6-10. Response	Since 2002, a multi-agency partnership referred to as the Navigating Change Educational Partnership has implemented a comprehensive educational project titled “Navigating Change.” Part of this initiative is the establishment of an Educator’s Workshop on Midway. Activity OEL-1.7 now provides, as revised, for an annual workshop on Midway as resources allow. The title for Activity OEL-1.7 has been changed to reflect its annual frequency.
6-11. Comment	<p>Educating the public at large is essential for fostering respect for the environment, initiating discussion, and mobilizing the public to make good decisions everyday at home and ultimately when they vote. My experience thus far makes me believe that many people here in the United States are not even aware of the existence of the NWHI – certainly an unfortunate circumstance, given its ecological and cultural value. Teaching the public about the NWHI provides an excellent opportunity to raise ocean literacy by using an example that is not only protected and supported by our federal government, but also an important resource for our country.</p> <p>Concerning Activity MCS-3.3 and 3.4</p> <p>During the 2003 cruise, I wrote many of the dispatches from sea, which were posted on our cruise website. Since then, of course, technology has enabled these exploration cruises to be followed by learners all over the world. I also visited Mokupapapa Discovery Center while on the Big Island and thought it was interesting and a nice representation of the</p>

<b>Comment Category 6 - Education</b>	
	<p>work done on NWHI. These outreach materials are certainly invaluable, since they make the science come alive for people who can now see images nearly real time, observe real progress in science, and experience the discovery for themselves. I support these activities whole-heartedly, having seen the products from many sides, as participant/ teacher, and learner. However, now that I live and work on the mainland, I see the need for an even broader reach for these activities. Here in California, we have many different marine environments but in order for our public to fully understand the ocean and our individual and community impacts on the ocean, we have to consider the various ecosystems to which we are connected.</p> <p>Because the Monument is an area that is still being explored, it has the power to capture public attention and get people interested in the science going on there. I work with many kids who have this idea that we are “done” exploring our planet, when that of course is not the case at all. I try to combat that when I teach public programs and school programs; when I teach a program about the deep sea, I often talk about what it’s like to ride in a submarine and to collect coral samples that are totally new species. I talk about my experiences in research and the kids connect to it because they see it as an opportunity for themselves. They do not realize that there are worlds of discovery that are right here, in the Pacific Ocean, the very same ocean down the road from their houses. I hope that future outreach and education activities on the Monument reach the public on the islands as well as those living here on the mainland.</p>
6-11. Response	<p>The plan contains Strategy OEL-2 that states the need to develop and implement new tools to “bring the place to the students,” rather than the students to the place, within three years and engage a broad a diverse base of students from around the world to continuously expand the types of products and modes of communication used in educational programs. In addition, future plans as noted under Strategy CBO-1 (p. 253), mention that telepresence technologies such as underwater video cameras, real-time video transmission, virtual field trips, Web site interfaces and exhibits in discovery centers will be used as an important conduit for educating the public about the NWHI. Also, Educator and Class at Sea programs provide intensive experiences either onboard ship or while at Midway Atoll. The Co-Trustees plan to continue to offer these opportunities.</p>
6-12. Comment	<p>I particularly support the "Ocean Ecosystems Literacy (OEL)" programs as outlined in section 3.5.4. However, regarding OEL-1.7, I see that the educator workshop (Alaka'i) program is listed as biennial, and I would like to strongly suggest that this become a yearly program instead. In addition, I would like to support the Midway Atoll Visitor Services Action Plan (section 3.4.3), and any measures or funding that will result in expanded and enhanced interpretive tools, methods and educational displays onsite. The "living classroom" themes of the island can be reinforced and communicated through effective educational strategies and materials. These themes can also be supported and visibly demonstrated by making the facilities themselves a "model for sustainability," as outlined in Alternative B, Volume IV, in the Midway Atoll NWR Conceptual Site Plan. I support the assessment that Alternative B "best meets all</p>

<b>Comment Category 6 - Education</b>	
	management concerns," and is focused on sustainability.
6-12. Response	Since 2002, a multi-agency partnership referred to as the Navigating Change Educational Partnership has implemented a comprehensive educational project titled “Navigating Change.” Part of this initiative is the establishment of an Educator’s Workshop on Midway. Activity OEL-1.7 now provides, as revised, for an annual workshop on Midway as resources allow. The title for Activity OEL-1.7 has been changed to reflect its annual frequency.

<b>Comment Category 7 - Emergency Response</b>	
<b>Unique Comments</b>	
7-01. Comment	Section 3.3 Reducing Threats to the Ecosystem Maritime Transportation and Aviation lacks a specific accident intervention plan, or oil spill remediation plan.
7-01. Response	Emergency response for events such as vessel groundings, oil, fuel, or chemical spills, or releases of hazardous substances is addressed through the Area Contingency Plan for the Hawaiian Islands, which is a local plan under the larger structure of the National Response Plan. The Monument Co-Trustees and Interagency Coordinating Committee will seek to address NWHI responses as part of the Area Contingency Plan. The Emergency Response and Natural Resource Damage Assessment Action Plan describes strategies and activities to plan for and respond to an emergency within the established Incident Command System for the region and for other unanticipated events that fall outside the scope of the Area Contingency Plan for the Hawaiian Islands. Because of the extensive infrastructure found at Midway Atoll, several Midway-specific contingency plans have been developed, including an emergency spill response plan, spill prevention and control counter measure plan, and an airport emergency action plan.
7-02. Comment	3.3.4 Emergency Response and Natural Resource Damage Assessment Action Plan Given the extreme sensitivity of Monument resources and the difficulty in logistics of emergency response, prevention of large scale events like vessel groundings and oil spills is absolutely critical. As use of the Monument is expected to increase in coming years, it is important that disaster avoidance remain a top priority. The Draft Monument Management Plan notes that response to oil, fuel or chemical spills or vessels groundings would come under an existing Area Contingency Plan and therefore is not addressed directly in the Draft Monument Management Plan. We encourage direct reference to the Area Contingency Plan, incorporation of the Plan by reference and inclusion in the Draft Monument Management Plan of a brief summary of the Area Contingency Plan as it applies to the NWHI. At a minimum the Draft Monument Management Plan should include a citation to the website that contains information regarding the Area Contingency Plan.

<b>Comment Category 7 - Emergency Response</b>	
	<p>We encourage revision of Activities ERDA-1.2, 1.3, 2.3, and 3.1 to include discussion of necessary emergency response equipment as appropriate. Currently these activities appear to focus on planning and training. We also suggest cross referencing from this Action Plan to the Maritime Transportation and Aviation Action Plan, specifically to Activity MTA-2.3 Improve existing pre-access information for inclusion on the Monument website and in permit application material. As noted above, we suggest that emergency response information be included on list of information provided to all permit applicants. Such information might include materials outlining what to do in the event of an emergency as well emergency response training for permittees and what information on what kinds of supplies or materials permittees should have on board to respond to an emergency situation.</p>
7-02. Response	<p>The MMB does not lead responses to emergencies, such as groundings and oil spills, though many MMB agencies do participate in responses as resource trustees. Emergency response in the NWHI will be coordinated under a series of existing plans and systems, including the National Response Plan and the National Incident Management System. Also, because of the infrastructure found at Midway Atoll, several Midway-specific contingency plans have been developed, including an emergency spill response plan, spill prevention control and countermeasure plan, and an airport emergency action plan. There are federal regulations governing how the Coast Guard, Environmental Protection Agency, the affected state, and the resource trustees respond to oil pollution. Standard emergency response to such events as vessel groundings, oil, fuel, or chemical spills, or releases of hazardous substances throughout Hawai‘i, including the NWHI, is addressed through the Hawai‘i Area Contingency Plan. This is a local plan under the larger structure of the National Response Plan. As suggested, we have added a Web site for the most recent Hawai‘i Area Contingency Plan to the Monument Management Plan, along with further information regarding its relevance to the Monument (see <a href="http://homeport.uscg.mil/mycg/portal/ep/portDirectory.do?tabId=1&amp;cotpId=27">http://homeport.uscg.mil/mycg/portal/ep/portDirectory.do?tabId=1&amp;cotpId=27</a>).</p> <p>The Area Committee, under the direction of the federal on-scene coordinator, is responsible for developing the Area Contingency Plan. When implemented in conjunction with the National Contingency Plan, these plans will be adequate to remove a worst-case discharge of oil or a hazardous substance, and to mitigate or prevent a substantial threat of such a discharge, from a vessel, offshore facility, or onshore facility operating in or near the geographic area. The Area Committee is responsible for planning for joint response efforts, including establishing appropriate procedures for mechanical recovery, dispersal, shoreline cleanup, protection of sensitive environmental areas, and protection, rescue, and rehabilitation of fisheries and wildlife.</p> <p>Through the Emergency Response and Natural Resource Damage Assessment Action Plan (see Section 3.3.4), the MMB seeks to integrate its resources in a way that benefits both the Monument resources and regional emergency response and assessment efforts. The MMB can contribute primarily through building an internal and interagency capacity to contribute to existing emergency response efforts. Another way is by providing relevant and current</p>



**Comment Category 7 - Emergency Response**

information about NWHI resources so that current data is readily available and accessible to the Regional Response Team and any Unified Command that may be established to address an incident. The Monument Co-Trustees and Interagency Coordinating Committee will seek to more fully address NWHI responses as part of the Hawai'i Area Contingency Plan. In order to determine and develop appropriate response strategies to emergencies in the NWHI, a workshop will be held for all the partner agencies, parties that are typically involved in responses, and individuals, organizations, and researchers who are active in the region or who have a particular specialty area that relates to the NWHI (Activity ERDA-3.1). This will also address emergency response equipment needs in the Monument.

Through the creation of a Monument Emergency Response and Assessment Team (Activity ERDA-1.1) the MMB will meet with the local area response team within the Incident Command, Regional Response Team and the Scientific Support Team. By acquiring and maintaining appropriate training and certification, the Monument Emergency Response and Assessment team will complement and support the Regional Response Team (Activity ERDA-1.2). This will minimize the impact on Monument resources by a given event or response. The Co-Trustees have several active members in the Hawai'i Area Committee and who are part of a subcommittee that will assist the Coast Guard Captain of the Port/Federal On-Scene Coordinator in examining alternative planning criteria in remote locations, such as Midway Atoll and the NWHI, while referencing the Response Resource Inventory, Basic Ordering Agreements, and subject matter expert input.

In addition, we have modified Activity MTA-2.3 to include relevant information about emergency response and contacts to potential permit applicants. Also, we will forward the comment to the Permit Team to consider, as it regularly updates the content of information given to permit applicants.

**Comment Category 8 - Endangered Species****Summarized Comments**8-01.  
Comment

The comments below suggest recovery activities be included and prioritized in the Monument Management Plan, as well as summaries of activities that relate to all listed species in the Monument, including migratory species.

Comments:

- 1) Green Sea Turtles – Strategy TES-3 -- The activities identified for green sea turtles, particularly TES-3.3, seem sound and beneficial for this one species. Although other sea turtles are rare in the Monument, it is unclear why no other sea turtle species are included. Additionally, the Monument provides the opportunity to attempt to further understand the high incidence of fibropapillomas in some Hawaiian sea turtle populations, and ways to counteract expected rise in this deadly disease as climate change accelerates. The Monument, as a place of less human interaction than the Main Hawaiian Islands, provides a wonderful opportunity for research and action, yet the Draft Plan does not even mention the topic. Some analysis of the threat of sea level rise should be part of the research plan, given that most (90%) of Hawai‘i’s sea turtles nest in the NWHI, and many of these beaches will be threatened by higher sea levels. There is also no mention of how the Draft Plan’s strategies and activities relate to the recommendations of sea turtle Recovery Plans. Recovery Plans are also absent from discussions of other threatened and endangered species. In order to ensure that activities prioritized by the Management Plan are the most relevant to conservation of threatened and endangered species, inter-agency cooperation and coordination with Recovery Plans must be assured.
- 2) 3.2.1 Threatened and Endangered Species Action Plan - Defenders again endorses the Ocean Conservancy’s comments with regard to the DDMP’s treatment of management for Hawaiian monk seal habitat, cetacean populations, and nesting sea turtles. Defenders reiterates the importance of monitoring the impacts that climate change will have on threatened and endangered species, most importantly, loss of habitat to sea level rise and beach erosion, changes in location and range of species, increased frequency and strength of storms, and changes in water and air temperatures.
- 3) In terms of sea-turtle conservation, Defenders urges the DMMP to address the potentially devastating impacts increased temperatures will pose to nesting sea turtles, whose sex is determined by the ambient temperature during incubation. Ambient air temperatures as well as the temperature of the sand will directly affect the sex of sea turtle hatchlings, potentially eliminating male sea turtles from clutches, and therefore putting the already endangered species in even greater danger of extinction.
- 4) The king pin of the Monument ecosystem is in many ways the Hawaiian monk seal. The science plan will hopefully elevate the needs of this critically endangered species. But the existing Management Plan does an

**Comment Category 8 - Endangered Species**

insufficient job of prioritizing monk seal needs funding and research. Six. Agency funding requests should be coordinated to ensure that agencies request funding in accordance with agreed upon priorities. Coordination will also help ensure that secondary agencies such as the Coast Guard are fully funded for Monument priorities.

- 5) Section 3.2 Conserving Wildlife and Habitats - Protections must be in place before Conservation measures can be implemented. Endangered Species Act requires that a Recovery Team be appointed to prepare a Recovery Plan for each species listed as endangered. These plans should be merged, and their conflicts resolved before incorporation into the Action Plans.
- 6) Strategies to support the recovery of the monk seal are vitally important. The strategies selected for the Draft Monument Management Plan are needed for the conservation of the Hawaiian monk seal. It is important that efforts focus on recovery of the monk seal, not merely research that may eventually document the extinction of this important marine mammal. Beyond research, it is essential that the Monument Management Plan take specific steps to conserve and recover the monk seal. Permitted research activities should be focused on efforts to promote the recovery of the species.

The Center strongly supports activities to conserve Hawaiian monk seal habitat. The Management Plan proposes to evaluate the feasibility of restoring habitat. Much more, however, is needed to ensure beach habitat for monk seal pupping, nursing, molting, and resting under the threat of sea level rise. The Monument should identify areas of the Northwest Hawaiian Islands that are at high enough elevation from foreseeable sea level rise and ensure that those areas remain suitable for monk seal uses. Please see the subsequent section on sea level rise for more information on the impacts of sea level rise in the Northwest Hawaiian Islands and take this into account in the Management Plan. Moreover, recent science shows that monk seals forage at greater depths than previously believed. Hawaiian monk seals use areas between nearshore shallows to 500 meters deep for foraging (NMFS 2007c). The Management Plan should evaluate mechanisms to protect monk seal foraging grounds for successful feeding. Additionally, efforts to ensure that coral reefs remain intact and healthy to protect the islands from erosion and storms will help protect monk seal habitat.

While the primary threat to the Hawaiian monk seal is starvation, this problem of food limitation is not addressed in the Management Plan. The limited food availability may be the cumulative result of various factors. First, former overfishing may have stressed prey sources but now the moratorium on fishing in the Papahānaumokuākea Marine National Monument will help. Additionally, competition for prey with other apex predators such as sharks and jacks may affect foraging success of the monk seals (NMFS 2007c). One of the leading theories for the lack of available prey for the monk seals is that the carrying capacity of the habitat has been decreased due to changes in oceanographic conditions (NMFS 2007b). Climate change and oceanographic

**Comment Category 8 - Endangered Species**

conditions may be limiting food for the monk seals (NMFS 2007c). Changes in climate, currents, and upwelling commonly alter productivity and prey availability in the ocean (NMFS 2007c). The Management Plan should consider efforts for better management of the aquatic habitat of the Hawaiian monk seal and efforts to address climate change impacts.

- 7) Strategy TES-1: Support Activities that advance recovery of the Hawaiian monk seal for the life of the plan - Ocean Conservancy has a long history of concern and engagement regarding the conservation, viability and recovery of the Hawaiian monk seal. Hawaiian monk seal numbers have been declining and continue to decline. Actions to address major threats identified in the Hawaiian Monk Seal Recovery Plan that are applicable to the monk seal population in the Monument include:

- investigate food limitations and take actions to increase female juvenile survival,
- prevent entanglements of seals in marine debris,
- reduce shark predation on seals,
- reduce exposure to and spread of infectious disease,
- continue population monitoring and research,
- reduce impacts from grounded vessels,
- reduce the impact of human interactions, and
- conserve monk seal habitat.

However, only three of the eight are included as key action items for advancement by the MMB (entanglement in marine debris, conserve monk seal habitat, and reduce the likelihood and impact of human interactions). Two other distinct but separate actions are also identified: support and facilitate emergency response, and support education and outreach on monk seals. While the DMMP has identified only these five specific actions the MMB will pursue in support of monk seal recovery efforts, it should be clear that the MMB will facilitate and support the continuation of all actions identified in the Hawaiian Monk Seal Recovery Plan as necessary for monk seal survival and recovery.

One of the key indicators of success of the Monument in enhancing recovery activities for Hawaiian monk seals would be an increase in pupping and juvenile survival rates. Monk seal pupping beach counts have been conducted, with varying frequency, since the late 1950s and constitute one of the longest known pinniped data sets. In 2008 not all of these beach count sites were surveyed by NMFS Protected Species Division because of budget constraints (NMFS, pers. comm.). If these beach counts are not completed in 2009 and in the very worst

<b>Comment Category 8 - Endangered Species</b>	
	<p>case, 2010, we will lose valuable information – as the population is projected to dip below 1,000 seals in the next five years. We urge the Co-Trustees to include these beach counts as one of the indices they plan to monitor within the Monument management plan. Starvation is the most critical threat to the survival of juvenile monk seals. The starvation of pups and the low survival rates in juveniles in the Northwestern Hawaiian Islands point to the possibility that food resources may be inadequate. Ongoing fatty acid and critter-cam research has verified that bottomfish are important components of Hawaiian monk seal diets, and lobsters may also be important prey in the diets of Hawaiian monk seals. Open assessment of the factors affecting the decline in monk seals has not been possible because of NOAA’s refusal to publish the results of the fatty-acid diet study. We strongly urge in the DMMP of a commitment by the management agencies to make all research fully and openly available to outside researchers and the public. The lobster fishery was closed in 2000 because it was judged by the court to be a threat to Hawaiian monk seals. The President’s wish that there be a phase out of all commercial fishing in the Monument by 2011 should ease overfishing of primary prey sources of monk seals. We urge the Co-Trustees along with NMFS to continue research and monitoring of: • the links between Hawaiian monk seals and their potential prey in the Hawaiian Islands, • the potential relationships between the status and health of those prey populations and population trends in the Hawaiian monk seals, and • the effect of the phase-out of both the bottomfish fishery and the lobster fishery on that relationship.</p> <p>8) I don't believe in no catch zones. Too much monk seals in one area is not good. They coming down here now. We see 'em on our beaches. And for some of us, you know, it's nice to see, but sometimes it's a nuisance, yeah? I believe that we need to allow for -- not for them to get caught, but maybe for better practices so that maybe we can restore more food up there, yeah? Maybe less sharks, more food for the monk seas, whatever. But we need to be allowed to practice.</p>
8-01. Response	<p>Although a few activities are described in the Management plan, in general, the plan does not republish the priorities for recovery activities for listed species. Rather, recovery activities are treated comprehensively in the recovery plans for each listed species. These recovery plans are available on the Web sites of the agencies responsible for recovery activities and may be accessed at <a href="http://www.nmfs.noaa.gov/pr/recovery/plans.htm">www.nmfs.noaa.gov/pr/recovery/plans.htm</a> and at <a href="http://www.fws.gov/endangered/recovery/index.html#plans">www.fws.gov/endangered/recovery/index.html#plans</a>. Each recovery activity is considered for its effects on other listed species and is designated critical habitat to ensure compatible implementation. Although climate change and its effects on listed species have been added to the management plan, the main source for these activities is the species recovery plans.</p>
8-02. Comment	<p>The comments below concern the impacts light and noise may have on Laysan ducks. Comments:</p>

<b>Comment Category 8 - Endangered Species</b>	
	<ol style="list-style-type: none"> <li>1) Page 72 Line 8 Light and Noise Impacts – What about human disturbance to wildlife? Anthropogenic noise is a well documented disturbance to breeding water birds. The endangered Laysan ducks and ducklings are very susceptible to brood fragmentation and abandonment during their breeding season. Disturbances can be visual or auditory or due to vegetation management or weed control activities during the sensitive periods (breeding and flightless molt).</li> <li>2) Page 72 - No mention of Laysan Duck being impacted by lights and noise. Waterfowl are very sensitive to these disturbances.</li> </ol>
8-02. Response	<p>Strategy TES-5, Activity TES-5.1, reflects the need for monitoring the effects of human disturbance on Laysan ducks at Midway. Activity TES-5.1 now says, “Monitoring Laysan duck populations for potential human disturbance, especially during molt, when the birds are flightless, and during the nesting season, when disturbance may result in nest abandonment and brood fragmentation.”</p> <p>Furthermore, we have no specific data, anecdotal observations, or other information that Laysan ducks are affected by lights and noise at Midway, nor that waterfowl as a taxonomic group are especially sensitive to light and noise relative to other birds. TES-5.2 includes identification of conditions that disrupt translocations.</p>
8-03. Comment	<p>The comments below were editorial suggestions for the Monument Management Plan.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) Page 13 - Misspelled the scientific name of the Miller Bird.</li> <li>2) Page 19 Pearl and Hermes: Laysan finch is described as “endangered” at Pearl and Hermes, but not at Laysan. The species is endangered, as are both populations.</li> <li>3) Page 143 Change to “90% of Hawaiian Green Turtles....”</li> <li>4) Page145 ln 22-29 change to read “The Endangered Species Act of 1973 provides for the conservation of species at risk of extinction throughout all or a significant portion of their range, and the protection of critical habitats on which they depend. The Act also gives states the option to assist in managing endangered species recovery programs. The MMPA provides for the protection and conservation of all marine mammals and their ecosystems, whether or not they are listed under the ESA.”</li> <li>5) Page 145 ln 30-31 reword to say “The State of Hawai‘i has additional protections for endangered species in its wildlife laws, codified chapter 195D,...”</li> <li>6) Page145 ln 42-45 reword to say “The Recovery Plan for the Hawaiian monk seal (NOAA Fisheries 2007) provides a detailed description of actions that should be taken by NOAA Fisheries and its collaborators to</li> </ol>

<b>Comment Category 8 - Endangered Species</b>	
	<p>recovery the species. This action plan details the ways in which the MMB can facilitate and support those efforts”</p> <p>7) Page 145 ln 56 change to read “and a final recovery plan is available for the blue whale”</p> <p>8) Page 147 ln 5 add “It is especially important that all MMB agencies actively support needed recovery actions because the entire world population of many of these species occurs only, or almost entirely, within the Monument.”</p> <p>9) Page 147 ln 14 change to read “the high cost of failure to act.”</p> <p>10) Page 147 ln 34 “Maintain stable or increasing populations of...”</p> <p>11) Page 148 ln 4 “For nearly 3 decades.....”</p> <p>12) Page. 149 ln 32 “...on species distribution and abundance estimates.”</p> <p>13) Page 149 ln 38 add “Spinner dolphin surveys should also be conducted at French Frigate Shoals to develop baseline information for assessing the status of the population at that location.”</p> <p>14) Page 149 ln 27-28 change to read “Management actions and efforts to reduce the impacts to cetaceans in the NWHI have been limited, largely because of a lack of understanding of the distribution, abundance and ecology of species using the Monument. Initial efforts should address this lack of information which should then lead to the identification and management of threats.”</p> <p>15) Page 153 ln 29 “...capture, translocation, release, and monitoring.”</p> <p>16) Page 156 ln 30 Change from: “and streamline consultations.” To: “and facilitate timely and effective consultations.”</p>
8-03. Response	We have made changes to the Monument Management Plan in response to these suggestions.
<b>Unique Comments</b>	
8-04. Comment	<p>First and foremost the purpose of the creation of the Monument was for saving the Monk seals and other species from extinction. To be clear, the original intent and purpose of the Monument was to protect critically endangered Hawaiian Monk seals, its habitat and provide protection for the other 7,000 rare or endangered species. Therefore, any activities in the Monument that do not directly support recovery efforts of these species will violate the original intent and purpose of the Monument.</p> <p>We, along with -- and I got different numbers than you guys. I have a hundred thousand comments. But I combine with</p>



<b>Comment Category 8 - Endangered Species</b>	
	<p>KAHEA’s action alerts. But we, along with a hundred thousand, submitted testimony calling for the creation of the marine sanctuary and later a marine Monument in order to protect the Monk seals and species, to provide space for their recovery. Thousands also testified in support of a five-year Monk seal recovery plan. And the Hawaiian Monk seal recovery team has submitted extensive comments to that plan which we support as well. There’s no question that the threats that many of the species of the Northwestern Hawaiian Islands face are a function of adverse human impact. The Monk seals whose numbers were currently standing at about 1200 -- and I could be wrong. Maybe it’s plus or minus -- were first hunted near extinction, now suffer from, among other things, starvation due to overfishing of their prime food source, lobster. The threats to the Monk seal’s survival have been recorded for decades, including the starvation problems. We all thought the Monument designation would help eliminate such threats and give the seal a chance for survival. There are also invasive species threatening native plants and the land and sea birds in their nests. All these threats must be addressed before considering any more human activity that does not directly relate to recovery efforts of these rare, threatened, endangered species. NOAA just issued this month, officially declared, I guess is the word, the Caribbean Monk seal extinct, gone forever and also called for its delisting, evidence demonstrating that simply listing a species is not enough to ensure its recovery. Of late, conservation groups navigating the Bush gauntlet could not get the polar bear listed as endangered either. The Hawaiian and Mediterranean Monk seals now represent the most endangered pene-ped [pinniped] species in the world.</p>
8-04. Response	<p>The purpose of the Monument is described in Proclamation 8031 and includes a variety of environmental goals, including the protection and recovery of the Hawaiian monk seal. All activities in the Monument must be considered for their potential to affect the Hawaiian monk seal, as well as other listed species and designated critical habitat. Many activities undergo a separate consultation under the Endangered Species Act with the National Marine Fisheries Service so that any potential adverse effects can be addressed before allowing the activity.</p>
8-05. Comment	<p>In order to protect and recover threatened and endangered species, important habitat variables should be monitored in conjunction with the monitoring of population parameters in order to permit an assessment of the habitat factors influencing population processes. Particularly because climate change will have population-level effects and impact the recovery of threatened and endangered species, climatic variables including surface temperature, surface ocean productivity, sea level, storm surge levels, and precipitation should be monitored. Data for many climatic variables can be obtained from satellite sources.</p>
8-05. Response	<p>The management agencies are working to monitor populations of listed species, as well as oceanographic and climate parameters. This information will inform management options for listed species and habitats and ultimately will be incorporated into specific management programs.</p>

<b>Comment Category 8 - Endangered Species</b>	
8-06. Comment	THIN THE SHARK POPULATION! ESPECIALLY TIGERS!!!! Then we would not have endangered turtles and monk seals, and it would make our waters alot friendlier and more fun to look at for snorkelers and divers. The sharks have been protected too much - the ancient Hawaiians used to hunt them.
8-06. Response	Food limitation and shark predation affects the survival rate of Hawaiian monk seal pups and, therefore, affects the recovery of the Hawaiian monk seal. Research scientists are studying the role of shark predation in Hawaiian monk seal pup mortality so that appropriate deterrent and other measures may be implemented to alleviate these pressures on Hawaiian monk seal pups and assist in the recovery of the Hawaiian monk seal. A new activity has been added to the final management plan (TES 1.6) that describes the actions to be taken to respond to shark predation on Hawaiian monk seals. As appropriate, NOAA will separately apply the NEPA process to monk seal recovery activities related to shark predation (NOAA 2008).
8-07. Comment	We urge you to include in the plan specific discussion of threats to endangered and threatened species from human disturbance, including historical information as information on specific monitoring measures (including observers) planned by your agencies for all activities. The following is an example of historical information and species-specific information appropriate for inclusion in the Plan.
8-07. Response	The Monument Management Plan does not republish the recovery plans for listed species; these plans may be accessed via the Web sites for the agencies with recovery responsibilities. In a few instances, key activities have been included because they highlight the value added function of the Monument management on the recovery projects of the agencies. The draft has been amended to include examples of addressing how climate change is affecting Monument resources, including listed species and their habitats. A description of stressors and threats to species and the Monument can be found in Section 1.4, Environmental and Anthropogenic Stressors.
8-08. Comment	Page 147 Line 27: The Laysan ducks “desired outcome” is highly oversimplified. It is possible to “increase populations” as a short term goal without adequately advancing recovery, maintaining their genetic biodiversity, protecting existing populations, or creating stable or self sustaining populations. Including the scientists that study the species ecology in planning for their management is useful.
8-08. Response	We will address this comment when developing the conservation science step-down plan and in the final revised recovery plan for the Laysan duck.
8-09. Comment	Page 147 Line 27: The Laysan ducks “desired outcome” is highly oversimplified. It is possible to “increase populations” as a short term goal without adequately advancing recovery, maintaining their genetic biodiversity, protecting existing populations, or creating stable or self sustaining populations. Including the scientists that study the species ecology in

<b>Comment Category 8 - Endangered Species</b>	
	planning for their management is useful.
8-09. Response	We will address this comment when developing the conservation science step-down plan and in the final revised recovery plan for the Laysan duck.
8-10. Comment	Page 156 ln 9 Change from: “Also, ESA and other consultation procedures will be reviewed and streamlined” To: Also, ESA and other consultation procedures will be reviewed and updated to improve their effectiveness”
8-10. Response	The proposed modification changes the intent of the activity. Consultation procedures under other laws and regulations cannot be modified by this management plan.
8-11. Comment	We’re very concerned about inadequate funding for threatened and endangered species both in the Monument and throughout the state. Everyone knows Hawai‘i is the endangered species capital of the nation. Monk seals’ critically underfunded, to use an example. We need 7 million a year to try to keep this seal from going extinct in the next 10 years or so. And the seal is not getting that kind of funding. So we echo concerns of Keiko Bonk and Marine Conservation Biology Institute that that funding is going to be short. You’re not going to be able to do everything you want to do. You’ve got to prioritize.
8-11. Response	Prioritization of activities in the management plan is not a linear process, nor is it necessarily measured by the amount of funds allocated. Several factors apply when setting the implementation schedule and allocating funds; these include available natural, cultural, and historic resource needs, funding, agency capacity, completion of necessary planning and environmental review, and community input and support. Each MMB and partner ICC agency develops annual budget projections and priorities and allocates funds based on its own programmatic, legal, and policy requirements. The cycle and timelines for funding and planning vary.
8-12. Comment	Page 153 Add common and Hawaiian names of birds where only genus/sp appear
8-12. Response	We used scientific names for plant species when common names do not exist or cover more than one species (e.g., loulou can be any of the native Hawaiian palm species). The Laysan finch, Nihoa finch, and Nihoa millerbird are all referenced by their common English names; we have not documented Hawaiian names for those species.
8-13. Comment	On page 153 Section 3.2.1 Activity TES-6.2 proposes translocations for Nihoa Finch, Nihoa Millerbird, and Laysan Finch. This work is very important to fund and begin now, urgently moving birds to all appropriate Monument islands, and even Main Hawaiian Island sites, due to the expected changes in sea level in the near future. Morin and Conant (1998 and 2007) reported on translocation strategy, biosecurity, and restoration needs, for Laysan and all Islands

<b>Comment Category 8 - Endangered Species</b>	
	respectively, to the USFWS – these reports need to be incorporated fully into the PMMP, and be adequately funded and executed.
8-13. Response	We agree. Both of the documents you cite also are cited in the Monument Management Plan.
8-14. Comment	Page 98 Line 39: Why are only the marine endangered species mentioned? There are four very unique endangered land birds completely restricted to one or two islands. Their existence is entirely dependent on the management of the NWHI and luck (or the frequency of stochastic events).
8-14. Response	You refer to a direct quote from the Presidential Proclamation establishing the Monument. We have no editorial authority this proclamation.
8-15. Comment	Please address the horrific problems concerning the extinction of our state mammal, the monk seal. We need protected areas for the seal, so it can breed have their pups and raise their young. These areas need to be relatively safe and protected from predators such as sharks and dogs.
8-15. Response	Strategy TES 1 in the management plan includes a description of how the Monument management will complement the activities that advance the recovery of the Hawaiian monk seal. In addition to the list of activities included in the draft management plan, we have added a new activity to the final management plan (TES 1.6) that describes the actions to be taken to respond to shark predation on Hawaiian monk seals.
8-16. Comment	Page 9 - Laysan Finch and Laysan Ducks are endemic to the archipelago, not just the monument.
8-16. Response	We have edited the document to clarify the difference between endemic species and restricted ranges and to indicate that the Laysan duck and finch formerly were found elsewhere in the Hawaiian archipelago.
8-17. Comment	Page 155, lns 16-21 Recommend rewriting this paragraph to reflect that the Endangered Species Act requires that federal agencies consult with NOAA for marine species and FWS for terrestrial species on actions that the federal agencies conclude may affect listed or endangered species. This more accurately describes the ESA requirements. As currently drafted, the management plan does not clearly establish the consultation requirements federal agencies taking the action must follow.
8-17.	We have edited the paragraph and added the following information: Section 7(a)(2) of the Endangered Species Act

<b>Comment Category 8 - Endangered Species</b>	
Response	(ESA) requires that federal agencies consult with NOAA Fisheries for listed species under its jurisdiction and with the FWS for listed species under its jurisdiction (jurisdiction for sea turtles is shared by the two agencies) on actions that the federal agencies conclude may affect listed species or designated critical habitat.
8-18. Comment	Page 17 - Description of Laysan Island is inaccurate. Says 100 acre lake, Environmental Assessment says 70 acres, which is correct? Where did you find your information? Document says that Laysan Teal and Laysan Finch were “previously harbored”. These species still occur there. Time of eradication project of <i>Cenchrus</i> is different in the Environmental Assessment, which is correct?
8-18. Response	(1) The size of the lake on Laysan is variable through time, and the reported lake size varies somewhat among sources based on the timing methods used to measure it. To reconcile the discrepancy between the Management Plan and the EA, we have made edits to best reflect the most recent source of information. While the Monument Management Plan describes the Laysan Lake area in general terms, the EA description focuses on the saline lake itself. (2) This comment is erroneous; the text on page 17 says that ducks and finches are still there.
8-19. Comment	Page 20 - How do know that the ducks are thriving? Maybe change language to “appear to be thriving”. Eastern Island still has Ironwoods that sprout, so continued management is required.
8-19. Response	(1) The Laysan duck population at Midway has grown from 42 founders in 2005 to an estimated (preliminary) 192 ducks in 2007 (Reynolds et al. 2007), a 357 percent increase in a little more than two years. We have revised the text to describe more objectively the status of the Laysan ducks at Midway. (2) We have revised the text to reflect the fact that <i>Casuarina</i> control on Eastern Island is ongoing.
8-20. Comment	Page 67 - How did removing <i>Cenchrus</i> restore Laysans veg. community? There is still a lot to be done. <i>Cenchrus</i> time of eradication not consistent with rest of document.
8-20. Response	The <i>Cenchrus echinatus</i> eradication project has contributed significantly to restoring seabird nesting habitat and native vegetation on Laysan Island.
8-21. Comment	Finally, the Management Plan includes plans to develop Midway Atoll that should carefully consider the present and future needs of the Hawaiian monk seal. It is vital that the conservation of the Hawaiian monk seal not be disturbed by any activities that will increase human presence and development on Midway Atoll. In the past, monk seals in the Northwest Hawaiian Islands have avoided areas with human presence. The site plan includes the development of infrastructure such as utilities, housing, and boating and airport facilities. It also promotes increased visitors to the Atoll. In light of these proposed developments, the Center urges the Monument to avoid and mitigate the direct and climate

<b>Comment Category 8 - Endangered Species</b>	
	change impacts of such projects expanding the facilities and visitation of Midway Atoll.
8-21. Response	The Midway Atoll Conceptual Site Plan (Vol. IV) puts forth a vision of how the infrastructure needs to be modified or developed to meet the MMB's needs to protect and monitor the Monument resources. As individual components of the plan move from a conceptual stage to implementation, an additional environmental assessment will be conducted to ensure that disturbance of and impacts on monk seals or other willdlife are minimized. Likewise, the Midway Visitor Services Plan caps overnight and large group visitation and requires that agency staff be present to minimize impacts on sensitive wildlife.
8-22. Comment	<p>Page 98 - You mention endangered species like the monk seal, but there is no mention of critically endangered species like the land birds.</p> <p>Page 99 - No mention of critically endangered species, lines 14-20.</p> <p>Page 145 "Protect marine mammals and aid in the recovery of threatened and endangered plants and animals within Papahānaumokuākea Marine National Monument." Wouldn't you want to also want to protect threatened and endangered plants and animals, as well as aid in the recovery of marine mammals?</p> <p>Page 146 - What source did you use to call the Laysan Finch Critically endangered, keep consistent in document? Your #'s for Laysan Duck are inaccurate, you should contact experts. Only 42 were translocated, 26 of which passed their genes into the gene pool. You should verify these #'s with the people that work with Laysan Teal.</p> <p>Page 152 - Laysan Duck: Should use correct number of birds translocated. Get information that is available to the public.</p> <p>Page 153 - Laysan Finch bones are found on some of the main Islands, they are not only endemic to the NWHI's. Where did you get your information from?</p>
8-22. Response	<p>Comment on p. 98—You refer to a direct quote from the Presidential Proclamation establishing the Monument; we have no editorial authority over this proclamation.</p> <p>Comment on p. 99—On line 15, the first example given of endangered species is land birds.</p> <p>Comment on p. 145—You did not consider the paragraphs headed "Birds" and "Plants" on page 146.</p> <p>Comment on p. 146(a)—We have deleted the word "critically"; species designations under the ESA do not include "critically endangered."</p> <p>Comment on p. 146—We have revised the text to reflect more accurate information about the Laysan duck translocation on Midway.</p>

<b>Comment Category 8 - Endangered Species</b>	
	<p>Comment on p. 152—In 2004 and 2005, a total of 42 Laysan ducks were removed from Laysan Island to Midway Atoll. For more information, please see the Internet Web page <a href="http://www.fws.gov/pacific">www.fws.gov/pacific</a>.</p> <p>Comment on p. 153—The island-by-island descriptions were intended to be brief introductions rather than definitive descriptions of all species present. We have modified some of the text to clarify that some of the species are endemic to the Hawaiian Islands, not just Laysan Island, and that some of the species are land birds to differentiate them from seabirds.</p>
8-23. Comment	<p>Page 17 Line 32: The “endemic” birds of Laysan should be referred to as “land birds”. The remaining “land birds” are endangered species and should be described as “endangered land birds”. The endangered land birds are endemic to the Hawaiian Islands, but their current range restriction (endemism) on Laysan may be anthropomorphic. The endangered Laysan duck was not naturally endemic to Laysan. It is a relictual population that was extirpated (went extinct) on the other Hawaiian Islands. The Laysan finch was also endemic to the Hawaiian Islands, not Laysan. Laysan Island supports the last individuals of a largely extirpated Hawaiian Island endemic fauna. The largest population of Tristram’s Storm-Petrel, a species of conservation concern breeds on Laysan, but is not mentioned specifically. Laysan’s is the only natural hypersaline ecosystem in the Hawaiian Islands. The highly adapted and unique invertebrate fauna of Laysan’s dominant hypersaline ecosystem is also omitted any mention in the Monument’s Management Plan. The fresh water wetlands of the NWHI are very important historically and biologically. These are not mentioned. The endangered species of Laysan should be listed here in the introductory information to be consistent with other sections.</p>
8-23. Response	<p>We intended the island-by-island descriptions to be brief introductions rather than definitive descriptions of all species present. We have modified some of the text to clarify that the species are endemic to the Hawaiian Islands, not just Laysan Island, and that some of the species are land birds to differentiate them from seabirds.</p>
8-24. Comment	<p>Page 145, Threatened and Endangered Species Action Plan: The Monument Management Plan recognizes that the Hawaiian monk seal is one of the world’s most endangered marine mammals and its population is in crisis.</p> <p>Comment: Studies cited in the plan have found that standing stock of fish in the NWHI are 260 times greater than in the MHI and that 54 percent of the total fish biomass in the NWHI consists of apex predators compared to just 3 percent in the MHI.</p> <p>Yet, despite the apparent wealth of fish biomass in the NWHI, monk seals continue to decline there but, continue to increase in the MHI. This suggests apex predators may be having a negative impact on the survival of the Hawaiian monk seal as they may be outcompeting seals for food. However this is not even recognized in the Monument Management Plan and there are no strategies to address this situation. Additionally it is thoroughly documented that Hawaiian monk seals are sensitive to human interactions and have been known to abandon areas which are visited by</p>



<b>Comment Category 8 - Endangered Species</b>	
	<p>humans. However, the Monument Management Plan proposes to allow an ever increasing number of humans to access the NWHI which may further displace monk seals and discourage feeding, breeding and growth.</p> <p>We recommend that the draft Management Plan include strategies to address apex predator competition with the Hawaiian monk seals and include measures to limit and established hard caps on the number of individuals that are allowed to access the emergent lands of the NWHI annually.</p>
8-24. Response	<p>Strategy TES-1 in the management plan describes how the MMB will complement and build on existing efforts to protect and recover the Hawaiian Monk Seal. In addition to the list of activities included in the draft management plan, a new activity has been added to the final management plan (TES 1.6) that describes actions to be taken to respond to shark predation on Hawaiian monk seals.</p> <p>As it relates to human impacts, protecting the health, diversity, and resources of the NWHI ecosystems is our constant and highest concern. Although we have not included specific annual limits on the number of people accessing the area in the Monument Management Plan, all activities are closely managed and monitored through the interagency permitting process and all federal actions are subject to Section 7 consultation under the Endangered Species Act. In addition, the number of tourists visiting the Monument at any one time is limited through the Midway Atoll Visitor Services Plan (Appendix B), which has already gone through an Endangered Species Act Section 7 consultation. The Papahānaumokuākea Information Management System (IM-1.3) and the Monument Evaluation Action Plan (3.6.4) will be used to track and evaluate human impacts.</p>
8-25. Comment	<p>Page 20 Midway Atoll Line 6: Midway Atoll also supports the first successful reintroduced population of critically endangered (IUCN 2007) Laysan ducks translocated from Laysan Island in 2004-2005. Laysan ducks utilize both the largely introduced vegetation of Midway Atoll and restored patches of native vegetation. This reintroduction is significant because Island ducks are globally threatened taxa, and because the Laysan ducks are the most endangered waterfowl in the Northern Hemisphere and the U.S. Their listed status is omitted throughout most of this document. Successful removal of rats from Midway Atoll and Kure is not mentioned. This action was beneficial to plants and birds, and future accidental introduction of rats would have negative impacts to all islands of the National Monument. Emergency action plans are needed for each island in the event of an accidental introduction of terrestrial predators or competitors. Rattus should be the first priority for emergency action plans.</p>
8-25. Response	<p>We have replaced “A translocated population of Laysan ducks . . .” with “Midway Atoll also supports the first successful reintroduced population of endangered Laysan ducks translocated from Laysan Island in 2004-2005. Laysan ducks utilize both the largely introduced vegetation of Midway Atoll and restored patches of native vegetation. This reintroduction is significant because Island ducks are globally threatened taxa, and because the Laysan ducks are the</p>

<b>Comment Category 8 - Endangered Species</b>	
	most endangered waterfowl in the Northern Hemisphere and the US.”
8-26. Comment	Page 34 line 6: What happened to the endangered endemic land birds here? Island endemic species do not migrate and are the most vulnerable vertebrate fauna of the National Monument. Their ecology is very unique because of their extremely limited ranges and limited mobility.
8-26. Response	We have corrected our omission by adding a section regarding land birds.
8-27. Comment	Page 112 Line 6: Only marine mammals are protected? What about protection for migratory birds, endangered species and other resources? The bias throughout the document is concerning.
8-27. Response	We were unable to locate any reference to marine mammals in that location. Perhaps you were referring to the desired outcome statement for the Threatened and Endangered Species Action Plan, now rewritten to better reflect our intentions. “Safeguard and recover threatened and endangered plants and animals and other protected species within Papahānaumokuākea Marine National Monument” includes “Conserve migratory bird populations and habitats....”
8-28. Comment	Page 146 Line 14: only three of the four endangered land birds are considered “critically endangered” by the IUCN. Laysan finches are endangered, but are not designated critical.
8-28. Response	We have deleted the word “critically“; species designations under the ESA do not include “critically endangered.” This is an IUCN designation, which we are not using in this document.
8-29. Comment	There are many additional actions underway or planned to protect NWHI monk seals, presumably these would continue and thus should be described in the No Action alternative. This is a three agency plan and should reference all the activities by those agencies, not just efforts by monument staff.
8-29. Response	We have added the following text to Vol. II, Section 1.5.5.1, “. . . endangered species and continued implementation of appropriate species recovery plans, such as that for the Hawaiian monk seal.”  In addition, Strategy TES 1 in the management plan describes how the Monument management will complement the activities that advance the recovery of the Hawaiian monk seal. The key actions in the Monk Seal Recovery Plan can be found in the description in TES-1. In addition, Activity TES 1.3 already states that the “feasibility of restoration will be evaluated to consider rebuilding habitat essential for the reproduction of monk seals and other protected species . . . ,” so no change is needed.  Although a few activities are described in the Management plan, in general, the plan does not republish all the monk seal recovery plan priorities or activities. This information can be accessed at the Web site

<b>Comment Category 8 - Endangered Species</b>	
	<a href="http://www.nmfs.noaa.gov/pr/recovery/plans.htm">www.nmfs.noaa.gov/pr/recovery/plans.htm</a> . Each recovery activity is considered for its effects on other listed species and designated critical habitat to ensure compatible implementation.
8-30. Comment	Page 145 ln 52 change to read “in the Monument (Barlow 2003).”
8-30. Response	We have revised the sentence to read as follows: “It has now been documented that groups of humpback whales are overwintering in the waters of the Monument (Barlow 2007), including those with small calves and some exhibiting breeding behavior (Johnston et al. 2007).”
8-31. Comment	Migratory Birds Action Plan – Section 3.2.2 Activity MB-3.1 is the type of research we have recommended in several places – research that uses key locations and species as indicators of greater ecosystem health and needs. The inter-agency cooperation on identifying these indicator species, and the use of the Regional Seabird Conservation Plan, an already completed assessment of needed actions, are exemplar and should be used in other sections of the Management Plan.
8-31. Response	Agency cooperation through the ICC and review of plans and literature will be important parts of implementing the vast majority of our action plans.
8-32. Comment	Activity TES-2.5: Prevent human interactions with cetaceans We recommend that the DMMP, in consultation with NMFS Protected Species Division, include best practices to be included with permit information for all vessel traffic travel within the NWHI, including military activities.
8-32. Response	Best practices for vessels and other best management practices for any work in the Monument (such as, preventing introduced species and disease and moving between islands) are shared with permittees before their activity begins. Best management practices can be found in Volume III, Appendix G.
8-33. Comment	We also strongly recommend that the DMMP incorporate measures to protect monk seals that haul out on Midway and to enact measures that minimize disturbance when seals haul out, such as closing and limiting access to public beaches (i.e., north beach). Furthermore we strongly recommend that public access to the walking trail adjacent to west beach require monument staff accompaniment. Lastly, we recommend that any restoration or construction that involves major disruptive noise or activity be conducted outside the important pupping period. While FWS may have had the capacity of having 100 island residents and 100 transient visitors, this goal was never reached, so traffic and human visitation has been relatively low since the 90s. Because of this low level of activity, it is imperative that the species most affected by increased human activity (e.g., monk seals and sea turtles) are monitored for changes in behavior, movement, and

<b>Comment Category 8 - Endangered Species</b>	
	population status. If populations respond negatively, there should be protocol for identifying and limiting the most disturbing activities.
8-33. Response	<p>Development of our Interim Visitor Services Plan included consulting with NOAA Fisheries under Section 7 of the Endangered Species Act. As part of that consultation, the FWS developed a Natural Resources Monitoring Plan for Midway Atoll. That document is being implemented under our visitor program. During the mandatory visitor orientation, all visitors are fully informed about required monk seal viewing distances.</p> <p>According to the Hawaiian Monk Seal Recovery Plan, “[m]onk seal births have been documented in all months of the year (NMFS, unpubl. data), but are most common between February and August, peaking in March and April (Johnson and Johnson, 1980; Johanos et al., 1994).” The construction season at Midway is during nonalbatross season, from August through October, thus it appears to be a favorable time for both species. Monk seal pups are monitored on Midway, and if a mother/pup pair is located near a construction site, the project is delayed until the pup is weaned. Major construction and other activities that may adversely affect any listed species would be undertaken after any necessary consultation under the ESA and any other applicable requirement.</p>
8-34. Comment	<p>Activity TES-1.4: Reduce the likelihood and impact of human interactions on monk seals</p> <p>We recommend that you publish, in cooperation with NMFS, best practices for viewing and coexisting with monk seals and to make these available and required reading for both transient and resident visitors to the NWHI. These guidelines should be included with permits and be included within Appendix I (Operational Protocols and Best Management Practices). In addition to the guidelines, the consequences of disturbing these endangered species should also be outlined, and the visitors and residents informed of potential action they may face if any of these guidelines are not adhered to.</p>
8-34. Response	Volume III, Appendix G already includes the National Marine Fisheries Service best management practices (page G-29). Briefings and orientations for permittees (including visitors) and residents include information about wildlife viewing requirements and the importance of not disturbing threatened and endangered or other protected species.
8-35. Comment	We strongly support the inclusion of Activity TES-1.2 (Support and facilitate emergency response for monk seals) within the action plan, as this activity will help accelerate the coordination and effectiveness of emergency response activities among the Co-Trustees thereby supplementing current protocols and efforts.
8-35. Response	We note your comment.
8-36.	Ocean Conservancy strongly recommends the Monument to work towards coordinated field efforts for research on or

<b>Comment Category 8 - Endangered Species</b>	
Comment	pertaining to monk seals. This organized effort will ensure that research, restoration, and monitoring activities will keep disturbances to monk seals to a minimum.
8-36. Response	Such coordination will occur under Strategy TES-1: Support activities that advance recovery of the Hawaiian monk seal for the life of the plan. Much of this work is led by NOAA Fisheries through implementation of the Hawaiian Monk Seal Recovery Plan.
8-37. Comment	Activity TES-2.1: Census cetacean populations Ocean Conservancy also encourages the Monument to specifically include within this activity a process to identify and document humpback whale calving areas in the NWHI. Humpback whales ( <i>Megaptera novaeangliae</i> ) have been recently observed calving and engaging in breeding activities. Johnston et al. (2007) predicted humpback whale wintering habitat based on previous published characterizations using bathymetry and SST, shallower than 200m and warmer than 21.1 degrees Celsius. They determined that of the approximately 21,900 km <sup>2</sup> area of potential wintering habitat in the Hawaiian Archipelago, two thirds of this area fell within the NWHI. These predictions were verified during a field survey, where over the course of 15 days, they observed 3 groups with small calves and animals exhibiting breeding behaviors. Regular surveys for humpback whales in the NWHI have not been conducted, and should be included in future studies. In addition to determining the population status of humpback whale populations, another important reason for documenting these breeding areas is because one of the predictions of global climate change is species ranges and activities moving poleward.
8-37. Response	We have modified the text under Strategy TES-2 to read, “Management actions and efforts to reduce the impacts to cetaceans in the NWHI have been limited, largely because of a lack of understanding of the distribution, abundance, and ecology of species using the Monument. Initial efforts should address this lack of information, which should then lead to the identification and management of threats.” Under Activity TES-2.1, we have added the following sentence at the end of the paragraph: “This information will allow us to better define humpback whale breeding and calving areas in the NWHI.”
8-38. Comment	Page 148-149 supporting text needs to be developed for each activity.
8-38. Response	As each activity is implemented, additional detailed plans will be developed. Supporting text is also found in the Monk Seal Recovery Plan.
8-39. Comment	Page 149 “Conserve and restore monk seal habitat, including prey resources”

<b>Comment Category 8 - Endangered Species</b>	
8-39. Response	<p>Strategy TES 1 in the management plan describes how the Monument management will complement the activities that advance the recovery of the Hawaiian monk seal. The key actions in the Monk Seal Recovery Plan are found in the description in TES-1. In addition, Activity TES 1.3 already states that the “feasibility of restoration will be evaluated to consider rebuilding habitat essential for the reproduction of monk seals and other protected species . . . ,” so no change is needed.</p> <p>Although a few activities are described in the Management plan, in general, the plan does not republish all the monk seal recovery plan priorities or activities. These can be accessed at the Web site <a href="http://www.nmfs.noaa.gov/pr/recovery/plans.htm">www.nmfs.noaa.gov/pr/recovery/plans.htm</a>. Each recovery activity is considered for its effects on other listed species and designated critical habitat to ensure computable implementation.</p>
8-40. Comment	<p>The monk Seal has never been known to live on Necker or Nihoa Islands they love to live in their own Habitat unless someone moves them to another island without a Shoal to live unhappy</p> <p>The Monachus Seal known as the Monk Seal, by change of name through the U.S. Fish and Game Division is called the Hawaiian Seal a Seal that has never lived in the Archipelago of MokuPuni alias Polynesian Triangle of the Pacific Ocean.</p> <p>The U.S. Division of fish and Game, should be keeping Hunters and fisherman away from this marked area the Natural Habitat of the Monk Seal, the Turtles and the Birds that live there</p>
8-40. Response	<p>The earliest written records of Hawaiian monk seals at Nihoa are from a visit in 1857 (<i>Kamehameha IV</i> expedition). Visitors observed approximately a dozen monk seals there. FWS staff have observed as many as 41 seals at one time resting on the sandy beach on the southwest side of the island, and all of these seals came to Nihoa on their own. At Mokumanamana and Nihoa, the monk seals of all ages sleep on the lava bench that surrounds the island. One of the important reasons for the great restrictions on all human activity in most of the Monument is the need to minimize disturbance to Hawaiian monk seals.</p> <p>Access to areas in the NWHI where monk seals, turtles, and birds are found is strictly regulated.</p>
8-41 Comment	<p>Page 149, lns 10-16</p> <p>This discussion of human interactions fails to define and describe nearshore ship traffic and how it actually affects monk seals based on peer reviewed science. Any restrictions imposed in the National Monument for Monk Seals would likely be carried over to the main Hawaiian Islands where ship traffic is much greater in frequency and intensity. Accordingly, restrictions based on geography, intensity and frequency would have a severe impact. This section also fails to define and describe “unnecessary research” and criteria intended for use to define and regulate beach use, noise and the</p>

<b>Comment Category 8 - Endangered Species</b>	
	thresholds that will be used to create any regulations
8-41. Response	<p>Interactions with marine mammals, including Hawaiian monk seals are prohibited anywhere in US jurisdiction, including the Monument, unless it is allowed under permit or authorization (for species protected under the Marine Mammal Protection Act but not the Endangered Species Act). Best practices for vessels as well as other best practices for any work in the Monument are required with permittees. Best management practices can be found in Appendix G.</p> <p>Activity TES-1.4 calls for “Reducing the likelihood and impact of human interactions on monk seals.” The text description provides examples of some of the activities that could negatively impact monk seals, such as research so that they could be given more careful scrutiny during the permit review process to avoid harming them or their habitat. More specific details about efforts to reduce human impacts on monk seals can be found in the NOAA Monk Seal Recovery Plan.</p> <p>There are no additional restrictions or regulatory measures being proposed to protect monk seals from nearshore ship traffic in the Monument or the main Hawaiian Islands.</p> <p>We have deleted the term “unnecessary” because the intent was aimed at all research activities that could impact monk seals.</p>
8-42. Comment	<p>Page 146 Line 26. Only 42 Laysan ducks were translocated from Laysan Island to Midway Atoll. Approximately 65% of these became breeders. Reporting “about 50” birds translocated is inaccurate and sloppy for an official document under public review. The number of translocated birds is published information and readily available. Reporting “50” glosses over the genetic consequences of few founders (i.e. risk of creating new translocation bottle necks, loss of genetic biodiversity for the species) at the translocation site, risk of close inbreeding, and risk of loss of disease resistance in isolated and closed populations). The language “Laysan ducks are flourishing” appears lifted from an early press release. The species on Midway is not currently being monitored (although plans are in place to initiate a long term monitoring effort). At Midway, there are numerous habitat management conflicts, limited brood rearing habitat, new diseases (avian botulism), and risks to ducklings and breeding ducks that are not adequately addressed for the long term. This type of document should move towards addressing the long term persistence of species (as missing components of Hawaiian ecosystems) - instead of repeating reports of the initial success as if species recovery has been secured.</p>
8-42. Response	<p>We will consider these comments in the Conservation Science Plan for Natural Resources, and we will address them in the final revised recovery plan for the Laysan duck.</p>



<b>Comment Category 9 – Enforcement</b>	
<b>Summarized Comments</b>	
<p>9-01. Comment</p>	<p>The comments below urge looking into the U.S. Navy enforcing the regulations of the Monument. This could help supplement state and federal agency limited resources and assets.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) I would urge looking into use of the US Navy to enforce control of ships, fishing, etc. in Papahānaumokuākea waters. This might supplement Coast Guard and state enforcement ships and or personnel without need for heavy funding.</li> <li>2) The enforcement of keeping people from doing improper things in the Northwest Hawaiian Islands -- And we recognize that the Coast Guard is limited with their funding and with their vessels and the State of Hawaii is limited insofar as enforcement personnel. So that perhaps we could bring in another governmental agency called the United States Navy, who has ships out in the open ocean all the time, who can access satellite imaging of vessels that aren't supposed to be out there doing things like fishing, and perhaps can utilize this for training of their personnel and of their ships and at the same time protect this invaluable resource.</li> </ol>
<p>9-01. Response</p>	<p>The state and federal law enforcement agencies and the Coast Guard, charged with enforcing the laws and regulations within the Papahānaumokuākea Marine National Monument, have been soliciting and will continue to solicit ideas and assistance from a broad spectrum of entities throughout the world in order to develop, refine, and execute the best operational plans for protecting this most valuable resource.</p> <p>As the Monument continues to gain public awareness, partnerships continue to develop by means of memorandums of understanding and memorandums of agreement with outside agencies. Continued support increases the relationship and effectiveness of law enforcement activities.</p>
<p>9-02. Comment</p>	<p>The comments below suggest that various aircraft and satellites be used to help in surveillance and enforcing the regulations and identifying marine debris.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) I propose aerial surveillance from the air for floating marine debris - poaching fishermen from an ultralight aircraft equipped with floats drawing less than 4 inches of water, operating cost of \$10 to \$15 per hour.</li> <li>2) “If you don’t get rid of that and as was suggested a couple of years ago, start using satellite management, see exactly who’s in the territorial waters, and who’s there with permits doing what they’re allowed to do and those there that are poaching.</li> </ol> <p>As soon as someone knows that people who are poaching, that they’re gonna be observed. They’re gonna be</p>

<b>Comment Category 9 – Enforcement</b>	
	<p>warned. At least be prosecuted for entering territorial waters.”</p> <ol style="list-style-type: none"> <li>3) There should be established a satellite to protect and monitor the area. That way those poachers can be taken to court. And also we can know what the military is doing. However, I also propose cultural monitors to accompany military expeditions to negate their harm. Hopefully.</li> <li>4) Stop the poaching that’s going on out there. And you’ve heard before when you have a surveillance system in place to be monitored by satellite exactly who’s out there. You should know. You can interdict. Enforcement is no longer a problem with modern technologies.</li> </ol>
9-02. Response	<p>The state and federal law enforcement agencies and the Coast Guard, charged with enforcing the laws and regulations within the Papahānaumokuākea Marine National Monument, examine an array of technologies from around the world and will deploy the most effective technologies for protection and for detecting anyone intent on harming the Monument. One of the goals of the enforcement team is to ensure that violations are prosecuted pursuant to the laws and regulations governing the Monument. Enforcement will remain a priority of effective Monument management.</p> <p>Under Activity EN-2.1, a comprehensive threat assessment and enforcement plan is being developed to analyze the levels and types of activities occurring throughout the Monument and to assess the potential for violations and threats to resources. This assessment will include cost-benefit analyses of applicable technologies and solutions. Under Activity EN-2.4, the Monument law enforcement working group will identify platforms that could be used to increase enforcement, surveillance, and response and will develop proposals to acquire new assets. Remote sensing systems being researched for Monument enforcement may also prove useful for detecting large conglomerations of marine debris.</p>
9-03. Comment	<p>The comments below suggest that sufficient resources be devoted to enforcing regulations in order to dissuade potential violations.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) I am deeply concerned that sufficient resources be devoted to enforcement of regulations, especially fishing violations and waste discharge by cruise vessels and others transiting the refuge.</li> <li>2) There’s a concern about enforcement, that it be timely, and that it be sufficient enough to dissuade people from doing things they shouldn’t be doing.</li> <li>3) Enforcement is nonexistent despite availability of effective measures such as satellite surveillance, relying by default on self reporting and whistle blowing by research colleagues. Permitted programs to kill predators rather than protect (monk seal) pups evidence a policy driven by pragmatism and politics rather than “full protection of</li> </ol>

<b>Comment Category 9 – Enforcement</b>	
	<p>all marine life.” A fragmented process opaque to public view and participation can only lead to further deterioration of a faulty process. A full moratorium is necessary to regain control and implement No Take Policy.</p> <p>The Monument is CLOSED to all but Monument staff until a Compatibility Determination has been made finding consistency with an Adapted Plan. Draft doesn’t count (8). The best prevention of ship groundings is the enforcement of the ban on all ships without a Permit or without an acknowledged Mayday distress call for assistance. Satellite surveillance can disclose unauthorized entry and should initiate immediate Coast Guard response, expulsion, and prosecution. A call for the preparation of an oil spill contingency Plan is not the equivalent of having the resources in place for the execution of an emergency clean up. Permission to enter Monument waters must not issue until a Plan is both prepared and implemented.</p>
9-03. Response	<p>The state and federal law enforcement agencies and the Coast Guard, charged with enforcing the laws and regulations within the Papahānaumokuākea Marine National Monument, have been soliciting and will continue to solicit ideas and assistance from a broad spectrum of entities throughout the world to develop, refine, and execute the best operational plans for protecting this most valuable resource.</p> <p>One of the goals of the enforcement team is to ensure that violations are prosecuted pursuant to the laws and regulations governing the Monument. Enforcement will remain a priority of effective Monument management.</p>
9-04. Comment	<p>The comments below express concern about illegal fishing in the Monument and the need to enforce laws against illegal fishing.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) We’re concerned --this is a little tangent from that -- we’re concerned about the illegal fishing that has already occurred in the Monument since it was declared a Monument two years ago. We hope that the Monument managers will advocate to NIMS in favor of the strictest and the highest penalties for the illegal actions that have occurred by the bottom fish boat and the two long-liners, I believe, who have broken the law. And we would encourage even the possibility of taking away the permits if they continue these kinds of action. There’s a basic inconsistency in the Monument. Commercial fishing has been declared incompatible with Monument objectives. Yet, sustenance fishing is allowed even as the number of people entering the Monument will increase. We agree with the finding that fishing is incompatible in the Monument, with the Monument objectives and expect that sustenance fishing will be discouraged. And that sustenance fishing that does occur, if it does occur, will be strictly limited to consumption within the Monument and will be subject to all the reporting and observer requirements that commercial fishing is subject to. Detailed reports on time, location and species caught is</li> </ol>

<b>Comment Category 9 – Enforcement</b>	
	<p>essential to understanding the impact of different user groups and of sustenance fishing as an activity.</p> <p>2) Police the Japanese vessels from catching the fish that Hawaii residents are then not allowed to catch.</p>
9-04. Response	<p>The state and federal law enforcement agencies and the Coast Guard, charged with enforcing the laws and regulations within the Papahānaumokuākea Marine National Monument, have been soliciting and will continue to solicit ideas and help from a broad spectrum of entities throughout the world to develop, refine, and execute the best plans to protect this most valuable resource. One of the goals of the enforcement team is to continue prosecuting violators to the full extent of the laws and regulations governing the Monument.</p>
9-05. Comment	<p>The comments below recommend the establishment of a penalty schedule for violations that occur in the Monument.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) A penalty schedule that covers all violations in state and federal waters must be severe enough to deter violators and must be broadly disseminated to ensure that compliance.</li> <li>2) Page 232, Activity EN-4: Increase costs of non-compliance with Monument rules (increase incentives for compliance).</li> <li>3) Page 235, add a new “Activity EN-4.1: Specify clear monetary and non-monetary penalties for non-compliance with Monument rules.”</li> </ol>
9-05. Response	<p>Each of the Co-Trustees has independent authority to establish penalty schedules, within existing law, that cover violations of statutes they administer. The Monument Law Enforcement Working Group confers on issues such as the handling of violations to ensure compatibility between enforcement agencies. NOAA Office of General Counsel has published a penalty schedule for violations in the Monument under statutes it administers and it can be found at <a href="http://www.gc.noaa.gov/enforce-office3.html">http://www.gc.noaa.gov/enforce-office3.html</a>.</p>
<b>Unique Comments</b>	
9-06. Comment	<p>Therefore, OHA inquires as to whether or not the managers know which ““compliance actions”” they will trigger by which actions, and if not, when will the plans be completed and in what form (a supplemental environmental assessment, for example) they will be provided. We also ask if any state water quality standards assessments have been made for proposed construction activities that may impact upon state waters, and if an Army Corps of Engineers jurisdictional determination or consultation has been made. Page 56 of the draft management plan, for example, mentions coastal construction which would normally trigger a host of state and federal requirements.</p>
9-06.	<p>The Monument Management Plan describes several strategies and associated activities that the agencies will implement</p>

<b>Comment Category 9 – Enforcement</b>	
Response	<p>in the Monument over the next 15 years. Volume 2 of the environmental assessment provides a discussion about the potential environmental effects of the Monument Management Plan strategies and activities. Although the Monument Management Plan and the associated environmental assessment describe these activities and their impacts in general terms, they cannot for the most part fully analyze the impacts of every action that the agencies will take or authorize over the next 15 years. As such, each agency action taken in the Monument will be subject to future NEPA analysis on a case-by-case basis. Some of these activities will be eligible for a categorical exclusion, while others will require the preparation of an environmental assessment or environmental impact statement, depending on the significance of the impacts. Volume 2, Section 1.8, includes a description of the categorical exclusions for each of the agencies.</p> <p>Although the Monument Management Plan describes some general planning documents or conceptual site plans for Midway and other infrastructure projects that may include construction, the EA does not fully assess their environmental impacts. Such projects would require separate NEPA and HRS Chapter 343 analyses, including an assessment of compliance with state water quality standards and consultation with the US Army Corps of Engineers.</p>
9-07. Comment	<p>In 2007, the grounded vessel <i>Grendel</i> was found loose inside Kure Atoll after it had ground a 500' path through the reef. This serves as just one example of the isolation of Papahānaumokuākea and the need for enforcement in the area. OHA realizes that the best made action plans are of little use without a way to apply them or make their true force realized. Page 73 of the draft monument management plan states that, “The Coast Guard sends a buoy tender to the NWHI once a year. This mission also serves as a law enforcement patrol. In addition, the Coast Guard may occasionally send other ships to the area as needed.” OHA inquires as to the level of enforcement patrols currently underway in Papahānaumokuākea other than this annual visit.</p>
9-07. Response	<p>In addition to the annual buoy tender patrol, the Coast Guard conducts monthly overflights of the Papahānaumokuākea Marine National Monument, and NOAA OLE monitors VMS daily. Other Coast Guard patrols may be active in the NWHI in conjunction with other missions as opportunities arise or threats dictate. In addition, Co-Trustee chartered flights, vessel traffic, and island-based personnel provide a level of oversight for the Monument through their presence. A new law enforcement officer will also be stationed at Midway.</p>
9-08. Comment	<p>Section 3.4.2 has a desired outcome to “Achieve compliance with all regulations within Papahānaumokuākea Marine National Monument.” However, on the same page a contradiction is presented: “Managers and law enforcement personnel must work together to prioritize and initiate appropriate activities that will have the greatest impact.” OHA asks if all the regulations will be complied with or just some, and if not all, which ones or when will they be complied with.</p> <p>OHA suggests the use of penalties for those violating regulations in the area and vessel monitoring systems that cannot</p>

<b>Comment Category 9 – Enforcement</b>	
	be turned off by the applicant. Page 17 of appendix C mentions that Lands within the National Wildlife Refuge System are generally considered strict liability lands and OHA feels that appropriate use of this regime should be applied. We also support the creation of a monument law enforcement working group as noted on page 52 of the environmental assessment.
9-08. Response	<p>The state and federal law enforcement agencies and the Coast Guard, charged with enforcing the laws and regulations within the Papahānaumokuākea Marine National Monument, examine an array of technologies from around the world and will deploy the most effective technologies for protection and for detecting anyone intent on harming the Monument.</p> <p>All permitted vessels entering the monument are required by law to have onboard functioning vessel monitoring systems that are functioning and transmit data to NOAA’s Office of Law Enforcement. Those not in compliance are subject to fines. The Monument Management Plan, Activity EN-1.1, calls for establishing an enforcement working group.</p>
9-09. Comment	<p>Enforcement Action Plan—Section 3.4.2. The Enforcement Action Plan appropriately emphasizes that inter-agency cooperation is necessary. We also applaud mention of “the potential use of other technological capabilities.” We note two activities that should be tightened up in this Plan:</p> <ul style="list-style-type: none"> <li>• Activity EN-1.2—There is mention of discussions to formalize Coast Guard Support, but no mention of a timetable or the urgency of the creation of this support, as opposed to the mere discussion. The Plan should state when adequate enforcement will be in place and what it will look like.</li> <li>• Activity EN-1.5—Specific goals for the amount of increased enforcement capacity required at Midway should be set. Additionally, visitor activities at Midway should be delayed until sufficient enforcement capacity is available. As a “major access point into the Monument,”<sup>12</sup> it would be irresponsible to allow interactions to increase without simultaneously increasing enforcement capacity.</li> <li>• As discussed in the Permitting Action Plan, clear and consistent penalties for permit violations must be enacted into regulation with approval of appropriate Offices of General Counsel and the Coast Guard. There could be significant impacts to the Monument’s resources if permits are issued without an effective means of assessing penalties, including the immediate and permanent revocation of the permit.</li> </ul>
9-09. Response	Response time for law enforcement to potential violations in this vast area of the Pacific has always been a concern but can be overcome when coordination and communication goals are achieved. The Coast Guard is an invaluable resource in these areas, and they, along with our Department of Defense partners, via memorandums of understanding and memorandums of agreement, are making a positive impact on response time and overall awareness of law enforcement

<b>Comment Category 9 – Enforcement</b>	
	<p>activities inside the Monument.</p> <p>The Midway visitor services program has already begun, and initial steps have been taken to install a full-time, uniformed law enforcement officer from the USFWS there in 2009. This officer’s involvement begins with enforcement and continues to expand, as additional resources are dedicated to the Monument.</p> <p>Each of the Co-Trustees has independent authority to establish penalty schedules, within existing law, that cover violations of statutes they administer. The Monument Law Enforcement Working Group confers on issues such as the handling of violations to ensure compatibility between enforcement agencies. NOAA Office of General Counsel has published a penalty schedule for violations in the Monument and it can be found at <a href="http://www.gc.noaa.gov/enforce-office3.html">http://www.gc.noaa.gov/enforce-office3.html</a>.</p>
9-10. Comment	<p>Strategy EN-1: Increase law enforcement . . . Plan (p. 233)</p> <p>How many enforcement officers will be necessary to police the entire area?</p> <p>Activity EN-2.4: Increase available platforms to support law enforcement (p.235)</p> <p>Will the rising price of oil make it more difficult to put additional ships and planes on patrol to prevent violations of the Monument rules? The rising cost of fuel is an issue that may have a detrimental impact on enforcement. Without enforcement however, violations are sure to happen.</p>
9-10. Response	<p>The state and federal law enforcement agencies and the Coast Guard, charged with enforcing the laws and regulations within the Papahānaumokuākea Marine National Monument, examine an array of technologies from around the world and will deploy the most effective technologies for protecting the Monument and for detecting anyone intent on harming the Monument. Budgeting for personnel and programs will always be an important consideration in protecting this vast area. However, with the proper planning and the execution of those plans, the enforcement team will achieve the maximum results.</p> <p>The enforcement team will continue to work together to resolve issues pertaining to the Papahānaumokuākea Marine National Monument. By using current resources, new technologies, new ideas, and support from outside entities and partners, the law enforcement team will provide the most productive means to enforce Monument regulations.</p>
9-11. Comment	<p>To aid in preventing permit violations and thereby preventing potential harms to the ecosystem, we suggest that every vessel carry an independent compliance officer onboard.</p>
9-11. Response	<p>Law enforcement partners continuously determine and reevaluate the appropriate makeup for the personnel needed to protect the Monument. However, limited resources likely prevent a mandate that all vessels have independent compliance officers onboard. The MMB is working with the maritime industry and the IMO to raise awareness about</p>



<b>Comment Category 9 – Enforcement</b>	
	regulations and specific requirements to operate in and to transit the Monument.
9-12. Comment	The pre-departure briefing for everyone on the vessel or mission should include a discussion of reporting procedures in the event a possible violation has been committed. This must include direction to contact state’s Division of Conservation and Resource Enforcement for activities in state waters.
9-12. Response	The law enforcement team for the Monument has reached a consensus on briefing vessel operators before they depart or when they request permission to transit the Monument. Protocols are in place to address this issue with each vessel operator requesting permission to enter the area. These protocols identify compliance and responses to questions about potential violations. Accompanied by a vessel monitoring system, vessel operators traveling through the Monument should understand the full impact and consequences of any violations and law enforcement efforts to protect our natural resources.
9-13. Comment	Regarding Activity EN-1.5: Increase law enforcement capacity on Midway Atoll within 2 years, we urge that appropriate enforcement staffing be seen not as a one time event but as a task requiring ongoing reassessment. For example, law enforcement presence on Midway should be scaled to the island’s level of use so that as visitor, researcher and staff numbers increase over time there is a commensurate increase in law enforcement capacity. Furthermore, when the daily limit of visitors is exceeded, it will be difficult for a single enforcement officer to ensure that passenger and crew of an 800-passenger vessel are all in compliance. We recommend that the Co-Trustees require cruise ship companies to cover the costs for an additional enforcement officer to accompany the vessel from the Main Hawaiian Islands when traveling to Midway.
9-13. Response	One law enforcement officer should be sufficient for the island population, as outlined in the Monument Management Plan. Although one person cannot be in all locations at all times, other Monument staff also monitor activities and can contact the law enforcement officer if needed. When large groups visit, additional law enforcement and interpretive staff are brought to the island.
9-14. Comment	Activity TES-2.5: Prevent Human Interactions with Cetaceans (p.150) In the discussion of human/cetacean interaction, the DMMP states “The controls will aim to prevent disturbance to cetaceans resting in Monument lagoons or nearshore areas and prevent geological research using sound levels known to be dangerous to marine mammals.” How will you prevent or discourage sonar use? How widely has it been used in the area in the past for geological or military purposes?
9-14. Response	The MMB will work with the National Maine Fisheries Services and other appropriate agencies to ensure that all human-made sound, including sonar, has been evaluated and authorized under the applicable processes of the MMPA

<b>Comment Category 9 – Enforcement</b>	
	and ESA. Investigating the effects of various sound energies on marine mammals is an active research topic. The MMB will continue to evaluate this research, as well as sources and levels of sounds in the Monument for its potential to impact natural resources.
9-15. Comment	Enforcement Action Plan: The RAC regards the implementation of a threat-based detection and monitoring program to be a high priority and recommends that it be implemented in one year instead of two years from the date the management plan is adopted by the CO-Trustees. The RAC considers it very important that the MMB conduct ongoing and comprehensive threat assessments and the MMB should be immediately informed of all alleged violations. Penalties for violations should be clear and set at meaningful levels so as to act as a real deterrent.
9-15. Response	As stated in Activity EN-2.1, NOAA initiated a threat assessment at the end of 2007. The MMB needs to complete this task as soon as possible so a Monument enforcement plan can be completed. Given existing resources, it is likely this task will take two years to complete.
9-16. Comment	Presumably already contaminated or/and controlled areas, even something like that doesn't guarantee that any toxin or other invading external object that goes into the water or by land/air will not get onto any other atoll or island. Or into the sea environment. And especially if it has anything to do with or near the sea, it's bound to affect everything, how would such as this be dealt with? Levels of safety, etc. will be monitored and developed, even with some clean up, that doesn't guarantee the safety of these recreative, per se, groups themselves either. Many details are offered, but little concrete details are. These are only implied in detail, law, policy and other as the details are supplied. Very little is stated in detail, which is where the biggest worry comes in. Mostly intention and theory as regards action are given. No one action only has just a single given result, even if it helps in any way.
9-16. Response	Law enforcement relies on biologists and experts from all over the world to address marine and natural resource questions about the environment so that violations and potential violations can be immediately identified. With the assistance of these experts, law enforcement can better understand the issues, can take quick actions, and can reach positive outcomes. More details will be developed as enforcement strategies are implemented and improved.
9-17. Comment	Page 233 Implement a communication system to ensure that all Monument co-trustee enforcement authorities are immediately informed of all alleged violations.
9-17. Response	A program is effective only when a strong foundation framed with proper communication is established. All the law enforcement partners involved—state and federal entities, the Coast Guard, and the US Military—allow this foundation to be built, resulting in a strong enforcement network that can respond in a timely matter to violations inside the Monument. Communication devices, such as VHF radios, cellular and satellite phones, and other electronic devices, can

<b>Comment Category 9 – Enforcement</b>	
	be some of the strongest tools for enforcement.
9-18. Comment	Page 233, line 32 insert at the end of the sentence, “including with DOD agencies.”
9-18. Response	Involving all supportive entities and gaining their full cooperation will enhance law enforcement’s coverage within the Papahānaumokuākea Marine National Monument. The Department of Defense does not fall within the jurisdiction of the MMB. The MMB cannot mandate the Department of Defense to help enforce Monument regulations, so the language you propose cannot be changed.
9-19. Comment	Page 233 line 44 change annual to regular
9-19. Response	Information and input about law enforcement issues surrounding the Monument are solicited continuously from law enforcement partners. The annual briefing is meant to provide a strategic outlook on annual priorities. The MMB will review other enforcement issues as needed.
9-20. Comment	Page 233 line 44 present formal briefing to the MMB, MAC, and public.
9-20. Response	Law enforcement partners continuously determine the appropriate sites to conduct briefings about the law enforcement issues in the Monument, and they consider all appropriate venues.
9-21. Comment	Page 234 line 10 change two years to one year.
9-21. Response	Law enforcement partners continuously determine and reevaluate the appropriate time to implement various procedures inside the Monument. Although the planning for a threat-based detection and monitoring system will begin in the first year, sufficient resources are not available to fully implement the system until the second year, given all the other activities in the Monument Management Plan.
9-22. Comment	Page 234 line 22, change a threat assessment to “conduct ongoing comprehensive threat assessments.”
9-22. Response	Activity EN-2.1 includes Monument law enforcement working group collaborating on a comprehensive threat assessment and producing an initial enforcement plan. Before it is finalized, this first assessment will be reassessed to determine how often it should be revised. Law enforcement partners continuously determine and reevaluate the

<b>Comment Category 9 – Enforcement</b>	
	appropriate responses to all assessments conducted regarding the Monument.
9-23. Comment	<p>We also urge addition of a new enforcement strategy directed at development of administrative penalties including penalty schedules and summary settlement tables. Based on our experience with the National Marine Sanctuary Program, simplified administrative penalties is a critical piece of an effective enforcement program. NOAA General Counsel for Enforcement and Litigation (GCEL) has authority to produce “penalty schedules” and “summary settlement tables” to aid them in prosecuting violations of statutes and regulations. Penalty schedules establish “suggested penalty ranges” for first, second, and third violations of specific regulations. Summary settlement tables establish “fixed fine amounts” for small misdemeanors and allow officers in the field to issue tickets on the spot, similar to a traffic ticket process. Respondents can either pay the ticket or request a hearing before a U.S. Coast Guard Administrative Law Judge. In the absence of a summary settlement, GCEL issues a Notice of Violation and Assessment (NOVA) which is a procedurally lengthy process designed for larger, more complex cases. GCEL attorneys can use the penalty schedules to determine penalty amounts for a NOVA. The majority of Sanctuary violations are not complex and do not require NOVAs, which respondents frequently do not receive for months or years after violations occur. This is wholly ineffective and inefficient for small violations. Summary settlements are likely to be appropriate to a majority of Monument infractions in order to:</p> <ul style="list-style-type: none"> <li>• achieve an immediate credible deterrent to future violations,</li> <li>• avoid a backlog of mounting NOVAs,</li> <li>• clear minor case action efficiently, and</li> <li>• address a variety of responsible parties from individuals to companies.</li> </ul> <p>For example, GCEL has completed a revised national penalty schedule for the National Marine Sanctuary Program (NMSP), but has not yet completed a national summary settlement table. The national penalty schedule provides suggested NOVA penalty ranges for prohibition categories that cross all sanctuaries and for site-specific prohibitions that pertain only to individual sanctuaries. Summary settlement tables are needed that provide a low-level immediate fine option for practically every prohibited activity in the Monument. The table must thus be comprehensive and carry fine amounts that have adequate deterrent effect. We also encourage the DMMP to include language noting that any permittee found to be in serious violation of permit conditions or to have violated Monument regulations will have their permit revoked and be ineligible for future permits.</p>
9-23. Response	NOAA GCEL completed and published a civil administrative penalty schedule for Monument violations under its Magnuson-Stevens Fishery Conservation and Management Act, Marine Mammal Protection Act, and Endangered Species Act authority. This penalty schedule is available on the Internet at <a href="http://www.gc.noaa.gov/gcelschedules/">www.gc.noaa.gov/gcelschedules/</a>

<b>Comment Category 9 – Enforcement</b>	
	NWHI%202-07.pdf. NOAA GCEL has issued several Notices of Violation and Assessments of Civil Penalty in cases involving Monument violations and continues an active enforcement strategy for addressing Monument violations to the greatest extent possible under existing legal authorities.
9-24. Comment	As noted above, we strongly support Activity EN-2.2: Operate a Vessel Monitoring System for all permitted vessels and Activity EN-2.3: Integrate additional automated monitoring systems and ship reporting systems for all vessels transiting the Monument. We agree that automated monitoring systems are critical to law enforcement in an area as large as NWHI. We urge that a fully functioning system covering all vessels that transit or visit the Monument be up and running as quickly as possible. Such a system would simultaneously serve multiple Monument needs: threat assessment, prevention of disasters, emergency response, and law enforcement. Since Monument management is based on the fundamental premise of prohibition of entry (other than for transit) without authorization, it is critical for managers to be able to tell who is in the Monument, where they are and what they are doing.
9-24. Response	<p>The law enforcement agencies and the Coast Guard, charged with enforcing the laws and regulations within the Papahānaumokuākea Marine National Monument, examine an array of technologies from around the world and will deploy the most effective technologies for protection and for detecting anyone intent on harming the Monument. We will continue to use existing technologies to the greatest extent possible, while identifying opportunities to use new technologies, to the extent allowable under domestic and international law. Vessel monitoring systems are required for all vessels permitted to enter the Monument.</p> <p>We considered the threats and relative risks to Monument resources from commercial shipping, including from hazardous cargo in developing the Monument Management Plan. We also considered the protective measures of designating the Monument as a Particularly Sensitive Sea Area by the International Maritime Organization , a specialized agency of the United Nations that addresses safety of navigation as well as protection of the environment from commercial shipping activities. Protective measures developed by the United States and adopted by the IMO in association with PSSA designation include Areas To Be Avoided and a ship reporting system. These measures appear on international nautical charts and direct ships away from coral reefs, shipwrecks, and other ecologically or culturally sensitive areas in the Monument. They also encourage ship operators to use three transit corridors between Areas To Be Avoided if they must transit the Monument and help to facilitate timely response to developing emergencies.</p>
9-25. Comment	<p>3.4.2 Enforcement Action Plan</p> <p>Adequate enforcement is a critical component of ongoing Monument management. The DMMP notes that the size and remoteness of the NWHI complicates effective enforcement. Given the inherent challenges to patrolling a large, remote and ecologically sensitive area, it is especially important that the Co-Trustees and partner enforcement agencies like the</p>

<b>Comment Category 9 – Enforcement</b>	
	Coast Guard coordinate activities and share resources and information. Therefore, Ocean Conservancy strongly supports development of interagency agreements as described in Activity EN-1.2.
9-25. Response	We have noted your comment.

**Comment Category 10 - Fishing****Summarized Comments**10-01.  
Comment

The comments below provided input and expressed concerns on some of the different management aspects of the bottomfishery of the Monument.

Comments:

- 1) I know I've seen pictures and videos, and I've read things about the big schools of ulua just circling around and they're real tame, and stuff like that, so maybe that's one of the reasons why there's not too many of the other fish that the seals eat, is because the ulua is eating 'em all, whatever, they're all hiding or whatever. So if we get more people up there -- I know it's really hard to get up there to go fishing nowadays. It's probably always difficult because it's so isolated and stuff, so it wasn't very common practice, but the people did go, and so maybe if we have more opportunities -- I was telling my students back there for come speak, 'cause they're good fishermen too. Not too long ago, I had an ulua tournament and they caught the big fish, and so they won the prize, so, I know they would really enjoy getting a chance to see what it's like up there and maybe catch some ulua or whatever. But just along those lines of more chances for the people to get the opportunity to go and practice their traditional gathering rights, 'cause the people are part of the ecosystem, too, yeah? And they're the main predator that keeps it in balance. Sometimes they go too far and they don't respect their kuleana to maintain the balance and they take too much, but sometimes if you don't have anybody there and it goes the opposite way, where there's no balance, that way, too.
- 2) But about the fishing management, we should just use some of our people to be on that management, instead of only from western or wherever they come from, Japan or China. You know, the fish belong to our people first. What we get out of that? I like know. Because we don't see any red cent. They said the Hawaiian people getting some. All my life, I think to today, I see nothing. So we like the management not go for only us, for all the people who live here, but goes for them too. Stuff what go on in this area up here or whatever go on in this, in all the nine island, is for the people here.
- 3) If you could start with that, you've got \$1.3 million that are earmarked to jump-start this, get this going. I would suggest the first thing you should do is buy out those fishing permits that are out there. Protect the resources you have left as the first measure.
- 4) I understand that there is \$1.3 billion earmarked for this Monument. And I think that the number one priority would be to buy out the six leasing or the fishing leases that are in practice today. I think there's three more years left of those fishing leases. I think that the harm that they're going to be doing the next three years is totally



<b>Comment Category 10 - Fishing</b>	
	<p>unacceptable if you really want.</p> <p>5) What you can do, though, immediately is use the first use of that \$1.3 billion you have to spend should be to buy out the leases on the fishermen that are out there that are continuing to overtake the area. You know from studies that have already been done, two studies in particular the top predators are all reduced to just a shadow of what they were. You know that already. If you look at the success of other people who have set up, say -- the one I'm most familiar is Santa Barbara Islands. That's not very old. They started out there with a plan for that sanctuary before you did. When I was out there there wasn't a black sea bass in the area. I had the privilege of having 13 of 'em all over 250 pounds inside at once. That's what happened in just five years. Around the world you've seen that when you actually put protection in place what you got is results. When you have a Management Plan like this is for the wise use and the exploitation you will see continued degradation. You can't help it.</p>
10-01. Response	<p>In accordance with Presidential Proclamation 8031, the federally managed bottomfishery will be closed in June 2011. Until then, a maximum of eight vessels are allowed into the Monument for fishing, with total annual landings not to exceed 350,000 pounds of bottomfish and 180,000 pounds of pelagic species. Under the proclamation, sustenance fishing is allowed outside any special preservation area, incidental to a Monument permit. Of the six permit types, only the Native Hawaiian practices permit specifically allows for but is not limited to harvesting and consumption of Monument resources while in the Monument, so long as it is “conducted in a manner compatible with the Proclamation, including considering the extent to which the conduct of the activity may diminish Monument resources, qualities, and ecological integrity, as well as any indirect, secondary, or cumulative effects of the activity and the duration of such effects.”</p>
10-02. Comment	<p>The comments below provided input and expressed concerns on some of the different management aspects of sustenance fishing within the Monument.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) Set up areas for specific fishing and rotate them to keep the populations intact.</li> <li>2) Bottomfishing must be immediately eliminated.</li> <li>3) Fully implement the purpose and spirit of the Proclamation designating the Monument and the regulations establishing the State Refuge by dissuading sustenance fishing by researchers and vessel crew. Sustenance fishing is not allowed in the state waters of the Northwestern Hawaiian Islands and should not be permitted in the federal waters. Yet, right now, federal Co-Trustees grant permission for vessel crew and researchers to fish for their own consumption while in federal waters. There are no apparent checks on this practice: no fishing reports or gear</li> </ol>

**Comment Category 10 - Fishing**

restrictions. In fact, we continue to get reports of “coolers upon coolers” of fish from Northwestern Hawaiian Islands being brought back to Honolulu. This practice is unacceptable and should be stopped.

- 4) No large commercial fishing enterprises for 5-10 years. Small commercial and sustenance fishermen should be able to continue provided they do not deplete the resources.
- 5) How do fishermen get there to help alleviate the concern of lots of high end predators (ulua)
- 6) Specifically, I disagree with the provisions... that would allow continuation of a fishing plan administered by a body whose record of stewardship is anything but commendable...
- 7) Section 3.1 (New) Remediation and Restoration Plan. Immediately stop existing ongoing exploitation of the marine fishery by buying out existing leases. The first priority for the \$1.3 Billion in Monument funds earmarked by Senator Inouye must be the buyout of commercial fishing leases currently legally exploiting the resource in violation of No Take Policy and the Proclamation 8031. A permanent moratorium on commercial and sport fishing is required by No Take Policy and consistency requirements of the groundfish moratorium, and is not inconsistent with Native Hawaiian rights and practices.
- 8) I think it's also a good idea with the fisheries now that we learned that much more about fragility of this place we can do that. We can say no, we don't want to fish on this level up there.
- 9) I think you should simply end all fishing and other extractive activities in the Marine Monument. Period. Use some of the money to buy back the licenses of anyone now fishing there
- 10) Any current commercial fishing permits should be revoked at the end of this year - not 2011
- 11) Terminate all commercial fishing now.
- 12) First, there must be an immediate halt to fishing and other authorized take of biota and resources within the Monument.
- 13) The second thing you should do besides stopping the fishing, the legal fishing that's going on out there now,
- 14) Commercial fishing has been declared incompatible with Monument objectives. Yet, sustenance fishing is allowed even as the number of people entering the Monument will increase. We agree with the finding that fishing is incompatible in the Monument, with the Monument objectives and expect that sustenance fishing will be discouraged. And that sustenance fishing that does occur, if it does occur, will be strictly limited to consumption within the Monument and will be subject to all the reporting and observer requirements that

**Comment Category 10 - Fishing**

commercial fishing is subject to. Detailed reports on time, location and species caught is essential to understanding the impact of different user groups and of sustenance fishing as an activity.

- 15) Sustenance fishing is not compatible with the purpose of the Monument. Allowing any extraction of resources for consumption is not consistent with preserving the monument in its pristine state, let alone allowing the removal of up to SEVEN TONS of magnificent large predatory fishes. You have not provided adequate scientific justification for your claim that removing seven tons of the Monument's resources will not harm Monument resources or alter its ecosystem. I do not believe that we should risk the Northwestern Hawaiian Islands ecosystem merely to save the government a few thousand dollars and to provide government employees and university researchers with a luxury fresh ahi.
- 16) All fish and wildlife should be protected and no collection of species for consumption no matter how small allowed. Taking of species for future personal consumption or sale should be prohibited and substantial penalties incurred.
- 17) We strongly urge the Co-Managers to support comprehensive protections for the entire NWHI ecosystem by upholding the ban on sustenance fishing throughout the Monument. Thus fishing should NOT be allowed for - or even requested by - any of the management agencies for staff or vessels operating within this fragile public trust resource. Sustenance fishing is prohibited in the state NWHI Refuge, and this prohibition should be upheld throughout the entirety of the co-managed Monument.
- 18) We urge the NOAA sanctuaries office and crew of NOAA vessels and contracted vessels including the HI'IALAKAI to similarly respect the "do no harm" and conservation goals of the Refuge and Monument and remove their request for permission to fish from their permit applications.
- 19) Sustenance Fishing Permits Pursuant to the Monument regulations, the Secretaries of Interior and Commerce should develop "systematic reporting requirements."<sup>10</sup> An accurate assessment of impacts of sustenance fishing cannot be conducted without inclusion of the location of catch in reporting requirements. Only with information on catch location can any impacts on localized populations, monk seals, etc. be assessed. Having said that, MCBI feels that no sustenance fishing should be allowed in the Monument. Bottomfishing was determined to be incompatible with protection of the NWHI ecosystem, and the Presidential Proclamation therefore phased out commercial catch. While US Fish and Wildlife recommends a seemingly tight limit on the numbers and types of fish allowed to be taken by sustenance fishing around Midway, there are no similar limits for the rest of the Monument. It is inconsistent to phase out commercial fishing and yet allow unrestrained numbers of fish be taken

**Comment Category 10 - Fishing**

for sustenance fishing from much of the Monument with fewer reporting restrictions than commercial fishing is subject to.

- 20) Sustenance Fishing. Ocean Conservancy believes that sustenance fishing should not be a permitted activity within the Monument. The activity is not consistent with the vision and goals for the Monument and the Nation's view of the NWHI as a unique and pristine environment that should be protected against human exploitation and impacts to every extent possible. All other forms of fishing, except subsistence fishing by Native Hawaiians, is or will be prohibited within the Monument. All fishing is prohibited within the Hawaiian Islands National Wildlife Refuge and the Northwestern Hawaiian Islands Marine Refuge and State Seabird Sanctuary at Kure Atoll. The ongoing permitting of sustenance fishing appears to raise what is essentially recreational fishing by researchers and other permittees to the same level of importance as that fishing of cultural and ceremonial importance to Native Hawaiians – subsistence fishing. Ocean Conservancy believes it is fundamentally inappropriate to allow fishing within the Monument whose purpose is solely to provide the luxury of fresh fish to Monument residents, researchers and visitors. Many Ocean Conservancy staff have spent months at sea or on remote islands conducting research, and we fully understand the high amenity value of being able to have fresh fish. However, that is simply not sufficient justification to allow what amounts to a sanctioned recreational fishery within the Monument. Even limited recreational fisheries have been demonstrated to have appreciably depleted fish stocks in MPAs elsewhere in the world.
- 21) We recognize that the Proclamation states: “The Secretaries of Commerce and Interior may permit sustenance fishing outside of any Special Preservation Area as a term of condition of any permit issued under this proclamation.” However, nothing in the Proclamation language requires the Secretaries of Commerce and Interior to allow such fishing. We urge the Co-Trustees to reject the permitting of sustenance fishing for all permits types. In the Proclamation sustenance fishing is defined as fishing for bottomfish or pelagic fish. Recent research has shown that Endangered Hawaiian monk seals consume bottomfish, which means that humans would potentially be removing fish from the ecosystem that monk seals rely on. This potential conflict is recognized in the draft FWS Appropriateness Finding and Compatibility Determination for Midway Island Appendix D of the DMMP, however it does not appear to be applied to the Monument as a whole. Aside from a very brief mention in the Permitting Action Plan, the DMMP only provides detailed guidance and proposed regulations on sustenance fishing within Appendix D with respect to the Midway Atoll Special Management Area (SMA) (Compatibility Determinations). However, all of these regulations appear to be limited to the Midway Atoll SMA since they come under Appendix D and address FWS compatibility criteria. Given the lack of discussion of sustenance fishing in Ecological Reserve areas (outside of Midway Atoll SMA) we assume sustenance fishing would not be

<b>Comment Category 10 - Fishing</b>	
	<p>allowed under the DMMP since the Proclamation requires consideration of impacts of sustenance fishing and reporting (see above) and no such discussion is included in the DMMP for any area except for Midway Atoll SMA. The DMMP must be specific about exactly where any fishing would be allowed if its potential impact is to be accurately assessed.</p> <p>22) Furthermore, we also wish to see that no more fishing is done in the area by scientific expeditions, military incursions or even cultural visitations. We must preserve the fish stock there so we can restock our depleted species.</p>
10-02. Response	<p>Sustenance fishing is only allowed as a term or condition of a permitted activity within the Monument; as such, it is subject to reporting requirements. In accordance with Presidential Proclamation 8031, the federally managed bottomfishery will be closed in June 2011. Until then, a maximum of eight vessels are allowed into the Monument for fishing, with total annual landings not to exceed 350,000 pounds of bottomfish and 180,000 pounds of pelagic species. Additionally, sustenance fishing is allowed under Presidential Proclamation 8031 and “must be conducted in a manner compatible with the Proclamation, including considering the extent to which the conduct of the activity may diminish monument resources, qualities, and ecological integrity, as well as any indirect, secondary, or cumulative effects of the activity and the duration of such effects.” The Secretaries of Commerce and Interior have worked on procedures for systematically reporting any sustenance fishing that is allowed to ensure that the effects are within the prescribed parameters of the proclamation. In addition, the proclamation allows the limited collection of resources for scientific purposes.</p>
10-03. Comment	<p>The comments below provided suggestions regarding minor changes and edits for the document.</p> <p>Comments:</p> <p>1) Page 68, line 27states: The crustacean (lobster-trap) fishery has not had a harvest guideline set for the NWHI since that time; no crustacean fishery has operated in the NWHI since 2000. Comment: The regulations at 50 CFR 665.50(b)(2) require NMFS to publish an annual harvest guideline for lobster Permit Area 1, comprised of Federal waters around the NWHI which it has done so annually until 1999. Additionally, Proclamation No. 8031 specifically directed the Secretary of the Interior and the Secretary of Commerce to ensure that NWHI lobster permit holders be subject to a zero harvest guideline. Therefore, we recommend that this sentence be amended to read: “No crustacean (lobster-trap) fishery has operated in the NWHI since 1999. Between 2000 and 2005, NMFS has set an annual harvest guideline of zero lobsters for this fishery. Although 15 federal NWHI lobster permits</p>

<b>Comment Category 10 - Fishing</b>	
	<p>continue to remain valid, Proclamation No. 8031 directed the Secretaries to ensure that these commercial lobster fishing permit be subject to a zero annual harvest limit.”</p> <p>2) Page 68, line 45 to Page 69, lines 1 - 2 states: In practice, bottomfish harvest is below catch limits and is thought not to be the contributing factor to the overfishing status of the bottomfish stocks in the archipelago. Comment: As of April 1, 2008, Hawaii’s archipelagic bottomfish stocks were no longer subject to an overfishing condition as the final rule implementing Amendment 14 to the Fishery Management Plan for Bottomfish and Seamount Groundfish Fisheries of the Western Pacific Region effectively reduced fishing effort by the amount required by NMFS to end overfishing (73 FR 18415, April 4, 2008). We recommend that this sentence be revised to read: “Bottom fish harvest is below catch limits.”</p>
10-03. Response	We have made the recommended revisions.
<b>Unique Comments</b>	
10-04. Comment	<p>Specific to coral reefs and reef associated organisms which are confined to the boundaries of the Monument, it acceptable to limit all destructive or extractive activities that impact them. However, there are species of importance to the recreational fishing community such as tuna, marlin, dolphin, and other highly migratory species that when pursued, do not result in destruction, cause loss of or impose injure to the Monument resources. RFA supports limited recreational fishing for highly migratory species in a manner that will not impact bottom habitat or species. Trolling natural baits and lures at high speeds near the surface is consistent with this position.</p> <p>Under the draft Monument management plan, subsistence and research fishing is permitted to continue. There will be mortality associated with these extractive activities. RFA is certain that recreational fishing in the Monument for highly migratory species, if permitted, would impose minimal additional mortality. Furthermore, Pacific highly migratory species are under the authority of the Inter-American Tropical Tuna Convention, which manages these species with precaution and conservation. Fishery management plans for these species mandate quota management and utilize annual catch limits. As such, regulations to limit harvest have been set and are enforced by NOAA Fisheries. It is not necessary to impose additional measures upon anglers who fish for highly migratory species by restricting them from the Monument.</p> <p>The Monument is over 139,000 square miles and regardless of how remote the area, RFA is extremely uncomfortable about excluding recreational anglers from any area of the ocean without a scientifically proven cause. With regard to the Monument, recreational fishing for highly migratory species, which, by definition, constantly traverse in and out of</p>

<b>Comment Category 10 - Fishing</b>	
	Monument boundaries, is not a conservation problem nor would it compromise the objectives and goals of the Monument. While we believe that special protection should be imposed to protect coral reefs and associated species, RFA is firmly opposed to the arbitrary restrictions of the Monument management plan which prohibit recreational fishing.
10-04. Response	Presidential Proclamation 8031 established clear limits for commercial and recreational fishing. The federally managed bottomfishery and associated pelagic species will be closed in June 2011. Until then, the fishery that is allowed to persist is composed of a maximum of eight vessels, with the total landings for the fishery not to exceed 350,000 pounds of bottomfish and 180,000 pounds of pelagic species per annum. Under the proclamation, sustenance fishing is allowed outside any special preservation area, incidental to a Monument permit. Of the six permit types, only the Native Hawaiian practices permit allow for subsistence gathering so long as it is “conducted in a manner compatible with the Proclamation, including considering the extent to which the conduct of the activity may diminish monument resources, qualities, and ecological integrity, as well as any indirect, secondary, or cumulative effects of the activity and the duration of such effects.”
10-05. Comment	I think you guys should stop selling the fish and `opihi. They should mostly use it for gathering for your family and feeding your family.
10-05. Response	Only fish caught in the federally managed bottomfish fishery, which can persist only until June 2011 under Presidential Proclamation 8031, are allowed to be harvested and sold. `Opihi and other resources may not be sold.
10-06. Comment	ban all long line fishing in the Monument
10-06. Response	Longline fishing has been prohibited in what is now the Monument since 1991, when the Longline Protected Species Zone was designated to prevent interactions with endangered species (50 CFR 665.21 Subpart C).
10-07. Comment	wants public reports on lobster fishing
10-07. Response	Lobster fishing has not been conducted in the Monument since 2000. Reports on the crustacean fishery that operated within the area that is now the Monument may be accessed on the Internet at <a href="http://www.pifsc.noaa.gov/index.php">www.pifsc.noaa.gov/index.php</a> .
10-08. Comment	With respect to Midway Island, the FWS “Finding of Appropriateness of a Refuge Use” determined that: “Sustenance Fishing would not contribute to the public’s understanding and appreciation of the Refuge’s natural or cultural resources and would not be beneficial to the Refuge’s natural or cultural resources. However, following the Refuge conditions for



<b>Comment Category 10 - Fishing</b>	
	<p>compatibility will establish that sustenance fishing will also not materially detract from these resources or the public’s understanding and appreciation of them.” In the absence of any apparent impact the FWS made a finding that sustenance fishing is appropriate for a variety of reasons. Ocean Conservancy has a number of concerns about this finding and the proposed regulations based on it. It states in the Proclamation, with respect to the permitting of sustenance fishing in the Midway Refuge, that: “Sustenance fishing must be conducted in a manner compatible with this proclamation, including considering the extent to which the conduct of the activity may diminish monument resources, qualities, and ecological integrity, as well as any indirect, secondary, or cumulative effects of the activity and the duration of such effects.” The Finding has not demonstrated scientifically that sustenance fishing will not “diminish monument resources ...”, and therefore is incorrect. The FWS proposes certain restrictions on sustenance fishing at Midway designed to reduce the impacts of sustenance fishing (e.g., no reef fish because of ciguatera, no bottomfish because of the monk seal link, fishing gear and method restrictions, limit on total take), but they have not demonstrated that impacts would be avoided beyond making a number of unsupported assumptions and claims. The claim is made that: “The use would not measurably harm ... populations of fish ...”, but the term ‘harm’ is not defined nor is the scientific method described by which this determination was reached.</p>
10-08. Response	<p>The Proclamation states that sustenance fishing may not be permitted unless the Director of the FWS, or designee, has determined it to be compatible with the purposes for which the Midway Atoll National Wildlife Refuge was established. Further, an activity may be permitted only after considering the extent to which it may diminish Monument resources, qualities, and ecological integrity, as well as any indirect, secondary, or cumulative effects of the activity and the duration of such effects.” The Compatibility Determination considers the extent to which the activity would diminish these factors and specifies terms and conditions to be followed to ensure the activity is compatible with the mission of the Refuge System and purposes of Midway Atoll NWR.</p>
10-09. Comment	<p>One of the reasons provided in the FWS Finding of “no harm” was that sustenance fishing: “would enhance the quality of life for monument employees and other permittees, many of whom are stationed at this remote location or on a vessel for extended periods of time, by providing fresh food at substantial savings to the Government.” We agree that it would improve the quality of life for Monument employees who are subject to all the difficulties and hardships of living and working in a remote location for long periods of time. However, we do not agree that Monument resources should be risked to provide government employees and university researchers with what is essentially a luxury—fresh fish for two days once every two weeks. For a few thousand dollars, high quality frozen fish could be supplied to staff or fresh fish could easily be brought in on flights from the MHI.</p>
10-09.	<p>It is appropriate to allow island residents and visitors who are 1,000 miles from the closest food source to consume</p>

<b>Comment Category 10 - Fishing</b>	
Response	limited numbers of fresh fish. The term “no harm” has been corrected in the Appropriateness Finding to more accurately refer to the Refuge System requirement for refuge managers to use sound professional judgment to determine if a use will materially interfere with or detract from the fulfillment of the System mission or the purpose(s) of the refuge.
10-10. Comment	<p>Finally, we find the proposed plans to monitor and control this activity to be inadequate. While the types of data to be collected are sufficient (date, species, weight, length, location, accidental catch, interactions), we find that insufficient attention has been paid to the manner in which the data will be collected and how those data will be used. We recommend that:</p> <ul style="list-style-type: none"> <li>• The data should be collected by trained personnel to insure that species determinations are correct, and lengths/weights are properly measured, for example:</li> <li>• For the proposed monitoring to be effective, at least one person on Midway and on each research vessel would need to be designated and trained to collect the data, and fishing undertaken only when that person can be present to collect the data;</li> <li>• The data should be assessed on a quarterly basis, rather than annually, to forestall any problems that might arise with too many fish being taken, the wrong species being taken or excessive numbers of interactions occurring.</li> </ul> <p>Given the fundamental inconsistencies between allowing sustenance fishing and the Monument’s mission as well as the specific problems identified with the sustenance fishing program as outlined above, Ocean Conservancy urges that sustenance fishing not be allowed within the PMNM.</p>
10-10. Response	Trained staff would collect data from island residents and would report data from vessel-based catches to the Refuge Manager on a trip-by-trip basis. Refuge staff would monitor all data regularly and would report it to Monument managers annually.
10-11. Comment	<p>Pelagic fishes only: It is suggested in the Finding that because pelagic fish move widely, and the proposed catch (300 fish or 7 tons per year) is only a tiny fraction of the total catch for the Archipelago, that the impact would be minimal. This relies on an implicit assumption that the pelagic fishes around the Archipelago form single populations. The fact that the National Marine Fishery Service routinely assumes a “unit stock” for a management area with little evidence does not make it correct. If any of these species move much less, or, even worse, are resident around Midway, then the fishing pressure could be much higher than the average elsewhere in the Archipelago because it is concentrated in a very small area. There is evidence that such concentrated recreational fishing around Midway depleted ulua in the past. Regardless, determining whether the take is minimal by fisheries management standards (proportion of biomass taken) is not</p>

<b>Comment Category 10 - Fishing</b>	
	<p>sufficient to determine if there would be an impact on the ecosystem. There is a suggestion in the DMMP that because at least one species of pelagic fish (skipjack) is highly fecund and fast growing that the proposed sustenance fishing would have no impact. This is an odd fact to base the argument on, given that the data presented on past catch do not include any skipjack. Instead, most of the tuna are yellowfin and/or bigeye, both of which are slower growing and less fecund. The latest report on the status of stocks from NMFS lists bigeye tuna in Pacific as experiencing overfishing, and indicates that it may be approaching an overfished condition. It is unclear to Ocean Conservancy what justification could be offered to allow researchers and government employees to take even a relatively small amount of bigeye tuna from the Monument when the stock is experiencing overfishing and is at risk of being overfished.</p> <p>A more important question is: what are the effects of the take on ecological integrity. Large fish are especially important to reproductive capacity, and have an important influence on ecosystems as predators. Fishing is well known to select for the largest individuals. Thus, it is possible that sustenance fishing would remove some of the most important individual fish from the pelagic environment around Midway, with unknown consequences to the ecosystem. It is especially distressing to imagine that spawning age bigeye tuna could be removed when the stock is at risk of being overfished. It is not sufficient to claim that the effect would be minimal without research to support that claim. Not only is there no research, but there are no data on the sizes of fish taken. While biomass estimates are provided based on the number of fish taken in the past, they are based on what appears to be a guess at an average size per fish of 50 pounds.</p>
10-11. Response	The Compatibility Determination has been amended to rely on data only for the species considered for this activity. Additionally, the recent information on bigeye tuna has been added to the Compatibility Determination, and as a result the determination has been made to not allow this species to be consumed in order to ensure compatibility.
10-12. Comment	Fishing gear and methods: The gear and methods proposed would help ensure that other species are not caught, but they do not go far enough. Additional requirements should including banning the use of wire line, down-riggers, planers or heavy weights, and prohibiting fishing at night or during the dawn and dusk periods. While “muscling” the fish in may help to lessen depredation by sharks, no data are offered to suggest how successful this technique might be. We assume that the Co-Trustees are not interested in supporting a “shark-feeding activity” in the Monument.
10-12. Response	The Compatibility Determination specifies that the activity would be conducted only during daylight for island-based vessels, in accordance with current refuge policy on vessel operations. It has been amended to further this stipulation for all vessels. The proposed activity specifies that only artificial surface lures (composed of, for example, a jet head, squid squirt, leader, and hook) would be used.
10-13.	Total take: How was the total take limit of 300 fish (nearly 7 tons) determined? Was a stock assessment model used,

<b>Comment Category 10 - Fishing</b>	
Comment	although as argued above that would be inappropriate? Was there an ecological assessment made of what the impact on the local ecosystem would be from removing 300 large fish per year? Was an assessment made of what removing seven tons of predator biomass would do to the dynamics of the fish community and the functioning of the ecosystem? Was it determined what this would do to prey populations that might be controlled by predation pressure? Was it determined what removing that much of the pelagic community would do to the reef communities through linkages between the two communities? Was it determined what this might do to competitive interactions within the predator community? Was it determined what removing seven tons of spawning biomass would do the reproductive output of these fishes, especially bigeye tuna? The fact that it is seen to be necessary to limit the number of fish caught suggests that FWS and Co-Trustees recognize that the activity could cause harm. Would harm occur if 1000 fish were taken? 500? 100? How do we know that a take of 300 fish per year is below the threshold above which harm would occur? Does this number depend on environmental factors that vary from year to year? We see no evidence that these and other pertinent questions about the impact of sustenance fishing at Midway were addressed or answered in any rigorous, scientific manner. Until such an approach is undertaken we cannot support the FWS's Finding of "no harm".
10-13. Response	As stipulated in the Compatibility Determination, the limit was determined at 208 fish per year for island residents, as an average of four fish per week for 52 weeks. The four fish average is based on an estimate of what can be reasonably consumed by island residents in two days. The remaining fish are accounted for as an average of current visiting vessels, allowing for the maximum of four fish per day, up to an annual total of 92. The tonnage is an important consideration, and terms and conditions for this activity specify that "[a]lthough a limit on the number of fish allowed is stipulated here, if sufficient poundage of fish is caught to provide for the common table before the number limit of fish is reached' fishing will cease." "No harm" has been corrected in the Appropriateness Finding to more accurately refer to the Refuge System requirement for refuge managers to use sound professional judgment to determine if a use would materially interfere with or detract from the fulfillment of the system mission or the purpose(s) of the refuge.
10-14. Comment	I understand that there is \$1.3 billion earmarked for this Monument. And I think that the number one priority would be to buy out the six leasing or the fishing leases that are in practice today. I think there's three more years left of those fishing leases. I think that the harm that they're going to be doing the next three years is totally unacceptable.
10-14. Response	The Monument does not have a \$1.3 billion earmark. Current annual funding for all MMB agencies is in the \$8-9M range. The MMB recognizes the significant relationship of Hawaiian monk seals to the Monument and is committed to helping efforts to recover this endangered species. Strategy TES-1, "Support activities that advance recovery of the Hawaiian monk seal," contains specific activities that the MMB would implement.  Although a few Recovery Plan activities are described in the Monument Management Plan, in general, the plan does not

<b>Comment Category 10 - Fishing</b>	
	<p>republish all of the recovery priority activities for listed species. Rather recovery activities are treated comprehensively in the recovery plans for each listed species. Each recovery activity is considered for its effects on other listed species and designated critical habitat to ensure compatible implementation. Specific recovery activities for the Hawaiian monk seal can be accessed at <a href="http://www.nmfs.noaa.gov/pr/recovery/plans.htm">www.nmfs.noaa.gov/pr/recovery/plans.htm</a>.</p> <p>Prioritization of activities in the management plan is not a linear process, nor is it necessarily measured by the amount of funds allocated. Several factors apply when setting the implementation schedule and allocating funds; these include natural, cultural, and historic resource needs, funding, agency capacity, completion of necessary planning and environmental review, and community input and support. Each MMB and partner ICC agency develops annual budget projections and priorities and allocates funds based on its own programmatic, legal and policy requirements. The cycle and timelines for funding and planning vary.</p> <p>The management agencies coordinate in areas where program priorities overlap. For example, one agency may take the lead on behalf of all responsible agencies that have a common mandate. In other areas of overlap, multiple agencies may share responsibility for carrying out the activities to address core management needs, thereby creating a strengthened and shared focus. Doing so creates synergy and uses public funds more efficiently within the co-management structure. The seven MMB agencies are committed to annually sharing implementation schedules and priorities to identify opportunities where coordination and efficiencies would apply. This is true for all projects and permitted activities related to monk seal monitoring and recovery activities.</p> <p>The specific research topics in your comment will be addressed in various step-down plans, such as the Natural Resources Science Plan that will be completed in the first year, and by integrating the monitoring efforts in Strategy MCS-1, Continue and expand research, characterization, and monitoring of marine ecosystems, Activity TES-1.3, Conserve monk seal habitat, Strategy HMC-1, Within 15 years, develop and implement a strategy for restoring the health and biological diversity of the shallow reefs and shoals, where anthropogenic disturbances are known to have changed the ecosystem. In addition, Activity TES -1.6, Reduce shark predation on monk seals, has been added.</p>
10-15. Comment	<p>Page 79, line 12 - 13 states: The Monument includes areas and management authorities that are under the jurisdiction of one or multiple Federal agencies or the State of Hawaii. For example, the Monument, an area of approximately 139,739 square miles, includes the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve ....</p> <p>Comment: The NWHI Coral Reef Ecosystem Reserve was established through Executive Orders 13178 and Executive Order 13196 and has been previously been determined by NOAA to have the force of law. From a legal standpoint, these Executive Orders contain numerous provisions relating to fishing such as the authorization of certain fishing activities</p>

<b>Comment Category 10 - Fishing</b>	
	<p>that were in existence at the time the orders were executed, subject to fishing caps, closed areas and other restrictions. However, some of the provisions of Proclamation No. 8031 which established the Monument are inconsistent with the provisions of Executive Orders 13178 and Executive Order 13196. For example, Executive Orders 13178 and Executive Order 13196 appears to allow nonfederally permitted pelagic handline and trolling vessels who are licensed by the State of Hawaii and fished in the NWHI prior to 2000 to continue to fish within the NWHI while the provisions of Proclamation No. 8031 allows only federally permitted bottomfish fishermen to fish in the NWHI.</p> <p>We recommend NOAA specifically clarify in the Monument management plan whether the provisions of Proclamation No. 8031 supersedes the provisions of Executive Orders 13178 and Executive Order' 13196 related to authorized fishing activities, fishing caps and closed fishing areas.</p>
10-15. Response	<p>Fishing activities that were allowed to continue under the Executive Orders establishing the Coral Reef Ecosystem Reserve were either modified (i.e., commercial fishing for bottomfish and pelagic species) or prohibited within the Monument by Proclamation 8031. The Monument was established pursuant to the Antiquities Act. Only the fishing activities allowed by the Proclamation 8031 may be conducted within the Monument. The Management Plan will clarify that Proclamation 8031 is the controlling authority for Monument activities.</p>
10-16. Comment	<p>'Page 220, line 22 states: The Proclamation allows the Secretaries of the Interior and the Secretary of Commerce to issue permits for sustenance fishing outside any Special Preservation Area as a term or condition of any permit issued, if the activity is conducted in a manner compatible with the Proclamation.</p> <p>Comment: The Proclamation also provides the Secretaries with particular guidance in exercising this discretion and requires the Secretaries to also consider the extent to which sustenance fishing may diminish Monument resources qualities and ecological integrity, as well as any indirect, secondary or cumulative effects of the activity and the duration of such effects. The Proclamation also mandates the Secretaries to develop procedures for systematic reporting of sustenance fishing.</p> <p>We understand that the Monument Co-Trustees have authorized sustenance fishing for bottomfish and pelagic fishing in association with several Monument access permits in 2007, and Monument Co-Trustees themselves have applied for and received a Monument Conservation and Management Permit (Permit # PMNM 2008-001) authorizing over 200 individuals to access the Monument to conduct various activities, including sustenance fishing. Additionally, we understand that both NOAA research vessels (Oscar Elton Sette and the Hiialakai) have also applied for and received Monument permits in 2008 authorizing individuals covered by the permit to engage in sustenance fishing from those platforms.</p>

<b>Comment Category 10 - Fishing</b>	
	<p>Upon reviewing each of the various types of Monument Permit Applications (e.g., Research, Education, Conservation and Management, Native Hawaiian Practices, Special Ocean Use and Recreational) we found that each application contains a field that allows applicants to identify the various types of activities to be conducted under the permit, including sustenance fishing. However, the applications do not require the applicant to provide any information on how sustenance fishing is to be conducted such as the location or duration of fishing activity, the total number of hours of fishing that will be conducted under the permit or number offish to be taken under the permit.</p> <p>Without this information it is not apparent how Monument Co-Trustees are able to evaluate the extent to which sustenance fishing activity may diminish Monument resources, qualities and ecological integrity or any indirect, secondary or cumulative effects of the activity and the duration of such effects. Additionally, there do not seem to be any associated data reporting requirements in' either the Monument Management Plan or Volume III: Appendices, Supporting Documents and References although Proclamation No. 8031 specifically directs the Secretaries to develop procedures for systematic reporting of sustenance fishing.</p> <p>In light of the requirements and considerations regarding sustenance fishing in the Monument mandated by Proclamation No. 8031, we recommend that the Monument Management Plan include procedures for systematic reporting of sustenance fishing.</p> <p>We also recommend the Monument Management Plan clearly describe the process by which the Monument Management Board or Co-Trustees will evaluate permit applications to determine the extent to which sustenance fishing requests mayor may not diminish monument resources, qualities and ecological integrity. If the Monument Management Board is simply relying on existing fishery control rules, such as maximum sustainable yield, catch per unit effort and spawning potential ratio as mechanisms to determine the extent to which sustenance fishing requests mayor may not diminish monument resources, qualities and ecological integrity, that should be clearly articulated.</p>
10-16. Response	<p>The Monument already requires systematic reporting by permittees authorized to conduct sustenance fishing. Permittees must fill out a Monument Sustenance Fishing Data Sheet that contains the following information: date, gear type, number of lines in the water, start time, end time, number of fish and type caught, and latitude/longitude coordinates of the fishing activity. In addition, the following permit special conditions are also added to permits where sustenance fishing is authorized:</p> <ol style="list-style-type: none"> <li>1. The permittee must track all sustenance fishing conducted aboard [insert vessel name here] in Monument waters outside of Special Preservation Areas and the Midway Atoll Special Management Area during the cruise and provide data as requested in the Monument's Sustenance Fishing Data Sheet.</li> </ol>



<b>Comment Category 10 - Fishing</b>	
	<p>2. Within 30 (thirty) days after the expiration date of this permit, the permittee must submit a completed Sustenance Fishing Data Sheet as part of the summary report of activities described in General Condition #20.c.</p> <p>In 2007, approximately 153 fish were caught under the Monument's sustenance fishing provision. Three vessels were permitted to sustenance fish. The total number of fish caught in the Monument under the sustenance fishing clause is negligible compared to the thousands of tons of fish caught by the NWHI bottomfishery or the Pacific pelagic longline fishery.</p>
10-17. Comment	Volume II Page 90: Myers and Worm (2003) has been refuted by expert fisheries scientists from NOAA, National Marine Fisheries and the University of Hawaii, Pacific Fisheries Research Program. The EA should note the arguments against Myers and Worm study.
10-17. Response	The reference to the Myers and Worm study has been removed.
10-18. Comment	<p>Volume II Page 155: The document states that the black-footed albatross and Laysan albatross that nest almost exclusively in the NWHI are most affected by bycatch mortality. It should be noted in the document that the Western Pacific Fishery Management Council and NMFS have implemented successful seabird mitigation measures that have reduced seabird bycatch in the Hawai'i based longline fishery by two orders of magnitude.</p> <p>Furthermore, it should be noted that the Hawai'i-based longline fishery interacted with a total of 90 seabirds in 2007, with 47 of those birds released alive. The Hawai'i based longline fleet, which is subject to 100 % observer coverage in the shallow-set component and 20% in the deep-set component, has never been observed to interact with short-tailed albatross.</p>
10-18. Response	In Volume 2, Section 3.2.3.2, Planning and Administrative, we have changed the third sentence to read "FWS, NMFS, and the Regional Fisheries Management Councils have cooperated to implement the National Plan of Action to reduce seabird bycatch, which has significantly reduced mortality from the US-based commercial fleet. The agencies are working to extend these efforts to reduce mortality from foreign-based fishing fleets."
10-19. Comment	<p>Volume II Page 162 states that "bycatch of endangered and migratory birds and non-target marine species during sport and commercial fishing outside the Monument is a serious problem."</p> <p>However, the document does not provide any information on sport fisheries occurring outside the Monument. It is our understanding that no sport fishing is occurring outside the Monument. As noted in the comment above, the Hawai'i-</p>

<b>Comment Category 10 - Fishing</b>	
	<p>based longline fleet has significantly reduced seabird bycatch, but the document does not provide information on this successful regulatory program.</p> <p>Instead, the document makes unfounded statements that mislead the reader and public without providing proper information. Furthermore the statement about non-target species in this section dealing with threatened and endangered species is similarly misleading and lacks supporting information. These types of statements without adequate information calls into question the purpose and need of many of the activities suggested in this document.</p>
10-19. Response	The statement has been amended. Activities outside the Monument are outside the scope of this document.

<b>Comment Category 11 - Global Impacts</b>	
<b>Summarized Comments</b>	
11-01. Comment	<p>The comments below provided input on concerns regarding global climate changes.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) Activity TES-1.3: Conserve Hawaiian monk seal habitat. The potential loss of important breeding substrate for Hawaiian monk seals (and sea turtles) due to sea level rise may be a serious threat in the very near future, and is of great concern. It is possible that with a 3.6 degree Fahrenheit (2 degrees C) increase in ocean temperature, sea level could rise by 18 feet (6m) during this century, compared to the Intergovernmental Panel on Climate Change (IPCC) prediction of up to 23 inches (59cm). Current projected impacts of sea level rise on monk seals use the conservative estimates of the IPCC which do not account for multiple feedback loops for melting icefields. It is imperative that the MMB identify the decision-making process for evaluating the feasibility of restoration sooner rather than later, as many of the impacts of a warming planet are being experienced sooner than scientists have expected. As locations where to rebuild essential habitat for monk seal pupping beaches or sea turtle nesting beaches are considered, we urge you to include an evaluation of environmental impacts, particularly on the nearshore environment—as this is also considered important habitat for foraging.</li> <li>2) 1.4 Environmental and Anthropogenic Stressors. Defenders commends the DMMP for listing the major threats that climate change poses to the NWHI—weather changes, coral bleaching, sea level rise, and oceanic chemical composition change, or ocean acidification. These concerns outline the general problems that the Monument may face in the mere future, but the rest of the DMMP does not refer back to these specific threats, or outline ways to</li> </ol>

**Comment Category 11 - Global Impacts**

monitor and manage them. As a result, Defenders urges the Service to incorporate throughout the DMMP concrete management plans and actions to deal with these threats.

Defenders would like to stress in particular the severe impacts climate-change induced coral bleaching will have on the entire NWHI ecosystem. As mentioned in the DMMP, coral bleaching is predicted to occur if ocean temperatures significantly fluctuate due to climate change. Hawaii exhibits a high level of endemism, and certain rare species of coral may be more vulnerable to this threat than others. Another compounding factor is that if massive coral bleaching does occur, not only will this result in the loss of diverse reef ecosystems, but the geologic structure of the reefs that protect the coastline will no longer provide a barrier to increased beach erosion. The DMMP must fully explore and address possibilities to mitigate this significant threat to the monument's ecological health and sustainability.

- 3) 3.1 Understanding and Interpreting the NWHI. In the introductory section for 3.0 Action Plans to address Priority Management Needs in the DMMP, the plan lays out four major desired outcomes for management of the Monument over the next 15 years:

Maritime Heritage: Identify, interpret, and protect maritime heritage resources There is no explicit goal listed here to gauge and respond to the impacts of climate change on the Monument during this timeframe, during which the cumulative impacts of climate change are likely to be felt in a variety of ways. This omission is extremely problematic, and it is imperative for the Monument to make mitigation of the effects of climate change a priority management need. Defenders strongly recommends that the plan incorporate a fifth major desired outcome to the list:

- 4) 3.3.5 Climate Change Action Plan—Recommendation for inclusion. The MMP will contain 22 Action Plans arrayed within six themes, but conspicuously missing is a climate change action plan. Climate change will almost certainly be the most important human impact on the Monument in coming decades, yet the document only makes brief mention of this issue. Some scientists are predicting that unless greenhouse gases are cut significantly, and soon, that shallow-water coral reefs could be lost this century through the combined impacts of warming, acidification, sea-level rise and increased storm intensities. These threats are clearly recognized and described in detail in the DMMP.<sup>49</sup> The Monument cannot do anything to affect the cause of climate change, but it can do a great deal to adapt to climate change and to enhance the capacity of Monument resources and ecosystems to adapt to climate change. Around the world ecologists have argued that the ability of coral reefs and other ecosystems to withstand the impacts of climate change will depend on their condition. Healthy, intact, biodiverse, functioning coral reefs will be far more resilient to climate change than reefs that:

<b>Comment Category 11 - Global Impacts</b>	
	<ul style="list-style-type: none"> <li>• have lost biodiversity,</li> <li>• have been damaged by human activities,</li> <li>• have depleted fish populations, and/or</li> <li>• suffer poor water quality and pollution.</li> </ul> <p>A wide variety of human impacts act to reduce resiliency and therefore make reefs more susceptible to climate change. Thus, to enhance the capacity of coral reefs to withstand and absorb the impacts of climate change they must be maximally resilient. In most places, this requires removing or minimizing anthropogenic stresses in order to give the reefs a chance to recover fully resilient. In the Northwestern Hawaiian Islands, it requires preserving the largely intact ecosystem and maintaining its resilience by prohibiting any potentially damaging stresses, managing to restore ecosystem components that have been depleted by exploitation (pearl oysters, lobsters and bottomfish), and minimizing known anthropogenic stresses (e.g., debris). However, there is no evidence in the DMMP of the actions necessary to manage to restore and maintain ecosystem resilience. The only mention of resilience is a one-sentence call for research on resilience. Ocean Conservancy urges the Co-Trustees to develop a Climate Change Action Plan to deal with these issues. Actions to address these issues need to be included in a Climate Change Action Plan, as the DMMP encompasses a time frame within 15 years—a time period during which we will very likely experience some of the described effects of global climate change.</p>
11-01. Response	<p>As noted in Section 1.4, Environmental and Anthropogenic Stressors, climate change has potential short-term and long-term consequences for Monument resources. The MMB is committed to using data from existing monitoring and restoration efforts (see Strategy MCS-1, Continue and expand research, characterization, and monitoring of marine ecosystems, numerous activities in the Threatened and Endangered Species Action Plan [3.2.1], and the Habitat Management and Conservation Action Plan [3.2.3]). The MMB also is committed to directing future research and monitoring efforts to investigate how climate change is impacting individual species, assemblages, habitats, and ecosystems in the Monument. The Monument Management Plan describes all MMB management activities for the next 15 years. Describing all the specific efforts needed to monitor the direct and indirect effects of climate change on individual species, assemblages, and ecosystems is too detailed for this plan. Many of these activities will be detailed in the Natural Resources Science Plan (Activity MCS-2.1), which will be developed in the first year of implementation. This science plan will include the following thematic areas, all of which relate to climate change: research on ecological processes and connectivity, biodiversity and habitats, human impacts, and ecosystem change, indicators, and monitoring and modeling and forecasting ecosystem change.</p>

<b>Comment Category 11 - Global Impacts</b>	
	<p>The concept of ecosystem resiliency will be included in the science plan and will be greatly informed by some of the data gained by evaluating the permit database. The Monument staff will evaluate the cumulative impacts of human activities in the Monument and will conduct a threat assessment, and the results of these studies also will be used in the science plan.</p> <p>The desire to have a goal to “gauge and respond to the impacts of climate change” is already incorporated into the first goal “Marine Conservation Science: Increase understanding of the distributions, abundances, and functional linkages of organisms and their habitats in space and time to improve ecosystem-based management in the Monument.”</p> <p>As it pertains to Hawaiian monk seals and sea turtles, the MMB agrees that the potential impacts of sea level rise on breeding and nesting habitats need to be considered to ensure that recovery activities are successful. Activity TES-1.3, Conserve Hawaiian monk seal habitat, and TES-3.2, Protect and manage nesting habitat, specifically mention the need to assess the potential impacts of sea level rise on monk seal breeding and sea turtle nesting areas. Additionally, the Hawaiian monk seal recovery plan contains more specific activities that relate to protecting habitats and other activities to recover the species. This recovery plan may be accessed on the Internet at <a href="http://www.nmfs.noaa.gov/pr/recovery/plans.htm">www.nmfs.noaa.gov/pr/recovery/plans.htm</a>.</p> <p>The MMB recognizes the importance of evaluating the cumulative impacts of human activities in the Monument and has begun to collect data for this analysis. Assessing and analyzing required permit reports for all permitted Monument human activities will be a primary means for resource managers to understand the cumulative impact of ongoing activities (see Activity P-2.2, Analyze permit data to inform management decision making). In addition, information about past activities, such as military uses, is critical to our understanding of the Monument’s ecosystem and to establish a baseline for the health and condition of the Monument’s natural, cultural, and historic resources. Establishing such a baseline is necessary in order to analyze how current activities, either individually or cumulatively, are impacting Monument resources. Such past activity data is one of the many data sources that will be incorporated into the Information Management System (Activity IM-1.1, Activity IM-1.4, and Activity P-2.1).</p> <p>We have modified the Monument Management Plan to clarify that monitoring the impacts of climate change will be addressed in the Natural Resources Science Plan (MCS-2.1). Also, additional language about the importance of monitoring and understanding climate change was put in several places in the Monument Management Plan, and text changes were made to Section 3.4.1, Permitting Action Plan, Permit Tracking, and to Activity P-2.2.</p>
11-02. Comment	The comments below were made concerning the lack of a climate change action plan in the Monument Management Plan.

<b>Comment Category 11 - Global Impacts</b>	
	<p>Comments:</p> <ol style="list-style-type: none"> <li>1) Whaleskate Island is not mentioned in the climate change section of the draft management plan (page 62), and yet it serves as a clear example of sea level rise is a listed cause of concern for Papahānaumokuākea (page 149), and species have already been shown to be displaced because of it. OHA asks what steps are being taken to prepare for this event in terms of habitat loss as well as encroachment towards building footprints. OHA also reminds the managers that the Midway Atoll conceptual site planning document has a "No net loss of habitat" principle listed.</li> <li>2) Support for Ocean Conservancy’s Recommendation to add 3.3.5 Climate Change Action Plan As noted in Ocean Conservancy’s comments, the DMMP contains 22 Action Plans with six themes, but noticeably lacks a climate change action plan. While the Monument cannot stop the phenomenon of climate change itself, by responding to other threats to wildlife in a timely and effective manner, the Monument can greatly improve the resiliency of organisms on the islands in the hopes of preventing extinctions that could occur due to climate change. Defenders therefore wholeheartedly supports Ocean Conservancy’s recommendation to create an action plan that specifically deals with climate change and the improvement of wildlife resiliency.</li> <li>3) There’s also concern of the future of the Monument. In time the Monument itself will go under, the Emperor Seamounts and the islands leading north to Alaska prove it. But one specific concern is for rising seas, whether it’s just the earth cycle now or because of global warming. If no other area really can hold these transplanted species, or the environment can’t be recreated, will these end up in a special zoo or other? That is one way some have thought to do, or have done, to preserve species. As to global warming and rising seas, how do you plan to preserve or replace land lost to that, scrape up more coral, etc. to extend the land like was done before in the NWHI? And it is stated that even dead coral in the NWHI are not to be destroyed. They also built an airport that’s sinking in that way in Japan. Replacing land is also unacceptable in most ways, as well as philosophy as to why. When Kako’olawe was lost as a bombing range, the military acquired about as much as they lost on the Big Island. They only transferred location, not “lost” anything. But they gained a new area to ruin. If land or habitat is lost how will you replace any of it? Especially if the species you want to transplant can’t survive in other areas. And what if the species in question to this form or that can’t be kept alive outside the monument? As for the rising seas and global warming, that’s not likely to change.</li> </ol>
11-02. Response	The catastrophic and far-reaching effects of anthropogenic climate change have the potential to affect every part of the Monument including the loss of terrestrial habitats such as Whaleskate Island. Conservation planning for this threat will be extensive and require a comprehensive stand-alone plan of much greater detail than could be accomplished in this

<b>Comment Category 11 - Global Impacts</b>	
	MMP. We agree that the intent to plan for climate change and respond to its effects should be stated in this plan
<b>Unique Comments</b>	
11-03. Comment	<p>I believe this assessment is very comprehensive. I am a geologist by training. And as we know these islands were once two volcanoes. Now they're going in the graveyard of dead volcanoes. What will happen with global warming, sea level rise. Whatever the core there, once it gets down to 100 meters of that or 300 feet, the islands will disappear. And, of course, except for the Midway, most of the islands or atolls are just above that low tide level. So in a geological sense of course this will become a true Monument to the Hawaiian hot spot. So what I believe that these at first will bring in some temporary results. But in the long term all the core systems will disappear. Once the sea level or the saline water comes on the banks there will be no birds to lay, you know, nest and eggs.</p> <p>So in this assessment I believe sea level rise, increasing the temperature of the seawater and extreme weather events: Hurricanes, storm surge. They should be taken in because these islands are being eroded at great level. According to the IPCC, the Intergovernmental Climate Change Panel, sea level is going to rise by one meter by 2050. If this Monument is going to last, let's say, 300 years, you have to look into this scenario what will be the 2020 scenario? 2050 scenario? Because all the ecological system depends on freshwater. Of course these islands can hardly get any mauka showers or liquid sunshine. So one cannot sustain them in a geological term.</p>
11-03. Response	We will continue to monitor the rapidly changing predictions of the IPCC. We agree that there will be many severe ramifications for all Monument wildlife if the worst-case scenario unfolds.
11-04. Comment	What will happen when fresh water levels drop due to climate alteration?
11-04. Response	Reduced precipitation will cause changes in the plant community, which will in turn affect insects and spiders and those species that rely on them, such as Nihoa finches, Laysan finches, Nihoa millerbirds, and Laysan ducks. The salinity of Laysan Lake may increase, possibly affecting brine flies and brine shrimp. Sea level rise will also affect land plants by exposing root systems to seawater.
11-05. Comment	Typhoons have been reported at 65 mph on Midway. Climate change is resulting in increased "unusual" weather patterns. How will you be providing for natural disasters?
11-05. Response	As noted in Section 1.4, Environmental and Anthropogenic Stressors, the catastrophic and far-reaching effects of climate change could affect every part of the Monument with increased storm frequency and intensity. The MMB is committed to using data from existing monitoring and restoration efforts (see Strategy MCS-1, Continue and expand research,



<b>Comment Category 11 - Global Impacts</b>	
	<p>characterization, and monitoring of marine ecosystems, numerous activities in the Threatened and Endangered Species Action Plan [3.2.1], and the Habitat Management and Conservation Action Plan [3.2.3]). The MMB is also committed to directing future research and monitoring efforts to investigate how climate change is impacting individual species, assemblages, habitats, and ecosystems in the Monument.</p> <p>The Monument Management Plan is a general management plan that describes all MMB management activities for the next 15 years. Describing all the specific efforts needed to monitor the direct and indirect effects of climate and weather changes on individual species, assemblages, and ecosystems is too detailed for this plan. Many of these activities will be detailed in the Natural Resources Science Plan (Activity MCS-2.1), which will be developed in the first year of implementation. This science plan will include the following thematic areas, all of which relate to climate change: research on ecological processes and connectivity, biodiversity and habitats, human impacts, and ecosystem change, indicators, and monitoring and modeling and forecasting ecosystem change.</p> <p>While the MMB cannot control weather, such as hurricanes or strong storms, it is committed to reducing human impacts and stressors on other human-induced stressors to make the resources as resilient as possible to other natural events that may stress the resources.</p> <p>We have modified the Monument Management Plan to clarify that monitoring the impacts of climate change will be addressed in the Natural Resources Science Plan (MCS-2.1). In addition, supplemental language about the importance of monitoring and understanding climate change was inserted in several places in the document.</p>
11-06. Comment	<p>There is only scant mention in the DMMP and DEA of global warming, climate change, and sea level rise. Although consensus is still developing about the specific impacts that can be expected from this challenge, it is clear that sea level rise will be occurring in years to come and there must be acknowledgement and mitigations put in place that deal with this pending reality.</p>
11-06. Response	<p>As noted in Section 1.4, Environmental and Anthropogenic Stressors, climate change has potential short-term and long-term consequences for Monument resources. The MMB is committed to using data from existing monitoring and restoration efforts (see Strategy MCS-1, Continue and expand research, characterization, and monitoring of marine ecosystems, numerous activities in the Threatened and Endangered Species Action Plan [3.2.1], and the Habitat Management and Conservation Action Plan [3.2.3]). The MMB also is committed to directing future research and monitoring efforts to investigate how climate change is impacting individual species, assemblages, habitats, and ecosystems in the Monument.</p> <p>The Monument Management Plan is a general management plan that describes all MMB management activities for the</p>

<b>Comment Category 11 - Global Impacts</b>	
	<p>next 15 years. Describing all the specific efforts needed to monitor the direct and indirect effects of climate change on individual species, assemblages, and ecosystems is too detailed for this plan. Many of these activities will be detailed in the Natural Resources Science Plan (Activity MCS-2.1), which will be developed in the first year of implementation. This science plan will include the following thematic areas, all of which are related to climate change: research on ecological processes and connectivity, biodiversity and habitats, human impacts, and ecosystem change, indicators, and monitoring and modeling and forecasting ecosystem change.</p> <p>While the MMB cannot control weather, such as hurricanes or strong storms, it is committed to reducing human impacts and stressors on other human-induced stressors to make the resources as resilient as possible to other natural events that may stress the resources.</p>
11-07. Comment	<p>The threats of global climate changes to deep-sea animals should also be given on pages 61-63. Seibel and Walsh 2001 (Seibel, B. A., and P. J. Walsh. 2001. Potential impacts of CO2 injection on deep-sea biota. <i>Science</i> 294: 319-320) have a wonderful article describing the great susceptibility of deep-sea animals to ocean acidification and many other articles are available. On page 9 it states “Overall, the fauna of the Monument’s waters below standard SCUBA diving depths remains poorly surveyed and documented, representing an enormous opportunity for future scientific research in a system largely undisturbed by trawling or other forms of resource extraction.” This is very true and brings up a very good point. The monument presents an ideal opportunity to study the impacts of global climate change. Most regions of the world’s oceans face multiple human threats such as pollution and fishing. The Monument does not and thus any changes seen during monitoring programs will be easier to interpret in light of changing environmental conditions. Not only is global change the biggest threat to the Monuments deep-sea habitats but it is the best place to study these impacts on deep-sea ecosystems.</p> <p>Volume I, page 61, ln 16: Climate change poses serious threats to deep-sea ecosystems through ocean acidification and these threats should be discussed.</p>
11-07. Response	<p>We have added a reference to the vulnerability of deep ocean organisms to acidification in the discussion on Oceanic Chemical Concentration Change in Section 1.4, Environmental and Anthropogenic Stressors, of the Monument Management Plan.</p>
11-08. Comment	<p>Activity TES-3.2: Protect and manage nesting habitat (turtles)</p> <p>The effects of global climate change and potential mitigation action in anticipation of future scenarios will be similar to those described for monk seals in TES-1.3. As stated in the DMMP, the sex of an incubating sea turtle egg is dependent on nesting temperature; however, an increase in bias occurs with a change as little as one degree Celsius and extreme</p>

<b>Comment Category 11 - Global Impacts</b>	
	<p>levels of mortality with a change of three degrees Celsius. Increased sea level rise will not only contribute to loss of habitat, as described earlier, but may also increase and amplify the effects of erosion with large tides and storms, placing entire clutches at risk of being washed away. Some of these effects from increased storm activity could be experienced before the predicted increase in sea level occurs and may require action sooner than anticipated. Other climatic factors that could affect sea turtles include changes in ocean currents that are used for migration and loss of coral reefs that sustain important feeding habitat. Actions to address these considerations need to be included in the Action Plan, as this plan encompasses a time frame within 15 years—a time period during which we will very likely experience some of the described effects of global climate change on sea turtles.</p>
11-08. Response	<p>We will continue to monitor the rapidly changing predictions of the IPCC. We agree that there will be many severe ramifications for all Monument wildlife if the worst-case scenario unfolds. To address specific details for research-related topics, we will create a Natural Resources Science Plan to guide and regulate research conducted in the Monument, as defined in the Priority Management Need Understanding and Interpreting the NWHI, Marine Conservation Science, Activity 2.1. This step-down plan will define and prioritize research activities based on management needs to protect, conserve, and when possible restore ecosystems within the Monument. Based largely on the HAMER plan, research areas are defined and activities will be prioritized by the necessity of information for management purposes. Due to the remoteness of the NWHI, research will be limited by vessel and research station space, so only those research activities ranking highest in management priority will be accommodated.</p>
11-09. Comment	<p>The Draft Monument Management Plan acknowledges that the consequences of global warming and ocean acidification could have impacts on the Monument including weather changes, sea level rise, coral bleaching, and oceanic chemical composition change. However, the management framework and action plans do little to address these impacts. It is vital that management of the Monument takes steps to address global warming—an overarching threat to the habitat and native species that make the Northwest Hawaiian Islands a unique and rich environment. The following discussion of the impacts of global warming and ocean acidification on the Monument and its wildlife and habitat should be taken into consideration in the Management Plan.</p> <p>A. The best available science and global warming</p> <p>In its most recent 2007 report, the Intergovernmental Panel on Climate Change (IPCC) 1 expressed in the strongest language possible its finding that global warming is occurring:</p> <p>“Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level” (IPCC 2007: 5). The</p>

**Comment Category 11 - Global Impacts**

international scientific consensus of the IPCC is that most of the recent warming observed has been caused by human activities and that it is “very likely” due to increased concentrations in anthropogenic greenhouse gases (IPCC 2007).

One of the most troubling recent findings is that the concentration of atmospheric carbon dioxide, the biggest contributor to global warming, has been rapidly increasing throughout the

1 The IPCC was established by the World Meteorological Organization and the United Nations Environment Programme in 1988. The IPCC’s mission is to assess available scientific and socio-economic information on climate change and its impacts and the options for mitigating climate change and to provide, on request, scientific and technical advice to the Conference of the Parties to the United Nations Framework Convention on Climate Change.

Since 1990, the IPCC has produced a series of reports, papers, methodologies, and other products that have become the standard works of reference on climate change. The 2007 Fourth Assessment Report is the most current comprehensive IPCC reference and has built and expanded upon the IPCC’s past products. 2000s and is generating stronger-than-expected and sooner-than-predicted climate forcing (Canadell et al. 2007, Raupach et al. 2007).

The global average temperature has risen by approximately  $0.74^{\circ}\text{C} \pm 0.18^{\circ}\text{C}$  ( $1.33^{\circ}\text{F} \pm 0.32^{\circ}\text{F}$ ) during the past 100 years (1906-2005) (Trenberth et al. 2007) in response to rapidly increasing greenhouse gas concentrations. Atmospheric concentration of carbon dioxide has increased by 36% since 1750 to a level that has not been exceeded during the past 650,000 years and likely not during the past 20 million years (Denman et al. 2007). The rate of increase of total atmospheric carbon dioxide concentrations is speeding up as well. Carbon dioxide emissions averaged  $4.1 \pm 0.1\text{ GtC yr}^{-1}$  during 2000-2005 compared to emissions of  $3.2 \pm 0.1\text{ GtC yr}^{-1}$  during the 1990s (Denman et al. 2007). Currently, the atmospheric carbon dioxide concentration is 385 ppm and rising at over 2 ppm per year (Shukman 2006, Hansen et al. 2008). The atmospheric concentration of methane, another important greenhouse gas, has increased by about 150% since 1750, continues to increase, and has not been exceeded during the past 650,000 years (Forster et al. 2007). Similarly, the atmospheric concentration of nitrous oxide has increased by about 18% since 1750, continues to increase, and has not been exceeded during at least the last 2000 years (Forster et al. 2007). Based on differing scenarios of future greenhouse gas emissions and the world’s leading climate models, the IPCC has projected 1.1 to  $6.4^{\circ}\text{C}$  ( $2^{\circ}$  - $11.5^{\circ}\text{F}$ ) of additional warming by the end of this century (Solomon et al. 2007). The higher the level of greenhouse gas emissions, the more the world will warm.

As scientific understanding of global warming has advanced, so too has the urgency of the warnings from scientists about the consequences of our greenhouse gas emissions. Scientists are now able to tell us, with a high degree of certainty, that additional warming of more than  $1^{\circ}\text{C}$  ( $1.8^{\circ}\text{F}$ ) above year 2000 levels will constitute “dangerous anthropogenic climate

**Comment Category 11 - Global Impacts**

change,” with particular reference to sea level rise and species extinction (Hansen et al. 2006, Hansen et al. 2007). This is because warming of greater than 1° C may induce positive climate feedbacks, such as the release of large amounts of methane from thawing arctic permafrost, that will further amplify the warming (Hansen et al. 2006, Hansen et al. 2007). Change of this magnitude is very likely. A recent scientific finding is that the safe upper limit for atmospheric CO<sub>2</sub> to prevent dangerous anthropogenic climate change is actually 350 ppm (McKibben 2007, Hansen et al. 2008). However, the current CO<sub>2</sub> concentration is already well past that ceiling at 385 ppm (Hansen et al. 2008).

Studies that have used climate model projections to forecast species extinctions have predicted large species losses. Using a mid-range climate scenario, Thomas et al. (2004) predicted that 15-37% of species are already committed to extinction by 2050. Malcolm et al. (2006) estimated that 11-43% of endemic species in biodiversity hotspots will go extinct by the end of the century under a scenario of doubled carbon dioxide concentrations, which includes an average of 56,000 endemic plants and 3,700 endemic vertebrate species.

In order to avoid truly unacceptable consequences of global warming, we must stop the growth of greenhouse gas emissions, and, in relatively short order, begin reducing them. Achieving the reductions necessary to keep additional global warming between the years 2000-2100 within 1° C will be extremely challenging, and will require deep reductions in emissions from industrialized nations such as the United States.

**B. Sea level rise**

The wildlife and plant populations of the low-lying islands and atolls of the Papahānaumokuākea Marine National Monument are extremely vulnerable to current and predicted sea level rise within this century which will be compounded by increases in storm surges and storm intensity (Bindoff et al. 2007, Mimura et al. 2007). Sea level rise poses a significant threat to the Monument’s threatened and endangered species including the Hawaiian monk seal, the green sea turtle, Laysan finch, and seabirds of conservation concern. Management that considers and mitigates the impacts of sea level rise in this century must be better integrated into the Monument action plans.

In the Northwest Hawaiian Islands, sea level has already increased by 1.2 to 2.4 mm/yr between 1955 and 2003 (Bindoff et al. 2007: Figure 5.16a), and sea level rise will accelerate in this century (Bindoff et al. 2007). Using conservative estimates of sea level rise predicted for this century, Baker et al. (2006) found that the Northwest Hawaiian Islands will experience significant habitat loss. French Frigate Shoals and Pearl and Hermes Reef are only about 2 meters above sea level, and sea level rise of 48 cm would lead to losses of between 15 and 65 percent of their area (Figure 1) (Baker et al. 2006). With sea level rise of 88 cm, Pearl and Hermes Reef islands would be reduced by 51 to 69 percent, and French Frigate Shoals would lose between 40 and 57 percent of its area with Gin and Trig Islands mostly submerged (Figure 1)

**Comment Category 11 - Global Impacts**

(Baker et al. 2006).

The Hawaiian monk seal will undoubtedly be negatively impacted by the elimination of several of its most important breeding sites due to sea level rise--French Frigate Shoals, Pearl and Hermes Reef, and likely Kure Atoll--in the Papahānaumokuākea Marine National Monument in the foreseeable future, in addition to the loss of beach habitat at other important breeding colonies due to sea level rise and increasing storm surge. There has already been a loss of important pupping beaches due to erosion that may reflect rising sea levels (MMC 2007). For example, the terrestrial habitat at French Frigate Shoals, which supports the world's largest Hawaiian monk seal population, has already shrunk, eliminating important pupping and resting islets (NMFS SAR 2007). Continued loss of habitat will undoubtedly further negatively impact the Hawaiian monk seal population.

The predicted loss of low-lying habitat in the Papahānaumokuākea Marine National Monument will also prove problematic for green sea turtles, seabirds, songbirds, migratory shorebirds, and plants. French Frigate Shoals, much of which may be submerged in this century, supports 90% of the Hawaiian Islands green sea turtle nesting population and 19 of 22 of the Monument's nesting seabirds. Pearl and Hermes Atoll, also predicted to lose much of its area to sea level rise, supports an important population of the endangered Laysan Finch and the largest population of Tristram's Storm-petrel in the Northwest Hawaiian Islands which has been recognized as a species of highest conservation concern on a regional (Pacific Islands) scale.

Islands with higher topography such as Lisianski Island, Midway Island, and Laysan Island may be less affected by sea level rise within this century and may provide an important refuge for animals using the terrestrial areas of the Northwest Hawaiian Islands, which should be considered in the management of these islands, especially since species seeking refuge on the high-elevation main Hawaiian Islands may be precluded due to heavy human development and depredation by introduced predators.

Figure 1. Current and projected maps of 4 Northwestern Hawaiian Islands at mean low water (MLW) with minimum (9 cm), median (48 cm) and maximum (88 cm) predicted sea level rise. The median scenario at spring tide is also shown. (A) Lisianski Island; (B) East Island; (B) East Island, French Frigate Shoals, showing the measured and interpolated points along the waterline and berm used to create the Triangular Irregular Network (TIN); (C) Trig Island, French Frigate Shoals; (D) Southeast Island, Pearl and Hermes Reef (Baker et al. 2006).

Also of concern, in the North Pacific in this century, storms are expected to increase in intensity, heavier rainfall events leading to flooding will become more frequent, and overall precipitation will increase after mid-century (2070-2099) (Bindoff et al. 2007: Table 16.2). Even on higher elevation islands, breeding habitat will be lost and degraded by erosion

**Comment Category 11 - Global Impacts**

from storm surges, more intense storms, and increased precipitation, which will likely have negative effects on terrestrially breeding species. For example, flooding and strong storms have been observed to lower black-footed albatross breeding success, and large waves associated with winter and spring storms cause a disproportionately greater loss in nests for birds nesting along the outer, more exposed sandy beaches of islands (Naughton et al. 2007). Since black-footed albatrosses generally nest in higher densities along these outer sandy beaches (Naughton et al. 2007), they may be especially vulnerable to the impacts of sea level rise and strong storm events.

Finally, one of the most troubling recent scientific findings is that IPCC projections for sea level rise for this century, including the sea level rise scenarios used by Baker et al. (2006), are almost certainly a substantial underestimate. Melting of the Greenland ice sheet has accelerated far beyond what scientists predicted even just a few years ago, with a more than doubling of the mass loss from Greenland due to melting observed in the past decade alone (Rignot and Kangaratnam 2006). The acceleration in the rate of melt is due in part to the creation of rivers of melt water, called “moulins,” that flow down several miles to the base of the ice sheet, where they lubricate the area between the ice sheet and the rock, speeding the movement of the ice towards the ocean. The IPCC projections for this century assume a negligible contribution to sea level rise by 2100 from loss of Greenland and Antarctic ice, but leading experts have stated that that conclusion is no longer plausible due to multiple positive feedback mechanisms including dynamical processes such as the formation of moulins, reduced surface albedo, loss of buttressing ice shelves, and lowered ice surface altitude (Hansen et al. 2006). Paleoclimatic evidence also provides strong evidence that the rate of future melting and related sea-level rise could be faster than previously widely believed (Overpeck et al. 2006).

While it has been commonly assumed that the response time of ice sheets is millennia, this may reflect the time scale of the forcings that cause the changes, rather than the inherent response time of the ice sheets (Hansen et al. 2007). The forcing from continued unabated greenhouse gas emissions in this century could lead to a dynamically changing ice sheet that is out of our control (Hansen et al. 2007). Just 2-3°C (3.6-5.4° F) of warming would likely cause sea level to rise by at least 6 m (18 feet) within a century (Hansen 2006). Temperature changes of 2-3°C (3.6-5.4° F) are well within the range of estimates for this century provided by the IPCC (Solomon et al. 2007). Sea level rise of this magnitude will have significant impacts on the Northwest Hawaiian Islands, inundating beach habitat.

C. Ocean temperature rise, decreases in productivity, and increases in ENSO frequency

Observed and projected ocean temperature rise and decreases in ocean productivity in the North Pacific, including the waters of the Papahānaumokuākea Marine National Monument, threaten the Monument’s marine species and should be carefully considered and monitored as part of the action plans. Water temperature is an important factor determining habitat ranges and physiological functioning of marine organisms, and even minor changes are seriously disruptive.



**Comment Category 11 - Global Impacts**

Global ocean temperatures have increased by 0.31 °C on average in the upper 300 m during the past 60 years (1948-1998) (Levitus et al. 2000), and locally, some ocean regions are experiencing even greater warming (Bindoff et al. 2007). Global ocean temperatures increased by 0.10 °C in the upper 700 m between 1961-2003 (Bindoff et al. 2007) and have even penetrated as deep as 3000 m (Levitus et al. 2005).

Warming waters are devastating for species that are unable to migrate toward cooler waters because of habitat requirements, environmental barriers, or lack of mobility (Scavia et al. 2002). These climatic changes are occurring at an unprecedented rate which also hinders the adaptation of many organisms (Parmesan 2006). Corals are extremely vulnerable to changes in ocean temperature since increased water temperatures results in bleaching and mortality of coral reefs (Hughes et al. 2003). Not only are corals keystone species in reef ecosystems, but coral reefs are extremely important to the habitat of monk seals because they protect the Northwest Hawaiian Islands and provide foraging habitat for the seals. Researchers predict that coupled with ocean acidification, global warming may result in the destruction of most coral reefs by mid-century (Hoegh-Guldberg et al. 2008). Additionally, invasive species may gain an advantage over native species in these warmer conditions (Stachowicz et al. 2002). Warmer waters favor different species of phytoplankton, some of which are associated with “red tides” that shade ocean vegetation, deplete oxygen, and often have toxic properties (Smith et al. 2000).

The warming of surface waters appears to be impacting primary production globally, including the marine waters of the Papahānaumokuākea Marine National Monument. The largest increases in global ocean temperature have occurred in the upper ocean where primary production is concentrated (Behrenfeld et al. 2006). Behrenfeld et al. (2006) detected significant global declines in net primary production between 1997-2005, which they attributed to reduced nutrient enhancement due to ocean surface warming. A second study found that the ocean’s least productive waters expanded in four of the world’s major oceans during 1998-2006 in parallel with rising mean sea surface temperatures and increased vertical stratification in the midlatitudes (Polovina et al. 2008). In the North Pacific outside the equatorial zone, areas of low productivity water expanded at average annual rates from 2.2%/yr and replaced about 354,000km<sup>2</sup>/yr of higher surface chlorophyll habitat with low surface chlorophyll water (Polovina et al. 2008). Of concern for marine life of the Papahānaumokuākea Marine National Monument, low productivity waters in the North Pacific expanded to the northeast, reaching portions of the Hawaiian Archipelago (Polovina et al. 2008). Reduced primary productivity may limit food supply for monk seals, seabirds, fish, and other animals.

El Niño Southern Oscillation (ENSO) events can also impact ocean productivity. Although the effects of climate change on the ENSO cycle are difficult to predict, leading climate scientists believe that near-term global warming will lead to an increased likelihood of stronger ENSO events (Hansen et al. 2006). Most climate models yield a tendency towards a

**Comment Category 11 - Global Impacts**

more ENSO-like state or no clear change (Collins 2005). Some climate scientists have hypothesized that during the early Pliocene, when the Earth was 3° C (5.4° F) warmer than today, a permanent ENSO-like condition existed (Hansen et al. 2006). From the observational record, intense ENSO events were more abundant in the later part of the 20th century. The 1982- 83 and 1997-98 ENSO events were successively labeled the “El Niño of the Century” because the warming in the Eastern Equatorial Pacific was unprecedented in the past 100 years (Hansen et al. 2006). ENSO has been known to have negative impacts for pinnipeds, including mortality and decreased reproductive success, often due to changes in ocean productivity (Baker et al. 2006).

ENSO tends to increase marine debris and entanglement rates in the Northwest Hawaiian Islands for the Hawaiian monk seals (Donohue 2007). Despite efforts to clean up marine debris, monk seal entanglements continue (Id.). Between the years 1982 and 2004, two to 25 seals were entangled each year and the mean annual entanglement rate was greater for El Niño years (Id.). This is likely because the convergence zone is drawn further southward during ENSO, thus concentrating marine debris in the Northwest Hawaiian Islands (Id.).

**D. Ocean acidification**

Ocean acidification poses a significant threat to marine species in the Papahānaumokuākea Marine National Monument. The oceans are becoming increasingly acidic due to their uptake of carbon dioxide from the atmosphere. The oceans have thus far absorbed approximately 30% of the excess carbon dioxide emitted since the beginning of the industrial revolution (Feely et al. 2004, WBGU 2006). The world’s oceans, in fact, store about 50 times more carbon dioxide than the atmosphere (WBGU 2006), and most carbon dioxide released into the atmosphere from the use of fossil fuels will eventually be absorbed by the ocean (Caldeira and Wickett 2003). As the ocean absorbs carbon dioxide from the atmosphere it changes the chemistry of the sea water by lowering its pH. The oceans’ uptake of these excess anthropogenic carbon dioxide emissions, therefore, is causing ocean acidification (WBGU 2006). Surface ocean pH has already dropped by about 0.1 units on the pH scale, from 8.16 in 1800 to 8.05 today -- a rise in acidity of about thirty percent (Orr et al. 2005). The pH of the ocean is currently changing rapidly at a rate 100 times anything seen in hundreds of millennia, and may drop by another 0.3 or 0.4 (100 – 150% increase in the concentration of H<sup>+</sup> ions) by the end of this century (Orr et al. 2005, Meehl et al. 2007). If carbon dioxide emissions continue unabated, resulting changes in ocean acidity could exceed anything experienced in the past 300 million years (Caldeira and Wickett 2003). Even if carbon dioxide emissions stopped immediately, the ocean would continue to absorb the excess carbon dioxide in the atmosphere, resulting in further acidification until the planet’s carbon budget returned to equilibrium.

Evidence of ocean acidification in or near the waters of the Papahānaumokuākea Marine National Monument comes from several studies. The Hawaii Ocean Time-Series has collected numeric data that demonstrates increasing ocean

**Comment Category 11 - Global Impacts**

acidification. The data shows that from 1990 to the present that Hawaii's ocean acidification has tracked the atmospheric carbon dioxide and resulted in a decline in pH from approximately 8.12 to approximately 8.08 units (Figure 2) (Bindoff et al. 2007). Figure 2. Changes in surface pH from Hawaii Ocean Time-Series (Dore et al., 2003). Values were calculated from DIC and alkalinity. (Bindoff et al. 2007). Years

Furthermore, hydrographic surveys have found that the ocean's absorption of anthropogenic CO<sub>2</sub> emissions is leading to the shoaling of the aragonite and calcite saturation horizons, making it more difficult for calcifying species to build their shells. In the North Pacific, the aragonite and calcite saturation depths are already among the shallowest in the global ocean (Feely et al. 2004: Figure 2). In the North Pacific, the uptake of anthropogenic CO<sub>2</sub> has caused aragonite saturation depths to migrate upwards by 50-100 m since pre-industrial times, with current upward migration occurring at a rate of 1-2 meters per year, while calcite saturation depths have moved upwards by 40-100 m since pre-industrial times (Feely et al. 2004, Fabry et al. 2008, Feely et al. 2008). On a transect in the Pacific Ocean that bisected the Papahānaumokuākea Marine National Monument, Feeley et al. (2004: Figure 3b) found that the aragonite saturation horizon is shallow and is shoaling compared to the pre-industrial aragonite saturation horizon.

Ocean acidification from unabated anthropogenic carbon dioxide emissions poses a profound threat to marine ecosystems of the Papahānaumokuākea Marine National Monument because it affects the physiology of numerous marine organisms, causing detrimental impacts that may ripple up the food chain. Changes that have been observed in laboratory experiments include impacts to the productivity of algae, photosynthesis of phytoplankton, metabolic rates of zooplankton and fish, oxygen supply of squid, reproduction of clams, nitrification by microorganisms, and the uptake of metals (WBGU 2006, Fabry et al. 2008). Perhaps most importantly, increasing ocean acidity reduces the availability of carbonate ions needed by marine life to build shells and skeletons (Orr et al. 2005). Phytoplankton, corals, coralline macroalgae, urchins, seastars, clams, oysters, crustaceans and many other organisms rely on calcium carbonate in the ocean to build skeletons (WBGU 2006). Normally, ocean waters are saturated with carbonate ions that marine organisms use to build skeletons (WBGU 2006). However, the acidification of the oceans shifts the water chemistry to favor bicarbonate, thus reducing the availability of carbonate to marine organisms (WBGU 2006). Acidic waters also dissolve existing protective carbonate skeletons and shells (Orr et al. 2005). Already the ocean surface layer has lost 10% of its carbonate compared to preindustrial levels (WBGU 2006). Continuing carbon dioxide emissions could result in a decrease in calcification rates by up to 60% by the end of this century (Ruttimann 2006). The average response of corals to a doubling in pCO<sub>2</sub> is a 30% decline in calcification (Kleypas et al. 2006). The combined stresses of warmer temperatures, rising sea levels, and ocean acidification are likely to produce major changes to coral reefs in the decades to come (Royal Society 2005).

<b>Comment Category 11 - Global Impacts</b>	
	<p>Even marine animals that do not calcify are threatened by carbon dioxide increases in their habitat. Changes in the ocean’s carbon dioxide concentration result in accumulation of carbon dioxide in the tissues and fluids of fish and other marine animals, called hypercapnia, and increased acidity in the body fluids, called acidosis. These impacts can cause a variety of problems for marine animals including difficulty with acid-base regulation, calcification, growth, respiration, energy turnover, and mode of metabolism (Pörtner et al. 2004). Squid, for example, show a very high sensitivity to pH because of their energy intensive manner of swimming (Royal Society 2005). Because of their energy demand, even under a moderate 0.15 pH change squid have reduced capacity to carry oxygen and higher carbon dioxide pressures are likely to be lethal (Pörtner et al. 2004).</p> <p>Levels of ocean acidification predicted within the foreseeable future will likely impact both the habitat and prey of Hawaiian monk seals. Monk seals depend on coral reef habitat for foraging and corals are faced with decreased calcification due to ocean acidification. Additionally, prey of the monk seals ranging from squid to crustaceans may be adversely impacted by declining ocean pH further limiting the food available to monk seals.</p>
11-09. Response	<p>The MMB appreciates the extensive information provided by the commenters on the science of global warming, sea level rise, ocean temperature rise, productivity decrease, El Niño/Southern Oscillation frequency changes, and ocean acidification. We will forward this information to the science team, who will consider it when developing the Natural Resources Science Plan (see Activity MCS-2.1) and when helping focus monitoring efforts to detect the potential impacts of climate change on habitats and species. As noted in Section 1.4, Environmental and Anthropogenic Stressors, climate change has potential short-term and long-term consequences for Monument resources. The MMB is committed to using data from existing monitoring and restoration efforts (see Strategy MCS-1, Continue and expand research, characterization, and monitoring of marine ecosystems, numerous activities in the Threatened and Endangered Species Action Plan [3.2.1], and the Habitat Management and Conservation Action Plan [3.2.3]). The MMB also is committed to directing future research and monitoring to investigate how climate change is impacting individual species, assemblages, habitats, and ecosystems in the Monument.</p> <p>The Monument Management Plan is a general management plan that describes all MMB management activities for the next 15 years. Describing all the specific efforts needed to monitor the direct and indirect effects of climate change on individual species, assemblages, and ecosystems is too detailed for this plan. Many of these activities will be detailed in the Natural Resources Science Plan (Activity MCS-2.1), which will be developed in the first year of implementation. This science plan will include the following thematic areas, all of which relate to climate change: research on ecological processes and connectivity, biodiversity and habitats, human impacts, and ecosystem change, indicators, and monitoring and modeling and forecasting ecosystem change. The Monument Management Plan was modified to clarify that</p>

<b>Comment Category 11 - Global Impacts</b>	
	monitoring the impacts of climate change will be addressed in the Natural Resources Science Plan (MCS-2.1). In addition, in several places in the Monument Management Plan, we inserted supplemental language about the importance of monitoring and understanding climate change.

<b>Comment Category 12 - Habitat Restoration</b>	
<b>Unique Comments</b>	
12-01. Comment	<p>3.2.3 Habitat Management and Conservation Action Plan. Ocean Conservancy strongly supports the stated “Desired Outcome” for the Habitat Management and Conservation Action Plan, “Protect and maintain all the native ecosystems and biological diversity of Papahānaumokuākea Marine National Monument.” The Co-Trustees have done an excellent job of framing this outcome broadly and consistently with Presidential Proclamation #8031 and the Monument’s Vision and Mission. However, Ocean Conservancy recommends that this desired outcome be modified to include restoration, where appropriate, restated as an outcome, and finalized to read as follows: “All of the Papahānaumokuākea Marine National Monument’s native ecosystems and biological diversity are strongly protected, maintained, and, where appropriate and necessary, restored to a fully natural, unimpacted, and highly resilient condition.”</p> <p>The “Current Status and Background &amp; Need for Action” sections of the draft Monument Management Plan are also quite strong, correctly recognizing the “requirements for ecosystem-based management,” “protection of ecosystem structure and function,” and “ensuring the biological integrity, diversity, and environmental health of the Monument.” Although strong, these sections and the Strategies and Activity sections that follow seem somewhat limited and more focused on Fish and Wildlife Service and National Wildlife Refuge responsibilities and terrestrial habitats and ecosystems, than on the marine areas within the Monument. The Action Plan could be strengthened with an expanded and more detailed and equivalent marine focus. For example, the Monument’s Trustees and Managers should adopt and apply the requirement to “restore lost or degraded elements of biological integrity, diversity, and environmental health at all landscape scales” throughout the entire Monument, including to its marine habitats and ecosystems. The “Strategies to Achieve the Desired Outcome” are reasonably strong as well but would benefit generally from some additional development and expansion, including a greater emphasis on marine components and areas. In particular, the strategies should more fully address past and present fishing impacts and restoration opportunities related to them. For example, HMC-1 should include analyses of historical reef fish, lobsters, and crustaceans and bottomfish fishery impacts (in addition to the black-lipped pearl oyster example cited) to shallow water reef populations, communities, and habitats/ecosystems; complete cessation of these fisheries; and a plan for ecosystem monitoring and restoration. These activities should also be examined with our recommendation to examine and monitor the impact of fishing bottomfish</p>

<b>Comment Category 12 - Habitat Restoration</b>	
	<p>and lobster in TES-1 and their relationship with the monk seal decline.</p> <p>The depletion, due at least in part to fishing and the desired restoration of lobsters and other crustaceans in particular probably warrants development of its own strategy. At the very least, this should be addressed in one or more of the existing strategies. There should also be included a strategy similar to HMC-1 but focused on deeper reefs, shoals, pinnacles, and seamounts that emphasizes fishing impacts, their complete elimination, and subsequent monitoring and restoration of depleted species, habitats, and ecosystems. In addition, we recommend inclusion of a strategy in this section to evaluate and better understand, mitigate and adapt, and plan for global climate change impacts, especially to coastal and shallow water habitats and ecosystems. Global climate change is the greatest long-term threat to the ocean’s health, and the coastal and nearshore habitats and ecosystems of the NWHI are especially vulnerable to its impacts. Finally, we recommend expanding Strategy HMC-10 to include a Wilderness Review of the entire Monument, rather than limited strictly to the two existing National Wildlife Refuges.</p>
12-01. Response	<p>Resource managers and policy makers need comprehensive information about the ocean and its natural and social environments to make wise decisions. Baseline monitoring data, characterization, and research are essential components to determine normal and abnormal temporal changes and to provide the basis for determining if management activities are effective or need to be modified, based on continually changing conditions. The Monument Management Plan reflects many nationally recognized natural and social science needs for ecosystem-based management, such as the US Commission on Ocean Policy (2005) and the President’s Ocean Action Plan.</p> <p>While research is deemed an integral part of the Monument Management Plan, note that great care will be taken to ensure that the research conducted in the Monument is necessary for the continuation and enhancement of resource protection. Management will take great care through the permitting process and future Natural Resource Science Plan that the benefits of data acquisition will greatly outweigh the impacts of conducting these activities. If the impacts of particular research projects ever outweigh the potential benefits, these projects can be halted immediately.</p> <p>In the Priority Management Need, Understanding and Interpreting the NWHI, Marine Conservation Science Activity 2.1 stipulates that the MMB will produce a Natural Resources Science Plan to guide and regulate research activities conducted in the Monument. This step-down plan will define and prioritize research activities based on management needs to protect, conserve, and when possible restore ecosystems within the Monument. Research activities will be prioritized by the necessity of information for management purposes. Due to the remoteness of the NWHI, research will be limited by vessel and research station space, so only those research activities ranking highest in management priority will be accommodated.</p>

<b>Comment Category 12 - Habitat Restoration</b>	
	<p>The MMB agrees to change the desired outcome statement for the Habitat Management and Conservation Action Plan (3.2.3) to better reflect the need and priority to restore species and habitats, when appropriate. This concept is further strengthened by Monument Goal 1 in Table 2.1, Protect, preserve, maintain, and where appropriate restore the physical environment and the natural biological communities and their associated biodiversity, habitats, populations, native species, and ecological integrity.</p> <p>The MMB recognizes that many of the restoration activities focus on the terrestrial habitats and ecosystems. This is because the FWS has been monitoring these systems for longer and has a clearer understanding of restoration activities that need to be taken. Such information needs and possible restoration activities for the marine systems will be addressed in The Natural Resources Science Plan (Activity MCS-2.1).</p> <p>Likewise, any attempt to restore lobster stocks in the NWHI would require further research and identification of the stressors, including the further characterization of ecosystem dynamics, which are thought to have contributed to the decline of the species and stocks. Some research is being conducted, and restoration programs that may be considered in the future are generally included in this plan already. Therefore, a separate activity is not required now but may be added later.</p>

<b>Comment Category 13 - Historic Resources</b>	
<b>Summarized Comments</b>	
13-01. Comment	<p>The comments below suggest the Monument’s cultural and historic resources be protected.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) All current historic national and state protections for the Northwestern Hawaiian Islands need to be upheld.</li> <li>2) There should be some protection of the Hawaiian cultural sites.</li> <li>3) The monument's historical record since 1778 contains a rich assortment of maritime and military activities. We strongly encourage ongoing efforts to locate, identify and interpret the maritime history of the monument, so long as these efforts do not adversely impact the ecological integrity of the numerous sensitive areas within the monument. The June 1942 American victory at the Battle of Midway is recognized as the turning point during the Second World War. We believe it is vitally important to preserve and interpret the remaining historic sites dating to this era, and to encourage a better understanding of the way that this particular battle shaped the course of</li> </ol>



<b>Comment Category 13 - Historic Resources</b>	
	American history.
13-01. Response	The MMB strongly supports protecting the cultural and historic resources of the NWHI, and numerous federal and state laws require us to do so. The Native Hawaiian Culture and History and Historic Resources Action Plans commit us to numerous strategies and activities that will enable the long-term protection of these resources.
<b>Unique Comments</b>	
13-02. Comment	Basically, my specific comment, is that I would like specific protection of anything that could be determined as military significance and I do not want FWS governmental employees deciding what they personally think is significant or not.
13-02. Response	Through a 1996 programmatic agreement, the Navy’s Pacific Division, Naval Facilities Engineering Command, the Advisory Council on Historic Preservation, and the FWS made decisions on whether buildings, structures, and objects at Naval Air Facility Midway were eligible for listing on the National Register of Historic Places, or if they were eligible as National Historic Landmarks and thereby historic. This agreement met the Navy’s requirements under the National Historic Preservation Act for consultation during base closure (16 USC 470f). Buildings, structures, and objects not included under the programmatic agreement need not be protected as historic.
13-03. Comment	Section 3.1 (New) Remediation and Restoration Plan All military artifacts deemed of historic value should be “curated” (removed from Monument islands and waters).
13-03. Response	Military artifacts deemed historic are protected under several federal laws. At Midway Atoll, they are managed in accordance with a programmatic agreement among the Advisory Council on Historic Preservation, the Navy, and the FWS. The preferred alternative for maritime heritage resources is to manage them in place, through a low-impact approach.
13-04. Comment	Section 3.1.3 Historic Resources Action Plan Strategy HR-1: HHF concurs with the recommendation to update the Midway Atoll Historic Preservation Plan and would like to be included as a consulting party and/or special interest group.
13-04. Response	We are pleased to include the Historic Hawai’i Foundation as an interested party in updating the Midway Atoll Historic Preservation Plan.
13-05. Comment	I was concerned also about the discussion of the old buildings and what we’re going—what you’re going to try to save. I mean the history there is just overwhelming. I can’t imagine some of these buildings, the Commercial Pacific Cable

<b>Comment Category 13 - Historic Resources</b>	
	<p>Company Building, 1903 it's still standing. They built wonderful things then. But to recreate even one of those and get the money to do that to me would not be a wise use of the money.</p> <p>I would think that in a museum you would have a museum display of one of the buildings. You could recreate the iron work and the style that was used. But to rebuild one of those buildings I would just frown upon it.</p> <p>We don't know what the tides are gonna do. Rising of the tides could be a lot of money. To something like that program use it or lose it. We could talk about the history of the clipper ships, the military, all of this is things. we can do it by displays.</p>
13-05. Response	<p>Historic preservation at Midway Atoll NWR is complicated by the environmental conditions and the extra cost of transporting materials and supplies 1,250 miles from Honolulu. The FWS has made concerted efforts to stabilize and maintain as many of the historic buildings as possible. The primary goal of historic preservation at Midway Atoll NWR is to maintain the original building or structure so that it is available for the public to see in a three-dimensional way, for example to experience what it is like to stand on a battery used in the Battle of Midway, to look inside the hut where the ammunition was stored, to peer through the opening of a pillbox toward the open ocean waiting for an attack, or to stroll through the grounds of the Cable Station—the “Sunday Park” of Midway. Having the physical remains in their original position is unique for most visitors. Our hope is to continue interpreting the various layers of history at Midway with the real example rather than a replication or model. Even with the deterioration of the Cable Station, we would prefer to bring visitors to the location and interpret the site rather than move the interpretation into a museum. The experience of being where it all happened is very important at Midway and is an intangible element that we are trying to preserve. We are attempting to reuse as many of the historic buildings as possible because use and regular maintenance is really the best method for preserving Midway's historic resources. Funding from grants has assisted with some of the expenses. Volunteers have been a major force in preserving the historic batteries, guns, and the ammunition hut. Of course, we are considering the option to move all interpretive displays into a museum setting, and this may be necessary in the next few decades as environmental conditions overcome the remnants of history. As indicated in the Midway Atoll Visitor Services Plan, we plan to restore a historic building to house a museum and library to recognize and honor Midway's—and the Northwestern Hawaiian Islands'—distinguished history.</p>
13-06. Comment	<p>Section 1.3 Status and Condition of Cultural and Historic Resources</p> <p>This section summarizes the history of activities and events that took place within the monument boundaries from the first Polynesian contact through World War II. It sets the framework for understanding the historic and cultural significance of the area and sets the context for decision-making.</p>

<b>Comment Category 13 - Historic Resources</b>	
	<p>However, the physical resources are not identified or evaluated for either Native Hawaiian or post-contact resources. The section lacks an inventory of the known resources or an assessment of their condition, level of significance or level of historic integrity. The title of the section indicates that the intent is to quantify the number, type, location, and condition of the resources, but the narrative does not match the section title. A summary statement about the historic properties on Midway is included (page 53), but lacks detail. Volume III Appendices: Supporting Documents and References neglects to include the Midway Atoll NWR Historic Preservation Plan (1999) or National Register nominations.</p> <p>Where the historic structures and sites are known, they should be listed in inventory format, with site identification number, name, location, historic significance, status and condition. Recommendations for treatment type may be included where known, or may be deferred to a more specific preservation study or plan.</p>
13-06. Response	<p>The primary goal of historic preservation at Midway Atoll NWR is to maintain the original building or structure so that it is available for the public to see in a three-dimensional way, for example to experience what it is like to stand on a battery used in the Battle of Midway, to look inside the ammunition storage hut, to peer through the opening of a pillbox toward the open ocean waiting for an attack, or to stroll through the grounds of the Cable Station—the “Sunday Park” of Midway. Having the physical remains in their original position is unique for most visitors. Our hope is to continue interpreting the various layers of history at Midway with the real example rather than a replication or model. Even with the deterioration of the Cable Station, we would prefer to bring visitors to the location and interpret the site rather than move the interpretation into a museum. The experience of being where it all happened is very important at Midway and is an intangible element that we are trying to preserve.</p>
13-07. Comment	<p>Section 3.1.3 Historic Resources Action Plan</p> <p>Strategy HR-5: Identification of additional historic resources in other parts of the Monument should be addressed sooner than the proposed 15 year timeframe. In addition to the strategy to inventory historic resources, the action plan should also include development of a Monument historic preservation plan for the resources, including a timeframe and responsibilities for conducting surveys, documentation, determination of eligibility for the National Register, preparation of NR documentation and determination of appropriate treatments.</p>
13-07. Response	<p>We will begin assessing historic resources beyond Midway Atoll as soon as funding and personnel are available. Our priorities at this time are assessing and developing preservation plans for the cultural sites and collections at Nihoa and Mokumanamana (NHCH-4.2) and protecting the historic resources of Midway Atoll.</p>
13-08.	Volume III Midway Atoll NWR Conceptual Site Plan

<b>Comment Category 13 - Historic Resources</b>	
Comment	<p>Site Analysis (page 15)</p> <p>The analysis of historic and cultural resources contains good summary data of general types of resources, but lacks the individual inventory to support specific treatment recommendations. An inventory should be created that lists identification number, name, location, type of resource, current treatment, current status, and current condition for each structure, building and site. Lacking this information, later alternatives and recommendations are proposed in a knowledge vacuum.</p>
13-08. Response	<p>We are attempting to reuse as many of the historic buildings as possible because use and regular maintenance is really the best method for preserving Midway's historic resources. Funding from grants has assisted with some of the expenses. Volunteers have been a major force in preserving the historic batteries, guns, and the ammunition hut.</p>
13-09. Comment	<p>Volume III Midway Atoll NWR Conceptual Site Plan Preferred Alternative (page 38)</p> <p>HHF supports the concept of integrated biological, historic and visitor programs. However, the level of proposed demolition is incompatible with the historic preservation value. The adaptive reuse, rehabilitation, restoration and interpretation activities are encouraging and HHF supports them.</p> <p>However, we are concerned about the proposal to demolish four barracks buildings, four Cable Station buildings, and potentially other buildings that are shown on the site plan map, although not listed in the narrative. A complete disclosure of which buildings are proposed for demolition, and why, would help with this analysis. Several existing buildings are labeled as "replace," which appears to be a euphemism for demolition.</p> <p>Absent clear information about both direct and cumulative impacts to the structures proposed for demolition, we can neither concur nor oppose this option. Using the precautionary principle, the "no action" alternative may be more appropriate for those sites. However, HHF concurs with the proposals to rehabilitate and reuse historic buildings and supports those elements of the preferred alternative.</p>
13-09. Response	<p>The Midway Atoll Conceptual Site Plan is an initial planning document only. Proposed changes in treatment of any historic structures managed under the programmatic agreement will necessitate further consultation with the Advisory Council on Historic Preservation. Many other buildings proposed for demolition did not qualify as historic structures. The potential effects of demolition would be analyzed under NEPA regulations. More detailed plans for Midway Atoll will be developed under Activity CFO-1.1.</p>

<b>Comment Category 13 - Historic Resources</b>	
13-10. Comment	Section 3.1.3 Historic Resources Action Plan  Activity HR -1.1.: HHR concurs with the need to reconcile gaps and conflicts between various planning documents. However, it should not be presumed that only the preservation plan will be adjusted; the visitor service plan may also need to be revised to create a seamless management strategy.
13-10. Response	We agree. A variety of plans may need to be adjusted based on the outcome of the consultation with the Advisory Council on Historic Preservation.
13-11. Comment	The first reference to the FWS Historic Preservation Plan needs to include details on what it contains, as well as information on where readers can obtain it in a timely manner. Readers cannot provide informed comments on the inclusion of something they can't see.
13-11. Response	The Historic Preservation Plan can be found on the Internet at <a href="http://www.fws.gov/midway/MidwayHPP.pdf">www.fws.gov/midway/MidwayHPP.pdf</a> .

<b>Comment Category 14 – Infrastructure</b>	
<b>Unique Comments</b>	
14-01. Comment	Then I would like to see more sustainable energy solutions. You're going to a fuel farm there. It was all I could do not to get sunburned. You have plenty of sun up there. Maybe you could get a little bit more solar energy going. Okay.
14-01. Response	We have changed Activity CFO-1.3 and 1.4 regarding energy technology and infrastructure.
14-03. Comment	Coordinated Field Operations Action Plan – Section 3.6.3  MCBI (Marine Conservation Biology Institute) is concerned that there is too much emphasis on infrastructure development and redevelopment throughout the Monument. As part of this concern, we note that an inordinate percentage of funding is for infrastructure, as opposed to protection activities. At the same time, we recognize that some of the infrastructure is aging and needs repairs and upgrades to improve efficiency, reduce waste, and prevent damage to the NWHI ecosystem and cultural resources of the Monument. As in the rest of the plan, prioritization is required. Given likely funding shortfalls, which of these infrastructure projects will be prioritized? We argue that those projects that are most beneficial to research and management, or that prevent damage to wildlife, habitat and Monument cultural resources, should be prioritized over development that facilitate tourism. While we do not oppose tourism in the

<b>Comment Category 14 – Infrastructure</b>	
	Monument, it should not come at the expense of management activities and research needed to protect Monument cultural resources and the unique biodiversity of this island archipelago. We hope that the improved infrastructure will allow for more of a year-round presence and research in the Monument. Research has typically only been conducted during a few months of the year due to difficult weather conditions and limited resources. Our understanding of monk seals and the northwest Hawaiian island ecosystem would be greatly enhanced by more off-season research and monitoring. Additionally, as emergencies arise, e.g., with injured monk seals, there should be more opportunities for rescue and assistance efforts. In all things, conserving Monument wildlife, habitats and cultural resources must come first.
14-03. Response	The remote nature of these places requires infrastructure to base protection activities on. The protection measures and management activities proposed must be completed in a manner that provides a safe working environment for staff and allows successful management.
14-04. Comment	<p>Strategy CFO-3: Maintain and enhance housing and field camp capacity using short-term, medium-term, and long-term approaches across the life of the plan.</p> <p>As we stated earlier, global climate change is one of the greatest threats our ocean ecosystems face today, with a variety of stresses impacting resources at varying scales. One of the greatest impacts that the NWHI will be dealing with this century, in addition to the natural erosion processes of atolls, will be increased sea level rise. Any infrastructure planning and engineering needs to consider these impacts, particularly since the estimates widely accepted by the IPCC are most likely underestimates. Local experts are already examining these issues in the Main Hawaiian Islands, and may be able to assist the Co-Trustees with addressing this issue.</p>
14-04. Response	As noted in Section 1.4, Environmental and Anthropogenic Stressors, climate change has potential short-term and long-term consequences to Monument resources. The MMB is committed to using data from existing monitoring and restoration efforts (see Strategy MCS-1, Continue and expand research, characterization, and monitoring of marine ecosystems, numerous activities in the Threatened and Endangered Species Action Plan (3.2.1), and the Habitat Management and Conservation Action Plan (3.2.3), and directing future research and monitoring efforts to investigate how climate change is impacting individual species, assemblages, habitats, and ecosystems in the Monument. The Monument Management Plan is a general management plan that describes all MMB management activities for the next 15 years. Describing all the specific efforts needed to monitor the direct and indirect effects of climate change on individual species, assemblages and ecosystems are too detailed for this plan. Many of these activities will be detailed in the Natural Resources Science Plan (Activity MCS-2.1), which will be developed in the first year of implementation. In addition, as it pertains to infrastructure needs, the Coordinated Field Operations Action Plan (3.6.3) contains numerous

<b>Comment Category 14 – Infrastructure</b>	
	strategies and activities that include operational requirements alongside environmental factors. Such factors include the challenges of locating facilities in sensitive habitats and the impacts that climate change (for example, sea level rise and shoreline erosion) could have on the placement and operation of structures. The Midway Atoll Conceptual Site Plan contains a general roadmap for infrastructure needs. As the MMB implements individual activities in the plan, it will address climate-related impacts on the structures in more depth in the architectural planning and other NEPA documents.
14-05. Comment	Page 10 Climate: The weather is variable between the NWHI. Yet, why is weather data from FFS presented, but other islands are not, despite that daily weather data is available from Midway Atoll and Laysan Island. This document would be more informative if the variability between islands were shown, instead of only a brief report of Nihoa’s weather and a graph from FFS. El Nino climatic events have dramatic impacts on the flora and fauna of the NWHI, and should be described here.
14-05. Response	In Section 1.1, Monument Setting, within the subsection Overview – Geographic, Geological, and Ecosystem Setting, the somewhat ambiguous effects of the El Niño Southern Oscillation on Monument lands and waters are discussed. The air and sea surface temperature differences between the north and south ends of the chain are provided in Section 1.1, Monument Setting, within the subsection Climate Change. Average rainfall amounts and pattern are fairly consistent throughout the Monument, so we chose to present the data for a site at the center of the latitudinal range.
14-06. Comment	To start on Midway, and you mentioned they’ve already openly it up to visitors. One of my worries was that they’d open it up to visitors before they worried about health and safety. And they’ve already done that, unfortunately.  If you read the plan, there are numerous dumps. They’re toxic dumps. They’re called no-dig areas. There’s supposed to be no dig for into perpetuity because there’s unexploded ordnance. And the people in Waikoloa can tell you what perpetuity means. As their grade school picks up unexploded ordnance in the playground at least once a month. To put people in that atmosphere is just asking for trouble. On top of that, there are the electrical, the water system, and the waste water system, which is from ‘05, ‘06, ‘05 and ‘06 and I think the end of ‘06, maybe ‘07. But all three of those systems are currently at capacity. So any discussion that they’re going to modestly increase the amount of visitor action, and they’ve already done that, means that these critical systems are already over capacity. That’s a health disaster waiting to happen.
14-06. Response	While there are numerous “no dig” sites on Eastern and Sand Island, no future construction or renovation projects will take place within these areas. In July 2008, the Navy conducted its regular five-year review on the no dig sites at Midway. The Navy examined the sites to ensure that there was no environmental contamination taking place and resurveyed the boundaries of the sites using GPS technology. The FWS has spent the last several years adjusting the size



<b>Comment Category 14 – Infrastructure</b>	
	of the electrical and potable water systems on Midway. Before the island population can increase significantly, these systems will have to be expanded, and any expansion will involve the use of renewable energy/energy efficient systems. Reliable septic/wastewater systems will be required to support any future buildup. To reduce the capacity and cost of the system, on-site composting and waste reduction will be considered.
14-07. Comment	And to call it a visitor site is unconscionable. But for my standpoint they’re talking about building new visitor buildings to stay in. And they had plans of actual architectural plans. In the plan, and in the whole book, there isn’t any word about disability access. And it seemed rather obvious from their architectural plans they are not going wheelchair accessible. How? Like it or not, these are our tax dollars. And as far as, although the current administration may like to believe it doesn’t exist, but the Americans With Disabilities Act is the law of the land. And to try to put in new buildings with no access, again, is unconscionable.
14-07. Response	The sketches on pages 64-66 of Volume IV were not an attempt to express the actual architectural character of any future construction projects. All construction and rehabilitation projects on Midway will comply fully with the Americans with Disabilities Act.
14-08. Comment	Page 206, lines 39-42  This discussion of anthropogenic noise does not identify any scientific analysis regarding anthropogenic ship noise or studies unique to the resources of the National Monument. As such, it is unfounded and should be deleted.
14-08. Response	The discussion on human-generated ship noise can be found in Section 1.4, Environmental and Anthropogenic Stressors, in a section called Light and Noise Impacts. The specific section of the document referenced by the comment does not pertain to impacts from ship noise but relates to the many potential impacts from ship traffic, including groundings, hazardous materials spills, and sewage and ballast water discharges. We have modified the text to reflect this threat.

<b>Comment Category 15 - Marine Debris</b>	
<b>Summarized Comments</b>	
15-01. Comment	The comments below express concern that the NWHI are a “growing garbage dump” given that the estimated annual amount of marine debris accumulating in the NWHI exceeds the amount of marine debris being removed through current efforts.  Comments:

**Comment Category 15 - Marine Debris**

- 1) Marine debris is a big problem in the NWHI and has been recognized for many years. It ravages the reef, destroys native species on beaches, and kills many endangered animals and birds who mistakenly digest the plastic debris. In 1996 cleanup started on the estimated 750 to 1000 tons of debris in the NWHI at that time. A good start was made (over 550 tons) but since 2006 removal has slowed down. Now cleanup is less than half the 57 ton expected annual accumulation. So this great pristine monument is a growing garbage dump. It's hard to maintain pride in this vision. Although I encourage any effort to reduce incoming debris, it seems rather futile to find by air and collect floating debris before it reaches the NWHI. It's a big ocean. In any case, cleanup cannot be reduced or eliminated until an alternative is found. The cleanup must continue until the job is done and effort is the highest priority. It must be the first dollar priority.
- 2) For the whole islands, I have a couple of comments. And one is you've talked about how impressive it is that you're taking off marine debris. According to the plan, it's currently accumulating at more than double the rate that it's being taken off. Now, I don't call that a good thing. To me, it's pretty hard to maintain pride over a growing garbage dump. If there is not major effort to, before anything else, remove the marine debris, you can -- all the rest of it will be thrown out the window.
- 3) 3.3.1 Marine Debris Action Plan. As noted in the DMMP, marine debris poses a chronic and significant threat to the PMNM and specifically to marine wildlife including the endangered Hawaiian monk seal and threatened sea turtles. Ocean Conservancy is uniquely aware of the challenges posed by programs to reduce and clean up marine debris. For over two decades, Ocean Conservancy has mobilized volunteers on a global level to help remove trash and debris from coastlines and waterways through the International Coastal Cleanup. To date, 6 million volunteers from around the world have removed over 100 million pounds of marine debris from our ocean, and waterways. Each year, the International Coastal Clean Up attracts more volunteer participants and covers more territory. And each year, it collects more trash. As recognized in the DMMP, Ocean Conservancy—along with the National Marine Fisheries Service, the U.S. Coast Guard, the U.S. Fish and Wildlife Service, and other organizations—has also assisted with the removal of over 100 tons of derelict fishing gear and other marine debris from the NWHI since 1998. We understand how formidable the goal of eliminating marine debris from the NWHI is, and strongly support the Monument's desired outcome of eliminating marine debris, including derelict fishing gear, from the NWHI.

Ocean Conservancy supports Strategies MD-1, MD-2, and MD-3 directed at removing marine debris, cataloging the sources of debris and developing outreach efforts to reduce debris at its source. Regarding MD-1: Remove and prevent marine debris throughout the life of the plan, we agree that marine debris must be viewed as a

<b>Comment Category 15 - Marine Debris</b>	
	<p>chronic problem and not one that will be “solved” in the near term. Based on our experience with this issue, we believe it is important that the Co- Trustees plan (and budget for) ongoing annual debris removal activities in the PMNM. Given it is unlikely that removal will be able to target all debris, we encourage continued prioritization of debris removal in areas and of debris types most likely to pose serious threats to marine wildlife.</p> <p>We also recommend that marine debris activities clearly delineate between removal and prevention of marine debris. Both represent significant yet separate efforts, and require different strategies to be effective. We also recommend that the Co-Trustees emphasize an active role in broadening education and outreach efforts to mitigate and prevent all possible sources of marine debris and derelict fishing gear, including domestic as well as foreign sources. We strongly support MD-1.5: Work with the fishery management councils to address marine debris preventing with U.S. fishing fleets and are particularly supportive of accountability requirements. We urge the Co-Trustees to pursue such efforts on an international basis recognizing that debris and lost fishing gear do not heed jurisdictional boundaries. Regarding Activity MD-3.1: Work with partners to continue to develop and implement an outreach strategy for marine debris, we believe that the NWHI provides an opportunity to demonstrate to the public the pervasive and critical impact of marine debris on ocean ecosystems. While the issue of marine debris and the need for better management of plastics and other disposable items has gained significant worldwide attention over the past few years, the Monument provides a concrete example of the specific and dire threats posed by debris. For example, learning that over the past 20 years, more than 200 monk seals have been observed entangled in fishing gear or other trash is likely to make a bigger impression on members of the public than simply learning that the ocean is polluted with garbage.</p>
15-01. Response	<p>The MMB’s desired outcome is to eliminate marine debris, including derelict fishing gear, from the NWHI. Complete elimination of marine debris in the near future is virtually impossible due to the financial cost, the size of the area, and the continual influx of new debris from areas outside of the Monument. However, removing existing debris, detecting and preventing incoming debris, researching the impacts of marine debris on wildlife, and educating the public to prevent debris are the achievable strategies to reduce the overall impact of debris. Each of these strategies is important in achieving the desired outcome.</p> <p>NOAA has led an 11-year derelict fishing gear removal effort in the NWHI, collecting over 570 metric tons to date. After an intensive removal phase was completed in 2005, subsequent maintenance was expected to keep up with annual debris accumulation. This maintenance phase was intended to target entanglement zones for Hawaiian monk seals, to study accumulation rates at repeated zones, and to provide information on the necessary frequency of future cleanup efforts. In 2007, the deposition rate was revised, indicating that significantly more derelict fishing gear than originally estimated is</p>

<b>Comment Category 15 - Marine Debris</b>	
	<p>becoming entangled in the Monument each year. How to best address this gap remains a challenge. Developing the technologies to detect and remove derelict fishing gear at sea will help offset this imbalance and will provide additional protection to Monument resources than relying on cleanup alone.</p> <p>Under Activity MD-1.1, the MMB would continue to support and participate in the multi-agency cleanup effort that has been highly effective in removing marine debris from shallow water and beaches. Such in-water cleanups are labor intensive, dangerous to the debris divers, and very expensive and, most notably, the environmental damage has already occurred. Additional efforts (Strategy MD-2) are needed to investigate the sources, types, and deposition rates and to remove derelict fishing gear before it has a chance to impact the Monument. Local and international education and outreach (Strategy MD-3) is necessary to ultimately prevent future generations of marine debris.</p>
<b>Unique Comments</b>	
<p>15-02. Comment</p>	<p>Lets set up a list of goals:</p> <ol style="list-style-type: none"> <li>1. Goal #1-- To preserve the coral reefs and all the wildlife in the Monument.</li> <li>2. Goal #2-- THE MONITORING OF GOAL #1.</li> <li>3. Goal #3-- Identifying all of the threats, removing and or reducing all of those threats where ever possible. (ghost nets, oil spills and shipwrecks-- primarily foreign vessels)</li> <li>4. Goal #4-- Find and tag -- mark location with GPS, using floats and GPS senders, to set up removal.</li> <li>5. Goal #5 -- Get industry and government (Coast Guard, DLNR, NOAA etc) to work together.</li> <li>6. Goal #6 -- Create a plan , on a trial basis , to try achieve a balance between scientific information, species and population counts, fish stocks and quotas and of course, coral reef monitoring.</li> </ol> <p>A possible such plan would be to:</p> <ol style="list-style-type: none"> <li>1. Divide the PMNM into 10 distinct areas.</li> <li>2. Permit 10 bottom fishing boats, and assign each one an area.</li> <li>3. Each vessel must scout the fringe reefs in their respected area for the ghost nets. Any nets spotted will be called in to the Coast Guard and marked for removal. (small transponders could be used for the largest most destructive ghost nets)</li> <li>4. In order to cover the WHOLE PMNM, there may need to be some fuel subsidy to reach the more distant areas. The</li> </ol>

<b>Comment Category 15 - Marine Debris</b>	
	<p>State of Hawaii and the Federal Government with the help of the Coast Guard could not monitor this area as THOROUGHLY OR AS ECONOMICALLY as teaming up with industry.</p> <p>5. Each vessel will have quotas system, and will turn in vital fish population reports, while culling out a tiny fragment the current fish stocks.</p> <p>6. These permitted bottom fishing boats could take scientific teams up to, and back from the most isolated NW Islands.</p>
15-02. Response	<p>Derelict fishing gear is not limited to the fringing reef and is frequently subsurface. In fact, the highly successful debris removal efforts to date have targeted nets to a depth of 30 feet, though they have been observed at greater depths. Relying on sightings from surface vessels would not be effective. To date, the most efficient method of locating derelict fishing gear in the NWHI has been during systematic surveys along the reef areas. Using this method, divers are towed behind inflatable boats and carefully cut the nets off the reef.</p>
15-03. Comment	<p>However, I do support NOAA doing cleanups of marine debris. And my feeling is that's one of the appropriate activities we have to do it more frequently. And I like the idea that possibly there is a technology that could prevent that Pacific gyre from allowing that marine debris to accumulate there. However, I would like to see the technology is appropriate and not -- What's the idiom? A cure that's worse than the illness. So I want that point to be very clear.</p>
15-03. Response	<p>The MMB, in partnership with other governmental and nongovernmental entities, will conduct research into mechanisms to locate, track, and remove debris at sea before it reaches the Monument ecosystems (Strategy MD-2). Remote sensing technology (e.g. satellite imagery, light detecting and ranging [LIDAR], and unmanned aircraft systems) will not actually prevent the accumulation of marine debris in the North Pacific Gyre or Subtropical Convergence Zone; rather, the technology may aid in identifying areas of high debris concentration in order to target removal efforts. Such technologies may help direct the cleanup effort to where it will have the greatest effect with limited resources.</p>
15-04. Comment	<p>Why isn't there an international rule saying from now on plastic has to be immediately biodegradable? Why can't we take these nets and say: Oh, this one came from Korea. This one came from China. This one came from Peru. Start fining these people. They want a carbon tax on this and that. Why not a net tax on the -- This will keep their captains cutting their nets when it's easier to disregard them rather than bringing them home and repair them and whatnot. All these things need to be done.</p>
15-04. Response	<p>Activities MD-1.4 and MD-1.5 state that the MMB will work with the Department of State on international marine debris issues and with the US Fisheries Management Councils to address marine debris prevention with US fishing fleets. Approaches may include permanent identification of fishing gear, incentive programs for recovered debris, disposal and</p>

<b>Comment Category 15 - Marine Debris</b>	
	recycling programs, dockside gear accountability, fishing vessel inspections before departure and upon return.
15-05. Comment	Also as for marine debris, I think it's about time that countries start talking about how they, you know, those who fish in international waters or even the manufacturers who supply these countries with these fishing gear, should be encouraged into the incorporating high-tech codes that can be put into their gear, nets, or whatever it is, whereas when it does end up on whoever's shores, it might be -- that it can be identified. And a fine should be issued eventually, you know. Because I don't think -- you know, we stuck with all that opala. And then they bringing 'em back here, and we got to burn 'em, and that adds to the pollution and all of the debris. And with the rising sea levels too, we have to really start thinking. Because there are islands down below us that's -- there's countries that are looking at, Pacific nations are looking at where they going to go now because the waters are inundating already onto their islands.
15-05. Response	A key challenge in reducing marine debris is addressing its sources. Most derelict fishing gear in the Hawaiian archipelago comes from distant sources, an international issue that concerns many Pacific Rim countries. Activities MD-1.4 and MD-1.5 describe how the MMB will work with the US Department of State on international marine debris issues and with the US Fishery Management Councils to address marine debris prevention with US fishing fleets. Permanent identification of fishing gear is one approach that may be explored. Permanent gear marking is a challenging issue because gear may be manufactured in one country but then change hands many times in different fisheries and in different countries. As such, a "fingerprint" for a manufacturer may provide little evidence in terms of the net's last owner. Possible methods of marking should be explored. Other international and domestic approaches to working with fishing fleets include incentive programs for recovered debris, disposal and recycling programs, dockside gear inspections before fishing vessels depart and when they return.
15-06. Comment	Efforts to remove marine debris are important as described in the Management Plan are needed to decrease entanglement of monk seals. While the Management Plan includes the development of a plan to remove and prevent marine debris, the Management Plan should include specific efforts to prevent derelict fishing gear. The Northwest Hawaiian Islands accumulate significant amounts of marine debris because they are situated at the convergence of the North Pacific subtropical gyre. Currents carry plastic materials and derelict fishing gear to the beaches and reefs of the Northwest Hawaiian Islands. Moreover, marine debris poses the biggest entanglement threat in El Niño years when it is more likely to accumulate in the Northwest Hawaiian Islands. These considerations should be taken into account in the Management Plan.
15-06. Response	The MMB recognizes that marine debris, especially derelict fishing gear, is a severe chronic threat to the NWHI. The Marine Debris Action Plan presents strategies and activities for addressing marine debris issues in the Monument as well as the North Pacific Region. In particular, approaches to address marine debris prevention within international and

<b>Comment Category 15 - Marine Debris</b>	
	domestic fishing fleets are described in Activities MD-1.4 and MD-1.5. Under Strategy MD-2, the MMB, in partnership with other governmental and nongovernmental entities, will research mechanisms to locate, track, and remove debris at sea before it reaches the fragile Monument ecosystems. Additionally, outreach products will be developed to reach specific fishing communities and industries (MD-3.1).
15-07. Comment	Activity MD-2.X: The MMB will cooperate with NOAA Fisheries to develop protocols for fishery observer programs to collect data on gear loss and to develop a data management system to compile and analyze that data
15-07. Response	This type of effort would be included under Activity MD-2.1, in which the MMB would work with partners to support studies on marine debris. The NOAA Marine Debris Program is already working with NOAA Fisheries Observers in Hawai'i's longline fishery to document and collect data on derelict fishing gear encountered by these boats. The Marine Debris Program manages a database with this information.
15-08. Comment	Activity MD-3.X: MMB will work with government, non-government organizations, industry, researchers, and communities with an interest in marine debris to communicate and share information on the issue, particularly in regard to establishing priority actions and improving coordination of efforts.
15-08. Response	The MMB feels that the intent of the commenter's suggested activity is already addressed through Activities MD-1.3 and MD-3.1. Using recommendations from national and international marine debris conferences and data from ongoing marine debris removal efforts, and in coordination with partner agencies and organizations, a coordinated strategy for marine debris removal and prevention will be developed for NWHI. To better explain the scope of impacts of marine debris in the NWHI, an outreach strategy will be developed with the multiagency partnership to reach both local and international audiences.
15-09. Comment	I keep bringing it up with all the nets and stuff coming from there. I was suggesting whatever ship to set up a cable and a claw. As they're going, traversing wherever they're traversing, just drag the ocean through parts of it. So you snag something in these nets before they come ashore.  Some of these ships, not a cruise ship, but it would be a working ship, could just bring the stuff aboard before they're appearing off the reef at Midway.
15-09. Response	Under Strategy MD-2, the MMB, in partnership with other governmental and nongovernmental entities, will conduct research into mechanisms and technologies to locate, track, and remove debris at sea before it reaches fragile Monument ecosystems. However, due to the inherent risks to vessels and crew involved in such operations, it is unlikely for the MMB to require every vessel operating within the Monument to drag for nets or attempt their recovery. Trawling



<b>Comment Category 15 - Marine Debris</b>	
	equipment and derelict fishing gear could easily become fouled in the vessel's running gear. The MMB would prefer not to require a practice that could result in a disabled vessel or entangled wildlife. Additionally, most of the vessels permitted to work in the Monument are not designed or equipped to attempt such maneuvers.
15-10. Comment	On the subject of marine debris I think they've done an excellent job. Due to the constraints of having the time and, of course, now the energy of fuel to get out there and clean up, I think we need to get the military more involved, the State of Hawai'i really involved in getting, coordinating efforts and getting more boats and ships out there to remove the debris. Once or twice an year is fantastic. But again it's a hard place to get to. I understand that. But it would be nice to have more trips out there.
15-10. Response	The military continues to be an important partner in the multi-agency effort to address the problem of marine debris in the NWHI. Through dedicated debris removal cruises, the Coast Guard has developed considerable skill and experience in removing derelict nets from reefs. In fact, members of the Coast Guard cutter <i>Walnut</i> , a 225-foot buoy tender, collected more than 28 tons of marine debris from Midway Atoll and Maro Reef in May 2008. The MMB is in discussion with military officials to determine how military assets and technology may continue to assist and expand on ongoing derelict fishing gear salvage efforts. One mechanism being explored to facilitate such additional support is the Innovative Readiness Training Program, which allows military units to be used to assist civilian agencies/organizations when such assistance is incidental to military training. This enhances training to benefit both the unit and the community. Also, of particular interest to the MMB is the possibility of applying advanced technology, developed for military applications, to address needs of the Monument, such as remote sensing to detect marine debris at sea.
15-11. Comment	Section 3.3 Reducing Threats to the Ecosystem Marine Debris Action Plan does not propose interdiction programs and such regulation as lies within Trustees authority to prevent overboard discharge of debris, especially from military and cruise ships. Satellite surveillance of non point debris rack lines from the Pacific Gyre could guide debris collection before entering Monument waters. Plans to collect and burn plastic flotsam include no measures to prevent formation or scrubbing and sequestering of the dioxins produced by combustion. Alternative disposal methods such as Contained Aquatic Disposal are not evaluated.
15-11. Response	Through international agreement, overboard discharge of debris from vessels, including cruise ships, is regulated through the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 MARPOL. MARPOL, Annex V, Prevention of Pollution by Garbage from Ships, limits ocean discharge of solid waste. Plastics may not be discharged into the sea at all. The Navy, by action of Congress, is directed to comply with regulations set forth in MARPOL, Annex V. Discharge within the Monument is further regulated by 50 CFR Part 404.7(e) and

<b>Comment Category 15 - Marine Debris</b>	
	<p>§404.7(f), which implement the provisions of Presidential Proclamation 8031.</p> <p>Strategy MD-2 describes how the MMB, in partnership with other governmental and nongovernmental entities, will research mechanisms to locate, track, and remove debris at sea before entering Monument waters. Mechanisms being evaluated are unmanned aircraft systems, LIDAR, and satellite technology. Remote sensing systems being researched for Monument enforcement may also prove useful for detecting large debris conglomerates.</p>
15-12. Comment	<p>Section 3.6 Achieving Effective Monument Operations</p> <p>10) We suggest that consultation with Algalita Marine Research Foundation would help produce a plan to keep marine debris from entering Monument waters <a href="http://www.algalita.org">www.algalita.org</a></p>
15-12. Response	<p>Under Strategy MD-2, the MMB, in partnership with other governmental and nongovernmental entities, such as the Algalita Marine Research Foundation, will conduct research into mechanisms to locate, track, and remove debris at sea before it reaches fragile Monument ecosystems.</p>
15-13. Comment	<p>The Exempted activities that may or will [in some cases, assuredly so] occur in the monument are: Emergency Response to Threats to Life, Property or the Environment. This can be easily understood, possibly even encouraged if it's severe enough. Or the type of emergency at hand. But again, this ties into the fact that damage may occur and the response may be to an accident, especially if that occurs from an exempted activity. Who will clean up after the emergency is over? Say an exempted group doing an exempted activity causes an emergency. In response from technology because of the rush in whether it's through water or air or on land, great damage or that potential is done in several ways on the natural environment. This can be water, land, oceanic, air or life. Who then cleans up the mess, repairs- if possible, the damage? Since an exempted activity by an exempted group caused the emergency, and the exempted response to the emergency caused more damage thus. It seems it would fall to the co-trustees and others, not those who caused the damage directly. It could in turn lead to, as the United States political and legal system has so eagerly shown often enough, more restrictions that mainly affect those who had no part in it rather than any part of the blame.</p>
15-13. Response	<p>The Emergency Response and Natural Resource Damage Assessment Action Plan describes strategies and activities to plan for and respond to emergencies with the established Area Contingency Plan for the Hawaiian Islands and other events that fall outside the scope of the Area Contingency Plan. The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, or Superfund), the Clean Water Act, the Oil Pollution Act, and similar state statutes impose liability not only for cleanup costs but also for natural resource damages. These laws apply whether an incident was due to a permitted or exempted activity. After an oil spill or hazardous substance release, response agencies such as the Environmental Protection Agency or the Coast Guard clean up the substance and eliminate or reduce risks to</p>

<b>Comment Category 15 - Marine Debris</b>	
	human health and the environment. But these efforts may not fully restore injured natural resources or address their lost uses by the public. Through the Natural Resource Damage Assessment (NRDA) process, co-trustees study ways to identify the extent of resource injuries, the best methods for restoring those resources, and the type and amount of restoration required. The NRDA process ensures an objective and cost-effective assessment of injuries, and that the public's resources are fully addressed. The responsible party pays the costs of assessment and restoration and is often a key participant in the restoration. The regulations concerning specifically how this applies to the Armed Forces may be found at 50 CFR §404.9.
15-14. Comment	We would like to comment on the issue of groups wishing to assist with marine debris removal in the Northwestern Hawaiian Islands. Although there are NOAA staff who are working on the problem of ghost nets and fishing gear, there still is a lot of marine debris of all types on the beaches. These beaches could be restored with the efforts of volunteers. Our volunteer organization, Beach Environmental Awareness Campaign Hawai'i has the experience to assist with organizing marine debris clean-ups in the monument which would involve careful removal of the debris as well as an education component. We can also provide equipment and training to long-term volunteers to make removal of marine debris faster and more efficient. We would like to see the draft include provisions for such a beneficial project as well as a streamlined process for short service project permits where the involvement in the monument is to clean up marine debris and make a difference.
15-14. Response	Volunteers provide support to the Monument in a number of locations, including administrative offices, the Mokupāpapa Discovery Center in Hilo, French Frigate Shoals, Laysan Island, Midway Atoll, and Kure Atoll. These volunteers help Monument staff in carrying out their missions to protect the natural, cultural, and historic resources of the Monument (see 3.5.2, Constituency Building and Outreach Action Plan). In fact, a marine debris project (Activity MD-2.2) is using volunteers at Midway Atoll in beach cleanups geared toward developing a scientifically sound and biologically relevant marine debris monitoring protocol for Midway Atoll. This protocol and what is learned from the work on Midway will support the development of a long-term monitoring effort in the Monument and a better understanding of the marine debris types and sources. The MMB also recognizes the need to continue to build and nurture volunteer programs that develop knowledge of, involvement in, and support for Monument programs and resources (Activity CBO-3.4).
15-15. Comment	Marine Debris Action Plan – Section 3.3.1 MCBI applauds efforts to remove and reduce additional debris from entering the Monument, especially in areas where the debris may negatively impact marine life (especially monk seals, sea turtles, and seabirds). Actions to determine the type and source of this debris are important, but of second tier importance. MCBI believes that greater awareness of marine debris is an issue that will require more resources than the Monument has available. Instead, we encourage active

<b>Comment Category 15 - Marine Debris</b>	
	collaboration and partnering to address this issue at the national and global scales. The Monument could be helpful in developing bounty programs to encourage removal of marine debris and possible identification of the sources of discarded fishing gear and other forms of debris.
15-15. Response	Marine debris is certainly a problem larger than any agency alone might resolve. The MMB recognizes that collaborating and partnering to address the issue at the national and international scale is important. The Marine Debris Action Plan presents strategies and activities for addressing marine debris issues in the Monument and the North Pacific Region. In particular, approaches to gain international cooperation and involvement for marine debris issues and to address marine debris prevention within domestic fishing fleets are described in Activities MD-1.4 and MD-1.5, respectively.
15-16. Comment	Marine Debris Action Plan: Although several initiatives are being undertaken worldwide, mostly at the national level, to prevent, reduce and/or remove marine debris of all types, but most importantly derelict fishing gear, we recommend continued and enhanced cooperation and sharing of information at all levels to prevent and remove such debris.
15-16. Response	Continued and enhanced cooperation and information sharing is certainly necessary when addressing the problem of marine debris, a problem much larger than an agency alone might resolve. The multiagency effort launched in 1996 and continuing today is a significant head start in this regard. In close coordination with partner agencies and organizations, the MMB plans to use recommendations from national and international marine debris conferences and data from ongoing marine debris removal efforts to develop a coordinated strategy for marine debris removal and prevention for the NWHI (Activity MD-1.3).  To better explain the scope of impacts of marine debris in the NWHI, an outreach strategy will be developed with the multiagency partnership to reach both local and international audiences (Activity MD-3.1).
15-17. Comment	Marine Debris Action Plan Activity MD-2.X: The RAC recommends that MMB support the NMFS Pacific Islands Fisheries Science Center in the continued development of an inventory or reference collection of net types and other gear that can be used to assist identification or debris collected from the Northwestern Hawaiian Islands and its source. Efforts to prevent and reduce the influx of marine debris into the marine environment at its source, as well continuing the efforts to remove it from the Monument as it accumulates should be the highest priorities.
15-17. Response	The MMB is already working with the NMFS Pacific Islands Fisheries Science Center and other partners on marine debris studies, including efforts to track sources and types of debris, research to quantify resource impacts and to determine accumulation rates, biological and ecological impacts, and documentation of the cost estimates of damage (Activity MD-2.1).

<b>Comment Category 15 - Marine Debris</b>	
15-18. Comment	Page 183 Here and elsewhere in this section reference is made to actions that will “prevent” marine debris. It seems unlikely that anything can be done to completely prevent debris, and therefore it would be better to use a term like “minimize.”“
15-18. Response	Ultimately, the MMB’s desired outcome is the elimination of marine debris, including derelict fishing gear from the NWHI. We recognize that complete elimination of marine debris in the near future is virtually impossible due to the financial cost, the size of the area, and the continual influx of new debris. However, removing existing debris, detecting and preventing incoming debris, and educating the public to prevent future generations of debris are the achievable strategies, described in the Marine Debris Action Plan, to reduce the overall impact of debris.
15-19. Comment	Page 184 Although several initiatives are being undertaken worldwide, mostly at the national level, to prevent, reduce and/or remove derelict fishing gear, regional and international co-operation are of vital significance for the development of a common jurisdiction for the prevention, as well as the eradication of the problem, because of its transboundary nature.
15-19. Response	The MMB recognizes that marine debris is a global problem. In the NWHI, much of the marine debris is in the form of derelict nests, mostly trawl nets, from North Pacific fisheries. Because much of this debris comes from international fisheries, US activities aimed at prevention are complicated. Debris produced from illegal activities, such as the unauthorized deployment of fish aggregation devices and unlicensed fishing throughout the Pacific, makes the problem even more complex and harder to quantify. Under Activity MD-1.4, the MMB will work through the Interagency Marine Debris Coordinating Committee, the US Department of State, and other US agencies to call international attention to marine debris problems in the NWHI and to identify approaches to reducing foreign debris sources.
15-20. Comment	Page 185 Activity MD-2.X: Conduct targeted studies to determine factors (including identification of the socio-economic and technical factors) motivating loss and disposal of fishing gear at sea. These studies will be used as a basis for developing measures to prevent loss and promote appropriate disposal of fishing gear and other waste
15-20. Response	The MMB recognizes that marine debris, especially derelict fishing gear, is a severe chronic threat to the NWHI. The Marine Debris Action Plan presents strategies and activities for addressing marine debris issues in the Monument and the North Pacific Region. Approaches to address marine debris prevention within international and domestic fishing fleets are included under Activities MD-1.4 and MD-1.5. A study to determine factors motivating loss and disposal of fishing gear at sea would be one such approach falling under these more broadly worded international and domestic activities. Activity MD-2.1 describes how the MMB will work with partners on marine debris studies. Note that the NOAA Marine Debris Program is working with NOAA Fisheries observers in Hawai‘i’s longline fishery to document and collect data on

<b>Comment Category 15 - Marine Debris</b>	
	derelict fishing gear encountered by these boats. The purpose of this effort is to not only quantify the location, amount, and type of debris encountered but to quantify the financial impacts on the fishery (in terms of downtime) from fouling by derelict gear.
15-21. Comment	Page 185 An emerging problem is the presence of vast amounts of plastic particulates floating near the ocean surface in the north Pacific central gyre. Whereas the deleterious biological effects of entanglement of marine mammals in derelict fishing gear and ingestion of plastic objects by seabirds are well documented, little is known about the effects of plastic particulates on the marine ecosystem. Small plastic particles have been found to accumulate a wide range of toxic substances. Furthermore, fish and marine invertebrates as well as seabirds have been found to ingest them. The RAC recommends the MMB create an activity in the DMMP which supports studies investigating the distribution, density and rates of accumulation of plastic particulates in the north Pacific central gyre and its short-term and long-term effects on marine flora and fauna.
15-21. Response	The MMB feels that the intention to support marine debris research is already covered under Strategy MD-2. We will investigate the sources, types, and accumulation rates of marine debris. Specifically, we will work with the Marine Debris Program and other partners to support studies on the marine debris issue, including research to quantify resource impact and to determine accumulation rates, biological and ecological impacts, efforts to track sources and types of debris, and documentation of the cost estimates of damage (Activity MD-2.1).
15-22. Comment	Section 1.4 - page 58 - Starting line 12 - Plastic ingestion by Albatross (and other seabirds)  This section should include figure of annual impact of this plastic on island. USFWS biologists have estimated that each year approximately 5 tons of plastic is 'landfilled' at Midway brought to the island by adult albatross and fed to their chicks.
15-22. Response	We have made the suggested change to Section 1.4 and modified the text to reflect this comment.
15-23. Comment	Page 186 change to read "Develop and standardize marine debris monitoring protocols for marine and terrestrial habitats."
15-23. Response	We have made the suggested change to Section 3.3.4 and modified the text to reflect this comment.
15-24. Comment	Page 181 lines 16-20: Include in this sentence the fact that NMFS began annual net/line removal from NWHI beaches in 1982, the multiagency effort to pull nets off reef began in 1996 --- earlier in MP, states 1997!!!

**Comment Category 15 - Marine Debris**

15-24. Response	We have modified the Marine Debris Action Plan (3.3.1) to indicate that NOAA Fisheries began annual net and line removal from the NWHI in 1982 and that the multiagency efforts began in 1996.
--------------------	--

**Comment Category 16 - Midway****Summarized Comments**

16-01. Comment	<p>The comments below expressed concern about the number of people allowed on Midway Atoll, especially in relationship to the number of visitors.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) I'd also like to offer a comment on the amount of visitors you allow on island. I read that you are suggesting 50 visitors. From my experience that's too much. Maybe 24-28. For our group of 13 we had the OSE naturalist as well as the FWS Ranger. This is the perfect ratio so that folks don't inadvertently do damage to the wildlife.</li> <li>2) 3.4.3 Midway Atoll Visitor Services Action Plan &amp; Appendix C – Draft visitor services plan. Regarding Strategy VS-1: Implement the Midway Visitor Services Plan, providing visitors opportunities for up to 50 overnight guests at any one time, Ocean Conservancy strongly supports adoption of a total limit on the number of overnight visitors and staff, volunteers and contractors. As noted in the DMMP, the appropriate level of visitors to Midway is limited by the infrastructure available to sustain them, the ability to provide a quality visitor experience, and the need to limit impacts to wildlife. We note that the DMMP actually proposes an increase in the total number of individuals allowed to spend the night at Midway from 130 in the interim plan to 150. The DMMP notes: 58 section VIII at <a href="http://www.gc.noaa.gov/enforce-office3.html">http://www.gc.noaa.gov/enforce-office3.html</a> (Last accessed 23 July 2008) “The 50-visitor limit may be exceeded for short duration (less than a day) prearranged visits by ocean vessels or aircraft. In these cases, visitor activities are closely supervised and primarily consist of guided tours or participation in commemorative events.” We urge adoption of both optimum and maximum daytime visitation rates based on a thorough assessment of the atoll's physical capacity and ability to tolerate impact. In the absence of data, a tentative and adaptable estimation should be made and updated over time. Not only terrestrial communities (with impacts on wildlife), but nearshore marine communities (coral and fish) should be taken into account when assessing the visitor capacity of the atoll.</li> <li>3) The increase of Midway as a tourist center seems especially ill conceived. To call the more than 3-fold increase (from under 1 cruise ship a year to 3) a “moderate” increase is certainly disingenuous. My first concern is health</li> </ol>
-------------------	---



<b>Comment Category 16 - Midway</b>	
	<p>and safety. There is significant toxic “dumps” and ordnance that are not resolved prior to additional tourists. This opening up to tourists has occurred already before any protections or corrections of problems. The areas designated “no dig for perpetuity” are impossible to maintain. These areas are routinely breached. The current (new in October 2005) drinking water system will serve regularly 120 with daily maximum of 200, but a cruise ship expects 800. The wastewater system is already at capacity and overloaded at storms. The new electrical system (October 2005) and distribution (November 2006) is also at capacity. To assume there is no impact on infrastructure since they’re just tourists or not overnight residents is not accurate. This reminds me of Kailua-Kona. When it rains, the toilets on the pier won’t flush and all storm sewers back up. This is a health disaster waiting to happen.</p> <p>4) Midway Atoll Visitor Services Action Plan (pp. 237-241). The plan never mentions the number of visitors that might visit Midway Atoll on any given day. Is there a ceiling on the number of people who can come to Midway Atoll from cruise ships? Is there a possibility that there may be more than one cruise ship anchored off of Midway wishing to land passengers? In this case can there be more 1,000 visitors on Midway at one time? Can this many people be safely accommodated?</p> <p style="padding-left: 40px;">Strategy VS-1: Implement the Midway Atoll Visitor Services Plan, Providing Visitor Opportunities for up to 50 Overnight Guests at any one Time (p.239). Do the overnight college groups mentioned in Activity OEL-1.8 count as part of the 50?</p> <p>5) Midway Atoll Visitor Services Action Plan: We recommend that henceforth no cruise ships or private vessels be permitted to visit Midway Atoll; the threat of transporting additional alien species via hull encrustations and ballast water is just too great. We also recommend that no more than 50 visitors should be permitted to stay overnight at any one time.</p>
16-01. Response	<p>The Draft Midway Atoll Visitor Services Plan set a limit of 50 overnight visitors at any one time. This was based on the limited seating of the 15-person charter aircraft and the housing capacity in Charlie Barracks (24 rooms). This is half the number of visitors that were allowed from 1996 to 2001. During the height of the Cold War, approximately 5,000 people lived on Midway, but that number dropped in the 1980s to about 500 personnel and to even fewer people during the base closure process from 1993 to 1996. When the previous visitor program operated from 1996 to 2001, up to 100 overnight visitors were allowed on-site at any one time, with a maximum overall population of about 250 people. A 15-year plan allowing the 50-person visitor capacity is reasonable, even though in the initial years we are likely to allow fewer visitors. Based on the past two decades of observations, we have assessed that the 50-person cap does not materially interfere with or detract from wildlife and their habitats. If we detect such detraction, we will revise the program</p>

<b>Comment Category 16 - Midway</b>	
	<p>accordingly.</p> <p>We have rewritten the visitor services plan to reflect bringing up to three larger groups (from 50 to 800 visitors) to Midway each year. These groups may arrive via aircraft or passenger vessel. All groups must meet all Monument findings and requirements, as specified in Presidential Proclamation 8031 and its implementing regulations at 50 CFR 404.11. These include obtaining the appropriate Monument permit, usually a Special Ocean Use Permit. In addition, passenger vessels and aircraft must meet specific Refuge requirements. No more than three such permits for large groups will be approved per year, and, as in the past, all will be related to learning about the atoll’s wildlife and historic resources and the Monument’s cultural significance.</p> <p>Unless refuge management has approved a higher number (for example, to participate in a ceremony commemorating the Battle of Midway), no more than 400 visitors will come ashore at any one time. In the past, Midway has hosted numerous groups, numbering from 250 to 1,800 visitors each. Because they are limited to roads and trails, we have not documented any negative impacts from these visits. Visitors remain in areas where albatrosses are already acclimated to human presence, and they are restricted from any area where Hawaiian monk seals or green turtles are present. However, because the largest groups in our view taxed our ability to provide the high quality visitor experience we desire, we are now limiting the size of groups to no more than 800 people. In our experience, these visits have had a very positive impact on our guests, with many expressing their commitment to maintaining such special wildlife habitats, doing their part to reduce threats to wildlife, and appreciating those who so valiantly fought the Battle of Midway.</p> <p>We maintained the 50-person limit on the number of overnight visitors allowed on Midway Atoll at any one time.</p> <p>The preferred alternative in the draft Midway Atoll NWR Conceptual Site Plan has been adopted in the final conceptual site plan, along with its limit of no more than 150 overnight people at any one time. Large groups visiting Midway for daytime only events bring their own food and water and use portable toilets on the island. Additionally, “No dig areas” on Midway are maintained in perpetuity, due to responsible-party considerations.</p> <p>All operators of vessels entering the Monument must comply with the requirements of Presidential Proclamation 8031 and its implementing regulations. These requirements include a mandatory hull inspection and, if necessary, cleaning. No ballast water is allowed to be discharged within the Monument.</p>
16-02. Comment	<p>The comments below question the financial feasibility of getting visitors to Midway.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) Section 3.4.3 - page 240 - Line 43 - Visitor program review (financial). Related to the visitor program at Midway</li> </ol>

**Comment Category 16 - Midway**

there are issues that can already be identified as financial concerns based on the previous visitor program and on the small amount (85) of visitors seen so far in 2008. One of the biggest limitations to the availability of Midway to a more diverse group of visitors is the airfare cost (currently more than? the total cost of a 1-week visit to Midway per participant). This high airfare cost makes it difficult to propose student trips, and attract family groups. CFO-7.2 identifies addressing this cost in the long-term but no short-term (less than 5 years) solutions are offered. Also participants have indicated that they are willing to pay a higher fee to visit the Monument but want/expect more opportunity to visit the reefs (snorkel). Currently neither the boats nor manpower (operators) exists to offer visitors the scope of activities they would like to have available to them for the relatively high prices (\$4400/person) they are paying to visit. Additionally unlike in the past visitor program when the bulk of tourists came to Midway to view the albatross and other seabirds, current visitors are placing more emphasis on viewing marine resources as this is highlighted by the Monument designation. More people want to have available opportunities to spend time in the water viewing corals and marine life in addition to the seabirds. It is quite evident by past experience at Midway that any effort to have visitors will be an expensive undertaking, and cannot truly be expected initially to be a profitable or self-sustaining endeavor. This draft management plan in addition to recognizing the value of Midway as a window into the monument should also pledge the commitment of the funds necessary to establish and solidify the long-term stability of a visitor program at Midway. The visitor program cannot be depended on, nor should it initially be required to pay for itself. With those unrealistic expectations a visitor program will be doomed to repeat as a failed enterprise. As outlined in the Draft Plan the value of a successful visitor program to the Monument is too great to have this outcome.

- 2) Section 3.5.2 - page 256 - Line 34 - Activity CBO -3.4. Sentence says that the Monument has plans to ‘incorporate Midway Atoll visitors into volunteer programs’ of various focuses. There needs to be a greater outline of how this will be accomplished. Currently there is no mention of subsidizing costs for visitors to make this idea a goal that can be attained. While there is definitely a large population of individuals willing to participate, and even pay for these volunteer opportunities, at current costs to get to Midway this number would rapidly drop to a limited few. Once again the Monument plan needs to identify this as a priority and acknowledge that funds would be made available to facilitate these opportunities being accessible to visitors of diverse ages and incomes. It is hard to understand how ‘Developing Midway’ is not listed as one of your CBO strategies, with it’s own defined Action Plan. It would seem that this should be at the top of the list.
- 3) Section 3.5.4 - page 271 - Line 38 - Activity OEL-1.8. Sentence 'Developing lower-cost housing and increasing classroom and laboratory space will facilitate these programs' should also include reduction of air transport costs. The groups mentioned will not be able to take advantage of the above actions without cheaper or subsidized ways

<b>Comment Category 16 - Midway</b>	
	to arrive at Midway prior to the realization of CFO-7.1.
16-02. Response	We have seen no indication that the number of people visiting Midway would rapidly drop due to high costs. Although spending a portion of their visit volunteering is not required, most of our visitors welcome the opportunity to help. As stewards of federal tax dollars, the Co-Trustees can provide only limited support for the visitor program on Midway Atoll. As indicated in the Midway Atoll Visitor Services Plan, fees charged are based on actual costs, and we do not believe the average taxpayer would support subsidizing someone else's visit to Midway. We are committed to working with educational groups to seek grants to help cover their costs at Midway and to finding lower cost transportation.
16-03. Comment	<p>The comments below express support for sustenance fishing at Midway.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) We would like to fishing outside fish for clipper house cooking.</li> <li>2) Allow diving and spearfishing in some designated areas. ie Midway: specify a reef.</li> <li>3) We are all Thai's and are midway residents. We would like to resume recreational fishing at Midway for on-island consumption to be eaten at The Clipper House. We will not fish from within the atoll's fringing reef due to the threat of ciguatera poisoning. Hope for your kind and favourable consideration.</li> <li>4) As a resident of Midway Atoll, I believe that sustenance fishing should be allowed, 1) to increase moral of the community, 2) reduce cost in providing fresh fish, 3) reduce cost in transporting supplies (i.e., foodstuff) to the island. Due to the small number of personnel living on Sand Island, the impact to the environment will be negligible.</li> <li>5) As a Midway Resident I would respectfully ask that Sustenance Fishing be allowed for people living and working here at Midway on a permanent basis. This will reduce the cost of flying frozen fish from Honolulu. Also, it would provide a productive recreational activity for island residents.</li> </ol>
16-03. Response	The MMB proposes to allow sustenance fishing at Midway Atoll NWR, as described in the draft Compatibility Determination for Sustenance Fishing in Appendix C of Volume III of the Monument Management Plan. This Determination gives very specific conditions under which fishing would be allowed and strict limits on types and quantities and areas where fish could be taken.
<b>Unique Comments</b>	
16-04.	Section 3.4.3 - page 240 - Line 17 - Visitor Impact. This statement is misleading. As one of the designers and data

<b>Comment Category 16 - Midway</b>	
Comment	<p>recorders for the collection of wildlife disturbance data during the past visitor program on Midway, there was ample wildlife disturbance related to visitors and boat operators observed at Midway. A more accurate reflection of what was recorded and observed in the past, is that with;</p> <ol style="list-style-type: none"> <li>1. Proper staffing (rangers that are actively out patrolling the island at the same times visitors are, and not in their offices, are able to help visitors interpret wildlife viewing rules);</li> <li>2. Thorough orientations;</li> <li>3. An active program of rangers patrolling the island looking for disturbance events (this is critical not in ‘catching visitors’ but rather in helping staff understand where problem areas are and in learning what orientation messages are not being understood by the visitors). wildlife disturbance events related to visitation can be successfully mitigated and adapted to changing numbers or behaviors of both the wildlife and the visitors. However if any one of the above needs is not fully met the potential for visitors to have detrimental impacts to sensitive wildlife is likely.</li> </ol>
16-04. Response	<p>Our experience with the Midway visitor program from 1997 to 2002 and in the short trial period in 2008 supports your conclusions. A law enforcement officer who interacts in the field with visitors and island residents will help prevent disturbance and closed area violations. A good orientation program that educates and informs all visitors to Midway is also needed and sets the tone for a successful visit. Our hope is that the law enforcement officer will help prevent problems before they occur.</p>
16-05. Comment	<p>Since the Midway Atoll will be open to the public, the US Fish and Wildlife is required to conduct a self evaluation of the all the resources, services and programs, to decide which will be open to the public and be in compliance under FWS – 43 CFR 17 Subpart E Section 17.510 and DOI directives. This FWS federal regulation requirement is to make programs, services, operations, and facility provisions for individuals with disabilities who can travel and visit the Monument. Please forward a copy of the current 43 CFR 17 Subpart E self evaluation and the written requirements for concessionaires, cooperating associates, and contractors to the address below. Thank you for providing this opportunity to ask questions and submit public comments.</p>
16-05. Response	<p>A team of Fish and Wildlife Service, Region 1, Division of Diversity and Civil Rights personnel, including a full-time accessibility coordinator, is scheduled to conduct an on-site comprehensive accessibility evaluation of the public programs, activities, and facilities at Midway Atoll National Wildlife Refuge. The data obtained from the accessibility evaluation will be used to develop a transition plan for removing barriers to accessing these programs, activities, and facilities. Persons with disabilities will participate in the evaluation. The accessibility evaluation will be completed within a year of the Monument Management Plan’s approval. The Midway Atoll NWR Accessibility Evaluation Report</p>

<b>Comment Category 16 - Midway</b>	
	<p>and Transition Plan will be available for public inspection within 30 days thereafter, on written request or at the Midway Atoll National Wildlife Refuge Web site (<a href="http://www.fws.gov/Midway">www.fws.gov/Midway</a>) for at least three years. In the Need for Action section in Volume 1, 3.6.3 Coordinated Field Operations Plan, the Monument Management Plan specifically states that facilities and other infrastructure will comply with the Americans with Disabilities Act.</p> <p>To obtain a copy of 43 CFR Part 17, Subpart E, Section 17.510 (Nondiscrimination in Federally Assisted Programs of the Department of the Interior), please write to the Fish and Wildlife Service, Division of Diversity and Civil Rights at 911 NE 11th Avenue, Portland, Oregon 97232 or telephone (503) 736-4785. E-mail requests should be sent to <a href="mailto:angela_butsch@fws.gov">angela_butsch@fws.gov</a>. For further info contact Dana Perez, Chief, DCR at (503) 231-2260</p>
16-06. Comment	Don't provide any other visitor housing other than the Bravo and Charlie barracks.
16-06. Response	Only Charlie Barracks is used for visitors at this time. However, because this is a 15-year plan, Charlie Barracks is expected to need replacing within this period. Any new facility would be designed to be more energy efficient and fully accessible but not necessarily larger. New housing is described in the plan to provide safer better lodging for visitors not to increase capacity. However, note that an increase in housing capacity for residents will be required over time as the on-island Co-Trustee work force expands to meet the increased role of Midway in supporting the monument.
16-07. Comment	Things I would like to see at Midway Atoll as a current resident, 1. On and Off shore fishing, 2. Scuba Diving, 3. Golf Course or Driving Range, 4. Open up all the beaches, 5. Paved Roads, 6. New Housing for the residents, 7. Short Order Grill, 8. Better/faster airplane to get us on and off island, 9. Swimming Pool, and 10. Being able to catch lobster.
16-07. Response	Your ideas cover a wide range of topics, some of which are addressed and proposed in the draft plan, and others that are not. First, you should know that the National Wildlife Refuge System Administration Act of 1966, as amended, requires that any proposed or existing use of a national wildlife refuge must be appropriate and not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of Midway Atoll National Wildlife Refuge. For the most part, approved recreation on a refuge is wildlife dependent. Scuba diving is an example of an idea that can be wildlife dependent and is a proposed future public use at Midway. However, golfing or a driving range is not wildlife dependent and is not planned. Further, sportfishing, including taking lobsters, is prohibited by Presidential Proclamation 8031, which established the Monument. New safer housing for Midway residents is a priority project and is included in all appropriate FWS databases used for budget formulation, but a swimming pool, which is not mission critical, is not. Current beach restrictions were established to protect Hawaiian monk seals and green sea turtles, and they have worked well for those species. No change is proposed to this policy.

<b>Comment Category 16 - Midway</b>	
16-08. Comment	What will happen when a growing population living on Midway (as well as the other neighboring atolls) finds that fresh water has been pumped out too rapidly, has not been replaced by rain, the result being saltwater intrusion?
16-08. Response	The preferred alternative in the Draft Midway Atoll NWR Conceptual Site Plan has been adopted in the final plan, limiting the total population on Midway to approximately 150 people. The rainwater catchment system was designed for a significantly larger military population, and more than a year's worth of water is stored on the island. Midway receives an average of 42 inches of rain annually, more than enough to sustain its population.
16-09. Comment	So I think I'm in favor of having Midway Atoll, which has had a history of human visitation, perhaps be the -- maybe the only atoll that has human visitation. I'm afraid, having read KAHEA's -- several of their newsletters online, there's another fear that if we open the door too wide, we're going to next see cruise ships and we're going to have inappropriate tourism and we're going to see -- again, we're going to see too much interference. So before I get to that article, I'm going to add one more thing, which is, for example -- Let me give you an example. Midway Atoll, since we have the technology -- I'm going to make an analogy here. Koko, the silverback gorilla, who spent years as a diplomat in the world of zoos and was over-visited and over-poked at and over-pointed to has come to Maui or is going to come to Maui for her retirement. And what has been decided is that, yes, the schoolchildren should still be able to communicate with her, but let her have her time of retirement and bring a technology at the foot of this sanctuary where the kids can interact through high technology and not actually poking their faces once again in her face.
16-09. Response	Under Activity CBO-1.5, we will research and implement new technologies and tools to increase public understanding of NWHI ecosystems, including the use of telepresence technologies (communication technology that gives the feeling of being present at a remote location, such as the Monument).
16-10. Comment	I would like to ask for the gymnasium because I read through the book Volume IV. It say about demolish or change for emergency shelter. I recommit to rebuild or relocation for the island residents exercise or get more activity.
16-10. Response	The health and safety of staff will be taken into consideration before any changes to physical fitness facilities are made.
16-11. Comment	Although much has been planned for increased tourist quarters, nothing in the plan mentions disability access. Indeed the building plans included show disability access is NOT considered. The ADA is still the law of the land although the current administration seems to ignore it.
16-11. Response	Although the drawings shown in the Conceptual Site Plan were given only to show the general theme, we inadvertently omitted a reference that all building must comply with federal law regarding accessibility. This has been corrected in the



<b>Comment Category 16 - Midway</b>	
	final plan and most assuredly will be included when full plans for future buildings are developed.
16-12. Comment	<p>Section 3.1 - page 105 - Understanding &amp; Interpreting NWHI</p> <p>This section should better speak to the importance of Midway Atoll to this mission. As the only accessible ‘window’ into the monument for many educators, researchers, native Hawaiians, and other visitors, more thought should be devoted to the important and visible role Midway specifically will play in this goal. Maybe some thought should be given to adding an additional Action Plan outlining the ‘Development of Educational and Wildlife Tourism Opportunities at Midway’ It seems odd to acknowledge Midway’s role in the ‘Historic Resources’ action plan but then not specifically speak to its role in the ‘Marine Conservation’ action plan, as well as its specific potential to directly realize the monuments educational and interpretive goals.</p>
16-12. Response	The Co-Trustees recognize the importance of Midway Atoll for educational and visitor activities. Action plans that address these activities are Midway Atoll Visitor Services and Ocean Ecosystems Literacy. In addition, the Midway Atoll Visitor Services Plan in Volume III, Appendix B describes these activities.
16-13. Comment	<p>Section 3.4.3 - page 238 - Line 34 - Need for action section</p> <p>In the past visitor programs to Midway have also demonstrated not only ‘connection and commitment’ to protecting Monument resources, but more importantly a true understanding of the fragility of the NWHI ecosystem, and support for the limited access and visitor restrictions that must be maintained by the Monument. As there is not a ‘resident’ constituent population on these atolls, it is extremely critical to the long term support of the Monument that a ‘National’ support base be developed and maintained that not only connects with nature but comprehends the challenges and expenses of this remote and very large protected area</p>
16-13. Response	By physically experiencing the NWHI, visitors will return home with a true understanding of the fragility of its ecosystem, a personal connection and commitment to protecting and conserving the Monument’s unique resources, and an understanding of and support for the limited access and visitor restrictions that must be maintained.
16-14. Comment	Midway Atoll is a US Territory and as such the State of Hawaii does not have enforcement authority for environmental or health concerns (i.e., environmental permits). Who will have permitting authority for permits such as National Pollutant Discharge Elimination System (NPDES) and air quality? EPA Region 9 does not list Midway as one of the areas of concern or enforcement. Currently environmental, health and Safety fall under the Fish and Wildlife Services (FWS) which incorporate much of the federal EPA standards, but not all or as stringent. In addition, there is no real oversight authority to ensure compliance. As stated in the monument plan, there will be an increase in personnel

<b>Comment Category 16 - Midway</b>	
	(construction, visitors and residence) all of which will impact the local environment by increasing that amount of solid/hazardous waste generated on island. Current operations require that all waste be separated by type (plastic vs. recyclable metals). Most waste is either incinerated or landfilled on island. Plans need to be developed to manage this increase as landfill space is a premium and the incinerator is not rated to handle a large increase in waste.
16-14. Response	<p>All FWS facilities constructed or operated outside the US, at a minimum, must comply with the environmental laws and regulations of general applicability in the host country or jurisdiction. For those FWS facilities in US territories or possessions not included in the 50 states, we follow the environmental laws and regulations of the US as though they applied.</p> <p>The FWS has requirements for complying with environmental laws and regulations at its facilities. The requirements are in the FWS Manual, specifically Part 560, Pollution at FWS Facilities, Environmental Compliance 560 FW 1. These requirements meet or exceed all applicable federal environmental laws and regulations.</p> <p>Our objective is to comply with all applicable environmental laws and regulations when performing our activities and when designing, constructing, managing, operating, and maintaining our facilities. In addition, it is our policy to implement sustainable management practices that move beyond full compliance with environmental laws and regulations and set an example in environmental leadership.</p> <p>The Division of Engineering, Branch of Environmental Compliance develops policy and provides technical assistance and regulatory guidance to FWS regions and field offices, including managing our national environmental audit and compliance efforts. Regular audits are conducted to ensure compliance with applicable environmental laws and regulations.</p>
16-15. Comment	Page 165: Then environmental impacts section notes that there are occasional bird strikes during take off and landing of aircraft at Sand Island at Midway and Tern Island at French Frigate Shoal. Furthermore, the document states that Midway experiences 45 flights per year and FFS 27 flights per year. As these are National Wildlife Refuges, there should be specific estimates on the number of strikes that occur annually and should be included in the EA. Without a clear estimation on the number of seabird strikes with airplanes per year, it is difficult for the reader to ascertain this apparent impact on seabirds.
16-15. Response	We have added information about bird strikes at Midway.
16-16.	On my first trip to Midway in the 90's I went simply as a visitor – not with any group. I was moved by the beauty of the

<b>Comment Category 16 - Midway</b>	
Comment	Atoll and the vast number of birds. I tagged along with some of the “birders” visiting with an Oceanic Society Expedition but was otherwise on my own. I don’t recommend this for your future visitors. I read in your Plan that you are considering allowing some people to come without being part of an organized educational group like OSE. I think this is a bad idea.
16-16. Response	Due to the large number of requests we have received over the years for independent visits to Midway, we feel it is important to offer a limited number of these opportunities. Some visitors are unable or unwilling to participate in sponsored group tours.
16-17. Comment	My reason for writing is to urge you to continue the visitor plan. It has been an honor to visit Midway. The opportunity to be with and among the wildlife is extraordinary and unprecedented in my experience. In short, my experiences have shown that the educational and advocacy goals of the visitor program are working. I am glad to see that visitor programs are part of the long-range plans.
16-17. Response	The MMB supports visitors to Midway, as described in the Midway Atoll Visitor Services Plan (see Volume III, Appendix B).
16-18. Comment	I believe that the pricing of the Midway trip is likely to lead to an unsustainable market. Section 4.13 on “Fee Programs” emphasizes “reasonable fees.” This reflects a “cost-covering” approach as opposed to a managed image approach. Fees should be used not just to offset costs but managed in order 1) to establish a perceived high value for the product and 2) to support other costs, including subsidized travel for educators, cultural practitioners and others.
16-18. Response	Most commenters felt the proposed cost structure for visiting Midway Atoll was already too high. We continue to encourage groups such as educators and cultural practitioners to seek grants to help cover the cost of visiting Midway.
16-19. Comment	Careful and (ideally) sustainable ecotourism opportunities can resume at Midway using existing infrastructure, upgraded as needed. To minimize impacts, regulations to prevent introduction of pest species should be in place. All food and other rubbish should be removed by tour operators. Energy (for lighting, etc) should be generated using solar, wind or other non-polluting means. Timing of flights should be coordinated with nesting patterns of birds. All tourism, virtual and physical, should include an extensive educational aspect to build understanding and support for protected places and native species.
16-19. Response	We agree, and all of these concepts are included within the Midway visitor program and Conceptual Site Plan.
16-20.	We are surprised and disappointed to see that there is no work underway to address the known lead point poisoning of

<b>Comment Category 16 - Midway</b>	
Comment	birds (including potentially short-tailed albatrosses) on Midway. Managers and scientists have been aware of this reprehensible situation for years and it is fully in the managers' control yet nothing has been done.
16-20. Response	Lead-based paint (LBP) abatement work started on Midway in 2007. By the end of Fiscal Year 2009, 15 buildings will have had their LBP either removed (on concrete houses) or encapsulated (on buildings with asbestos siding). The FWS is evaluating the soil around buildings with LBP to determine the level of cleanup required to make the environment safe for wildlife and people.
16-21. Comment	The Management Plan has generated some controversy regarding the proposed expansion of visitor activities at Midway. I think the proposal for gradual expansion and periodic reassessment is sound. Regrettably, the cost of the trip, the seasonal operation and the necessary limits on visitation will exclude many interested people from enjoying this wonderful place. This will be mitigated, at least in part, by the proposed off site educational opportunities.
16-21. Response	Thank you for your comment.
16-22. Comment	Regarding the Midway Conceptual Plan, the fact that another approach was "preferred" is not adequate justification for not analyzing Alternative C for Midway. Preferences and concerns from the public should be considered before such decisions are made, but they need full information on which to base their comments. Alternative C for Midway should be included in the EA, not summarily dismissed by the plan/EA drafters.
16-22. Response	While the statement that Alternative C is not preferred is true, the section also states that the infrastructure cannot accommodate the number of staff and contractors described. In addition, the restrictions that would be required for visitation are not consistent with the intent for Midway to serve as the only portion of the Monument open to the public. Based on these associated issues, Alternative C is not a reasonable alternative and would not be appropriate for analysis.
16-23. Comment	I understand that over by the hanger where the plane comes in you're going to expand the WW2 display. Create another area that is dedicated to Hawaiian Culture...the creation myths, their voyaging history, the culture, info on the archaeological sites in the Monument, etc. The NWHI are the Kupuna islands...make this come alive for people in words, pictures, song and chant. Have it dedicated and blessed by the Kupuna from each of the Hawaiian islands.
16-23. Response	The Midway Atoll Visitor Services Plan includes a strategy calling for restoring a historic building to house a permanent museum and library that would include exhibits about the importance of the NWHI in Native Hawaiian culture. Detailed plans for the facility will be included within a Midway Atoll Interpretive Plan to be developed in the future.
16-24.	Section 3.4.2 - page 234 - Line 1 - Increase Law Enforcement capacity on Midway. This section infers that an increase in

<b>Comment Category 16 - Midway</b>	
Comment	'recreational activities' at Midway somehow is responsible for needing more law enforcement capabilities. This is not a true statement. Past tourism at much larger numbers did not result in greater law enforcement needs at Midway. In fact the most common source of Law Enforcement needs has been (and continues to be) related to Coast Guard and NOAA boat crews (as well as year round residents) and consumption of alcohol. This distinction is important, if one believes a Law Officer is required for a successful visitor program then the conclusion is that the visitor program should bear the cost of this need. In this case that would not be valid logic. Adding tourism to Midway will not significantly change enforcement needs at Midway and tourism programs should not be looked at as the reason enforcement needs will increase at Midway
16-24. Response	Our experience with visitors to Midway from 1997 to 2002 has shown that a law enforcement officer is needed when visitors are on the island. This officer functions as a source of information for our visitors, as well as an added level of protection from disturbance for our sensitive endangered species. This person will also provide needed enforcement at all times, not only when tour groups are visiting.
16-25. Comment	Midway island - concern about the use of chemicals, would like to see a prohibition of all chemicals.
16-25. Response	Thank you for your comment on the use of chemicals at Midway. We understand and share you concern about the use of chemicals but disagree with the idea of a complete prohibition. We use chemicals in many aspects of facility and equipment maintenance, and those chemicals are necessary to keep Midway operating. It is our responsibility to ensure that those chemicals are used and disposed of properly, which we do in all cases. We also use chemicals to control invasive plants. Without those chemicals, primarily glyphosate, golden crown beard control would not be possible. The continued expansion of golden crown beard is a real threat to the albatross that are so dependent on Midway for rearing their young. Our goal is to reduce these invasive plants to a low level where the amount of chemical used each year for control is minimal. We follow all regulations and the label for use of all chemicals to ensure that their use is safe. Because Midway is a critical bird colony area, many chemicals that are normally used for weed control, for example 2,4-D, are not used due to possible negative impacts on the birds. Those chemicals we do use have been approved for use by the FWS after extensive review.
16-26. Comment	Section 2.2 - page 85 - Starting line 32 - Midway becomes wholly NWR  No mention that since that time (1996) Midway has been open to tourism and that from 1996 - 2001 approximately 500 or more tourists a year visited. Nowhere in this paragraph does it mention that the described refuge purposes were successfully carried out.

<b>Comment Category 16 - Midway</b>	
16-26. Response	This information is included within the Midway Atoll Visitor Services Action Plan, under Current Status and Background. It is more appropriate in this section than in the policy section of the document.
16-27. Comment	<p>I am concerned that the Draft Management Plan does not provide enough detail as to how and when lead contamination will be removed from Midway Atoll. My past work has demonstrated that Laysan albatross chicks nesting near buildings on Midway Atoll are lethally exposed to lead from ingestion of lead-based paint [6]. Furthermore, my current research on the impacts of lead poisoning to Laysan albatross chicks (manuscript in preparation) demonstrates that lead poisoning is indeed having a measurable detrimental effect on the Midway Laysan albatross population. Although the exact number of lead poisoned Laysan albatross chicks per year is unknown, recent surveys (2006) have estimated that up to 10,000 chicks are at risk for lead poisoning each year.</p> <p>Based on my work over the past 9 years on the lead poisoning of Laysan albatross on Midway Atoll, here is a summary of my recommendations for this very serious concern to both wildlife and human health: Currently ~95 structures exist on Sand Island with exterior and interior lead-based paint. Approximately two-thirds of these buildings are unused and/or abandoned. Because many of these buildings contain asbestos in addition to lead-based paint, the proper removal of these buildings is paramount to the safety of human and wildlife health on the island. As the deterioration of these buildings continues, the hazards they represent will increase in terms of structural integrity (e.g., falling plaster) and increased dispersal of lead-based paint chips and asbestos materials. The oldest buildings on Sand Island, the cable company buildings constructed in 1904 [7], are extremely deteriorated; surveys in 2001, 2004 and 2006 reported the highest numbers of droopwing chicks around these structures. Neglecting to properly remove and dispose of the unused and abandoned buildings on Sand Island will result in lead-poisoned Laysan albatross chicks for decades and possibly centuries to come.</p> <p>Midway Atoll NWR is subject to extreme weathering processes and proper containment of deteriorating lead-based paint should be conducted expeditiously in accordance with the U.S. Department of Housing and Urban Development Guidelines for the Evaluation and Control of Lead-based Paint Hazards in Housing (1997).</p> <p>Extreme caution should be used when removing lead-based paint from buildings in order to prevent additional incidental exposure to chicks; past researchers observed that routine maintenance of a building on Midway without proper containment of paint chips resulted in large numbers of droopwing chicks. The removal of building structures that contain lead-based paint from Sand Island is the most permanent solution for the problem, and is advised to minimize future lead poisoning. Any buildings with lead-based paint that left on the island should be abated and encapsulated by certified contractors and it is imperative that funds are allocated to maintain the encapsulation of these buildings on a</p>

<b>Comment Category 16 - Midway</b>	
	<p>regular basis.</p> <p>Failure to comprehensively remediate the lead-based paint problem will result in continued poisoning of Laysan albatross chicks, a globally listed species. Furthermore, the lead concentrations measured from paint samples on Sand Island, Midway Atoll pose a possible human health risk: Under the Toxic Substances Control Act (TSCA), paint, dust, and soil are sources of lead that constitute lead-based paint hazards if exposure to them “would result” in adverse human health effects.</p>
16-27. Response	<p>We recognize the negative impact of lead, and other contaminants, on the natural resources of Midway Atoll. In 2008 the FWS received \$1.2 million to address health and safety issues on Midway, including issues related to lead-based paint. Work has begun on encapsulating or removing the lead-based paint and the transient housing. We have also begun studies on the soil around all lead-based painted buildings to determine the proper steps needed to mitigate for contaminants in the soil. All personnel working with lead-based paint have received proper training and certification to work with the anticipated level of contaminants.</p>
16-28. Comment	<p>Volume III Midway Atoll NWR Conceptual Site Plan Alternatives Development (page 30)</p> <p>Throughout the narrative and charts for alternatives development, some buildings are recommended for “ruins state.” This is not a recognized treatment for historic structures and is undefined elsewhere in the document. The existing historic preservation plan, still in effect, calls for one or more of six treatments: reuse, secure, leave as-is, fill in, demolish, or relocate. “Ruins” is a new, undefined term and should not be recommended as a treatment option.</p>
16-28. Response	<p>We agree and have modified Volume IV to reflect the actual treatment type proposed. The FWS will address specific changes.</p>
16-29. Comment	<p>3.4.3 Midway Atoll Visitor Services Action Plan &amp; Appendix C – Draft visitor services plan</p> <p>The DMMP recognizes that one of the ways that the overnight visitor limit might be exceeded would be day-visitors by cruise ship. Cruise ship passenger size would be a maximum of 800 visitors. According to the DMMP they would: “...offload their passengers in groups of up to 100 in the ships’ tenders...passengers disembark and are divided into groups for a 2-hour walking tour...each group is accompanied by tour guides from the ship to ensure the passengers remain on the clearly marked guided tour route.” The interim management plan stated that cruise ship guests would be moving around in groups of 50 (twice the size of non-cruise ship groups allowed in the interim plan). We are concerned that such large groups would be difficult to supervise and encourage maintaining group size for all visitors at 25 people.</p>



<b>Comment Category 16 - Midway</b>	
	<p>In the past, 90 people were allowed to disembark at one time with no more than 400 passengers on land at once. Currently, however, the number allowed on land (during cruise ship visits) at one time has not been clearly stated in the draft plan. The DMMP should clearly state how many people will be permitted on land at any one time. The DMMP notes that cruise ship visitors will be briefed before visitors arrive at Midway: “For cruise ships, briefings are either given on board the ship prior to arrival or, if no FWS-approved guides are on board, via written materials developed by the cruise ship company in coordination with FWS and Monument Co-Trustees. Since all cruise ship visitors are guided in small groups from one site to another along existing roads, these methods of orientation suffice.” Ocean Conservancy appreciates efforts to educate visitors in advance but we strongly caution against relying in any way on such briefings. Cruise ship visitors enjoying their vacations are very unlikely to pay serious attention to such briefings and materials and must be adequately supervised at all times to ensure strict compliance with Monument regulations and protocols. We believe that requiring small group size (not more than 25 people) and authorized guides is the only way to both provide access to cruise ship visitors and ensure adequate protection of Monument resources.</p>
16-29. Response	<p>Because large groups of visitors are limited to roads and trails and are accompanied and monitored by guides during their entire visit, we have not documented any negative impacts from 50-person groups. Visitors remain in areas where albatrosses are already acclimated to human presence, and they are restricted from any area where Hawaiian monk seals or green turtles are present. We have modified the Midway Atoll Visitor Services Plan to clearly state that no more than 400 people may be ashore at Midway at any one time, unless refuge management has approved a larger number to participate in a special event, such as a ceremony commemorating the Battle of Midway.</p>
16-30. Comment	<p>Overnight limits at Midway might also be exceeded if additional visitors arrive by aircraft. The DMMP notes that currently, “The limit of no more than 50 overnight visitors to Midway at any one time reflects the limited capacity of our means of transportation and island infrastructure. Our Fiscal Year 2008 aircraft charter company operates a Gulfstream G-1 aircraft with 19 seats and a weight capacity of 3,200 pounds. Therefore it is likely that no more than 15 seats will be available on any flight.” However, one of the stated goals of the plan is: Strategy 1.3 By December 2008, seek larger capacity aircraft to service Midway Atoll on a regular basis. This is clarified further in the DMMP: “Our goal would be to be able to transport 25-30 visitors to and from Midway per flight.” Conceivably, Midway could therefore host 100 residents, 50 overnight guests, 100 cruise ship visitors and up to 30 visitors arriving (and departing same day) by plane for a total of 280 people. Again, we believe that optimal and maximum visitation numbers should be included in the document.</p>
16-30. Response	<p>We note that visitors arriving for weeklong visits versus one-day visits may have different expectations of quality of visitor experience, and we hope to meet those differing expectations by scheduling such groups at different times. Should</p>

<b>Comment Category 16 - Midway</b>	
	50 overnight visitors be on Midway at the time of a large group event, we would still limit the total number of visitors on Midway to no more than 400 at any one time.
16-31. Comment	<p>3.4.3 Midway Atoll Visitor Services Action Plan &amp; Appendix C – Draft visitor services plan</p> <p>Ocean Conservancy strongly supports Activity VS-1.3: Continuously monitor the impacts of visitors and other users on wildlife and historic resources to ensure their protection. We urge inclusion of the visitor impact monitoring methodology referred to in the Draft Visitors Services Plan in the DMMP. Monitoring visitor impact is very important, particularly because while FWS allowed up to 100 overnight visitors from 1996 to 2002, concessions never reached the maximal number. Additionally, only once in 2004 did the number of cruise ships visiting Midway in a calendar year total three; in each of the years 2005-2007, only one cruise ship visited Midway, and in 2008 zero cruise ships visited Midway.<sup>66</sup> It will be important for the Co-Trustees to quickly determine and establish a baseline of current conditions of natural and historic resources from which to measure future impacts, and, if necessary, to change the number of permittees granted access to Midway, based on ecological carrying capacities. Monitoring population and behavioral characteristics of Threatened and Endangered species should also be given preference, and activity adjusted accordingly. As, after the Navy transferred Midway jurisdiction to FWS, from 1995 to 2000 the mean number of seals counted on the beach steadily increased, in the reduction of human disturbance. The population doubled on Midway, and for the first time seals were giving birth on Sand Island. It is imperative to keep disturbances to a minimum because the monk seal population in the NWHI is declining, and other stresses should be minimized to ensure resiliency in the population.</p> <p>On page 16 of Appendix C in the second paragraph of section 3.2 Visitor Capacity and Scheduling, in the sentence discussing visitors by sailboat that starts: “Although visitors arriving by sailboat will not require rooms, they will still be counted toward the total number of visitors...” We recommend that you insert the word “overnight” to read: “the total number of overnight visitors...” [emphasis added] Adding the word “overnight” provides clarification that these visitors will be included with and counted towards the 50-visitor limit instead of those that might occasionally exceed this limit.</p>
16-31. Response	We agree that monitoring the impact of visitors is very important. Refuge management has the authority to immediately alter any aspect of the visitor program deemed to have a negative impact on wildlife or historic resources. You are correct that the number of visitors arriving by sailboat count toward the total number of overnight visitors, and we have modified the text in the Midway Atoll Visitor Services Plan accordingly.
16-32. Comment	<p>Page 15 of the Midway Atoll Conceptual Site Plan states that:</p> <p>“Midway is a predator-dominated marine ecosystem, an anomaly among marine ecosystems...” We recommend phrasing it as “Midway is one of the few remaining predator-dominated marine ecosystems...” [emphasis added]</p>

<b>Comment Category 16 - Midway</b>	
16-32. Response	We have made your suggested change in the document.
16-33. Comment	<p>Conceptual Site Plan – Midway Atoll</p> <p>Ocean Conservancy believes that the capacity of Midway Atoll to accommodate (any) visitors and to tolerate their impact without the loss of ecological integrity or resilience is an important consideration. Therefore, we can not support and strongly oppose implementation of Alternative C – since one of the “cons” identified is: “greater increases in visitor volumes may impact some resources and may exceed Midway’s carrying capacity.” We believe that exceeding the maximum capacity would not be compatible with the purposes of the refuge and the mission of the National Wildlife Refuge System and the Monument declaration.</p> <p>We are supportive of some of the improvements in the preferred alternative, B, in particular the Monk Seal Captive Care Facility and a quarantine facility, which, we believe should be given priority in the development process. However, we question the need to construct and erect a new dock at the seaplane/boat ramp and the need to add three new finger docks. The construction of additional docks would provide for and enable excessive boat traffic and are not justified in the Conceptual Site Plan. Construction of dock and piers could also disturb nearshore marine communities that are sensitive to small changes in water quality, which would be caused by the proposed in-water construction. We question the need for the additional finger piers – that would provide more docking for small and mid-sized boats, while yet still maintaining the tug pier and current finger pier. We recommend instead considering converting the sea plane facility into a landing/dock area. This alternative would concentrate development (and associated impacts) in one area, the west, instead of developing in the north, northeast and northwest portions of the inner harbor.</p>
16-33. Response	We have selected our preferred alternative, Alternative B, in the Midway Conceptual Site Plan. The piers at Midway Atoll are in poor condition, and as the atoll takes on a broader role in Monument operations, we anticipate the need to replace them. We will consider the impacts identified in your comments before locating and constructing the finger piers. Factors to be considered in our decision include water depth, condition of the bulkhead, wind patterns, boat traffic patterns, siltation patterns, opportunities to consolidate uses, conflicts with the fuel farm, and potential impacts on marine and terrestrial habitats and communities. Our goal is to provide a sufficient number and types of docking facilities that are sustainable, functional, and safe for Monument operations, people, and wildlife.
16-34. Comment	For example, it was confusing to me to determine who, under the plan, has responsibility for the water at Midway. And where does that responsibility change as you get farther away from the islands? And how does this Special Management Area at Midway fit into it? Again, I think it’s pretty confusing.

<b>Comment Category 16 - Midway</b>	
16-34. Response	There are a number of Executive Orders, Presidential Proclamations, federal and state laws that deal with jurisdiction of land, water, species, and other resources that are too complicated to describe here. In many cases jurisdictions and responsibilities overlap. Under the new regime of co-management, the co-trustees are able to combine efforts to better manage and protect the Monument."
16-35. Comment	I was concerned because there's gonna be -- even when they start removing the buildings that need to be removed -- there's going to be a huge amount of debris. There's already old trucks, old stuff that's just sitting around in the harbor.  I really think that there needs to be some sort of ship, whatever comes down to pick up that stuff. We need to start removing it. They're having problems because of the cost of the gas. I think Congress can provide in the next couple of years a ship or two a year depending upon whatever management needs, which is over and above their budget what they're working with now.
16-35. Response	We recognize the need to, and the logistical challenges associated with, removing debris from Midway. We are working with the Department of Defense on a program that will bring military salvage vessels into the Monument to remove debris. We are also working with the private sector (specifically Schnitzer Steel) in Hawai'i to find ecologically responsible ways to dispose of the debris once it reaches O'ahu. We will continue to look for ways to use all transport/logistical assets in and around the Monument for debris removal.
16-36. Comment	As part of the Habitat Management and Conservation Plan, the proposed actions should better address the population-level impact of lead-based paint on albatross populations nesting on Midway Island and prioritize the clean-up of all buildings with lead-based paint in order to eliminate this threat. The Draft Management Plan does not adequately acknowledge that ingestion of lead-based paint from buildings on Midway Island leads high mortality of Laysan albatross chicks by causing droopwing (Finkelstein et al. 2003). An estimated 10,000 chicks per year may be exposed to lethal lead levels, which is a significant portion of the population (Finkelstein 2006). Given the importance of Midway in supporting the largest breeding populations of Laysan and Black-footed albatross, sources of lead-contaminated paint should be comprehensively eliminated to prevent lethal or sub-lethal effects on albatross.
16-36. Response	We recognize the negative impact of lead and other contaminants on the natural resources of Midway Atoll. In 2008, the FWS received \$1.2 million to address health and safety issues on Midway, including issues related to lead-based paint. Work has begun on encapsulating or removing the lead-based paint and transient housing. We have also begun studies on the soil around all lead-based painted buildings to determine the proper steps needed to mitigate for contaminants in the soil. All personnel working with lead-based paint have received proper training and certification required to work with the anticipated level of contaminants. We also recognize that the historic Cable Station buildings are in disrepair and

**Comment Category 16 - Midway**

	contribute to the number of “droopwing” albatross chicks. The FWS is consulting with the Hawai’i Historic Preservation Office to remove significant portions of the Cable Station complex and to abate the lead-based paint on the remaining buildings and ruins.
--	---

**Comment Category 17 - Military****Summarized Comments**17-01.  
Comment

The comments below suggest that the military not use the Monument for training. The range of responses was from disbelief to outrage that the military is allowed to use the area for training.

Comments:

- 1) I want to know why the military is practicing in this sacred area and firing weapons with depleted uranium into the waters there ? This news is from someone in the military there who is witnessing this action .. Depleted uranium should be banned ...it is illegal ,deadly and lasts forever !! This needs to be investigated immediately .. Do not hesitate on this matter please ! this is a heads up !..
- 2) Specifically, I disagree with the provisions that would allow...the unrestricted use of the area for military activity.
- 3) Please keep the military and fishing industry OUT OF Papahanaumokuakea. They do not belong there, and their presence there causes irreversible damage.
- 4) No military operations and testing allowed in NWHI
- 5) US military out of Papahanaumokuakea
- 6) Activities and exercises of the Armed Services must stop. These exemptions create much debris
- 7) Don't allow military usage of the Monument.
- 8) There are, of course, tremendous concerns about the military activities. Those are well documented. The threats are well documented. We had, I remember, a fisherman reporting -- a fisherman who was a member of the Reserve Council reporting at a RAC meeting having seen carpet bombing exercises over the protected area. This was a few years back. So again, carpet bombing, these military activities absolutely unacceptable in this protected area. There is no reason for them to do this in this area.
- 9) Oh, one more thing. It just kind of dawned on me. Does the military have plans to do anything in Yosemite or the Alamo or Yellowstone? Because if they're not going to do stuff there then I don't really think they should be doing it on the last coral reef of its kind on the planet.
- 10) Finally, I'm concerned about the implications for humanity as a whole as the U.S. increases it's militaristic presence around the world and the manner in which the use of Hawai'i as training ground facilitates U.S. military presence around the globe with particularly negative impacts on the population of the globe itself.

**Comment Category 17 - Military**

- 11) One, the navy occasionally does some very inappropriate things. And I have been fighting the low, mid and high level range -- frequency range of sonar testing in these waters both on the Hawaiian Islands -- main Hawaiian Islands and our kupuna islands, which are the Papahānaumokuākea. And I adamantly that the navy does not belong in these waters under any circumstances.
- The navy has no business in there unless to add another hand, as the last speaker had said, in surveillance, appropriate surveillance, to help get satellite information on ships that are perhaps still bottom line fishing or whatever illegal activities are undoubtedly going to take place because of the Coast Guard issue, the fact that we don't have enough enforcement ships and personnel out there. The same here thing here in the main Hawaiian Islands, we're understaffed.
- 12) Section 3.1 (New) Remediation and Restoration Plan. Immediately intervene to stop Military use of Monument waters and air space for exercises and practices such as the current Rim Pac exercises threatening marine life with high level sonar and risking exposure to toxicants and military debris. Military usage of Monument can and should be limited to very limited usage of Midway Atoll.
- 13) The intent for the marine Monument was to create a sanctuary, a pu'uhonua. The Na Koa Ikaika supports Hawaiian culture and traditions. Moreover, we believe in the protection of our natural resources. The Navy's proposals turned this sanctuary into a farce, a piece of paper, an entity where the Navy can act with impunity, bomb and destroy, pollute at will. All activities which undermine the integrity of the entire archipelago must stop. Pau. You've already done an excellent job of destroying Hawai'i. Pau with your military assaults, training, missile launches and interception. At least we can perhaps maintain the sanctity and relative purity of the Northwestern Hawaiian Islands.
- 14) And all the stuff, these 1200 pages, all the work the last 10 years trying to protect this place because one missile goes astray and blows up Nihoa. There are four, at least, I've just learned this, four species at least that are found nowhere else but on Nihoa. I want to talk about what kind of mitigation plan the military proposes for minimizing the loss of these four species if something goes wrong. The reality is that the co-managers, you're the only ones who have the authority to ask them for mitigations. That is why we are looking to you to amplify our voice, to express to your brethren agencies why it is so important that we protect this place and they find somewhere else to test sonar, to test ballistic missiles, to not release 6,000 pieces of plastic bags, 6,000 parachutes for sonar buoys that are going to further entangle endangered species.
- 15) must impose mitigations on all proposed military activities possibly affecting the region. Monument regulations



**Comment Category 17 - Military**

require the armed forces to minimize and mitigate activities that could harm Monument resources. Yet, right now, the U.S. Navy is proposing ballistic missile tests with chemical agents over the Northwestern Hawaiian Islands, experiments with hypersonic weapons and vehicles, exercises with high-intensity active sonar, and significant increases in marine debris all near the Monument with absolutely no mitigations.

- 16) No one is talking about military that could drop a bomb on the site. The point of concern for me is that we're not even talking about what it would take to mitigate or to minimize. The assumption's made that the U.S. military can basically do what they want. The last time I checked, national defense, national security could destroy all of this. So I think it will take greater political will from us to monitor the military to fulfill its obligation in order to ensure that national security doesn't result in the destruction of our Monuments. The classic example would be with the 12 TAG missiles that are proposed to be fired over Nihoa. There is no mitigation proposed for what would happen if pieces of those missiles fell on Nihoa destroying the only habitat for several different bird species and plant species the only place on earth. What authority we're giving the U.S. Navy to even attempt that. Much less attempt it 12 times. So I think it's critically important to try to put discussion for us to try to talk if you're going to let the military fire these missiles over the Northwestern Hawaiian Islands and highly laden with chemicals, what would it take to mitigate that? And just having that discussion, I think, would help us all recognize how do you address that? That's part of what needs to change the political will. You can do that. I think that the commanders think the regulations don't empower them to require the military to consider this mitigation. I disagree with that point. I think that we can all work together to push the state use obligation to fulfill the public's expectations on this part.
- 17) We also request that the use of sonar and any live fire during military exercises be moved away from the Monument.
- 18) Military bombing ranges must not intrude on NWHI Monument waters. Currently, the US Navy's Hawaii Range Complex and range W-188 overlap with the southwestern edge of the Monument, including Nihoa. The Navy's range boundaries must be redrawn so as to not overlap and intrude on the Monument boundaries. Additionally, the Navy defines its "Open Ocean" range to include the Monument. This is unacceptable, as the islands and atolls of the NWHI are not open ocean. The boundaries of the Navy's "open ocean" range must be redrawn to not overlap the Monument boundaries.
- 19) RIMPAC and military use is unacceptable. The use of the Northwestern Hawaiian Islands for military, for RIMPAC or other related exercises is against the mission statement of the Marine Monument. Concern for fallout, damage to the environment and contamination of the food chain is unacceptable. According to the

**Comment Category 17 - Military**

memorandum of Department of Defense at a meeting with the Pentagon concerning protocol, it came up the Department of Defense must consult -- there's a consultation protocol memorandum that's been sent out to all agencies in the Department of Defense. So they must consult the Hawaiians. It's the law now. The military must follow consultation protocol in all departments via the Office of Hawaiian Affairs Washington branch. Any use of sonar is banned within or close to the Monument. Retrieval of strategic metals for nodule provinces or crust is banned as stated in the executive order. Contracts with Department of Defense for metal extraction for airplane parts or contracts with Dow Chemical even for military use is forbidden in the Northwestern Hawaiian Islands.

- 20) There must be a ban on all and any military exercises or ballistic tests in and over the Monument. The military must clean up all their old junk they left behind.
- 21) Ecosystems. And I couldn't help but say, "Okay, so there were all these lists of items that are threats to the ecosystem. How come I didn't see the military there? You know if there's anything we on this island know about oy, yoy, yoy. It's the military. And it's like these islands are, you know, a gazillion miles away from here. On this island the average citizen has no clue what's going on between those two mountains. They have no idea of the size of the military operations here. They read things maybe in the paper that say, "Permit this year for the military to have 18 million rounds of ammunition discharged," whatever verb they pick for that. So we know the military's activities. Just they happen far enough away that most people aren't affected by it and don't think it concerns them. God knows we have no monitoring system. Cory mentioned this earlier.

The issue is the military. And my plea is that what we've learned with depleted uranium is that if we have to trust the government with the Department of Health with whoever else they come up with on a state government level, and even a federal level, to quote "monitor" what's going on up at PTA, it's a whole question about trust. So you need third-party independent monitoring of the situation. That's what I think needs to be considered regarding the Monument and the military. Because there may be all these understandings about what is and what isn't allowed and what's right and what isn't right. But when the military just decides they're going to do something without monitoring we have no idea what they're doing. And even if their leaders are telling us wonderful things it's still a question of trust.

So I just want to read to you -- this is the only thing I'm going to read tonight -- it's just one paragraph. And it's the only thing that was available out there specific to the military: So the question is: How are the co-trustees working with the Navy to ensure that Navy activities within the Monument causes no harm?" Cause no harm. Presidential proclamation 8031 specifically exempts lawful activities and exercises of the armed forces including the U.S. Coast Guard from its prohibitions. That was what I was hearing. I asked several people out there: What's

**Comment Category 17 - Military**

the story with the military? They said basically they're exempt. It's a polite way of saying they can do to whatever the hell they feel like doing. The co-trustees have no authority to regulate such activities. The requirement that the armed forces avoid to the extent practicable adverse impacts on Monument resources and qualities is to be addressed by the military agency conducting the operation, not the management co-trustees. There's the answer. I mean you know. All these people who have wonderful resources and good hearts and wonderful intentions are going to be left out there in the lurch if the military just decides, well we've got this 1500 mile long practice range for bombing or whatever else they want to do. "The Navy is the primary DOT agency that periodically conducts activities in the Monument." There's the phrase that can sort of cover everything. "Periodically conducts activities in the Monument and they have expressed their commitment to support the spirit and intent of the proclamation." That's it. So I would say we gotta factor in the military. I was encouraged hearing that other places that you've already been that this issue has come up. It really is important.

- 22) Why is the military exempt from the prohibitions, rules, regulations, ordinances, requirements, restrictions and permits you intend to impose on any and all users?
- 23) Lastly, to echo a lot of the comments tonight. We are very concerned about the military impacts. We understand it to be the position of the co-managers that they do not have jurisdiction over military impacts. We respectfully disagree. We believe that -- sorry. I see the sign. We believe that the language in the Monument proclamation clearly says the military must mitigate their impacts and that you are part of enforcing the need for those mitigations.
- 24) You should also be looking at constraining the military. Most of the bad things that have happened out there, as you're aware, are as a result of the military. They should -- not only sonar and overflights and all that but as an interagency group you can make sure that the military doesn't transgress out in the islands.
- 25) I'm very concerned and opposed to military training in the Monument. Some of the work that I do in my organization is to research, to educate about the military impacts in Hawai'i. We know that the military is arguably the largest polluter in the Hawaiian Islands, if not the world. We have documented over 828 military contamination sites. This is according to their own studies. Many sites are not even listed. When you look at the history of military impacts and the secrecy and deception that's gone on, it would be madness to assume that, to allow and trust that the things will change in a significant way. In the 1960s under the classified Project 112, Project SHAD Agent Orange was developed. Researchers at the University of Hawai'i were involved in developing and testing this without their knowledge. And two workers from UH died after being exposed. There's a toxic site on Kaua'i where that stuff was left behind. Biological agent was released in Pearl Harbor and allowed

**Comment Category 17 - Military**

to drift up towards Wahiawa so they could see what would happen in the jungle environment. Nerve agent Sarin was released in the Waiakea forest. All of this was secret until released much later. Chemical weapons were dumped in our oceans off of Pearl Harbor and Waianae. They're still there. They haven't been cleaned up. This was all secret stuff. Depleted uranium was released in our islands. The military lied to us for many years. When we asked specifically about this very dangerous substance they said they never used it. It turns out it was used in Lihue, near Schofield, Pohakuloa and who knows where else. Allowing the military an exemption from the Management Plan was a tragic assault on the people of Hawai'i and on this very important resource. And I know that maybe you don't have, you don't feel that you have the power to regulate. But I'd like to suggest some things I think can be done. The analysis of the impacts of the military activities should be included in full in this plan. Because it would be impossible to understand what cumulative impacts are occurring in the Monument without that analysis.

It seems that your task is really an impossible one as managers when the major actor that could be affecting this resource is completely exempted. There's a big hole in terms of our knowledge of what those activities they're proposing to do and what impacts might occur from that. I think that you owe it to the public and to your own, your mission as managers of the Monument to include some sort of a determination of whether or not those proposed activities whether exempted or not are acceptable or will violate the spirit and the purpose of the Monument.

Make a determination that will allow the public to also know what's going on and what those impacts will be. And I think that if the military is conducting any activities I'm sure they're communicating with you as managers. That should be made fully public. Whatever -- you should demand to get all that information. And you should also make it available to the public so that we also know what's going on. I know that secrecy is a big part of what they do: Training, sonar, missile defense, whatever else it may be. But I think we're asking you as people empowered to manage this resource to demand those answers from them.

- 26) I'm here to register my objection and the objections of many people that the U.S. military has unimpeded authority to engage in exercises over the Northwestern Hawaiian Islands.

The threat to the fragile ecosystem is grave and largely unknown. And the military is not providing any mitigation. In addition, the use of the air space above the islands and the subsequent threat of toxic debris falling on the area, the use of high intensity sonar and unknown further military activity blatantly disrespects the sacred nature of the area to Native Hawaiian people.

**Comment Category 17 - Military**

- 27) The military is very frightening. I think I agreed, I think it was the first speaker that talked about the military footprint and they're out of control. I don't know what it is with the military. They want to go everywhere there's the most sacred, beautiful places where you've got the most fabulous diversity. They want to play around with their training facilities and such. I don't understand. Does not 2 and 2 not equal 4 on this planet? What are we trying to do here?
- 28) So with that said I am very aware of the military presence there, the Pacific Missile Range, the naval facility on that side of the island which actually we always share with the guests on our boats that it actually -- I don't know a lot of people on Kaua'i aren't aware that technically is the largest naval facility in the nation is what I've heard because it extends 7,000 square miles out into the ocean there. Some of my facts may be wrong but I've heard the Pacific Missile Range, the naval base there they want to extend that another at least half as much. That does include the whole Monument area. It's just I don't -- there's no understanding in how, you know -- I did talk to the gentleman, thank you, on table 3 over here about the military is just completely exempt from, you know, all the research and all the study and all the talk about the fragility of this island, the sacredness of this place. But yet our military is completely exempt from any of this. Now what kind of process or what steps do we take to continue the process in protecting a place when the military is exempt from all of this work and this love and this honor that we're giving to this place? Yet the military can fly their missiles and tests over this area where -- I go to Kaho'olawe also and it's really evident in what the military says and what the military actually does.
- Kaho'olawe, for those who may or may not know, the state is in the process of cleaning up that island. I don't think we really know the destruction that was caused until later we come in and we try to clean it up in the best way possible. I think our kupuna islands, our Northwestern Hawaiian Islands, they're like our elders. They have so much to teach us, so much to leave for our keikis. If there's any way that we can, my generation, can continue to help the process to protect the islands. I'm really concerned about the military what they may be doing up there. And I know that it's kind of -- we're not sure. But please continue to be open and communicate with us letting us know how we can be a part of this relationship and not allowing a military presence up there.
- 29) I don't know if it's testimony, but just inquire about the military activity or proposed military activity that will be in the Northwestern Hawaiian Islands. So I just kind of like to pose that to -- because I would like to be clear as to exactly what's going on.
- Well, I would like not to have military involvement in the Northwestern Hawaiian Islands. I like what's happening now, the preservation and content of that. And so I am not as informed about it. I was hoping that we

**Comment Category 17 - Military**

could get some of that information tonight. That's all.

- 30) I disagree with the military in that area. They are destroying every island all the way up to Hawaii. And I just want to tell you that I don't want to be real mean, but we all have to be mean to somebody. Who is doing that? They need to go to the mainland where there's lots of land up there to blow up. Or to chase all the whales and the shark and everything to the shoreline. They should leave Hawaii alone.
- 31) More difficult to fathom is the military proposal to launch missiles, scuttle ships, and conduct exercises in the Monument, the critical habitat of the Monk seals and other important species. The laws were created to both empower agencies to both establish and enforce maximum protections, not to waffle in uncertainty and to submit to pressure from industry seeking profit. We repeatedly hear the agency officials decrying the difficulty balancing conservation with special interests. These complaints are not reasonable.
- 32) My concern is specifically with 803 F-6 section 1 under armed forces. I'll read that out loud: The prohibitions required by this proclamation shall not apply to activities and exercises of the armed forces, included those carried out by the United States Coast Guard, that are consistent with applicable laws. The plan appears to address many aspects of preservation and use of the monument except military utility. Why is the military exempt from your prohibitions or rules, regulations, ordnances, requirements and restrictions? The military has been, in essence, the human occupiers of the area, and their effects are obvious. Why are they not required to engage in the philosophy and actions to clean up and protect prescribed in the plan?
- 33) And also that there be a ban on all military activities in spite of the fact that the military does have that exemption. This whole military participation really denigrates and contradicts the purpose that you were set up for in the first place. How can you protect this area? You're kidding yourselves. You're being dishonest to us, the community. I mean it is our value system. You have oli's that are written for this monument area. You talk about how much we're going to protect and preserve this area yet you let the military do whatever it is they want to do in that area.

My father used to go from French Frigate Shoals in the Second World War along with Buzzy Agard who's a kupuna that's been a part of this whole process for this whole area. They were close friends ever since -- I'm 64 years old -- ever since I was a little child Buzzy has been a close friend of my family. And I know for a fact that there's still much military opala and munitions at French Frigate Shoals and other areas where there's military shenanigans going on in the Northwestern Hawaiian Islands. I mean we know for a fact what's been going on here. There are over 50 sites left over from the Second World War on this island alone that are contaminated.

**Comment Category 17 - Military**

Kids finding grenades in school yards. Munitions floating up over at Hapuna Beach. This is happening on the islands that we're inhabiting. We have a situation where over in Waikoloa the government is allocating \$10 million a year to clean up munitions they have from the Second World War. That's going to take 60 years. That was a headline newspaper within this past week and a half in our Hawaii Tribune Herald. These are the things that the military has been doing on the islands we live on, not to mention the 25 percent of control over on O'ahu. You're going to allow and call yourselves stewards and trustees, and protectors of this area while you allow the military to do whatever it is they want to do in the Northwestern Hawaiian Islands where nobody is watching them? They definitely have to be monitored. And you should have, you know, there should be monitors onboard their vessels so that we can know what's going on. But really there shouldn't be any military involvement in any of the Monument area.

- 34) Really what I have to say is I echo everyone's sentiment about the military here so far. That's one of my main concerns about this Management Plan. And what's really moved me about this is how people are really standing up and saying "No". The military does seem to feel that they can do whatever they want. Who are you? We're paying for them. They work for us. I think there's a moment that we can seize right now with all of the publicity about this Monument. We can say, "Hey, we're trying to do a good thing here. And if we let the military do this it's counter to everything that we are saying is good and worthy about this place." So I think this is the moment. And I think we should take courage and stand up and say "no" and keep saying "no". And I believe it will make a difference. I believe that we can shame the military into actually backing out of this place. That's what I wanna believe.
- 35) ABSOLUTELY NO MILITARY exercises of any kind in or around these waters EVER.
- 36) Therefore, NO MILITARY activity should ever take place in the monument area. In fact, there should be a buffer zone, so that sonar, exercises with live munitions, chemical drops are unable to 'drift' into the monument area.
- 37) No military presence. The US Military should be given NO exemption from any of the protective measures set up for the Monument. There should be absolutely no sailing into or flying over, no sonar testing or bombing practice or any other military maneuvers within Monument waters.
- 38) And I now learn that this will be a major military training range. This makes me sick to my stomach. According to the 2005, the last report to Congress, the military in Hawaii has eight hundred and twenty-four contaminated sites in Hawaii. This does not include active bases such as Pohakuloa, Schofield, and others contaminated with deadly radiation. I'm furious that this area will now be further contaminated, big time, by the military. For



**Comment Category 17 - Military**

instance, shooting off rockets that releases deadly particulate, and that is showing up in the breast milk in twenty-eight states from the rocket exhaust. Like, for instance, C-17, one mile of a C-17 flying over you or your watershed or your fishing grounds releases eleven gallons of kerosene particulate and exhaust per mile.

- 39) Uphold Monument regulations, discourage military exercises in the Monument. Military exercises are incompatible with and abhorrent to the mission of the Monument. It is incumbent on the Co-Managers to express to the U.S. military the public's overwhelming opposition to the military's presence in the NWHI. The armed forces must always be strongly encouraged to find some other method of fulfilling their perceived training needs in a way that does not impact the health and welfare of the NWHI and Hawaii's people.
- 40) Page 208, line 11, mentions "mandatory hull inspections and cleaning for all vessels accessing the Monument." Military vessels would not be subject to such requirements. However, the Interagency Coordinating Committee could likely facilitate informal arrangements with the Defense agencies to avoid introduction of alien species into the Monument.
- 41) Speaking to enforcement. That will be a very critical part of how successful this project is in the long run. My concern here is the exemption of the restrictions from the military. I see what happens here in our islands. I'm active in a lot of the Neighborhood Boards. People complain about the noise. We get a lot of smiling faces telling us how they understand. They feel for us. And we have stopped about six or seven times to let the military planes fly over. I'm wondering if there's no restrictions in the Monument how that's going to impact on the quality of life for the species that are there. Since the military really doesn't have to answer to anybody I'm wondering what their ships coming in, how that will impact on the alien species, the introduction of alien species. I know we speak very carefully for the cleansing of the visitors and people with permits. But the military is exempt. If they're there as they are in other parts of the Pacific I think they can have a very significant impact.
- I'm wondering, again, how the military is going to enjoy an outside independent source monitoring that area in their operations and, again, what impact that might have on keeping this a pristine area.
- 42) Originally I came from San Diego where there was a big footprint of military. We obviously need the military. But to give carte blanche in an area like this I think is unwise. I don't know how you can change people's feelings on this. I have respect for the people in the military. Don't get me wrong. I'm not against the military. But they are out there to protect and blow things up. And this latest thing with the sonar -- I have worked with animals long enough to respect them in a way that they are living beings that need respect. And a lot of times they need our protection because they can't protect themselves from what's going on. I think these ships -- luckily they haven't

**Comment Category 17 - Military**

said, well, we can bring in the Marine Corps, we can bring in the other services, the army, they haven't said that. But they say the navy can come in. Okay. They're, I guess, according to what I understand, they're still under, they're working with the public trying to get access to the sonar, use areas that are sensitive with marine mammals. Again, I'm a lay person, but I question using this type of military equipment that can harm animals such as the whales. And I'm hoping that there's something that's going to happen during this that might either bring in some sort of regulation. It sounds to me just -- I have to read all this to understand it. It sounds to me like they're -- that it was part of the deal that was done is that the military gets in there. And they have some regulation. But who is going to police the military? Who's going to say, hey, you're making a mistake, or you've done this? Unfortunately a lot of the evidence that I would be concerned with marine mammals and sonar is if the animal was to die and sink. And who can say that it died? So why do you allow that in a sanctuary?

As far as other things, too, all of a sudden there's things that have to be addressed such as dumping. We still have problems up here in Pohakuloa. People are still wondering, well, what about depleted uranium? What's the impact? You come out and you say, okay, we've got endangered plants out here. But we're going to keep, you know, bombing. And so my main concern is loopholes in what you've got going on.

43) First of all, my biggest concern as a resident of Kauai is there does not seem to be any restriction and there's overbroad use of the military powers. There doesn't seem to be any environmental studies done. There doesn't seem to be any measurement of the damage or the lack of damage or the ongoing damage to any of the marine life, and yet that's the same justification for having the monument to begin with. There's also no environmental information or studies being done about the military aircraft or test bombing or intercept testing that I know is done off the coast of Kauai and probably extend into the monument.

44) Furthermore, the Co-Trustees do have a role in ensuring that military activities are consistent with the Proclamation which states: "All activities and exercises of the Armed Forces shall be carried out in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on monument resources and qualities." If Military training operations could potentially affect Monument resources and ecological integrity, the Co-Trustees should be actively engaged with DOD to ensure that Monument resources are protected, as mandated by the Proclamation. The NWHI falls within the Hawaii Range Complex of a proposed Department of Defense Navy gaming area. DOD proposes to conduct missile testing that will produce marine debris that could potentially harm seabirds, monk seals, and sea turtles. The DMMP action plan on marine debris (3.3.1) specifically seeks the desired outcome to:

"reduce the adverse effects of marine debris to Papahānaumokuākea Marine National Monument resources and

**Comment Category 17 - Military**

reduce the amount of debris entering the North Pacific Ocean.” The production of additional debris by DOD is in therefore directly in conflict with a desired outcome of the DMMP. Furthermore, the use of high-intensity active sonar and permission to “take” marine mammals is also in direct conflict with the desired outcomes of Strategy 3.2.1 (Threatened and Endangered Species Action Plan) to: “Protect marine mammals and aid in the recovery of threatened and endangered plants and animals...” Given the potential for military activities to significantly affect Monument resources and conflict with the stated goals of the DMMP, Ocean Conservancy urges the Co-Trustees to take an active role in monitoring and managing activities proposed by the military within the Monument and to ensure that activities will not have adverse effects on Monument resources and ecological integrity.

- 45) Activity AC-3.1: Enhance communication and cooperation with the Department of Defense (DOD) and the U.S. Navy Pacific Fleet

This is an important activity for the Monument to implement well with potentially large benefits for Monument resources. Ocean Conservancy is concerned that this Activity is currently somewhat sparse and unclear. Given the tremendous importance of this Activity, it would benefit from some further fleshing out, greater specificity, and inclusion of a purpose. The current language specifies “Minimizing military activities within the Monument”, as one of the potential areas for cooperation, but it should also include the related and even more important issue of “Minimizing the impact of military activities within and outside of the Monument on the resources of the Monument”.

- 46) If the various managing agencies intend to use federal acts to control the military’s actions and impacts, those acts and their controlling language (and applicability to the military) should be clarified in the Plan. We are concerned, based on various statements in the press, that the military is also exempted from such laws as the Endangered Species Act, the National Environmental Policy Act, the Migratory Bird Treaty Act and the Marine Mammal Protection Act.
- 47) p. 220 Monument co-managers shall request and disseminate all information on military activities conducted in the Monument to the public.
- 48) We are very concerned about the Navy's proposed expanded activities in the Hawaiian Islands including the Northwestern Hawaiian Islands. The Navy has left a legacy of destruction, contamination and death in these Hawaiian Islands. We would like to see the military get serious about cleaning up its mess in the Northwestern Hawaiian Islands. If they haven't already -- I'm a few years behind -- what about all that lead paint? What about that seawall that's falling apart into the ocean that monk seals are getting snagged on at French Frigate? Those are

<b>Comment Category 17 - Military</b>	
	<p>all legacy of military training in Hawai'i. I don't think they should be allowed to do anything new until they at least clean up their act in their past actions. Then we can think about if they want to do new stuff. Little of you know that they're proposing major activities at Nohili on Kaua'i at Pacific Range Facility, Makua; Pohakuloa, activities near the Northwestern Hawaiian Islands and in the Monument waters or at least affecting the Monument waters. They're going to be launching missels.They're going to be vehicles and crafts over the waters that are going into the waters that they're not going to retrieve parachutes. We have a major problem with marine debris. And the military is proposing to launch more stuff into Monument waters and not clean up their mess. So we say no more military training until they start cleaning up. No expanded training anyway. We'd like to see them putting in some significant funding for cleaning up the marine debris not only that they have caused up in the northwesterns but that is there from other sources.</p> <p>49) We note that Section 5.5 of the Management Plan Scoping Report (September 25, 2007) states that one issue is no discussion of activities of the Missile Defense Agency (MDA), whose activities may put debris within the Monument boundaries. MDA has provided background material from NEPA studies that described and discussed missile defense activities that would occur in or near the Monument and can provide assistance in drafting specific language for the Monument Management Plan and/or its Environmental Assessment if requested.</p> <p>50) Page 191, lines 20-32. The Plan should clearly articulate how the Coast Guard regulations, IMO guidelines and State DLNR laws fall, or do not fall, within the Presidential Proclamation/regulations and to whom they apply. The current discussion raises significant international law and federal/state Supremacy clause issues.</p> <p>51) Require mitigations on military activities affecting Monument resources. The U.S. Navy proposes to expand its activities in and around the Monument, including ballistic missile tests, chemical warfare exercises, and high-intensity active sonar. Uphold Monument regulations requiring the Navy to minimize and mitigate the harm of its activities.</p>
17-01. Response	<p>Action agencies, including the DoD agencies may be responsible for consultations with individual Co-Trustees. Some of these consultations occur outside the realm of Monument management. Restricting or prohibiting military access to and training activities in the Monument are outside the scope of this management plan and would require Presidential or congressional action. As it pertains to the Armed Forces, including the U.S. Coast Guard, Proclamation 8031 specifically states:</p> <ol style="list-style-type: none"> <li>1) The prohibitions required by this proclamation shall not apply to activities and exercises of the Armed Forces (including those carried out by the United States Coast Guard) that are consistent with applicable laws.</li> </ol>

<b>Comment Category 17 - Military</b>	
	<p>2) Nothing in this proclamation shall limit agency actions to respond to emergencies posing an unacceptable threat to human health or safety or to the marine environment and admitting of no other feasible solution.</p> <p>3) All activities and exercises of the Armed Forces shall be carried out in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on monument resources and qualities.</p> <p>4) In the event of threatened or actual destruction of, loss of, or injury to a monument resource or quality resulting from an incident, including but not limited to spills and groundings, caused by a component of the Department of Defense or the USCG, the cognizant component shall promptly coordinate with the Secretaries for the purpose of taking appropriate actions to respond to and mitigate the harm and, if possible, restore or replace the monument resource or quality.</p> <p>While the Armed Forces (including the Coast Guard) may be exempt from prohibitions and permits required by the Proclamation, they are still required to adhere to all other all other applicable laws and regulations, including, but not limited to the National Environmental Protection Act; Endangered Species Act; the Marine Mammal Protection Act; the National Wildlife Refuge System Administration Act; Fish and Wildlife Coordination Act; Migratory Bird Treaty Act; Clean Water Act; Comprehensive Environmental Response, Compensation, and Liability Act; Oil Pollution Act; National Historic Preservation Act; and cultural consultation under the Native American Graves Protection and Repatriation Act, to name a few.</p> <p>The individual agencies of the Monument Management Board (MMB) already consult with the Armed Forces agencies to ensure their activities are consistent with these other applicable laws. Through the ICC (AC-2.2) and other interagency venues, the MMB will work with the Armed Forces to ensure their activities "shall be carried out in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on monument resources and qualities." The MMB is already starting to implement Strategy AC-3.1 "Enhance communication and cooperation with the Department of Defense" in order to learn more about past, present and future Armed Forces activities in the Monument, and look for opportunities in which resources of the Armed Forces could be used to help implement monument priorities (i.e., marine debris removal, remove stranded vessels, etc.).</p>
17-02. Comment	The Navy and Missile Defense Agency had specific suggestions for locations in the document to re-iterate the exemption for Military activities as identified in the Proclamation. Additionally, the Navy and Missile Defense Agency expressed concern that the requirements and prohibitions throughout the document are portrayed as requirements of all vessels that enter the Monument.

**Comment Category 17 - Military**

## Comments:

- 1) Page 79, lines 1-10 discusses the Presidential Proclamation and implementing regulations for the Monument. There is no mention of the special status of military activities in the Monument. Suggested language: Following the sentence ending the middle of line 7: "The prohibitions required by Proclamation 8031 and the joint implementing regulations do not apply to activities and exercises of the Armed Forces."
- 2) Page 89, lines 2-32 discuss the Monument regulations, prohibitions and permitting requirements. There is no reference to military activities. Suggested language: Following line 32: "The prohibitions required by Proclamation 8031 and the initial Monument regulations do not apply to activities and exercises of the Armed Forces. These activities and exercises are not subject to permitting requirements."
- 3) Page 205, lines 42-48 indicate that "All" activities conducted in the Monument must meet requirements in Proclamation 8031, without distinguishing military activities. Suggested language: In line 42, following "Monument" add "with the exception of activities and exercises of the Armed Forces,"
- 4) Page 218, lines 17-21, give the impression that "all" activities within the Monument would require permits, including military activities. Suggested language: At the end of line 21, add a sentence that states: "The permit program would not apply to activities and exercises of the Armed Forces."
- 5) EA Page 129, first paragraph under the Federal Regulations heading, does not distinguish military vessels from those vessels that need to provide notification before entering and after leaving the Monument. Suggested language: In the second sentence under this heading, after "issuance of permits," add "with the exception of military vessels [and others, as applicable],"
- 6) EA Page 138, first paragraph under Vessel Activity. There is no mention of military vessels. Suggested language: In the third line of the paragraph, after "is made up of" add "DoD vessels conducting training and testing activities," EA Page 157, first sentence under Alien Species Action Plan. See previous comments concerning the requirement for hull inspection and cleaning not being applicable to military vessels. EA Page 158, first sentence under Enforcement Action Plan -- Planning and Administrative Activities. See previous comments concerning the monitoring and ship reporting systems not being applicable to military vessels. EA Page 182-183, last paragraph concerning quarantine protocols and hull inspections and cleaning. See previous comments concerning these requirements not being applicable to military vessels. EA Page 229, first paragraph under Enforcement Action Plan -- Planning and Administrative Activities. See previous comments concerning monitoring and ship reporting

<b>Comment Category 17 - Military</b>	
	<p>systems not being applicable to military vessels.</p> <p>7) Page 218, ln 21. The permitting discussion does not account for activities for which permits are not required, including exercises and activities of the armed forces and emergency/law enforcement activities.</p> <p>8) EA Page 116, second to last paragraph. The discussion concerning permits does not distinguish military activities, etc., that are not included. Suggested language: At the beginning of the second sentence in this paragraph, begin with: "With the exception of armed forces activities, emergencies, law enforcement, and free passage"</p> <p>9) Page 73-74, lns 6-46 and lns 1-10. The discussion of various categories of vessels appears to be focused on several select categories with no background information or explanation as to why these are singled out. It also fails to mention that vessels of all nations' armed forces may transit through waters of the National Monument.</p> <p>10) Page 79, lns 6-7. This description of the regulations should also list "exemptions" after the word "prohibitions" to ensure readers understand the complete scope of the regulations. Page 89, lns 2-32. This description should list the prohibited activities and the exempted activities to ensure readers understand the complete scope of the regulations.</p> <p>11) On page 73, line 1, it states: "The following information summarizes the main types of vessels operating in the Monument." Military vessels are not mentioned. Suggested language: Military Vessels - Navy vessels conduct training and participate in testing activities in the Hawaii Range Complex (which encompasses the Monument), including, in particular, activities in the vicinity of Nihoa and surrounding waters within the Monument. These activities, which include a variety of anti-submarine and surface and air warfare training, are described and analyzed in detail in the Hawaii Range Complex Final Environmental Impact Statement/Overseas Environmental Impact Statement (May 2008). In addition, vessels that support missile defense tests occasionally operate in Monument waters. Missiles are launched from floating platforms and ships within or near Monument waters.</p>
17-02. Response	<p>The Monument Management Plan has been revised to include language that identifies the Armed Forces exemption (see Vol. I, Section 2.3 "Initial Management"). Adding additional language regarding the exemption throughout the document where the regulations are mentioned would be redundant. The EA was modified in section 2.5.2.3 to clarify the DoD vessels conduct training and testing activities in the Monument. Also, sovereign immune vessels are exempt from the ship reporting requirements of the Proclamation and the regulations.</p>
17-03. Comment	<p>The Navy expressed concern that the Monument Management Plan and EA did not accurately portray their activities within the Monument. They suggested that additional language be added to better reflect ongoing activities in and</p>



**Comment Category 17 - Military**

around the Monument.

Comments:

- 1) EA Page 110, bottom and 111 top. The text states: "The military still conducts limited operations and missile tracking in the general area around the Monument." This does not properly reflect the on-going military activities occurring in parts of the Monument. Suggested language: Delete the quoted sentence and substitute the following: "The Navy conducts training and participates in testing activities within the Hawaii Range Complex, which encompasses the Monument. In addition, the Defense Department conducts missile defense testing, including missile intercepts, in and around the Monument.
- 2) EA Page 112, under Current Human Uses and Activities. The text does not accurately reflect the military activities occurring in the Monument. Suggested language: In the second sentence under the heading "Current Human Uses and Activities," add "from Midway Atoll" after "departure of the military." Also, after "research," add "Navy training and testing, missile defense testing." Finally, substitute the following for the first part of the second to the last sentence under this heading: "In addition, activities and exercises of the Armed Forces, emergency response.."
- 3) Page 109, Section 2.4.1.1, second paragraph. The list of activities occurring in the waters of the NWHI should include "Navy and DoD training and testing activities."
- 4) Page 112. The text states in part that "access by the armed forces for emergency response, enforcement, and passage without interruption are allowed without permit." This line does not accurately convey the regulations and should be amended as follows: "In addition, by regulation, the prohibitions of the proclamation do not apply to emergency and law enforcement activities and activities and exercises of the Armed Forces including those carried out by the U.S. Coast Guard."
- 5) DRAFT MONUMENT MANAGEMENT PLAN ENVIRONMENTAL ASSESSMENT. Page 50, Section 1.6.12, Permitting. There is no indication that the permit requirements would not include activities and exercises of the Armed Forces. Suggested language: At the end of the first paragraph in Section 1.6.12, add a sentence that states: "As noted in the Monument Management Plan, the prohibitions in Presidential Proclamation 8031, including permitting requirements, do not apply to activities and exercises of the Armed Forces."
- 6) EA Pages 134-135. With respect to discharges from vessels, different requirements may apply to Navy and DoD vessels, which are not subject to the Monument regulations. EPA has been working with DoD, to develop

<b>Comment Category 17 - Military</b>	
	<p>regulations for discharges of various types from DoD vessels.</p> <p>7) EA Page 137, second paragraph under Section 2.5.2.2 -- Regulatory Environment, does not accurately reflect the requirements for military vessels. Suggested language: At the beginning of the second sentence, add: "With the exceptions noted above,"</p> <p>8) The draft management plan and environmental assessment fail to accurately articulate the ability of the Department of Defense, including the U.S. Navy, to carry out activities and exercises in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on Monument resources and qualities. The volumes repeatedly fail to acknowledge this authority and, to the extent actions of the armed forces are acknowledged, do so in an inaccurate and imprecise manner. We recommend that the drafters review and reference the Hawaii Range Complex Environmental Impact Statement/Overseas Environmental Impact Statement (HRC EIS/OEIS) and its Record of Decision. The HRC EIS/OEIS is the single most comprehensive analysis of military readiness activities throughout the Hawaiian Islands, including the Papahānaumokuākea Marine National Monument.</p> <p>9) While we fully support the Co-Trustees' effort to develop a Monument Management Plan that would serve as a collective guiding framework to enable you to effectively and efficiently achieve the President's overall vision of the Monument, we have concerns that the draft documents are inconsistent with the President's proclamation of June 15, 2006 establishing the Monument as it pertains to Department of Defense activities in the Monument. We feel that the documents must recognize and fully preserve the exemption for Armed Forces action set forth in the President's proclamation, and that neither the Monument Management Plan nor the Environmental Assessment should interpret this exemption as a requirement to minimize Navy or Department of Defense activities in the Monument. The Navy is fully committed to ensuring that its activities shall be carried out in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on Monument resources and qualities.</p>
17-03. Response	The Monument Management Plan has been revised to include language that identifies the Armed Forces exemption (see Volume I, Section 2.3 "Initial Management"). Adding additional language regarding the exemption throughout the document where the regulations are mentioned would be redundant. The EA was modified in section 2.4.1.3 to clarify ongoing military activities, including conducting training and testing activities in the Monument.
17-04. Comment	The comments below concern coordination with the military; including requests for more information regarding activities and sonar, and coordination regarding marine debris removal.

<b>Comment Category 17 - Military</b>	
	<p>Comments:</p> <ol style="list-style-type: none"> <li>1) Fund mitigation measures. The US Navy should be obligated to directly support the restoration of the NWHI. This should include: 1. a bond payable to the Co-Managing agencies to cover the expense of remediating the harms of current naval exercises. 2. specific funding towards marine debris removal to offset the several thousand plastic parachutes to be left in the ocean by naval exercises in Hawaii.</li> <li>2) We would like the MMB to work with the Navy and the Department of Defense to develop Best Management Practices and mitigation strategies to minimize impacts of military exercises in the region.</li> <li>3) We request that the military provide the MMB with quarterly/semi annual reports on all activities and impacts occurring in the Monument.</li> <li>4) We request that, through the White House Council on Environmental Quality (CEQ), appropriate military officials are contacted regarding their obligations to the current White House Administration, including providing reports on military activities occurring in the Monument.</li> <li>5) p. 220 Monument co-managers shall request and disseminate all information on military activities conducted in the Monument to the public.</li> </ol>
17-04. Response	<p>As it pertains to the Armed Forces, including the U.S. Coast Guard, Presidential Proclamation 8031 specifically states:</p> <ol style="list-style-type: none"> <li>1) The prohibitions required by this proclamation shall not apply to activities and exercises of the Armed Forces (including those carried out by the United States Coast Guard) that are consistent with applicable laws.</li> <li>2) Nothing in this proclamation shall limit agency actions to respond to emergencies posing an unacceptable threat to human health or safety or to the marine environment and admitting of no other feasible solution.</li> <li>3) All activities and exercises of the Armed Forces shall be carried out in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on monument resources and qualities.</li> <li>4) In the event of threatened or actual destruction of, loss of, or injury to a monument resource or quality resulting from an incident, including but not limited to spills and groundings, caused by a component of the Department of Defense or the USCG, the cognizant component shall promptly coordinate with the Secretaries for the purpose of taking appropriate actions to respond to and mitigate the harm and, if possible, restore or replace the monument resource or quality.</li> </ol>

<b>Comment Category 17 - Military</b>	
	<p>Any required mitigation measures would be funded by the appropriate military entity.</p> <p>Additionally, the Armed Forces are not subject to the IMO adopted access restrictions and reporting requirements in the Monument when they are conducting activities and exercises. Further the Proclamation clearly states that nothing the Proclamation shall be deemed to diminish or enlarge the jurisdiction of the State of Hawaii. Thus all state laws continue to apply in State waters.</p> <p>The individual agencies of the Monument Management Board (MMB) already consult with the Armed Forces agencies to ensure their activities are consistent with these other applicable laws. Through the ICC (AC-2.2) and other interagency venues, the MMB will work with the Armed Forces to ensure their activities “shall be carried out in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on monument resources and qualities.” The MMB is already starting to implement Strategy AC-3.1 “Enhance communication and cooperation with the Department of Defense” in order to learn more about past, present and future Armed Forces activities in the Monument, and look for opportunities in which resources of the Armed Forces could be used to help implement monument priorities (i.e., marine debris removal, remove stranded vessels, etc.). In addition, for a response related to DoD assistance in marine debris removal, see Comment 15-10.</p>
17-05. Comment	<p>Comments provided below suggest that the military should assist with clean up of marine debris. In addition, there were several suggestions that the military clean up any unexploded ordnance within the monument along with any remnant debris or contamination from past military activities.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) We ask that the military do its part in restoring and remediating areas in the Northwestern Hawaiian Islands that were previously used for military activities.</li> <li>2) We ask that a Memorandum of Agreement be written between the Co-Trustees and the Department of Defense/Navy regarding coordination on marine debris removal and restoration and remediation of areas previously used for military activities.</li> <li>3) would like to see clean-up of all unexploded ordnance in the ocean</li> <li>4) There should be a clean-up plan in place by the military for portions of the Monument previously impacted by the military.</li> <li>5) And if perhaps due to the military's having a lot of different -- I think they need to mitigate for having contributed</li> </ol>

**Comment Category 17 - Military**

to some of the contamination out there. They still need -- they've done a pretty good job on Midway cleaning up. But they need to, you know, get some resources. They have the large ships. And get out there and get some of this cleaned up.

- 6) There must be a ban on all and any military exercises or ballistic tests in and over the Monument. The military must clean up all their old junk they left behind.
- 7) What you call, about the Midway Island, I know American, you know, like over here, they put lot of chemical on the land. Even our opihi is no good to eat. So we don't like that to happen any other place, even in Midway. First, I like them, before they go any further, you know, let the American Navy, or whatever, let us know what they doing in our water. More so, I like them clean up all the ordnances that they left inside the ocean over there in northwest island.
- 8) We are very concerned about the Navy's proposed expanded activities in the Hawaiian Islands including the Northwestern Hawaiian Islands. The Navy has left a legacy of destruction, contamination and death in these Hawaiian Islands. We would like to see the military get serious about cleaning up its mess in the Northwestern Hawaiian Islands. If they haven't already -- I'm a few years behind -- what about all that lead paint? What about that seawall that's falling apart into the ocean that monk seals are getting snagged on at French Frigate? Those are all legacy of military training in Hawai'i. I don't think they should be allowed to do anything new until they at least clean up their act in their past actions. Then we can think about if they want to do new stuff. Little of you know that they're proposing major activities at Nohili on Kaua'i at Pacific Range Facility, Makua; Pohakuloa, activities near the Northwestern Hawaiian Islands and in the Monument waters or at least affecting the Monument waters. They're going to be launching missels. They're going to be vehicles and crafts over the waters that are going into the waters that they're not going to retrieve parachutes. We have a major problem with marine debris. And the military is proposing to launch more stuff into Monument waters and not clean up their mess. So we say no more military training until they start cleaning up. No expanded training anyway. We'd like to see them putting in some significant funding for cleaning up the marine debris not only that they have caused up in the northwesterns but that is there from other sources.
- 9) The old military sites in the islands, I think the military should clean them up. I'm real tired of them saying, "Hey, that's not our department. That's Army Corps of Engineers and Congress won't give us money." Well, the military, all branches of the military should be concerned about cleaning up their old sites, including in the Northwestern Hawaiian Islands. I notice there's lead clean up. I wonder if some of that's on military bases. They should get in there and get that done. I see that the military is allowed to enter the Monument. The Navy is going

<b>Comment Category 17 - Military</b>	
	<p>to be having missile tests over there, the missile intercepts with debris falling on the islands. I'm horrified by all that. They should not have the missile intercepts anywhere near there. Their plastic debris should not be anywhere near there. Their high intensity active sonar, the shouldn't be going into the Northwestern Hawaiian Islands at all. There should be a place where the whales and dolphins and creatures can get away from that. There should be no hypersonic weapons and vehicles going over there. When we were talking out there Lee Borden said, "Well, the military is set up so they can basically do whatever they want in the Monument. They're exempt." Lee said, "Well, why don't you guys at least watch what they're and doing let us know." Lee, I hope you say more about that. It was a wonderful idea. In the question and answer it says: The requirement for armed forces to minimize impacts is to be addressed by the military agency. And I wrote in the margin, "Yeah, right." We all know how the military regulates themselves. We know about Waiakea Forest Reserve, and how they told us they're doing weather testing and they actually had bacteria and poison gas up there. We know what they've done with depleted uranium. We know their track record. They should be monitored. They are required to minimize and mitigate. And the agencies in charge of the Monument should push that as far as possible.</p>
17-05. Response	<p>For a response related to DoD assistance in marine debris removal, see Comment 15-10. Under Comprehensive Environmental Response, Compensation, and Liability Act [SUPERFUND] (CERCLA), the party responsible (sic., "Responsible Party" (RP)) for contamination is required to insure the contamination is not released to the environment. The FWS has worked with the EPA, NOAA, and the RPs to investigate and respond to the issues on both Midway and Tern. The RPs are the US Navy (Navy) and the US Coast Guard (Coast Guard) respectively. Cost to monitor, remove or otherwise remediate the contamination remains their (RP) financial obligation. The FWS continues to pursue response where needed. one place the FWS continues seeking response is the Coast Guard PCB dump on Tern Island, French Frigate Shoals. FWS worked with EPA, NOAA, and the Coast Guard to bring about removal of this area. As a part of this effort, the FWS signed an agreement designating the PCB cleanup level of 2 ppm in soil. The Coast Guard did remove the major portion of the landfill, then when costs exceeded expectations quit before they reached the agreed upon goal of 2 ppm. The Coast Guard then submitted a Remediation Verification Report (Oct 20,2002) to the EPA. In a letter on July 17, 2003, the EPA did not verify the remediation at Tern was complete, but notified the Coast Guard that additional remediation work is required. Despite this EPA requirement, numerous letters and communications to the Coast Guard by the FWS and cooperators, the Coast Guard has declined to complete this work. The "no-dig" areas, also known as "Land Use Controls" (LUCs), on Midway are mitigation methods allowed by both CERCLA and Base Realignment and Closure [for military bases] (BRAC). At Midway these are former landfills or areas where contamination or solid waste was left in place at or below 4 feet below ground surface, not on the surface. Landfills were covered in 2-4 feet of soil. Restrictions were placed on these sites to avoid future exposure of humans or wildlife to</p>

<b>Comment Category 17 - Military</b>	
	potentially contaminated soil or groundwater. Any activities that could expose contamination in the landfills or buried 4 feet or more below ground surface at the other sites are prohibited. Although the contaminants are expected to degrade through time, the amount and rate of degradation are unknown. Therefore, these land use restrictions will remain in place in perpetuity to protect human and wildlife receptors. LUCs are required to be monitored to insure the contamination remains contained by the control. Under BRAC this review occurs every 5 years. In the review, the LUCs are examined to insure the FWS has not breached the control and to insure the contamination has not otherwise breached the control. The decisions made on the form and placement of these LUCs did go through a public comment period as required. Similar agreements are in place between the US Coast Guard and the State of Hawai'i at Kure Atoll.
<b>Unique Comments</b>	
17-06. Comment	EA Page 242, the second full sentence states: "Human use is now limited to managers, contractors, researchers, and visitors of the Monument." There is no mention of military activities.  Suggested language: After "Human use is now limited to" add "DoD training, testing and missile defense activities."
17-06. Response	We have inserted text in the EA as requested.
17-07. Comment	Page 205, lines 13-29. Marine traffic in the Monument is described without mentioning that vessels of armed forces, including those of other nations, may transit through and conduct activities within the Monument.
17-07. Response	The Monument Management Plan has been revised to include information on military activities in the Monument; see Vol. I, Section 1.4 "Environmental and Anthropogenic Stressors" and the Maritime Transportation and Aviation Action Plan (3.3.3).
17-08. Comment	Page 207, lines 1-9. Discussion of the PSSA designation should include a statement that armed forces vessels are not required to submit to these requirements. Additionally, the PSSA designation and associated documents should be an appendix in Volume IV.
17-08. Response	Activity MTA-1.1 in the Monument Management Plan has been revised to clarify that armed forces vessels are not required to submit IMO requirements. Also, sovereign immune vessels are exempt from the ship reporting requirements of the Proclamation and the regulations. In addition, a new Appendix (H) was added to Volume III to reflect the IMO provisions.
17-09.	This transmits the comments of the Missile Defense Agency on the Papahānaumokuākea Marine National Monument



<b>Comment Category 17 - Military</b>	
Comment	Draft Monument Management Plan and Draft Monument Management Plan Environmental Assessment. As noted in the detailed comments, Section 5.5 of the Management Plan Scoping Report (September 25, 2007) states that one issue that was raised is the lack of a discussion of activities of the Missile Defense Agency, whose activities may put debris within the Monument boundaries. The Missile Defense Agency previously provided background material from NEPA studies that described and discussed missile defense activities that occur or would occur in or near the Monument and can provide assistance in drafting specific language for the Monument Management Plan and/or its Environmental Assessment, if requested.
17-09. Response	Through the ICC (AC-2.2) and other interagency venues, the MMB will work with the Armed Forces to ensure their activities "shall be carried out in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on monument resources and qualities." The MMB is already starting to implement Strategy AC-3.1 "Enhance communication and cooperation with the Department of Defense" to learn more about past, present and future Armed Forces activities in the Monument, and look for opportunities in which resources of the Armed Forces could be used to help implement monument priorities (i.e., marine debris removal, remove stranded vessels, etc.).
17-10. Comment	Page 217, lines 20-23, characterize the current activities within the NWHI, without mentioning military activities. Suggested language: In line 20, following "Current activities are limited primarily to" add "Navy training and testing activities, missile defense testing."
17-10. Response	The suggested text has been added to the text in Volume I, Section 3.4 Managing Human Uses.
17-11. Comment	Surface danger zones need to be moved away from the islands, so that any potential debris will not rain down on or in any way negatively affect the emergent and submerged portions of the Monument.
17-11. Response	The MMB does not have influence over the surface danger zones. Moving them is outside of the scope of this Monument Management Plan.
17-12. Comment	In World War II, 10,000 Navy personnel lived on Midway. The following wars stepped up operations. The Navy at present is asking for thousands more missile interception practices, SONAR and "early warning" ability. Midway as a military base will follow particularly since it will be reconstructed into an expensive municipality if your 15-year plan is approved. Are we in reality seeing your plan as an increase in war activity in the Pacific Rim?
17-12. Response	The Naval Air Facility at Midway Atoll was closed under the Base Realignment and Closure Act in 1993. The U.S. Navy has indicated no interest in returning to the atoll.

<b>Comment Category 17 - Military</b>	
17-13. Comment	Page 205, lines 13-29, describing marine traffic, do not mention Navy and other military vessels that operate in the Monument. Suggested language: In line 27, following (Franklin 2008), insert "Navy ships and vessels conduct training and participate in testing activities in the Hawaii Range Complex, which encompasses the Monument, and vessels that support missile defense tests occasionally operate in Monument waters."
17-13. Response	The suggested text has been added to the text in the Current Status and Background section of Volume I, Section 3.3.3 Marine Transportation and Aviation Action Plan.
17-14. Comment	Page 248, lines 10-15. This discussion does not accurately reflect the authorization for activities and exercises of the armed forces. There is no requirement in the Presidential Proclamation that the armed forces minimize activities in the Monument. The proclamation only requires that "activities and exercises of the Armed Forces shall be carried out in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on the Monument resources and qualities." This does not equate to minimizing activities.
17-14. Response	Activity AC-3.1 has been revised to delete reference to minimizing "military activities".
17-15. Comment	EA Page 109, Section 2.4.1.1, second paragraph. The list of activities occurring in the waters of the NWHI does not include military activities. Suggested language: After "research and management" add "Navy and DoD training and testing activities."
17-15. Response	We have inserted text in the EA as requested.
17-16. Comment	I would like to suggest that the primary use and management of this National Monument be put under the auspices of the U.S. Coast Guard, to be used as a training facility and the last outpost of the United States Territory.
17-16. Response	The Presidential Proclamation and the subsequent MOA between the co-trustees outlines the jurisdictions and responsibilities for each agency. While the Coast Guard is a member of the ICC, they are not a resource management agency and have other important search, rescue, National security and enforcement duties to attend to. It would also take a Presidential or Congressional action to make this change. While the military is allowed some use of the area for training, the primary purpose of the area as stated in the Proclamation is protection.
17-17. Comment	Page 70, lines 34-35: The discussion discusses an event that should have occurred before this draft management plan was released. Recommend updating the discussion or deleting it.

<b>Comment Category 17 - Military</b>	
17-17. Response	The Monument Management Board is currently exploring salvage options, including a partnership with the Navy, to remove the sunken vessel from the Kure Atoll lagoon.
17-18. Comment	Page 173, lines 22-32. This description of altitude restrictions is not accurate. There is no minimum altitude above national refuges and national monuments nor does DoD prescribe a minimum altitude.
17-18. Response	OPNAVINST 3710.7T, Section 5.5.1 provides a specific restriction of flying over noise sensitive areas such as national parks, national monuments, and national recreational areas at altitudes of less than 3,000 feet above ground level except when in compliance with an approved traffic or approach pattern, designated VR or IR route, or special use airspace.
17-19. Comment	Page 133. Discussion of the ROI should not be solely focused on the few marine and terrestrial areas as currently depicted. Based on the EA's definition of the ROI at pages 79 and 80 which identifies 13 resource areas or categories, the discussion on page 133 mentions a few apparently unrelated areas of concern. It then mentions "land-based military activities." The previous discussion of the 13 categories is surprisingly vague regarding human activities before mentioning military land based activities. The discussion of the resource areas should also discuss land fills and associated pollution issues, water quality including Honolulu's Consent Decree of the early 1990s, the amount of waste dumped at sea and Honolulu's ongoing dispute with the EPA over its permit, development and associated impacts on marine and terrestrial species and their habitat as well as erosion and non-point source pollution.
17-19. Response	The ROI for water resources primarily includes those islands where specific actions take place. Section 2.5.1.3 of the EA is an overview of water resources, which includes a description of the existing water quality conditions within the ROI. Vessel discharges, spills, shipwrecks, marine debris and land-based military activities have contributed to the contamination of marine water resources in the ROI and therefore is mentioned in this section. A discussion of landfills can found in sections 2.4.2.3 and 2.5.1.3 of the EA. A discussion of past and present human activities within the Monument can be found in previous sections including 2.4.1, 2.4.2 and 2.4.3. While the water resources in the Main Hawaiian Islands are very important, the ROI for water resources in the EA for the Papahānaumokuākea Marine National Monument Management Plan is limited to marine and terrestrial waters and water resources of the Monument. Discussion of water resources in Honolulu specifically has not been included in the EA.
17-20. Comment	Page 248, line 13 indicates areas of cooperation with the Department of Defense and the Navy to include "minimizing" military activities in the Monument. The word "minimizing" should be deleted. The Navy and DoD are committed to being good stewards of areas they use in their testing and training activities and, consistent with Proclamation 8031, will conduct these activities "in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on monument resources and qualities." However, the remoteness of the area of the Pacific that includes

<b>Comment Category 17 - Military</b>	
	the Monument also makes it ideal for missile testing, and some of this testing will include areas within the Monument. There should not be an expectation that these missile testing activities will be curtailed or reduced in the future.
17-20. Response	Activity AC-3.1 now reads: Through the ICC and other forums, the MMB will maintain open communication with the DOD and the U.S. Navy on potential areas of cooperation, including enforcement; minimizing adverse impacts on Monument resources and qualities; support of zoning, permitting, and tracking programs; and regional and local restoration and wildlife protection efforts.

**Comment Category 18 - Native Hawaiian****Summarized Comments**18-01.  
Comment

The comments below regard the involvement of the Native Hawaiian community and incorporation of their traditional knowledge of the ecology in the management of the Monument.

Comments:

- 1) Strategy NHCI-1: Regularly involve the Native Hawaiian community for the life of the plan. This Strategy mentions that OHA will obtain advice and guidance from the Cultural Working Group “on all Monument actions affecting Native Hawaiians and cultural resources in the Monument.” The Cultural Working Group urges that we should have the status to be consulted prior to any major decisions being made on the Management Plan, and not just be apprised of issues that the MMB considers to be Native Hawaiian or cultural issues. For example, our members have valuable knowledge about a myriad of relevant subjects that could be helpful to the MMB, including baseline data on species in the region. We remind the MMB that it is important that the culture not be eclipsed by Western science.
- 2) “Pacific island nations are far ahead of Hawai‘i in terms of blending traditional ecological knowledge and Western science,” Kosaki said in an interview at the conference. “And I would like to qualify this I’m not anti-science. I work with Liz Foot and Darla White on the herbivore enhancement area. I’ve recently trained in the sanctuary on the pihī monitoring project. I’m pro science. However, I think we have once again forgotten that if you dig hard enough—And the Aha Moku Advisory Council is digging, they found 200 kupuna to come forward. Let’s hear from them. Let’s get together with them. Let’s find out how they would deal with pest management. Okay?”
- 3) Integrating Native Hawaiian cultural knowledge of ecosystem management into the larger management scheme is imperative. Without meaningful participation of cultural practitioners in management and adequate funding, resources, and commitment, the ideas contained within the DMMP amount to little more than lip service and brown-washing. Eleven times more funding is proposed for scientific research than for activities related to cultural perpetuation.
- 4) The one thing, I’m not Native Hawaiian, but I’m very interested in wanting to see this place honored as a species place of a uniquely Hawaiian character. I found as I went through it there was times when you would start, they would start to talk about the importance and then when it got into the detail it would just fall away. And I felt like there’s not enough language in there that’s showing us how we’re going to integrate Native Hawaiian practices and understanding about this place into the management of it. And I think that’s very important that we continue

<b>Comment Category 18 - Native Hawaiian</b>	
	<p>to focus on that as we move towards the final plan as moving forward.</p> <p>5) Are there ways to address and to ensure that we keep local people, Hawaiians and others of Hawai‘i that are potentially going to be the long-term stewards, ‘cause this is a problem, we have lots of outside people come in all the time, and they’re here for a while. Plenty stay, but they’re here for a while, and then it’s just a stepping-stone as they’re moving on to some other part of their career.</p> <p>6) So we need continuity, and it’s the local people, it’s the Hawaiians, who have generations of attachment, and it’s the other, more or less, kama‘ina families that are going to be here long after other people are gone. Potentially we might still be stewards, whoever the kakou, whoever the “we” are, yeah?</p>
18-01. Response	<p>The MMB agrees that Native Hawaiian traditional knowledge is imperative to managing and understanding all of the resources of Papahānaumokuākea, as recognized throughout the Monument Management Plan. Please see, in particular, Activity NHCH-3.4 and Strategy NHCI-3, with its associated activities.</p> <p>The MMB particularly respects the knowledge of the Native Hawaiian Cultural Working Group’s volunteer members and their large commitment to accept responsibility for preserving and perpetuating Papahānaumokuākea and Native Hawaiian cultural connections to this place. Thus, the MMB regularly consults and engages with the Native Hawaiian community and to the formal establishment of the Native Hawaiian Cultural Working Group (See NHCI-1 and 1.1).</p> <p>In response to your questions about financial equity, the MMB agencies are building their capacity and working with communities to indentify cultural research and cultural projects for future funding. We have amended the budget in Table 3.1, partly in response to your comments, to reflect what we plan to see as rapid increases in spending on Native Hawaiian issues in the future of the Monument Management Plan.</p>
18-02. Comment	<p>Comments expressed concerned Native Hawaiians losing access to fishing in the Monument.</p> <p>Comments:</p> <p>1) The other thing is, that I understand that you do not give—there’s not permits being issued to Native Hawaiians for fishing, and that is my understanding right now. I believe that’s wrong, because research vessels are allowed, in fact, probably invited to go there and to anchor, yet practitioners are not allowed to go there. And the other thing that you say is, that they have to eat the fishes there, their catch there. That makes absolutely no sense at all. What fisherman would go out, catch his fish and eat it all in the boat and not feed his family? So, you need to reconsider that, and if there are traditional practitioners who want to go there, that they need to be given special consideration and my recommendation would be that you make every effort to consult with practitioners. Mahalo</p>

<b>Comment Category 18 - Native Hawaiian</b>	
	<p>2) My main purpose in coming here tonight is to protest the fact that in this acquisition of the Northwestern Hawaiian Islands there are no provisions in there for Hawaiian fishermen or Hawaiians period. To me the acquisition in itself is the biggest theft of Hawaiian resources ever. I'm just really sorry to have seen some of our political people up there, Dan Inouye, Akaka, OHA, the governor facilitate this thing happening without even including the Hawaiian people in it. I think that if this group of managers is sincere in what they're doing, then one of the first things that they should do is to have an amendment to allow Hawaiian fishermen to come into this area and to fish. It's not just pelagics or some bottom fish that we would be after, but there are also some growout projects that we have been talking about: Lobster, bottom fish. But to exclude us from the very beginning is reprehensible at least. So to me it's just another step towards genocide perpetuated by America on native people. Because as you all probably know America does not recognize native rights, along with Canada, New Zealand and Australia. The other three countries that came, killed the native people and took their resources. Now, I hope that if you are morally obligated to do the good thing in your life, you know, that you will include the Hawaiian people and give them the right that belongs to them to fish up there. But it's not just up there that it's happening. We're also losing our right to fish around the main Hawaiian Islands. Some of you know that the bottom fishing area there's been closures that have come in statewide. This is the federal government that's come into state waters. This is because Peter Young, who was head of the DLNR did such a terrible job in managing the resource. Now, the Feds are here. What happened to Peter Young? He now sits on the council of Westpac, the federal agency for fisheries in the Pacific. Now, it's this kind of corruption that we need to address and get rid of. Because we can't have any kind of just management with this kind of corruption going on. So I urge all of you before things get any worse to put your—try to look at things in the Hawaiian's eyes and don't just look at us as some kind of a spiritual manifestation to justify what's going on. I'm here. My children are here. We're gonna always be here. Let's live together or things are going to get much worse before they get better.</p> <p>3) Native Hawaiian fishermen/practitioners should be allowed to anchor in NWHI, get and return to Hawai'i with their catch. Hawaiians have always fed their families from the oceans and land.</p>
18-02. Response	<p>In accordance with Presidential Proclamation 8031, all commercial fishing will be phased out of the Monument by 2011. Under the proclamation, sustenance fishing is allowed outside of any Special Preservation Area, incidental to a Monument permit. Of the six permit types, only the Native Hawaiian Practices permits allow for gathering, provided that anything harvested in the Monument is consumed there.</p> <p>Everyone, including researchers, may enter Papahānaumokuākea only if permitted. The same applies to anchoring, which must be explicitly permitted.</p>



<b>Comment Category 18 - Native Hawaiian</b>	
	The MMB fully supports and recognizes the importance of Native Hawaiian cultural access to Papahānaumokuākea, which may be provided under the Native Hawaiian Practices permit process. We have amended the title and description of Activity NHCH-2.6 to more clearly reflect our support and recognition.
18-03. Comment	<p>The comments below regard the wish of individuals to continue the practice of the Hawaiian culture within the Monument.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) I really believe Aunty Vanda said, that we need to have practitioners to join in on the Management Plan and also to practice. I mean, part of protecting the Hawaiians is allowing us to practice, yeah? And we realize that with practicing come responsibility, so, you know, it's hand in hand, but we need to practice. If we cannot practice, then we become idle. I also believe that in doing so, that place can be better managed.</li> <li>2) It would be—I think it's important that cultural practice, cultural subsistence to ensure that practice is able to continue, should people want to go up there, you know. It's navigational. Even if they're not taking, in some instances, but to be able to step on the land, on those little, you know, na moku manamana, and connect. And I hope that that's something that's being considered to allow for cultural practice, the continuation of cultural practice.</li> <li>3) I am really pleased over the years of watching this to see the extent to which cultural resources have gotten more and more attention and that the Hawaiian community is engaged. I will tell you, forty years ago and probably twenty years ago, there was almost—I suspect there was sincere interest, but not much expression of that interest. And having spent many nights on Nihoa and Necker Island amidst all the resources, it's chicken-skin time. It took me a long time to really appreciate how important it is. And I'm delighted to see so much interest in the Hawaiian community.</li> </ol>
18-03. Response	The MMB fully supports and recognizes the importance of Native Hawaiian cultural access to Papahānaumokuākea, which may be provided under the Native Hawaiian Practices permit process. We have amended the title and description of Activity NHCH-2.6 to more clearly reflect our support and recognition. The MMB will continue to involve the Native Hawaiian community in managing the Monument for the life of the plan (see Strategy NHCI-1).
18-04.	The comments below concern the legality of the jurisdiction of the U.S. of the Monument.

<b>Comment Category 18 - Native Hawaiian</b>	
<b>Comment</b>	<p><b>Comments:</b></p> <ol style="list-style-type: none"> <li>1) As a Kanaka Hawai‘i, I would like to respond to the Papahānaumoku Monument concept usurped by U.S., is illegal under international law.</li> <li>2) The DMMP must acknowledge and address the unique circumstances regarding the legal status of the lands and waters of the Northwestern Hawaiian Islands. This includes the acknowledgement by the United States government that the Newlands Resolution, which annexed the Hawaiian archipelago to the United States, was illegal, and the matter of sovereignty over the lands, including the submerged lands, of the NWHI has yet to be resolved.</li> <li>3) Therefore, as Mandated by Federal Law, theirs no Public Lands in these islands, and therefore the Public has no jurisdiction or input to the use or sale of these Private Lands that belong under the jurisdiction of the Lahui, Kanaka by instrument of claim in the 200 B.C. migration by their Sovereign POO, AU PUNI of the Lahui Kanaka or Kanaka Nation. The Lahui Kanaka Objects to the U.S. Fish and Wildlife Service to be in their jurisdiction, French Frigates Shoal is a long way of, but close to Midway Island where they were planned to be posted, to protect the Monk Seal on Laysan Island from Hunters and Fisherman also to protect the Birds and the Turtles. This area is about 300 or more miles away from their work living on O‘ahu Island.</li> <li>4) It’s already breaking down the Hawaiians. They already break down one hundred seventeen years, and they still breaking it. Why can’t they just let our people live like old Hawai‘i? Why do we have to fight because certain people say this and certain people say that? It’s not so. If you have a genealogy and proof and everything, then you should show your genealogy, your connection of how you’re related to this land, the islands. Because that’s how you can tell who the family is. If you don’t know, cannot say anything.</li> </ol>
18-04. Response	<p>Please see Volume I, Section 1.3 (Native Hawaiian Cultural Foundation and Significance), where we reference the 1993 Apology Resolution (US Public Law 103-15), which states, in part, that “The Congress... apologizes to Native Hawaiians on behalf of the people of the United States for the overthrow of the Kingdom of Hawaii on January 17, 1893 with the participation of agents and citizens of the Unites States, and the deprivation of the rights of Native Hawaiians to self-determination;...” While we acknowledge that this remains a legal issue, it does not impact the management needs for this special area.</p> <p>Also, please note that Presidential Proclamation 8031 states, “Nothing in this proclamation shall be deemed to diminish</p>

<b>Comment Category 18 - Native Hawaiian</b>	
	<p>or enlarge the jurisdiction of the State of Hawai‘i,” which includes ceded lands and Native Hawaiian cultural and traditional access and gathering rights.</p> <p>Part of the permit review process for Native Hawaiian Practices permit applications includes assessing the intent of the applicant and the applicant’s connection to the place and/or to the activity, among other things.</p>
18-05. Comment	<p>The comments below request that Native Hawaiian practitioners and those with traditional knowledge be involved in management of the Monument.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) Native Hawaiian Practices, a reasonable acceptance. Though, it seems to me that the authorities of the western mindset want to control so much that even this permitted or allowed activity would become hard to do. With further implied threats or base implications. As the details further explain when they are presented in the Hawaiian history or cultural portions of the MMP.</li> <li>2) We recommend stronger support for cultural research activities undertaken by Native Hawaiian cultural scholars and practitioners, purposeful access and the ability to collect both marine and terrestrial resources within Monument boundaries for cultural purposes and to perpetuate cultural practices.</li> <li>3) So my concern is, what is being, you know, considered in this process for identifying the needs, the possible practices and input from the community, when, from the top down, it appears as though they have destined—they have predestined us to fail. And so my concern is this: Where are the people who know and have the ‘ike, although, you know, I got information that there is a panel that’s been selected, which is wonderful, but there’s nobody from Moloka‘i. And so we would like to have that kind of consideration. There are many people on Moloka‘i, young and old, that have ‘ike...So all of this information we need to have considered because in order to get a good mo`olelo of that historical and cultural significance of these places, we agree that it should be protected. In order to make decisions for cultural, educational and other purposes, we need to have people involved on every level. And there was an interesting question from this young man, and he said we’re preserving everything, the federal government, the state is preserving everything, but who’s preserving the Hawaiian? This is a significant question. So, in order to do this, we need to look at the people and help this concept of self-governance in the moku system. They know best how to take care of their sources, rather than the DLNR. I’m sorry, you know, I don’t have anything against DLNR, but they just don’t have enough manpower. They just can’t do it. They need to work with people of the district. That’s just some of it, but that’s enough for now. We need to read it through and then get some more.</li> </ol>

**Comment Category 18 - Native Hawaiian**

- 4) Because of the nature of decisions about anything having unintended consequences, please focus on protection. Please talk to the Hawaiians. These are people of the ocean who have the kuleana for such things. Their knowledge and experience and reverence for and of the ocean will help all of us to take care. Educate us about this wonderful place without letting us overwhelm it or degrade it.
- 5) And my concern as I listen to, you know, you folks are part of the federal government, and this always seems to be the problem, and even within the task that is given to us, according to Act 212, to look for the best practices, model of managing, protecting, and preserving our resources, and those would be marine, land, natural and cultural resources, and it is very place-based specific to each ahupua'a. But my concern is whether or not you have looked to practitioners. You have gone out to the communities, but have you spoken with those practitioners? We're not talking recreational or commercial. We're talking practitioners who have generational, as well as genealogical knowledge of fishing, and of their lands, and of the currents, of the winds, the oceans. Have you been able to reach out to those practitioners? And I hear you talking about recreational and commercial, but that's a different target group that we're looking at. And in order to get good policies, you need to talk with people who have the knowledge.
- 6) I think that we should respect what is there. The people who have been there, the Hawaiians. I believe that we should involve Hawaiian cultural practitioners, Hawaiian people in the whole process. And I believe we should involve all people in the whole process because it's a legacy for all of us as part of this planet. We should take that responsibility.
- 7) Lastly, we applaud inclusion of Native Hawaiians in a variety of issues including cultural and history and archaeology. There is a depth of Native Hawaiians' expertise and knowledge. And we hope that Native Hawaiian appointed to roles of input will be those with the specialty and the area they're appointed to.
- 8) The Native Hawaiian Cultural Resources Working Group must be empowered to review and modify any management decisions. We also echo the concerns raised by some members of the Working Group regarding the quality and quantity of consultation with cultural practitioners. Without an advisory council and stated policies empowering consultation with the Working Group, we fear that this extremely important community of experts with kuleana (responsibility) to protect the NWHI will become marginalized.
- 9) We also support the recommendation of the Native Hawaiian Cultural Resources Working Group to identify a Native Hawaiian Co-Trustee of the Monument. This person could be appointed by the Office of Hawaiian Affairs, until a Native Hawaiian governing entity is re-established. This would involve amending the Memorandum of

<b>Comment Category 18 - Native Hawaiian</b>	
	<p>Agreement to include the signature of the Native Hawaiian Co-Trustee, as well as identify membership to the Senior Executive and Monument Management Boards.</p> <p>10) The Friends of Midway Atoll National Wildlife Refuge also recognizes the cultural and historic significant of the monument. Because it is widely recognized that prior to European contact the indigenous Hawaiian population made forays into this area, we support any collaborative effort which promotes a better understanding between the Hawaiian community and the Papahānaumokuākea Marine National Monument.</p> <p>11) Empower Native Hawaiian decision-making by integrating Native Hawaiian cultural knowledge of indigenous traditions and ecosystem management into the larger management scheme. For example, the Native Hawaiian Cultural Resources Working Group must have the authority to review any management decisions. Without meaningful participation of cultural practitioners in management and adequate funding, resources, and commitment to empowering Native Hawaiian decision-making, the ideas contained within the DMMP are simply empty promises. Currently, eleven times more funding is proposed in the DMMP for scientific research than for activities related to cultural perpetuation, this is unacceptable.</p> <p>12) Of particular concern to me is how Hawaiian culture and traditions will be involved. It is not just what I brought up previously. Namely: it's grafted onto a structure which may, or may not, accept it. And if it doesn't it gets either diluted or out right rejected, politely. The 'current' status, as when this plan was released, in part, "required that Native Hawaiians, among others (-which others? And are any of these 'others' Hawaiian in any way?), provide advice regarding management of the Reserve and ensuring the continuance of Native Hawaiian Practices." That also asks which in the Hawaiian community or population will you ask? Just those who cooperate with you; who will bend beliefs and applications until you can twist a theoretically Hawaiian practice or view into a preconceived {not that flexible, either} structure?</p>
18-05. Response	<p>The MMB commits to regular consultation and engagement with Native Hawaiians and to the formal establishment of the Native Hawaiian Cultural Working Group (see NHCI-1 and 1.1), which was convened originally as part of the Reserve Advisory Council. OHA now convenes the Working Group, which provides input on permit applications and other issues. OHA will continue to formally consult with the Working Group (see NHCI-1 and 1.1). This provides one of many methods of involvement for Native Hawaiians. Those volunteer members of the Working Group have already made a large commitment to accept responsibility for protecting and perpetuating Papahānaumokuākea and Native Hawaiian cultural connections to this place. At least two members on that Working Group are from Moloka'i. Also, OHA occupies one of the seven MMB seats to help ensure that Native Hawaiian perspectives and rights are integral components of the management of Papahānaumokuākea. As you may guess, not all of the Native Hawaiian Cultural Working Group's</p>

<b>Comment Category 18 - Native Hawaiian</b>	
	<p>members agree with each other or with the MMB on any given day.</p> <p>The MMB agrees that Native Hawaiian traditional knowledge is imperative to the management and understanding of all of the resources of Papahānaumokuākea, as recognized throughout the Monument Management Plan. Please see in particular Activity NHCH-3.4 and Strategy NHCI-3, with its associated activities.</p> <p>The MMB fully supports and recognizes the importance of Native Hawaiian cultural access to Papahānaumokuākea, which may be provided for under the Native Hawaiian Practices permit process. The title and description of Activity NHCH-2.6 has been modified to more clearly reflect this support and recognition.</p> <p>The MMB has neither the intent nor the ability to try to mold Native Hawaiians or any other members of the public to conform to anything or to agree with anyone. That is part of why consultation is so important—so that the agencies can learn from varying perspectives.</p> <p>We concur that education can be the best form of access, and it is our intent to “bring the place to the people, not the people to the place.”</p> <p>In response to public comment, we have amended Strategy AC-2 to include exploring the potential of developing new agreements, including the possibility of amending the 2006 MOA to increase Native Hawaiian involvement in the management of the Monument. We have added an activity under that strategy to include that exploration.</p> <p>In response to your questions about financial equity, the MMB notes that our agencies are building their capacity and working with communities to identify cultural research and cultural projects that we will fund in the future. The budget in Table 3.1 has been amended, in part in response to your comments, to reflect what we plan to see as increases in spending on Native Hawaiian issues in the future for the Monument Management Plan.</p>
18-06. Comment	<p>Commenters provided comments regarding their desire to have Native Hawaiian students educated and involved with the Monument.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) first of all, I want to see more Hawaiians on the chairs, controlling our natural resources, I hate to say it, but more Hawaiians on your chairs. Kids like that, in the background, educate ‘em, get ‘em on these chairs, ‘cause this is Hawai‘i, this is our natural resource, and we need more Hawaiians on these chairs. I gotta see that before I die, gotta see these Hawaiians out there. You know, you guys controlling our resources, you guys fighting for everything that is ours, natural resources, and we’re losing it every day. Every single day, we’re losing it. And we</li> </ol>

<b>Comment Category 18 - Native Hawaiian</b>	
	<p>need more education for Hawaiians on your seats, I want to see that.</p> <p>2) If we're going to make all our kupuna and aumakua multiply there, somebody's gotta come and aloha them. They need their mo'opuna to come. So hopefully that's going to be incorporated somehow in the future, more means of interaction, education, and teaching our next generation stewardship and respect. Sometimes we work so hard on preserving traditions, but people don't understand the respect or the kuleana that goes along with it. So that it can be sustainable in case one day the federal government decides that it's no longer a good idea or they no longer can afford to support this, the people are trained, the people are aware, the people are enlightened enough that they can do it for themselves without anybody else's help, and, to me, that's the true bar of success that we should reach and strive for.</p> <p>3) Internship, educational, and student research opportunity that brings together both modern science and traditional knowledge would be the most relevant for future stewardship of Papahānaumokuākea.</p>
18-06. Response	<p>The MMB agrees with the importance of educating and cross-training our youth, and we make specific mention of this in the Monument Management Plan. Please see, for example, Activity NHCH-2.3, which calls for facilitating cultural research and education in Papahānaumokuākea for “students, teachers, and cultural specialists during every field season.” MMB agencies also have internship opportunities for Native Hawaiian youth to help build capacity, to increase understanding of the work we do and opportunities within our agencies. Also, Strategy NHCH-5 speaks directly to “Provid[ing] cultural outreach and educational opportunities to the Native Hawaiian community and the general public for the life of the plan.”</p>
18-07. Comment	<p>These comments concern the request that fishermen be included in the Management process for the Monument.</p> <p>Comments:</p> <p>1) But I would say, I would recommend that you include the fishers because the fishers are not only fishers, their konohiki. They're modern konohiki. They have to be included.</p> <p>2) You (Fed go'vt) need to communicate/get input from Native Hawaiian fishermen who learned their practice from ancestor knowledge.</p>
18-07. Response	<p>The MMB will continue to consult with Native Hawaiian fishers, especially those who have lived and worked in the NWHI. Also some Native Hawaiian cultural practitioners and customary resource managers who have already been permitted to access the area as cultural researchers (post-Monument designation) were fishers. Such access has become an excellent example of how Native Hawaiians can continue to educate all of us in better resource management skills,</p>



<b>Comment Category 18 - Native Hawaiian</b>	
	while further representing the importance of experiential learning within that living culture (see Strategy NHCH-2 and associated activities).
18-08. Comment	<p>The comments below express concern for a lack of consultation with Native Hawaiians for the cultural impact statement.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) The Office of Hawaiian Affairs (OHA) acknowledges that consultation within the context of a cultural impact assessment is not an easy task. Traditional knowledge is not shared with strangers via letter or email. In order for meaningful consultation to occur, a relationship between the interviewer and interviewee must be established.</li> </ol> <p>While the cultural impact assessment for Papahānaumokuākea does indicate detailed documentary research, meaningful consultation with knowledgeable cultural practitioners is absent. This consultation will provide a critical connection between the written word and the real life experiences of cultural practitioners who will place the importance of events associated with and resources found within Papahānaumokuākea into the appropriate context.</p> <p>The archaeological background section of the cultural assessment details that archaeological surveys on Nihoa and Mokumanamana have documented numerous cultural sites on both islands which are listed on the National Register of Historic Places. These cultural sites cannot only be viewed as archaeological resources. Cultural practitioners and knowledgeable individuals will be able to discuss the true importance of these cultural sites to contemporary Hawaiians.</p> <p>OHA respectfully requests that the services of an individual with experience in conducting consultation for cultural impact assessments be retained and that consultation with individuals with knowledge of the cultural significance of Papahānaumokuākea occur. There are also archival video interviews which may be a valuable contribution to the cultural impact assessment which should be reviewed to gain a larger understanding of the many cultural aspects of Papahānaumokuākea. This additional work will not only bring the cultural impact assessment within the recommended Environmental Council guidelines, it will provide a greater understanding of potential impact activities within Papahānaumokuākea Marine National Monument will have on cultural resources and traditional practices.</p> <ol style="list-style-type: none"> <li>2) Appendix A: Cultural Impact Assessment. Members of the CWG note that it was difficult to engage in the consultation process during the development of the Draft Cultural Impact Assessment (CIA). There should have been person-to-person consultation and interviews, as well as group consultations as with the CWG. There needs</li> </ol>

**Comment Category 18 - Native Hawaiian**

to be time built into the drafting of a CIA – especially for such a culturally significant place – that would allow for interviews that tell the stories and are the Hawaiian knowledge of the place. Without those oral histories, there can be no real assessment.

Such is the case here; the Draft CIA is merely a series of quotations of the Draft Management Plan without any assessment of impacts. We urge that the research and drafting of this important document be subcontracted so that it can be done well and in a timely fashion. We also agree to assist the subcontractor, who we have heard to be Kehaulani Souza, in her work.

Content components should include, among other things, contacts and informants, and Native Hawaiian methods of managing natural and cultural resources. The latter should incorporate why Hawaiians feel disenfranchised about managing their own resources. The author should conduct interviews with kūpuna, makua, lineal descendants and others with strong connections to the place. There should be extensive historic information, such as old maps; identification of traditional Hawaiian activities; physical and spiritual aspects of Papahānaumokuākea; and review of what Bishop Museum and the University of Hawai'i, for example, have in their collections. References should be made to the State Constitution's protections of cultural and traditional rights, the Apology Bill, the recent Hawai'i State Supreme Court ruling referencing ceded lands and the Apology Bill, and PASH rights. Cultural interviews should be incorporated into the project, with the permission of the interviewees, and review of previously collected oral histories should also occur so that kūpuna do not have to be disturbed again and again.

Several meetings of genealogical descendants have occurred, and those notes should be secured both for this project and for perpetual archiving. These meetings include one that was held at the Honolulu International Airport meeting rooms, primary workshops for the establishment of the proposed Sanctuary, and interviews done by and for the Polynesian Voyaging Society, and by Kepa Maly.

In the actual assessment, the author should note that culture is determined by access to the resources and active knowledge of those resources. The assessment should also include how federal and state laws and regulations impact upon the culture, as do past and present military and management activities, the current permitting process, and the vast array of pollutants and dump sites remaining within Papahānaumokuākea.

- 3) The Cultural Impact Assessment (DCIA) fails to meet the requirements set out Hawaii Revised Statutes Chapter 343 for a detailed and complete recording of the “significant effects” on “cultural practices.” Although the CIA does outline a series of strategies that are contained throughout the DMMP that speak to increased access,

<b>Comment Category 18 - Native Hawaiian</b>	
	<p>education and integration of Native Hawaiian practices in the management of the Monument, there is simply not enough examples of how the co-managing agencies plan to implement and develop these strategies, and not enough budgetary support to see the strategies actualized.</p> <p>We strongly recommend a more complete and exhaustive process in consulting and documenting contacts with a broad range of Native Hawaiian cultural practitioners and organizations, thereby deepening the understanding of what the true cultural impacts of proposed actions, plans and strategies within Papahānaumokuākea will be and further integrating the Native Hawaiian community into the leadership decisions and management of this sacred Wao Akua.</p>
18-08. Response	<p>These changes were made to better meet the intent of Chapter 343 of the Hawaii Revised Statutes and the directions provided by the State Office of Environmental Quality Control. Please note that we have revised the cultural impact assessment to include the results of several oral interviews, more document and personal research, and analysis of actual potential impacts and possible mitigations.</p>
<b>Unique Comments</b>	
18-09. Comment	<p>Activity NHCH-1.1: Identify research needs that can be accomplished through anthropological, archaeological, historical, and Hawaiian cultural methods. One research need includes the ability to access cultural resources currently curated at various institutions, including Bishop Museum and the University of Hawai‘i. These resources need to be properly archived, maintained, accounted for, and kept in Hawai‘i.</p> <p>Researchers need to be able to access and study these resources to ensure that the limited resources of Papahānaumokuākea are respected and that any future requests for research do not need to include taking unnecessary, additional samples from the islands and atolls.</p>
18-09. Response	<p>We have amended Activities NHCH-2.7 and 4.2 to help address these concerns.</p>
18-10. Comment	<p>Activity NHCI-1.1: Formalize, expand, and convene the Native Hawaiian Cultural Working Group. We also request a seat at the management table to represent the Native Hawaiian community’s interest. To be at this level, the CWG will require funding to pay for staff to conduct permit reviews, analyze cultural and environmental impacts, provide cultural monitoring, and other necessary functions. This co-management also would allow for the CWG to convene on Neighbor Islands to gather input from Hawaiians on their home islands who may not feel comfortable sharing their ideas in a more sterile, agency setting. Furthermore, the CWG suggests that the MMB seek youth who have an interest in carrying</p>

<b>Comment Category 18 - Native Hawaiian</b>	
	forward this kuleana and integrate them into the CWG so that they will continue to gather and help transmit the knowledge of older members.
18-10. Response	See NHCH 3.2, which describes the broad scope of possible engagement of the Native Hawaiian community in general and the Native Hawaiian Cultural Working Group in particular “in the development and implementation of the Monument’s management activities.”
18-11. Comment	<p>Perpetuate Native Hawaiian culture: Since the designation of the Monument, the Native Hawaiian community has not been directly involved in the management of the Monument. The Native Hawaiian Cultural Working Group has not yet been convened to participate in the development of the DMMP. Neither the Native Hawaiian Cultural Working Group or the Office of Hawaiian Affairs were consulted about the serious, foreseeable risks of the Navy’s proposed ballistic missile tests directly over the sacred islands of Nihoa.</p> <p>The vision statement for the Monument in the DMMP must integrate perpetuation of Hawaiian cultural practice on equal ground as wildlife protection. The significance of the Northwestern Hawaiian Islands to Native Hawaiian cultural practice and history is part of the foundation of the overwhelming public support for protect this immensely important region.</p> <p>The final management plan for the Monument must have a vision statement that equally embraces the cultural and ecological significance of the region, such as: “that the health, diversity and resources of the vast NWHI - its unique wildlife and cultural significance - be protected forever.”</p>
18-11. Response	The Native Hawaiian Cultural Working Group has been convened since Monument designation to consult initially on the Monument Management Plan. The Working Group is being facilitated by the Office of Hawaiian Affairs, which the Navy consulted on the proposed ballistic missile tests via the Navy’s Hawai‘i Range Complex Draft Environmental Impact Statement, which OHA commented on with serious concerns. We amended the vision statement, in part, based on your suggestions.
18-12. Comment	Advocate for a true Pu‘uhonua in the Northwest Hawaiian Islands through U.S. Congressional action that permanently and completely prohibits all commercial activities and protects Native Hawaiian cultural, religious and subsistence practices, and allows only appropriate scientific and educational access to the NWHI archipelagoes that would only benefit the cultural and ecological resources.
18-12. Response	Presidential Proclamation 8031 requires that any access to or extraction from the Monument be prohibited unless explicitly allowed by permit. Permits may be granted only if the applications meet all the restrictive findings included in

<b>Comment Category 18 - Native Hawaiian</b>	
	the proclamation and Monument regulations. The proclamation notes in the first paragraph the “great cultural significance to Native Hawaiians and a connection to early Polynesian culture worthy of protection and understanding.” Advocacy for a congressional action is outside the scope of this management plan.
18-13. Comment	The lands, submerged land, waters, oceans, airspace, territories, natural resources of Ka Pae ‘Aina Hawai‘i and associated Kanaka Maoli traditional knowledge are, by our inherent birth right, the kuleana and property of Kanaka Maoli and the inheritance of future generation of our peoples. As such, the standards and criteria for consumption, development and utilization of these resources shall be there for Kanaka Maoli to promote our culture through principles of pono, aloha ‘aina and malama ‘aina.”
18-13. Response	Please note that Presidential Proclamation 8031 states, “Nothing in this proclamation shall be deemed to diminish or enlarge the jurisdiction of the State of Hawai‘i,” which includes ceded lands and Native Hawaiian cultural and traditional access and gathering rights. The MMB fully supports and recognizes the importance of Native Hawaiian cultural access to Papahānaumokuākea, which may be provided for under the Native Hawaiian Practices permit process. We have amended the title and description of Activity NHCH-2.6 to more clearly reflect our support and recognition.
18-14. Comment	<p>Strategy NHCI-3: Identify and integrate Native Hawaiian traditional ecological knowledge and management concepts into Monument management annually for the life of the plan. Although we agree with the intent of this strategy, we do not see how it can be fully implemented given the present funding, permitting strategy and management methods. One way to assure that cultural research has equal standing to Western scientific research is to assure that it has equal funding. The Monument cannot serve the purpose of cultural enrichment and perpetuation if very few to no Hawaiians ever get to see or use the resources for cultural purposes.</p> <p>To ensure the success of this strategy, the MMB must increase the number of visits by Native Hawaiians to Papahānaumokuākea, particularly those who have cultural and lineal connections via their ancestors’ regular access from Kaua‘i and Ni‘ihau. We must identify and restore access to Native Hawaiian families that can demonstrate traditional and customary practices in this region. This used to be in the Management Plan, but was left out of this draft. Please return the original language, which included a better Native Hawaiian definition. (We suggest that it would best be reinserted either as part of Activity NHCH-2.6., or as a new Activity after NHCH- 2.6.)</p> <p>In prior years, traditional practitioners were on research or educational trips to perpetuate cultural and traditional knowledge. Main Hawaiian Island practitioners would visit the NWHI, utilizing traditional and customary practices, engage in resource observation for consumption, and give information from the results of those visits to Kaua‘i and Ni‘ihau. These demonstrations were successful in teaching and perpetuating navigation and other traditional knowledge.</p>

<b>Comment Category 18 - Native Hawaiian</b>	
	<p>Community-based management models work; they allow practitioners to take information to their communities, and not just leave that information with managers on Oahu.</p> <p>Native Hawaiians with experience in natural resource management in the main Hawaiian Islands who are allowed access to Papahānaumokuākea may be more likely to rediscover Hawaiian knowledge through experience, provided that their traditional, day-to-day, sustained observations are not limited, as they are by current permitting guidelines. For example, as the islands and atolls become submerged because of global warming, we will have to keep track of changes in environmental conditions to keep up with those changes. Animals who rely on existing emergent lands will need new resting and nesting grounds, and managers will need Native Hawaiians to consider the cultural contributions of those animals and how best to potentially relocate them. Native Hawaiians who are experienced and respected must advocate for these animals, monitor resources and make observations on changing environmental conditions.</p> <p>In 1936, several Native Hawaiian students were selected to live in the NWHI and were trained to help monitor natural resources. They were able to utilize both Western and traditional natural resources monitoring and management skills. Such a program should be reinstated by the Monument.</p>
18-14. Response	<p>In response to your questions about financial equity, the MMB notes that our agencies are building their capacity and working with communities to indentify cultural research and cultural projects that we will fund in the future. We have amended the budget in Table 3.1, in part in response to your comments, to reflect what we plan to see as increases in spending on Native Hawaiian issues in the future in the Monument Management Plan.</p> <p>We have amended Activity NHCH-1.2 to reflect your concerns about archipelagic connections, particularly for the people of Ni‘ihau and Kaua‘i with the NWHI.</p> <p>The MMB strives to integrate the Science Plan and Cultural Research Plan.</p> <p>The MMB agrees that Native Hawaiian traditional knowledge is imperative to managing and understanding all of the resources of Papahānaumokuākea, as recognized throughout the Monument Management Plan. Please see in particular Activity NHCH-3.4 and Strategy NHCI-3, with its associated activities.</p> <p>Those who wish to attempt long-term observational and experiential learning should apply for a Native Hawaiian Practices Permit.</p>
18-15. Comment	<p>I would ask that the management plan include or not prohibit the gathering of some resources, limited amount of resources. Of course, this is not meant to be a crack in the door for commercial fishing, but that the management plan allow for or not prohibit those families who can demonstrate that. I would also like to see in the management plan, there</p>

<b>Comment Category 18 - Native Hawaiian</b>	
	are things like feathers, and which you do not eat. But the ability to collect feathers and resources from the monument that can be brought out of the monument for educational purposes; for example, to rehabilitate some of the kahili that are in the Bishop Museum and other instances that I am not aware of, at this point, that could arise. So I would just ask that management would take those things into consideration and perhaps they can make their way into the final document.
18-15. Response	Please note that we have amended Activity NHCH-2.6 to address these concerns by the Native Hawaiian community. We have reinserted language from the Northwestern Hawaiian Islands Proposed National Marine Sanctuary Draft Management Plan (2005). Note in particular number 3 in the list of possible access needs.
18-16. Comment	Activity NHCH-1.2: Develop cultural research priorities alongside associated management challenges and opportunities. Who will do this prioritization? The CWG should assist the MMB in this determining these priorities.  One priority should be further study into the history of Nihoa and Mokumanamana's previous inhabitants and of the human made structures on those islands. We should not presume any particular origin – be it Hawaiian, Tahitian or Marquesan, for example –without adequate, thorough study of remaining cultural features.
18-16. Response	The MMB agrees with your comments and has amended Activity NHCH-1.2 to better reflect your concerns.
18-17. Comment	But sea monks is my family. That's part of a beach. I respect them. That's their beach. They eat, I eat. The turtle, I gotta eat turtle again. You guys put that law back, where the Native Hawaiians, we eat turtle. That's why get too much turtle, get too much tiger sharks or too much disease. We gotta get a limit, at least one a year, give us one turtle meat, because we live off turtle. That's our tradition. Unless that's your aumakua. Like the shirt you're wearing, first thing I look at it, the mano, you know, that's aumakua to the Hawaiian people.
18-17. Response	Monk seals and sea turtles are protected under the state and federal endangered species laws. Authorizing Native Hawaiian take of sea turtles is outside the scope of this Monument Management Plan. The MMB respects that natural resources are cultural resources from a Native Hawaiian perspective, and as such, we review all permit applications and management activities with this in mind.
18-18. Comment	Activity NHCH-2.1: Continue to compile information and conduct new cultural and historical research about the NWHI. This database of information should include scientific information that supports traditional and cultural knowledge.
18-18. Response	The MMB agencies are working to integrate western scientific information fields with traditional knowledge fields in the forthcoming Monument Information Management System.



<b>Comment Category 18 - Native Hawaiian</b>	
18-19. Comment	And I'd like to see a possible designated area at Midway for a, what we're calling for now, a cultural live-in center where it will be quite similar to what might be proposed for Kaloko Honokohau. And if that can be done where instead of making plans after plans after plans of what is a cultural live-in center, it should be one plan. And it can be used like every island or ahupua'a or whatever, again, the people wanted to do. It's one of those kinds of things where you can go and practice cultural practices and wear your malo or your kihei or whatever. It can always—it'll be an option. But I'd like to see that it be all uniform, one plan set for just the cultural live-in center.
18-19. Response	Because Midway Atoll is a National Wildlife Refuge, no activity can take place there that would detract from any wildlife habitat. Thus, the potential for a cultural live-in center would have to meet standards required by the Department of the Interior and would likely have to be specific to that location. In the near-term, such access may have to be based on potential Native Hawaiian Practices permit applications for long-term observational and experiential work.
18-20. Comment	Consider the recommendations of the group that gave Monument managers a lot of information earlier on the draft kind of definition of cultural collection of resources.
18-20. Response	Please note that we have amended Activity NHCH-2.6 to address these concerns by the Native Hawaiian community. We have reinserted language from the Northwestern Hawaiian Islands Proposed National Marine Sanctuary Draft Management Plan (2005). Note in particular number 3 in the list of possible access needs.
18-21. Comment	As the draft management plan states on page 47, "Cultural practices like these continue to remind and teach Native Hawaiians of the connections and relationships their ancestors have passed down from generation to generation." Securing ready access to the islands without having to navigate restrictive bureaucratic hurdles eliminates long start up and planning processes that grassroots programs cannot endure. Further, the bureaucratic permitting process may infringe upon Native Hawaiian rights and traditional practices as well as stand in contrast to the management plan's stated mission. Therefore, we urge that access for Native Hawaiians under all types of permitting programs be considered and that the permitting process not be overly burdensome for the applicant, as listed on page 221.  Additionally, this serves as a good example of why Native Hawaiians not only must be consulted with during the drafting of this management plan and various implementing documents, but why we should also have a meaningful management role to better address these types of concerns.
18-21. Response	Please see the Native Hawaiian Practices, Section of 3.4.1, the Permitting Action Plan, which states, "Permit conditions and protocols will continue to be developed by the Co-Trustees and the Office of Hawaiian Affairs through consultation with the Native Hawaiian Cultural Working Group and the Native Hawaiian community, as appropriate."

<b>Comment Category 18 - Native Hawaiian</b>	
	<p>Native Hawaiians played a large role in drafting the Monument Management Plan and in creating the Monument. Furthermore, both the Native Hawaiian Culture and History Plan and the Native Hawaiian Community Involvement Plan describe comprehensive processes to ensure the continued involvement of and respect for Native Hawaiians, communities, and culture.</p> <p>The MMB commits to continuing our regular consultation and engagement with the Native Hawaiian community and to the formal establishment of the Native Hawaiian Cultural Working Group (see NHCI-1 and 1.1), which provides one of many methods of involvement for Native Hawaiians.</p>
18-22. Comment	<p>3.1.2 Native Hawaiian Culture and History Action Plan. Strategy NHCH-1: Identify and prioritize scientific and Native Hawaiian cultural research needs within 18 months. The Native Hawaiian science behind this strategy is missing. How Native Hawaiians saw things and valued the contributions of every entity is missing from the Management Plan in general. Hawaiians were observing their surroundings and making decisions based on those observations long before Western scientists even knew about the area. Only now are those scientists making observations, and their baseline will be skewed if the knowledge of our ancestors is not included. Cultural research must include natural science components, and those environmental observations must be given the same weight as Western science research; there must be an even balance between Western science and traditional knowledge. Just because there are not archaeological sites involved does not mean that there is no cultural significance. The entire Management Plan is too dismissive of Hawaiian observations and research. Thus, cultural research should be included in the science research plan so that there is a constant partnership and potential for cross-education and training of cultural and scientific experts. That same balanced opportunity for cross-education and training should be offered to Native Hawaiian youth.</p>
18-22. Response	<p>We have amended Strategy NHCH 1, Activity NHCH 1.2, Strategy NHCH 2, Activity NHCH 2.2, Activity NHCH 2.3, Activity NHCH 2.6, Strategy MCS 2, and Activity MSC 2.1 to reflect your comment.</p>
18-23. Comment	<p>Activity NHCH-2.4: Convene a Native Hawaiian nomenclature working group. This should be a sub-committee of the CWG. Processes should be created to establish membership, contact agencies and organizations currently making both maps and discoveries of geologic features and biological species, follow proper naming protocols for new and previously known features and species, and ensure that the Native Hawaiian names are given appropriate authority and recognition through the correct avenues.</p>
18-23. Response	<p>Clear processes and protocols need to be developed and followed to ensure the appropriate naming of features and species of Papahānaumokuākea. We have amended Activity NHCH-2.4 to further clarify our intent. Within a year, the MMB will convene a variety of experts, including the Native Hawaiian Cultural Working Group, on the history and</p>

<b>Comment Category 18 - Native Hawaiian</b>	
	meaning of Hawaiian names for known and undiscovered regions, islands, geographical and oceanic features, sites, and plant and animal species. We will include and regularly update these names and their histories and meanings in the forthcoming Monument Information Management System. This is to ensure that such names continue to reflect Hawaiian knowledge and experience, and processes will be established to ensure that the Native Hawaiian names are imbued with appropriate authority and recognition.
18-24. Comment	Activity NHCH-2.5: Incorporate cultural resources information into the Monument Information Management System. Because much of this information includes our intellectual property, we need to control access to that information. People who want access to it must show a valid purpose to be allowed access. By the same token, OHA should make the information on its Wahi Pana Database, a database for protocols of sacred places, available to the CWG. However, it is unclear from the current writing who has access, and when, to the information within “a security layer for the protection of proprietary cultural information.” We need some kind of cultural copyright.
18-24. Response	The writing in Activity NHCH-2.5 is unclear because the issues are still being researched. Intellectual property law, as it now stands, does not offer protection for traditional knowledge, but some federal and state laws do protect culturally proprietary information. The MMB is striving to provide appropriate access and protection and will continue to consult with the Native Hawaiian community throughout the process.
18-25. Comment	Activity NHCH-2.6: Support Native Hawaiian cultural accesses to ensure cultural research needs are met. We would like some clarity on the meaning behind “consistent access to Mokumanamana” and “regular access for Polynesian voyaging canoes,” so that those accesses are expanded instead of limited, but never at the detriment to Native Hawaiians.  Further, until more archaeological and cultural research has been done, religious practices should not be limited to “Hawaiian religious practices.” Requests should be evaluated on a case-by-case basis, because the traditional religious practices of the place may have been Tahitian or Marquesan, or at least have had other Polynesian origins. Nonetheless, because preferential treatment and funding for access to Papahānaumokuākea is often given to Western scientific research and not to Hawaiian observation, Hawaiians need to be given preference and priority for funds and, therefore, access. This should be part of the scientific and cultural research process.  Please note that this may be the best location for reinsertion of an originally drafted activity that included the importance of allotting appropriate accesses for people with genealogical ties to the islands (see p. 3, above). This section should also clarify that Native Hawaiians can gather resources from the Monument during accesses for cultural purposes. For example, we should be able to take feathers from dead birds or fallen feathers for kahili restoration, among other things.
18-25.	The language in Activity NHCH-2.6 is purposefully vague to ensure that, as you wrote, “those accesses are expanded

<b>Comment Category 18 - Native Hawaiian</b>	
Response	<p>instead of limited, but never at the detriment to Native Hawaiians.”</p> <p>In response to your concerns about Hawaiian religious practices, we have changed the language to “Hawaiian ceremonial purposes and religious practices.”</p> <p>We also added some language to Activity NHCH-1.2 to reflect interest in specific genealogical ties to the NWHI and some language to Activity NHCH-2.6 to address the potential for Native Hawaiian gathering.</p>
18-26. Comment	While we appreciate that this CWG still meets about Monument management issues, we do not think that OHA should bear all the costs for Native Hawaiians to meet. The federal agencies that assist in managing the Monument should also help pay for these meetings.
18-26. Response	At the end of each action plan is a summary table, listing which agency has the lead for coordinating each activity. The lead agency is responsible for providing much of the staff and other resources (such as funding, volunteers, infrastructure, vessels, and aircraft) to implement the activity. The lead agency also is responsible for coordinating with other agencies to monitor and report the progress of the projects. Note that other MMB agencies may participate in shared decision making and implementation of the activity, depending on their respective mandates and agency resources.
18-27. Comment	p. 261 Clarify quote on 21 from the EO. Possibly switch “subsistence uses” with “religious uses”.
18-27. Response	We have corrected the error.
18-28. Comment	P. 261 Change to “Ensure that the Native Hawaiian community is actively and meaningfully engaged in PMNM management.”
18-28. Response	The original language has been kept because it is more active than passive.
18-29. Comment	P. 262 ln 13 Add: “...in 1993, which justifies creating a co-trustee seat for Native Hawaiians.”
18-29. Response	Please see the amendments made to AC-Strategy 2 and the new Activity AC-2.1

<b>Comment Category 18 - Native Hawaiian</b>	
18-30. Comment	p. 263 On line 22 add “quasi-State...”
18-30 Response	OHA is a state agency, but it is unique from any other kind in Hawaii, mandated to advocate for Native Hawaiians and to assess the policies and practices of other agencies’ impacts on Native Hawaiians.
18-31. Comment	p. 264 In 2 change to read “Activity NHCI-1.3: Establish an annual cultural resources information exchange.”
18-31. Response	We do not agree that this language change would clarify our intent because not just information will be exchanged in a cultural sense.
18-32. Comment	Also, Monument management should set up its own Advisory Board, similar to the RAC, but for the whole Monument, not just the Reserve. The Antiquities Act, under which the Monument was established, should be amended, or an exemption should be made to allow for an Advisory Council for Papahānaumokuākea .
18-32. Response	As stated in CBO-3.5, the Co-Trustees are committed to establish a Monument Alliance within 1 year, composed of individuals who represent communities and stakeholders interested in the Monument’s stewardship responsibilities. The Alliance will provide individual advice and recommendations to the Monument management agencies regarding the management of Monument resources over which the Co-Trustees have responsibilities. It will serve as a community-based forum to exchange information; provide community input and individual recommendations on Monument policies, activities, and management; advocate for Monument conservation; and enhance broader community and public understanding. Within 2 years after the release of the Monument Management Plan, the Co-Trustees will charter the Alliance as an advisory committee under the Federal Advisory Committee Act (FACA), or as a FACA-exempt advisory body, in order to allow the Alliance to provide consensus advice to the Co-Trustees, per the amended Memorandum of Agreement. Meetings of the Monument Alliance will be convened on a regular basis, with specific topics identified for each meeting. The meetings will be well publicized and open to the public, and will be held at various locations to facilitate participation by a broad range of constituents. Amending the Antiquities Act to establish the Alliance is outside the jurisdictional scope of the Co-Trustee agencies, however, the group will look for other authorities to accomplish establish a consensus based advisory group.
18-33. Comment	Protect the ancient Hawaiian cultural sites.
18-33.	We agree that this is a priority and have incorporated protection for cultural sites into the MMB through the creation

<b>Comment Category 18 - Native Hawaiian</b>	
Response	Strategy NHCH-4, Plan, develop, and implement a Monument Cultural Resources Program over the life of the plan and its associated activities.
18-34. Comment	Would like to see the incorporation of ahupua'a based management
18-34. Response	Native Hawaiian traditional ahupua'a-based management is laudable and has been implemented with great success throughout the main Hawaiian Islands. It was not implemented in the NWHI, but other traditional resource management skills were implemented and will continue to be implemented. The MMB agrees that Native Hawaiian traditional knowledge is imperative to the management and understanding of all of the resources of Papahānaumokuākea, as recognized throughout the management plan. Please see, in particular, Activity NHCH-3.4 and Strategy NHCI-3, with its associated activities.
18-35. Comment	No. 2. A federal undertaking equals consultations with Native Hawaiian organizations and Hawai'i Pono I is the law. Within this document that I'm submitting actually shows what a federal undertaking is. But it's basically, it means "A project, activity, or program funded in whole or part under direct or indirect jurisdiction of the federal government. "Any assistance; permit, license or approval renders is a federal undertaking and therefore the Section 106 does apply." Which means by law that anything that's done within the Hawaiian Islands the Native Hawaiians must be consulted. Also what is lacking in the Management Plan is the fact that the federal government has now commenced a federal undertaking by way of the use of federal monies. Therefore the Section 106 is hereby invoked and the Native Hawaiian organizations, ohana, and Kupuna Council and other organizations and interim interface for Hawai'i Pono I must be consulted. No one Native Hawaiian organization, Kupuna Council, Mo'i or anyone of good standing has signed a memorandum of agreement that allows the misuse of authority in the archipelago of Hawai'i Pono I. Therefore, the Kupuna Council and all the Native Hawaiian organizations involved or concerned due hereby state our concern and desire to be a consultant, mandatory compliance required. A list of contacts can be provided upon request. The fledgling Hawaiian Historic Preservation Officer program is underway as provided for in Section 800.2(c)(2). The Hawaiians are entitled to and meet the criteria for the equivalent of THPO, Tribal Historic Preservation Officers. They are not a tribe and they have to go through a congressional name change. And that is in the works through OHA with the preservation liaison and also discussion of landbase. The Hawaiians do meet the criteria and the volunteer Marine duty officers for the entire archipelago of Hawai'i Pono I is headed by the volunteer Isaac Harp. And shoreline resources will be managed by Tami Harp, his wife, because traditionally women were the ones who did the gathering on the shoreline. So for the Marine duty officers we're asking that they are contacted, they are made part of the plan. I understand he's going to a RAC meeting, so

<b>Comment Category 18 - Native Hawaiian</b>	
	that's good.
18-35. Response	As you are aware, under the National Historic Preservation Act, if a federal undertaking may impact properties that either already are National Historic Properties or those that may become so, a Section 106 consultation must be conducted. Until a programmatic agreement is executed for Monument management, each proposed activity within the Monument that may impact such properties has undergone and will continue to undergo Section 106 consultation. For example, both the FWS and the National Marine Fisheries Service have fulfilled Section 106 consultation requirements for management and conservation proposed on Nihoa and Mokumanamana. Until and unless a Tribal Historic Preservation Office can be established in Hawai'i, the State Historic Preservation Division continues to operate as Hawai'i's State Historic Preservation Office, and the Office of Hawaiian Affairs is listed in the NHPA as a Native Hawaiian organization that must be consulted during any Section 106 process in Hawai'i. Both of these agencies, as well as other Native Hawaiian organizations and individuals, have been consulted during the Section 106 processes mentioned above.
18-36. Comment	Page 86 line 8 states: Ceded lands are currently held in trust by the State of Hawai'i as part of the public land trust and continue to hold a considerable amount of legal, historical, and sentimental significance to Native Hawaiians.  Comment: Native Hawaiians have a deep spiritual relationship with the land and oceans, not just ceded lands in the Northwestern Hawaiian Islands. We recommend this sentence be revised to read: "Ceded lands are currently held in trust by the State of Hawai'i as part of the public land trust and continue to hold a considerable amount of legal, historical, and spiritual significance to Native Hawaiians ..."
18-36. Response	We have made an editorial change based, in part, upon your comment.
18-37. Comment	The mandate, history, composition and processes of the Native Hawaiian Cultural Working Group need to be fully disclosed (what is its mandate, when was it formed, how many members are there, when does it meet, are the meetings open to the public, how are members selected, is there a requirement for members to be Hawaiians, how long do they serve, what happens to their recommendations, etc.). Although the identity of group members has not been disclosed to date, this has been a controversial group and the public needs to be fully informed as to its origins, composition and activities.
18-37. Response	The existing Cultural Working Group was established under the Reserve Advisory Council. Under the implementation of the Monument Management Plan, the MMB has committed to regular consultation and engagement with the Native Hawaiian community and to the formal establishment of the Native Hawaiian Cultural Working Group (see NHCI-1 and



<b>Comment Category 18 - Native Hawaiian</b>	
	1.1), which provides one of many methods of involvement for Native Hawaiians. Those volunteers in the Working Group have already accepted responsibility for preserving and perpetuating Papahānaumokuākea and Native Hawaiian cultural connections to this place.
18-38. Comment	3.1.2 Native Hawaiian Culture & History Action Plan & 3.1.3 Historic Resources Action Plan. The DMMP includes Action Plans that call for collecting information about the historic and cultural significance of place and daily life, in general, from interviews with military personnel (Strategy HR-5 and HR-6.1) and the Native Hawaiian community and other cultural experts (Activity NHCH-3.4). In addition to documenting culturally important practices, the Co- Trustees should also ensure that information about the marine environment and any information that might provide clues about the status of natural resources are included and inquired about in these interviews. Characterization of the ecological setting and environment of the NWHI is intricately related to cultural practices, and would provide valuable information about the status and health of the natural environment in the past.
18-38. Response	We agree and will ensure such information is gathered during any oral interviews.
18-39. Comment	Anyway, for one reason I appreciate George Bush, for proclaiming the national monument under the Antiquities Act. And I would like for everybody to support an amendment to the Antiquities Act to provide for representatives of Native Hawaiians and the public to participate in management at a meaningful level and not at an advisory. I've been in advisory panels and councils with state and federal agencies for a long time. And although a lot of good input is provided the advisory councils, the agencies don't always go along with what the majority considers the right thing to do.
18-39. Response	Amending the Antiquities Act is outside the scope of the Monument Management Plan. The NHCI and CBO Action Plans outline strategies and activities to involve Native Hawaiians and the public in management.
18-40. Comment	You know, we're very, very concerned that there be a native Hawaiian fisher rights for subsistence fishing and that they also be a part of the process. And we're also concerned that there be a community advisory committee made up of Hawaiians and others in the community who can monitor and be an integral part of this whole process. Because without community input, you know, if there's a feeling that it's just going to be regular rubber stamp brigade that's going to be going on.
18-40. Response	Under the proclamation, sustenance fishing is allowed outside of any Special Preservation Area, incidental to a Monument permit. Of the six permit types, only the Native Hawaiian Practices permits allow for subsistence gathering.

<b>Comment Category 18 - Native Hawaiian</b>	
	The MMB commits to regular consultation and engagement with Native Hawaiians and to the formal establishment of the Native Hawaiian Cultural Working Group, which was convened originally as part of the Reserve Advisory Council. OHA now convenes the Working Group, which provides input on permit applications and other issues. OHA will continue to formally consult with the Working Group (see NHCI-1 and 1.1). This provides one of many methods of involvement for Native Hawaiians. Those volunteers in the Working Group have already accepted responsibility for preserving and perpetuating Papahānaumokuākea and Native Hawaiian cultural connections to this place.
18-41. Comment	p. 121 Add on Line 15 “a variety of experts, including the Native Hawaiian Cultural Working Group,…”
18-41. Response	We have made your change.
18-42. Comment	<p>And there was mention of world heritage site. I’m very concerned with the management partners looking towards trying to get a world heritage site designation for the area. Because I’ve seen many areas around the world that has received this designation attract huge attention, and people demand access. They want to see the place. It creates so much demand for access that they start destroying the world heritage sites. So I expressed that concern, and I requested the management partners suspend their efforts until a settlement is achieved with Native Hawaiians over the so-called ceded-lands issue. It’s documented in history and it proves without a doubt that these lands were unlawfully transferred from the Hawaiian Kingdom government to the federal government to unlawfully transfer those lands back to the state of Hawai‘i.</p> <p>And I think we need to come to some kind of settlement on that before anything else is done as far as allowing more access or anything else or creating more designations.</p>
18-42. Response	Should a World Heritage Site nomination go forward and should designation be granted, the strict permit process for the Monument could not be bypassed, and the site would continue to be managed through this management plan. Please also note that World Heritage designation would have no impact on jurisdiction, thereby in no way holding back potential changes to the status of jurisdiction over ceded lands.
18-43. Comment	<p>And I don’t mind having some of our people joining them on what they doing on the management, especially.</p> <p>Because we don’t know what they doing. All we getting is pile of net coming on our shore over here, especially that long-line fishing. No. Please don’t bring it here. Go to China or Japan if they like use that line, long-line, what you calling, fishing—not here in Hawai‘i. Everything we get here, you know, is most usually for our consumption. But</p>

<b>Comment Category 18 - Native Hawaiian</b>	
	actually that we don't have the priority. So I like that be our first priority instead of someone else.
18-43. Response	<p>The MMB agrees that Native Hawaiian traditional knowledge is imperative to managing and understanding all of the resources of Papahānaumokuākea, as recognized throughout the Monument Management Plan. Please see in particular Activity NHCH-3.4 and Strategy NHCI-3, with its associated activities.</p> <p>An entire Action Plan is dedicated to “[r]educ[ing] the adverse effects of marine debris.” See 3.3.1., Marine Debris Action Plan.</p> <p>Under Presidential Proclamation 8031, all commercial fishing will be phased out of the Monument by 2011. Under the proclamation, fishing is allowed outside of any Special Preservation Area, incidental to a Monument permit. Of the six permit types, only the Native Hawaiian Practices permits allow for gathering.</p>
18-44. Comment	p. 117 Add: “Integrate traditional Native Hawaiian knowledge and practice in the effective management and stewardship of Monument Resources.”
18-44. Response	While we agree with the words that you suggest as a management principle, we continue to support our original language describing the “Desired Outcome” for 3.1.2, Native Hawaiian Culture and History Plan. This is because it more accurately represents the text and intentions of this particular plan. Please note that one of the Monument Guiding Principles in Table 2.1 also includes this statement.
18-45. Comment	<p>Native Hawaiian Culture and History Action Plan – Section 3.1.2. MCBI concurs with the Draft Plan that Native Hawaiian history in the NWHI is of highest priority. We agree that the Native Hawaiian archeological sites and artifacts on Nekker and Mokumanana are highly significant, should be preserved, and need the highest quality care. These sites are important to developing a deeper public understanding of Native Hawaiian history. We look forward to the completion of the Cultural Resources Program Plan, and expect it to fill in the details for management of these landmarks, and allow for historic research and education that will help to preserve these sites.</p> <p>The Native Hawaiian Community is a diverse community with regional and philosophical differences. Given this, it is important for the Native Hawaiian Working Group to have open public meetings and reach out to rural Native Hawaiians and those who reside on the mainland. It is also imperative that the Native Hawaiian Working Group reach out to Native Hawaiian leaders who have not been following the development of the NWHI Monument. Finally, the Native Hawaiian Working Group should cooperate and coordinate with archeologists and other social and natural scientists in the preservation of history in the NWHI.</p>

<b>Comment Category 18 - Native Hawaiian</b>	
18-45. Response	<p>The MMB also looks forward to the Cultural Resources Program Plan’s drafting and completion. Please note that the Native Hawaiian Cultural Working Group will assist with its development (see Activity NHCI-2.1).</p> <p>The MMB will continue to consult not only with the Native Hawaiian Cultural Working Group but also with other Native Hawaiian organizations, institutions, communities, and individuals (see, for example, NHCH 3.2). Also, please note that the volunteer members of the Native Hawaiian Cultural Working Group have accepted responsibility for preserving and perpetuating Papahānaumokuākea and Native Hawaiian cultural connections to this place. It is not their responsibility to provide outreach, but the MMB takes its outreach responsibilities seriously (see Action Plan 3.5.2, Constituency Building and Outreach).</p>
18-46. Comment	Commit to fully fund the participation of Native Hawaiian cultural practitioners in decision making and requiring permit review by the Native Hawaiian Cultural Working Group.
18-46. Response	Because of budgetary and legal restrictions, none of the members of the Monument Management Board can commit to any funding for any specific project or group of people. However, we do commit to regular consultation and engagement with the Native Hawaiian community and to the formal establishment of the Native Hawaiian Cultural Working Group (see NHCI-1 and 1.1), which provides one of many methods of involvement for Native Hawaiians. Those volunteers in the Working Group have already accepted responsibility for preserving and perpetuating Papahānaumokuākea and Native Hawaiian cultural connections to this place. Some examples of that responsibility include reviewing permit applications and advising the MMB through the Office of Hawaiian Affairs.
18-47. Comment	Changing the pace. Speaking for my mo’opuna, this place does not carry many of the names you give it in your introduction. I noticed when you were introducing the tables that we got to table 5 before any of those introduced used the word “Hawaiian.” Nobody said “native.” Nobody said “indigenous.” This place does not belong to NOAA or any other entity. Doesn’t belong to me. It belongs to us all. And all must have a say, the indigenous voice must lead. I criticize the process because it is not my kuleana to comment on the content. I do not have this knowledge. But I know process. I carry this message on behalf of my husband’s ‘ohana, the name I proudly share, Ka‘aumoana. Literally meaning deep sea navigator. Comes from this place that is now described in a created name for contemporary purposes. I believe what began as an inclusive open conversation in planning has in the draft plan devolved into government as usual. This is a public trust. All process must be public.
18-47. Response	Public involvement began in the late 1990s when the Navy turned over Midway Atoll to the FWS. Increased interest in protecting the coral reefs and waters surrounding the NWHI led to the establishment of the NWHI Coral Reef Ecosystem Reserve in 2000. Public scoping meetings for the sanctuary designation process began in 2002 with a broad spectrum of

<b>Comment Category 18 - Native Hawaiian</b>	
	<p>stakeholders. Nearly 52,000 comments were received during that process, with another 6,300 comments received on the draft Interim Visitor Services Plan for Midway Atoll. This public input was the foundation for the draft Monument Management Plan, for which there was a 90-day comment period and 10 public meetings.</p> <p>The Monument Management Board commits to regular consultation and engagement with Native Hawaiians and to the formal establishment of the Native Hawaiian Cultural Working Group, which was convened originally as part of the Reserve Advisory Council. OHA now convenes the Working Group, which provides input on permit applications and other issues. OHA will continue to formally consult with the Working Group (see NHCI-1 and 1.1). This provides one of many methods of involvement for Native Hawaiians. Those volunteers in the Working Group have already accepted responsibility for preserving and perpetuating Papahānaumokuākea and Native Hawaiian cultural connections to this place.</p> <p>The Monument Management Board agrees that Native Hawaiian traditional knowledge is imperative to managing and understanding all of the resources of Papahānaumokuākea, as recognized throughout the Monument Management Plan. Please see in particular Activity NHCH-3.4 and Strategy NHCI-3, with its associated activities.</p>
18-48. Comment	Activity NHCI-1.3: Establish an annual cultural resources exchange. These cultural resource exchanges should include reports on research and cultural resources that have been and will be rediscovered in such places as Bishop Museum and the University of Hawai‘i. It should not be limited to what has been learned by recent accesses, but should broadly incorporate all on-going research on Papahānaumokuākea to keep all of us up to date on current information and allow for the potential return of presently curated cultural resources.
18-48. Response	Thank you for your suggestion. We have amended Activity NHCI-1.3.
18-49. Comment	The Hawaiian culture very effectively and sustainably managed all the islands for thousands of years. The final management plan for the Monument must have a vision statement that equally embraces the cultural and ecological significance of the region, such as: “that the health, diversity, and resources of the vast NWHI - its unique wildlife and cultural significance - be protected forever.” Hawaiian cultural practitioners must be part of the management authorities of the NM.
18-49. Response	The Monument’s Vision Statement has been amended, in part, on your suggestions. The MMB agrees that Native Hawaiian traditional knowledge is imperative to the management and understanding of all of the resources of Papahānaumokuākea, as recognized throughout the management plan. Please see in particular Activity NHCH-3.4 and

<b>Comment Category 18 - Native Hawaiian</b>	
	Strategy NHCI-3, with its associated activities.
18-50. Comment	I think that there's really not a good amount of representation of Native Hawaiian culture in the Monument, in any of the action plans, in this in general. The budget is kind of symbolic of that being the lowest ticket item I think, on the whole budget in the Native Hawaiian culture, involvement in decision-making as well as research and education. One example of a good thing you guys could do bring the place to the Native Hawaiian people is a curriculum, in 'olelo Hawai'i, having the website pages in 'olelo Hawai'i, having materials in 'olelo Hawai'i. We have—it is state language. Yeah? So meet people where they are. And a lot of people are speaking 'olelo Hawai'i. Also having kind of boosted education about the plastic and the military activities that are adversely affecting the Monument, not just the beautiful fish and the beautiful place and the monk seals and whatnot but the things that are threatening them.
18-50. Response	<p>Both the Native Hawaiian Cultural and History Action Plan and the Native Hawaiian Community Involvement Action Plan describe comprehensive processes to ensure the involvement of and respect for Native Hawaiians, their communities, and culture.</p> <p>In response to your questions about financial equity, the MMB notes that our agencies are building their capacity and working with communities to identify cultural research and cultural projects that we will fund in the future. We have amended the budget in Table 3.1, in part in response to your comments, to reflect what we see as rapid increases in spending on Native Hawaiian issues during future of the Monument Management Plan.</p> <p>We agree with your comment about using 'olelo Hawai'i more regularly, as can be seen by the example in Strategy NHCH-5, "making Hawaiian language tours available at Mokupapapa Discovery Center [to] increase the center's value and accessibility to Hawaiian language immersion school groups as a culturally relevant learning tool." We also added the following sentence to Strategy CBO-2: "Continue to develop and disseminate materials and improve and update tools that help inform Monument constituencies about the Monument over the life of the plan." This strategy incorporates your concerns that we educate people about both the beauty and fragility of Papahānaumokuākea.</p>
18-51. Comment	And in the ultimate chutzpah looking at with Native Hawaiians and you heard last night one of them spoke to you on Kaua'i to say that the purpose, the action plan for Hawaiian heritage is to educate Hawaiians about this? That's absurd. You should be listening carefully to the kupuna and what, how they managed for a thousand years to, in fact, have a pristine archipelago out there.
18-51. Response	The MMB will continue to consult with Native Hawaiian kūpuna, especially those who have lived and worked in the NWHI. Through Strategy NHCH-5 ("Provide cultural outreach and educational opportunities to the Native Hawaiian community and the general public over the life of the plan"), we seek to provide a bridge between such knowledgeable

<b>Comment Category 18 - Native Hawaiian</b>	
	and experienced kupuna and upcoming generations that may not have had access to this valuable information. As you are likely aware, there is a broad spectrum of knowledge and experience within the Native Hawaiian community, and we hope to provide an opportunity for inclusiveness and a holistic approach to education and management.
18-52. Comment	Activity NHCH-4.2: Develop and implement specific preservation plans, as appropriate, to protect cultural sites and collections at Nihoa and Mokumanamana. This activity should be re-titled "...specific preservation and use plans," because Native Hawaiians need to be able to access these places. Just knowing that such places exist is not enough for the living Hawaiian culture.
18-52. Response	We have amended Activity NHCH-4.2 to further clarify the intent, which reflects your interests.
18-53. Comment	OHA sees in the Note to Reviewers in the draft management plan that: Through this Agreement and as described in the Monument Management Plan, the Co-Trustees will undertake coordinated, integrated management to achieve strong, long-term protection and perpetuation of Northwestern Hawaiian Island (NWHI) ecosystems, Native Hawaiian traditional and customary cultural and religious practices, and heritage resources for current and future generations.
18-53. Response	As a member of the Monument Management Board, OHA already is significantly involved in managing Papahānaumokuākea. We have amended Strategy AC-2 to include exploring the potential of developing new agreements, including the possibility of amending the 2006 MOA to increase Native Hawaiian involvement in the management of the Monument.. We have added an activity under that strategy to include that exploration. Also, we have amended the title and description of Activity NHCH-2.6 to more clearly reflect our support and recognition.
18-54. Comment	<p>3.5.3 Native Hawaiian Community Involvement Action Plan. In "Desired Outcome," lines 3 – 9, the DMMP states that the Native Hawaiian community should be engaged in "active and meaningful involvement in Papahānaumokuākea Marine National Monument Management." We urge that this means Native Hawaiians should have an equal partnership in managing the Monument. Native Hawaiians have a unique political status and relationship with the State of Hawai‘i, the United States, and the world. They should have equal footing with all the other management entities in the Monument.</p> <p>Thus, there should be four co-Trustees instead of three. As an interim measure, until a Native Hawaiian government is established, OHA should be the fourth co-Trustee and hold the spot for the future Native Hawaiian government representative. Under "Current Status and Background," lines 11 – 29, the DMMP lists a history of management consultation with Native Hawaiians, particularly via the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve</p>



<b>Comment Category 18 - Native Hawaiian</b>	
	Advisory Council (RAC), which had included three voting seats for Native Hawaiians. The RAC also had a Native Hawaiian Cultural Working Group, which is the origin of our current CWG, although it is no longer officially linked to the RAC.
18-54. Response	We have amended Strategy AC-2 to include exploring the potential of developing new agreements, including the possibility of amending the 2006 MOA to increase Native Hawaiian involvement in the management of the Monument. We have added an activity under that strategy to include that exploration.

**Comment Category 19 - Open Process****Summarized Comments**

19-01.  
Comment

The comments below suggest an open process to allow public input in Monument management decisions.

Comments:

- 1) Specifically, the MOA calls for a Senior Executive Board (SEB) made up of high level agency representatives and a Monument Management Board (MMB) charged with day to day management of the monument. Given the complexity of this management arrangement, and the widely acknowledged difficulties associated with the co-management of the Monument, it is particularly important that the Co-Trustees establish a clear and transparent decision-making process that allows the public to easily determine who is responsible for what and how to participate effectively in Monument management decisions. Ocean Conservancy urges the Co-Trustees to ensure transparent decision-making by providing access to all significant documents for public review and comment and by having meetings of the SEB and MMB be open to the public with ample opportunities for public comment.
- 2) Ocean Conservancy is concerned that neither the DMMP nor the MOA between the Co-Trustees explicitly discusses an overall process for public input to the SEB or MMB. Again, we believe that an open public process is important to ensure accountability and transparency and that the public should have an opportunity to participate in decision-making by reviewing and commenting on the full range of Monument management actions and decisions. We are particularly concerned that the DMMP does not appear to contain an adequate opportunity for meaningful public input during the permit application process. Under the “Monument Permit Application Unified Public Notification Policy” (adopted February 1, 2008); all permit applications must be posted on an agency website for a minimum 30 day public viewing period. The “Unified Public Notification Policy” also notes which permits (Special Ocean Use, regulatory and environmental reviews, and state permits) require opportunity for public comment. Given the fact that all permits are already open to public review, we believe it would not present an undue administrative burden on the Co-Trustees to also ensure that all permits are open to public comment. This simple action would ensure that public input is meaningful. We strongly recommend that all Monument permits be available for public comment for a period of no less than ten working days.
- 3) And another speaker tonight talked about the fact that the initial plan seems to have the people in charge are going to be -- have closed meetings instead of opened to the public. This goes against all American rights and other government entities that as a democratic society hold open meetings and forums and televise how their representatives are voting and speaking and so forth.

<b>Comment Category 19 - Open Process</b>	
	<p>4) You had a lot of, I think perhaps one of the things that's most important is the idea of transparency and oversight. One of the things that happens that certainly it's going to be part of my comments that mostly look at the inconsistency between the intent and what you end up with action plans. If you had an open process that doesn't happen. And the two years that went by between when the plan was supposed to be looked at and with the exception of one crack meeting there was no public input at all.</p> <p>5) All decision making about this NM must be made in the open will full public involvement. The current planning and permitting process under the BLNR must be open and transparent and managed to give the public adequate time to be noticed and respond. The six day notice period is intended to limit real public input.</p> <p>6) The one thing that really struck me is the management board meetings being closed, totally closed. It's -- when you close a meeting like that that's managing a public resource it gives an air that something's being done behind closed doors that you don't want everyone to know about. So while I can understand that you don't want to have the public at the meeting interfering with the meeting, I think the meetings really do need to be either taped and be made available so the public can see what positions are being taken, who's taking the positions, what discussion is being done. So that -- because it's our monument. It's the people's monument. So the decisions that are made really should be -- the discussion of those decisions should be open to the public. So that's one of the major things.</p> <p>The meetings that you guys have to make the decisions on how the Monument is managed really deserves to be public so that people know what's being done, who's standing for what position, who's supporting that. Are there special interests? If it's behind closed doors all you're going to have is people wondering what's going on; if you're trying to hide something. So please make them -- either have the meetings televised or recorded so that people can go back and see who, who is standing for what.</p> <p>7) And you really, really need to open the process back up so the public has a chance to see some daylight in here. What you have when you operate behind closed doors to come up with a plan is when you come out with it everybody's a critic "not made here." How many people have you heard standing up here defending your plan? I haven't heard any. It's top down.</p> <p>8) Also, Monument Management Board meetings are closed to the public: they need to be open.</p>
19-01. Response	As stated in the MOA signed by the Co-Trustees for promoting coordinated management of the Monument (Volume III, Appendix F), the SEB provides policy guidance to the MMB staff assigned to manage the Monument. The day-to-day management and decision making of the Monument is the responsibility of the MMB, but the SEB provides a means to resolve any conflicts or disagreements. As the primary purpose of this group is to resolve internal agency

<b>Comment Category 19 - Open Process</b>	
	<p>policy issues and disputes, meetings are scheduled only as needed. These are not public meetings because they are not meant for conveying information to the public or to get public input or comment. The Co-Trustees are committed to establish a Monument Alliance within 1 year, composed of individuals who represent communities and stakeholders interested in the Monument’s stewardship. The Alliance will provide individual advice and recommendations to the Monument management agencies regarding management of Monument resources over which the Co-Trustees have responsibilities. It will serve as a community-based forum to exchange information; provide community input and individual recommendations on Monument policies, activities, and management; advocate for Monument conservation; and enhance broader community and public understanding. Within 2 years after the release of the Monument Management Plan, the Co-Trustees will charter the Alliance as an advisory committee under the Federal Advisory Committee Act (FACA), or as a FACA-exempt advisory body to allow the Alliance to provide consensus advice to the Co-Trustees, per the amended Memorandum of Agreement.. Meetings of the Monument Alliance will be convened on a regular basis, with specific topics identified for each meeting. The meetings will be well publicized and open to the public, and will be held at various locations to facilitate participation by a broad range of constituents..</p> <p>As far as public input on permits, all Monument permit applications are posted to the Monument Web site for a minimum of 30 days before the MMB and the State Land Board make any decisions. The public can also review and comment on all permit-related environmental assessments that are posted to the Monument Web site for a minimum of 15 days. In addition, there is an opportunity to provide public testimony at State Land Board meetings for all activities proposed in the Hawai’i State Marine Refuge. The Permitting Action Plan in the Draft Monument Management Plan contains an activity for regularly updating the public on proposed and permitted activities (Activity P-3.5).</p>
<b>Unique Comments</b>	
19-02. Comment	<p><b>3.6.2 Information Management Action Plan</b></p> <p>Ocean Conservancy encourages the Co-Trustees to facilitate public access to data and information about the Monument. For example, all permittees could be required to make data available in standard format on a publically accessible website as a condition of their permit.</p>
19-02. Response	<p>The MMB is committed to making it easy for the public to access data and information about the Monument. The Constituency Building and Outreach Action Plan (3.5.2) contains numerous activities to facilitate public awareness and involvement in Monument activities. In addition, the Information Management Action Plan (3.6.2) calls for creating a new Monument Information Management System and facilitating appropriate public access and use of this system. As it pertains to permits, all Monument permit applications are posted to the Monument Web site for a minimum of 30 days before the MMB and the State Land Board make any decisions. The public can also review and comment on all</p>

<b>Comment Category 19 - Open Process</b>	
	permit-related environmental assessments that are posted to the Monument Web site for a minimum of 15 days. In addition, there is an opportunity to provide public testimony at State Land Board meetings for all activities proposed in the Hawai'i State Marine Refuge. The Permitting Action Plan in the Monument Management Plan contains an activity centered around regularly updating the public on proposed and permitted activities (Activity P-3.5).
19-03. Comment	The intent of the Proclamation, if it is more protective than comes across in the current Draft Management Plan, needs to be upfront in any response document to the public and in the Final Management Plan.
19-03. Response	Proclamation 8031 was included as an appendix to the Draft MMP and as Appendix D. The protections and provisions outlined in the Proclamation for the basis of the MMP,
19-04. Comment	We strongly advise the Co-Managers to establish a very simple, interim information collection and distribution system that in the short-term can help managers minimize impacts to the Monument and keep the public informed about research activities in the Monument.
19-04. Response	<p>A Natural Resources Science Plan (Activity MCS-2.1) will be developed in the first year of implementation. This science plan will include the following thematic areas: 1) research on ecological processes and connectivity, 2) research on biodiversity and habitats, 3) research on human impacts, 4) research on ecosystem change, indicators, and monitoring, and 5) modeling and forecasting ecosystem change.</p> <p>In addition all research that occurs within the Monument will require a permit. All Monument permit applications are posted to the Monument Web site for a minimum of 30 days before the MMB and the State Land Board make decisions (<a href="http://hawaiiireef.noaa.gov/resource/permit_sum.html">http://hawaiiireef.noaa.gov/resource/permit_sum.html</a>). The public can also review and comment on all permit-related environmental assessments that are posted to the Monument Web site for a minimum of 15 days. In addition, there is an opportunity to provide public testimony at State Land Board meetings for all activities proposed in the Hawai'i State Marine Refuge. The Permitting Action Plan in the Monument Management Plan contains an activity centered around regularly updating the public on proposed and permitted activities (Activity P-3.5).</p>

<b>Comment Category 20 - Other</b>	
<b>Unique Comments</b>	
20-01. Comment	Page 7-27, Description of No Action Alternative: These sections need to provide much more details and specificity. There is not enough information here to allow readers to provide meaningful comments, or for decision-makers to use as

<b>Comment Category 20 - Other</b>	
	<p>a basis for their decisions. Some details (but not all) are in the monument plan however many readers will only read the EA and will not go back to the monument plan to search for additional information.</p> <p>An EA needs to provide complete information to readers and decision-makers. If some activities are to be fleshed out in the future, the EA needs to note that they will be analyzed in future EAs and made available for public comment. This EA cannot claim to provide NEPA coverage for activities that have not been fully determined much less described and analyzed.</p> <p>The No Action alternative is the baseline to which other alternatives are to be compared and it needs to be fully described. In addition readers and decision-makers need to clearly understand which activities in each action alternative would be new and which would continue under the No Action alternative.</p>
20-01. Response	As noted in the Note to Readers, to reduce repetition, the Monument Management Plan and EA are inextricably linked. While this may be somewhat harder to follow, the two documents must be viewed together. These lengthy documents would have been even longer if all of the information had been presented in both volumes. The No Action alternative is fully described in the Monument Management Plan.
20-02. Comment	Page 17 Line 24 Laysan Lake: the area of the lake reported here as 100 acres, varies enormously with season. This range of variability should be reported or else the area of mudflat or lake basin could be described since this is more constant.
20-02. Response	This sentence has been edited: The island's ring of sandy dunes surrounds a shallow depression of about 200 acres (0.8 square kilometer). This basin is a mix of hypersaline water and mudflats, which is a feature unique within the Hawaiian archipelago and rare within the Pacific as a whole. The basin's size changes seasonally and annually, depending on variations in rainfall.
20-03. Comment	Page 174, lines 3-7. This description incorrectly describes FWS policy and federal regulation. The regulation and policies cited do not require that the Hawaiian Islands NWR proposed for designation in 1974 be managed as a Wilderness area. In fact, because Congress did not do so in 1974 indicated that it is not a wilderness area and the Wilderness Act is wholly inapplicable.
20-03. Response	The descriptions in this section have been modified.
20-04. Comment	Page 17 Laysan Island: Is the area of Laysan correct? The literature reports island area closer to 415 ha.
20-04.	The size of the lake on Laysan is variable through time, and the reported lake size varies somewhat among sources, based

<b>Comment Category 20 - Other</b>	
Response	on the timing methods used to measure it. To reconcile the discrepancy between the Monument Management Plan and the EA, we have made edits to best reflect the most recent source of information. While the Monument Management Plan describes the Laysan Lake area in general terms, the EA description focuses on the saline lake itself.
20-05. Comment	Page 18 Lisianski: the wetland(s) of Lisianski were destroyed after the devegetation by introduced mammals. The accidental introduction of mice is not mentioned (Olsen and Ziegler 1996). This occurred prior to the rabbits, and was described as a major negative impact. Since wetland restoration has been proposed on Lisianski, this ecosystem loss should be included. Also, Lisianski lost a breeding population of land birds, the Laysan ducks historically (known from about 150 years ago). This should be mentioned.
20-05. Response	We have modified the text to reflect your information.
20-06. Comment	I find it incredible that the more than 700 page State of Hawaii Comprehensive Wildlife Conservation Strategy (2005) was not reviewed or utilized in the DMMP or EA development. It has many items that need to be incorporated and rectified in the DMMP and EA – so many of the same species, and species issues, etc., etc., are specifically identified and treated in the CWCS.
20-06. Response	The statewide Comprehensive Wildlife Conservation Strategy is an initiative led by the Department of Land and Natural Resources. This Monument Management Plan is consistent with the requirements of the NWHI Marine Refuge and the State Seabird Sanctuary at Kure Atoll set forth in the Hawai'i Administrative Rules Title 13. The Monument Management Plan was developed in close coordination with the State of Hawai'i, Department of Land and Natural Resources staff to ensure consistency with state requirements. Many of the specific strategies and activities are fully consistent with the provisions of this wildlife conservation strategy. Further, the State of Hawai'i is and will remain an integral partner and participant in implementing many of the strategies and activities listed in the Monument Management Plan. The State will ensure that Monument activities are complementary to the plan, as appropriate.  The Comprehensive Wildlife Conservation Strategy was specifically considered throughout the development of the Monument Management Plan, as noted in Section 3.2 of the Monument Management Plan.
20-07. Comment	Page 78. The ROI should be depicted through a chart or visual. As drafted, the reader does not understand the size and scope of the ROI being discussed. This is particularly important because the description of impacts does not accurately identify all human activities within the ROI.
20-07. Response	Language was added in the introduction to Chapter 2 of the EA to clarify the region of influence (ROI). Additionally, Figure 2.1 was added to depict the ROI.



<b>Comment Category 20 - Other</b>	
20-08. Comment	OHA notes on page 251 of the draft management plan that business/industry entities are listed as prospective users in Papahānaumokuākea and we inquire as to what/who these may be.
20-08. Response	The language in 3.5.1 Agency Coordination Action Plan that specifically mentions business/industry entities is contained within a section that generally lists broad categories of constituents. At this time, the only business/industry constituents are related to those businesses that may bring visitors to and from Midway and that are involved in ongoing FWS operations and maintenance at Midway. However, in the future, there could be other business or industries related to communications and technology that could help the MMB bring the Monument to the People.
20-09. Comment	Strategy HMC-10: Fulfill Wilderness Stewardship Responsibilities in the Monument within 5 Years (pp. 173-174) The DMMP states that a wilderness review is underway for the area. How would a wilderness designation impact the Monument and operations within the Monument?
20-09. Response	The descriptions in this section have been modified.
20-10. Comment	I think the Hawaiian name it has been given is too big, and too hard to pronounce.
20-10. Response	Members of the Native Hawaiian Cultural Working Group discussed several names, their meaning, and purpose. In January 2007, the group selected Papahānaumokuākea (pronounced Pa-pa-ha-now-mo-ku-ah-kay-uh). The name comes from an ancient Hawaiian tradition concerning the genealogy and formation of the Hawaiian Islands. This name strengthens the Monument's Hawaiian cultural foundation and grounds the public to an important part of the areas historical past. Help in pronouncing the name and its meaning can be found on the Monument's Web site.
20-11. Comment	Volume I, page 110, line 28: was this supposed to be autonomous underwater vehicle??
20-11. Response	The use of Aerial Unmanned Vehicles has been deleted from the Monument Management Plan. Submersibles are generally thought of as two- to four-person research submarines launched from a oceanographic research vessel. Many university programs may have a number of these vessels. The remotely operated vehicles and the autonomous underwater vehicles are used to study the ocean below 300 feet, or whatever is the maximum depth of scuba diving allowed by the sponsoring agency or university.
20-12.	All protective language that was in earlier drafts of the Plan should be reinserted, including language describing the

<b>Comment Category 20 - Other</b>	
Comment	Precautionary Principle.
20-12. Response	<p>The MMB revised the vision statement to say “To forever protect and perpetuate ecosystem health and diversity and Native Hawaiian cultural significance of Papahānaumokuākea.” The MMB also revised the mission statement to say “Carry out seamless integrated management to ensure ecological integrity and achieve strong, long-term protection and perpetuation of NWHI ecosystems, Native Hawaiian culture, and heritage resources for current and future generations.” These changes were made to more clearly convey that the protection of ecosystem integrity, health, and diversity is an underlying and primary purpose of the Monument. The MMB also revised goals 1, 2, and 3 to reflect a stronger resource protection language (see Table 2.1).</p> <p>In terms of the precautionary principle, the MMB has identified eleven guiding principles for managing the Monument. The seventh guiding principle is as follows: “Errs on the side of resource protection when there is uncertainty in available information on the impacts of an activity” honors the approach of “do no harm” consistent with the precautionary principle in which historic, cultural and natural resource protection and integrity is favored.</p>
20-13. Comment	I have not been informed of an EIS being prepared or 106 process being started. I am requesting to be notified when these processes start.
20-13. Response	Efforts to develop an interagency Memorandum of Agreement for a Section 106 consultation under the National Historic Preservation Act will not be completed before the final Monument Management Plan is published. The MMB will ensure that all relevant and interested parties are notified when the process begins.
20-14. Comment	P. 179 Line 23 should be rewritten to say “Action plans to reduce existing and potential threats and prevent impacts...” Desired outcomes should include, but not be limited to...”
20-14. Response	We agree with the comment and have made the change.
20-15. Comment	<p>Page 1, lines 1 - 4 states: Presidential Proclamation 8031, issued by George W. Bush on June 15,2006, set aside the Northwestern Hawaiian Islands (NWHI) as the Papahānaumokuākea Marine National Monument (Monument), thereby creating the largest fully protected marine conservation area in the world.</p> <p>Comment: Describing this area as “fully protected” appears to be misleading as commercial fishing for bottomfish and pelagic species will be allowed to continue pursuant to specific annual catch limits (e.g. 350,000 lbs. for bottomfish species 180,000 lbs. for pelagic species) until June 2011. Additionally, under this draft Monument management plan, non-commercial extraction of Monument resources for subsistence, sustenance and scientific research will be allowed in</p>

<b>Comment Category 20 - Other</b>	
	<p>perpetuity, with no specified limits on the level or amount of extraction that may occur. Furthermore, even carefully planned non-extractive research and management activities may unintentionally and adversely impact Monument resources such vessel grounding and introduction of alien species or diseases into marine and terrestrial environments of the NWHI.</p> <p>While this management plan contains plans to prevent and minimize human impacts such as vessel groundings and unintentional introduction of alien species into the Monument such impacts cannot be fully prevented and thus the Monument cannot be considered fully protected. We recommend this sentence be revised to read: “Presidential Proclamation 8031, issued by George W. Bush on June 15, 2006, set aside the Northwestern Hawaiian Islands (NWHI) as the Papahānaumokuākea Marine National Monument (Monument), thereby creating one of the world’s largest marine protected areas.</p>
20-15. Response	The text has been changed to read, “Presidential Proclamation 8031, issued by George W. Bush on June 15, 2006, set aside the Northwestern Hawaiian Islands (NWHI) as the Papahānaumokuākea Marine National Monument (Monument), thereby creating one of the world’s largest marine protected areas.”
20-16. Comment	Although Volume II is a continuation of Volume I, the term “Co-Trustees” should be defined for those who don’t read Volume 1.
20-16. Response	“Co-Trustees” is defined in Volume II, Section 1.1 of the EA.
20-17. Comment	Statements such as “beneficial effect” and “short-term minor negative effect” appear throughout the document. However these terms lack definitions and are without adequate analysis to determine their significance. Furthermore CEQ regulations (40 CFR § 1508.2) state that “Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.”
20-17. Response	The terminology is listed in Section 3.1. Based on our analysis, we concluded that there are no significant impacts.
20-18. Comment	Without preparation of an EIS and no discussion of significance in the EA, the reader is left with assuming that the implementation of the Monument Management Plan will result in a Finding of No Significant Impact by the agency. Is it NOAA’s position that the implementation of the Monument Management Plan will have no significant benefits?
20-18. Response	Although it is expected that plan implementation will result in overall beneficial effects to the human environment, these beneficial effects do not represent a significant impact. This is because the magnitude of benefits expected to result from

<b>Comment Category 20 - Other</b>	
	plan implementation will be incrementally modest within in the context of the essentially uninhabited pristine lands and waters of the Monument.
20-19. Comment	<p>Volume II The third paragraph under the header: Note to Readers needs to inform readers of the additional authority and regulations under the Council’s fishery management plans that have been approved by the Secretary of Commerce, NOAA and in place since long before 2006. Readers and decision-makers need to be fully informed as to the authority, history, management and status of NWHI fishing before providing comments or making decisions regarding this large and important area.</p> <p>Additionally, the three agency statements under paragraphs 6 - 8 are disjointed and virtually indecipherable. They need to be written more clearly so that readers and decision makers can understand exactly what this EA covers and what it doesn’t. It is also confusing to have three separate and semi-conflicting statements, how can each agency have a different idea of what is covered or not covered. The three statements should be combined into one coordinated statement, without agency headers. In addition, the cumulative impacts of all the existing actions already underway need to be analyzed in the EA so that readers understand the full scope of activities the NWHI will be subject to.</p>
20-19. Response	The Note to Readers in Volume II is intended to give the reader a general overview of the project and the EA. We have revised the Note to Readers to include a brief description of the analysis performed in the EA. The existing actions already underway were analyzed under the No Action Alternative (see Volume II, Chapter 3, Environmental Effects) and the analysis of any new or expanded activities listed in the Proposed Action are analyzed as appropriate under NEPA and HRS 343.
20-20. Comment	<p>Volume II Page 1: The monument mission is stated as “the strong long-term protection and perpetuation of the NWHI ecosystems”.</p> <p>Comment: This does not appear to be fully consistent with the President’s Proclamation and the EO establishing the monument and should be revised accordingly so that the President’s overall intent for the monument can be realized.</p> <p>In addition Executive Orders 13178 and 13196 should be included as additional appendices so that readers and decision makers can ascertain how well the draft plan meets all of the objectives contained in those guiding documents. If the monument plan is going to modify the motivations contained in the proclamation and EO, such modifications must be clearly identified as items for public comment. Otherwise this section establishes an objective with no legal basis to which readers and decision-makers will compare the monument plan and EA.</p> <p>The introduction should also explain the rationale behind preparing an EA instead of an EIS for this major and controversial federal action.</p>

<b>Comment Category 20 - Other</b>	
20-20. Response	<p>We disagree. The Monument mission is consistent with the provisions of the Proclamation. Because Proclamations 8031 and 8112 deal specifically with Papahānaumokuākea and direct the agencies to complete the management plan, they were included as an appendix. There are a host of other Executive Orders, laws, and regulations that pertain to the Monument, and they are all available online. Including them all as appendices would be unwieldy.</p> <p>Because an EA is the first step in the NEPA process to determine whether the action would result in significant impacts, the resulting documentation would either be a FONSI or a finding that the action is likely to result in a significant impact (beneficial or negative), which would be followed with an EIS. In this case, we have prepared a FONSI, which is included with the final document.</p>
20-21. Comment	<p>Volume II Page 2: The EA states that the Monument is the largest fully protected marine conservation area in the world. Comment: Describing this area as “fully protected” appears to be misleading as commercial fishing for bottomfish and pelagic species will be allowed to continue pursuant to specific annual catch limits (e.g. 350,000 lbs. for bottomfish species 180,000 lbs. for pelagic species) until June 2011. Additionally, under this draft Monument management plan, non-commercial extraction of Monument resources for subsistence, sustenance and scientific research will be allowed, with no specified take limits on the level of extraction that may occur. Furthermore, even authorized nonextractive research and management activities may adversely impact Monument resources such as the grounding of the chartered marine debris clean up vessel Casitas, which resulted in acute damaged to the coral reef ecosystem at Pearl and Hermes.</p> <p>While this management plan contains plans to prevent and minimize human impacts such as vessel groundings and unintentional introduction of alien species into the Monument, because human access-to the Monument for multiple purposes will be allowed to continue, such impacts cannot be fully prevented and thus the Monument cannot be considered fully protected. We recommend this sentence be revised to read: “Presidential Proclamation 8031, issued by George W. Bush on June 15, 2006, set aside the Northwestern Hawaiian Islands (NWHI) as the Papahiinaumokuikea Marine National Monument (Monument), thereby creating one of the world’s largest marine protected areas.</p>
20-21. Response	<p>The text has been changed to read “Presidential Proclamation 8031, issued by George W. Bush on June 15, 2006, set aside the Northwestern Hawaiian Islands (NWHI) as the Papahānaumokuākea Marine National Monument (Monument), thereby creating one of the world’s largest marine protected areas.”</p>
20-22. Comment	<p>Volume II Page 6, Scope of Analysis: It is virtually impossible to tell what is covered by this document and what is not. The introduction should provide readers with a clear understanding of what the EA does and does not cover from a NEP A prospective. A table would be useful here for that purpose. In addition, the cumulative impacts of all the existing actions already underway need to be analyzed in the EA so that readers understand the full scope of activities the NWHI</p>

<b>Comment Category 20 - Other</b>	
	<p>will be subject to. Such disclosure is at the heart of any NEPA analysis. This cumulative impacts analysis should be referenced here.</p> <p>This section also needs to discuss the decision to analyze only one action alternative as there would appear to be a myriad of ways to achieve the objectives of the monument. Limiting the document to two alternatives (implement the plan or no action) establishes a false dichotomy for readers and decision-makers and implies that the plan must either be adopted or abandoned. We suggest that the document include a range of reasonable alternatives, as required by NEPA.</p>
20-22. Response	This section has been changed to better reflect the scope of the EA.
20-23. Comment	One commenter was concerned about the size of the document and suggested splitting the electronic files into smaller pieces to facilitate the public review
20-23. Response	We agree and will provide an option for downloading smaller sections of the plan to make it easier to review.
20-24. Comment	Text referencing the MMB continuing to conduct ESA consultations should be modified to accurately indicate the statutory requirements for these consultations. For example NMFS (alone) is responsible for consultations on marine species and FWS (alone) is responsible for consultations on terrestrial species. The state of Hawaii does not appear to have any authority or responsibility for any ESA consultations; if they do it should be described here.
20-24. Response	For various activities outlined in the plan, ESA consultation will need to occur. The lead agency for each of the activities will consult with the appropriate agency, as required under the ESA. If the State of Hawai'i is the lead agency for an activity, it may indeed be required to consult with either NOAA or FWS, as appropriate.
20-25. Comment	References throughout this section to activities that would be "expanded under the Proposed Action alternative" are confusing as this is the No Action alternative. The document needs to clarify what "Proposed Action alternative" is being referenced.
20-25. Response	As noted in the Note to Readers, to reduce repetition, the Monument Management Plan and EA are inextricably linked. While this may be somewhat harder to follow, the two documents must be viewed together. These lengthy documents would have been even longer if all of the information had been presented in both volumes. The No Action alternative is fully described in the Monument Management Plan.
20-26. Comment	Throughout this section statements on scientific data and analyses that are "being provided" (e.g. data on migratory birds and non-migratory birds, bathymetric data, native Hawaiian ecological knowledge and management concepts,

<b>Comment Category 20 - Other</b>	
	educational curricula, impacts of marine debris on cetaceans, protocols for safe aircraft and vessel operations etc.) need to include pointers for readers to find these data and analyses as in many cases we have been unable to locate them. If they are not to be made available to the public, that should be noted as it may influence public comments as well as the actions of decision-makers.
20-26. Response	Data collection and use is an important component of resource management. Each action plan and strategy incorporates data collection, as appropriate. The data referenced throughout the plan is developed, collected, and catalogued by MMB staff, permitted researchers, or sources outside the Monument. MMB staff will share data with the public through publications and educational materials.
20-27. Comment	Volume II Page 90: The section on pelagic environment appears to be language taken direct from the 2001 Final EIS on the Pelagics FMP of the Western Pacific Region. This should be noted.
20-27. Response	We have referenced the Final EIS Fishery Management Plan Pelagic Fisheries of the Western Pacific Region in the Pelagic and Deep Water Habitat discussion in Section 2.2 and have also added it to the reference section.
20-28. Comment	An EA needs to provide complete information to readers and decision-makers. If some activities are to be fleshed out in the future, the EA needs to note that they will be analyzed in future EAs and made available for public comment. This EA cannot claim to provide NEPA coverage for activities that have not been fully determined much less described and analyzed.
20-28. Response	We have clarified in section 1.8 of the EA that many of the activities outlined in the Monument Management Plan are planning activities, which will be analyzed under NEPA when they are implemented.

<b>Comment Category 21 - Outreach</b>	
<b>Summarized Comments</b>	
21-01. Comment	<p>The comments below offer valuable suggestions for measuring and evaluating current perceptions, identifying target audiences, evaluating messages, and developing outreach products in support of Papahānaumokuākea Marine National Monument.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) A baseline study or content analysis should be done of current perceptions, attitudes and literature in media relating to the Monument and/or the Northwestern Hawaiian Islands.</li> </ol>



**Comment Category 21 - Outreach**

- 2) Designate a national day devoted to the Monument to aid in recognition.
- 3) Also as far as outreach is concerned I'd like to suggest that some efforts be directed, if they haven't already been, towards other environmental groups in other countries that would certainly benefit. This is our planet. Put down I'm speaking for humanity in general here, the organization of humanity. Essentially on this planet this magnificent Monument will impact the quality of the ecology over our planet. I think other entities, World Bank, other environmental charitable groups, environmental groups, nonprofits may have a very distinct interest in helping. I think we would be remiss in not pursuing that.
- 4) In my opinion outreach is go outside the bubble of your own constituency that you already have so we know that people that love coral reefs or people that love snorkeling are going to care about this issue. But I think the challenge is to make everybody care about this issue, this place. And meet people where they're at is what is absolutely necessary to do that. You can't really expect a student to want to learn something that they don't know about.  

So I have some ideas, you know, like maybe -- this would have to be reflected in the budget clearly because I don't think it's going to cover it. I think that so much money going for science should be equaling out with education and conservation or else for what purpose is the science if not to change things. How about a weekly TV show about what's happening in the Monument. There's all kind of interesting stuff going on up there. National Geographic is good friends with this place. Maybe they would want to participate. Who knows? But I don't see why not. Engaged activities besides just having like booths or something, but actually having people participate in understanding more about how research is conducted or how cultural activities are conducted but really having meaningful activities. Having something like sign-up sheets at booths so people can find out more information more easily without having to go to a website but actually kinda bringing the website to them. We have had a lot of success with that. That's how we have gotten a lot of people to come to these meetings. A live streaming web cam. I think that's great. It's in the plans or something. I think that really should cover not just sea birds but military activities and scientific research activities too so people can see what it is they're doing to bring the place to the people. So then you can have -- that will go to the constituency so people can know what it is they should be concerned about.
- 5) Add outreach and constituency objectives for an international audience to broaden recognition, (i.e.) the Monument should eventually have global recognition like the great barrier reef

21-01. Response	Activity CBO-1.1 requires development of an integrated communications strategy, based on an assessment of ongoing activities and future needs. This strategy will identify target audiences, messages, means of communications, and a means
--------------------	---

<b>Comment Category 21 - Outreach</b>	
	to evaluate our effectiveness.
21-02. Comment	<p>The comments below encourage the use "cutting edge" technologies such as web cams and virtual tours to bring the place to the people rather than the people to the place.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) Visiting this precious area can be sustained with care. Virtual tours and webcams (with sound) can offer millions the opportunity to learn about, love and support the protection of the archipelago. Physical visits should be limited to Midway where the price tag should include a contribution towards neutralizing the visitors' impacts and carbon footprints.</li> <li>2) Education and Outreach: The RAC strongly believes that enhancement of public appreciation of the unique character and environment of the NWHI should as much as possible be accomplished by establishing programs that bring the place to the people, rather than the people to the place.</li> <li>3) I would like to see the management plan limit all human impact in the national marine monument, and instead apply "cutting edge" technologies to create a "virtual" museum that could be used by everyone. Web cams could be discretely placed at many locations on the islands and atolls to observe the birds and monk seals. Satellite and radio transmitters, as well as critter cams could be also be used to track migratory species. Underwater cameras could be placed on the reefs to observe marine animal behavior. Resident scientists and Hawaiian cultural practitioners could hold video sessions with those of us back in the main Hawaiian islands. Databases and video libraries could be placed on the internet for use by local students.</li> </ol>
21-02. Response	Under Activity CBO-1.5, we will research and implement new technologies and tools to increase public understanding of NWHI ecosystems, including the use of telepresence technologies.
<b>Unique Comments</b>	
21-03. Comment	<p>Ocean Ecosystem Literacy is focused on near the end of the basic plan. Strategy OEL-1 states to develop/implement educational programs in Hawaii to increase awareness and stewardship of ocean resources. So long as people are using it as a commodity, as the State of Hawaii does for tourism purposes, even if such literacy existed it would be limited to maintaining altered systems in the majority of views. And even if a virtually untouched area still existed, from near or far, something will always affect it. Like Marine Debris for the NWHI, the very seas and currents about them draw the debris in. It expands on what can be done to increase awareness. The best way is to make sure people know before they affect anything. But in general Strategy OEL-1 seems to be doing what was done before with voting concerns, influence the kids to push or encourage the parents that voting is important. You need to vote, said by people unaware of what that</p>

<b>Comment Category 21 - Outreach</b>	
	actually means no less.
21-03. Response	<p>The MMB is committed to developing and implementing educational programs in Hawai'i to increase ocean ecosystems literacy. These curriculum-based efforts are designed to educate our youth and, in essence, to develop the next generation of environmental leaders who will be responsible for ensuring the protection of the Monument. Other strategies to reach out to other audiences are incorporated in to the Constituency Building and Outreach Action Plan.</p> <p>Under Activity CBO-2.2, we will develop and update printed materials to aid Monument constituencies in understanding key aspects of the Monument. Under Activity CBO-4.3, we envision traveling exhibits and educational materials, through which we will work with public and private partners to expand our outreach efforts throughout the islands and on to other states and the international community.</p>
21-04. Comment	Creation of a science exhibit at the Mokupapa Discovery Center
21-04. Response	Additional exhibits at Mokupapapa will be addressed in the overarching Monument interpretive strategy to be developed under Strategy CBO-4.
21-05. Comment	Is there an opportunity for us to perhaps get some exhibit panels on the islands and the fisheries, and conservation programs are going there, they can become a part of our educational outreach programs with the Heritage Center here, on Lanai. So that's a request, if it's possible for us to get some interpretive educational material that can be brought into our collection, potentially, even in just some rotating exhibits like that.
21-05. Response	We envision developing traveling exhibits and educational materials under Activity CBO-4.3. We will work with public and private partners to expand our outreach efforts throughout the islands and to other states and the international community.
21-06. Comment	Include an annual magazine publishing related to new discoveries, management breakthroughs and related research findings, this can be different then the already published newsletters, it could be used as an accompanying study guide in schools
21-06. Response	Under Activity CBO-2.2, we will develop and update printed materials to aid Monument constituencies in understanding key aspects of the Monument. Although this could include an annual magazine, the agencies also develop numerous annual reports that may serve the same purpose.
21-07. Comment	P. 124 Add on line 7"...general public, and with an emphasis on bringing the place to the people not the people to the place."

<b>Comment Category 21 - Outreach</b>	
21-07. Response	While we agree with your statement that the emphasis on outreach should be “bringing the place to the people, not the people to the place,” and have made such changes in the document, it is not appropriate in this specific activity.

<b>Comment Category 22 - Permitting</b>	
<b>Summarized Comments</b>	
22-01. Comment	<p>The comments below recommend restricting permitted activities in the Monument and updating the public on proposed and permitted activities.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) The DMMP should articulate a process, which is impartial, public, transparent, and accountable at every step -- from permit application and evaluation, through the completion of the permitted activity. The DMMP should assign strict priorities to guide the granting of permits, rather than allow the permitting process to be driven by the ability of applicants to obtain funding for their proposed activities. Prevention and minimization is best achieved by restricting permitted activities to those absolutely necessary for protecting endangered and threatened species and their habitats.</li> <li>2) There is no requirement for public comment on permits. There needs to be public comment on all permits to access the public trust resources of Papahanumokuakea.</li> </ol>
22-01. Response	<p>By policy, all Monument permit applications are posted to the Monument Web site (<a href="http://hawaiireef.noaa.gov/resource/permit_sum.html">http://hawaiireef.noaa.gov/resource/permit_sum.html</a>) for a minimum of 30 days before the MMB and the State Land Board make a decision. The public can also review and comment on all permit-related environmental assessments that are posted to the Monument Web site for a minimum of 15 days. In addition, there is an opportunity to provide public testimony at State Land Board meetings for all activities proposed in the Hawai‘i State Marine Refuge. The Permitting Action Plan in the Monument Management Plan contains an activity centered around regularly updating the public on proposed and permitted activities (Activity P-3.5).</p> <p>All permits granted by the Co-Trustees must meet the findings in Presidential Proclamation 8031, which also make up the Monument’s permitting criteria. All permitted activities must also comply with NEPA, the Endangered Species Act, and all other applicable federal and state regulations. In addition, the Proclamation states that research permits must be designed to further understanding of Monument resources and qualities.</p>
22-02.	The comments below suggest tracking and monitoring permitted activities in the Monument.

<b>Comment Category 22 - Permitting</b>	
Comment	<p>Comments:</p> <ol style="list-style-type: none"> <li>1) We recommend that the MMB track and monitor all permitted activities. We also request that the RAC/MAC be allowed to review permits and research activities periodically for trends, patterns, and management effectiveness. Summary reports should contain, inter alia, basic data on the nature, location, and level of permitted activities and the potential and observed impacts of activities.</li> <li>2) It logically follows that to permit consumptive use of Monument resources before a Plan has been adopted only serves to guarantee the Plan will be obsolete by the time it has finally been approved. Planners have found (6) and mainland experience has shown (7) that a moratorium on Permits for all activities must be in place until the planks in an approved plan have been adopted. This is the only way to assure that the Plan will be in effect and de facto implemented at the time it is approved. The current Permit Process is obviously out of control and worsening because, contrary to Proclamation 8031, it's out of public sight and lacks any effective enforcement mechanism. Cavalier disregard of Permit Conditions and protocols may have already resulted in the introduction of alien pathogens and invasive species.</li> </ol>
22-02. Response	<p>Presidential Proclamation 8031 created the Monument and also established the permitting procedures and criteria. The Monument permit program allows for a comprehensive review of proposed activities and will be administered to ensure compliance with the proclamation, as well as with other applicable federal and state laws and regulations.</p> <p>The process is further developed in Appendix A of the Monument Management Plan. Through the permitting process, we will be closely monitoring activities (such as those operational protocols included in Appendix G), the Papahānaumokuākea Information Management System, and the Monument evaluation process.</p> <p>A general term and condition of all permits states that a violation of the proclamation, its implementing regulations, or any term or condition of the permit may result in permit suspension, modification, nonrenewal, or revocation. In addition, failure to fulfill permit requirements may affect consideration of future permit applications.</p> <p>Strategy P-2 in the Monument Management Plan is to track and monitor permitted activities and their impacts. In addition, Activity P-3.5 describes activities centered around regularly updating the public on proposed and permitted activities, including permit reports.</p>
22-03. Comment	<p>The comments below suggest allowing the MAC to review permits and research activities.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) Page 225 line 42, add the MAC - to the sentence beginning with the, “Monument staff will bring all permits and permit-related issues before the MMB and MAC on a regular basis for discussion and decision-making.</li> </ol>

<b>Comment Category 22 - Permitting</b>	
	2) Allow the MAC to review permits and research activities for trends, patterns, and management effectiveness.
22-03. Response	As stated in CBO-3.5, the Co-Trustees are committed to establish a Monument Alliance within 1 year, composed of individuals who represent communities and stakeholders interested in the Monument’s stewardship responsibilities. The Alliance will provide individual advice and recommendations to the Monument management agencies regarding the management of Monument resources over which the Co-Trustees have responsibilities. It will serve as a community-based forum to exchange information; provide community input and individual recommendations on Monument policies, activities, and management; advocate for Monument conservation; and enhance broader community and public understanding. Within 2 years after the release of the Monument Management Plan, the Co-Trustees will charter the Alliance as an advisory committee under the Federal Advisory Committee Act (FACA), or as a FACA-exempt advisory body, in order to allow the Alliance to provide consensus advice to the Co-Trustees, per the amended Memorandum of Agreement. Meetings of the Monument Alliance will be convened on a regular basis, with specific topics identified for each meeting. The meetings will be well publicized and open to the public, and will be held at various locations to facilitate participation by a broad range of constituents. As the MMB moves toward implementing the alliance, , they will take into consideration how this group may be informed by and involved in the permit review process.
22-04. Comment	<p>The comments below suggest disclosing the permit process to the public including the criteria used to determine if a permit will be issued.</p> <p>Comments:</p> <p>1) 3.4.1 Permitting Action Plan. Ocean Conservancy applauds the development of the “Monument Permit Application Unified Public Notification Policy” as an important first step in improving coordination and public accessibility of the Monument permitting process and we are generally supportive of the Strategies and Activities listed under the Permitting Action Plan. However, we urge the Co- Trustees to ensure that the process for permit application, evaluation and granting be as thorough, rigorous, science-based, and transparent as possible and subject to public review and comment.</p> <ul style="list-style-type: none"> <li>• Permit applicants should be provided with clear and thorough rules and guidelines for the development of applications that are fully compatible with the goals, objectives and regulations of the Monument.</li> <li>• Applicants must demonstrate that any and all proposed activities will not cause significant harm to the Monument (see comment regarding use of the precautionary principle above).</li> <li>• The evaluation and assessment of all proposed activities and applications must be based on the best available scientific information and knowledge. In the absence of sufficient scientific information and understanding to assess the potential impacts of proposed activities those activities should not be</li> </ul>

**Comment Category 22 - Permitting**

permitted.

- The evaluation and assessment of all permit applications must be subject to independent, formal public review and comment.
- All stages and aspects of the process must be completely open to the public and all interested stakeholders.
- The process must include the opportunity for comment by all interested parties and the evaluation of permits must take such comment into account in the process of coming to a decision regarding the granting of a permit.

Specifically, we strongly suggest revision of Activity P-1.4 Engage outside experts in review of permit applications to make clear that the Co-Trustees will establish a standing technical advisory committee to provide independent permit review of all permit requests rather than simply pursuing expert review on an ad hoc basis.

- 2) The process and basis for approving/disapproving permit applications needs to be fully disclosed. How were criteria developed? What exactly are the criteria and how are permit applications measured against those criteria? This has been another opaque and controversial topic that needs to be fully described for readers and decision-makers.
- 3) Text needs to be added regarding what scientific information would be made available to the public and how and when this would occur. For some readers science for science's sake is not desirable, others may be dubious about the quality or usefulness of research results or their application to management measures. In order to provide meaningful comments the public needs to know what scientific information will be available to them, and when and how this would occur. At the moment it appears that unspecified research will occur and that it will be disseminated and used in unspecified ways. The public cannot provide meaningful comment on such a vague proposition, nor can it be the basis for well-informed decision making.
- 4) Oversight of permitting should include periodic public reviews by Monument Advisory Council or other body with similar structure and authorities, mandatory review by an outside body of experts, and opportunities for public comments on all permit applications before the MMB.
- 5) The "life-cycle" of the permit should be available for public review and comment. This means all documents related to a permit should be posted at the [www.papahanaumokuakea.gov](http://www.papahanaumokuakea.gov) website. This list of documents should include: permit application summary posted soon after receipt, full permit application, reasonable deadline for public comment (e.g. 60 days), full text of all comments on the permit application, especially all expert reviews, issued permit, if the application is approved, cruise report and all compliance reports, including daily take log and waste log, reports of any violations, reports of enforcement actions on any violations.



<b>Comment Category 22 - Permitting</b>	
22-04. Response	<p>All Monument permit applications are posted to the Monument Web site for a minimum of 30 days before the MMB and the State Land Board make decisions. The public can also review and comment on all permit-related environmental assessments that are posted to the Monument Web site for a minimum of 15 days. In addition, there is an opportunity to provide public testimony at State Land Board meetings for all activities proposed in the Hawai‘i State Marine Refuge. Activity P-3.5 in the Permitting Action Plan in the Monument Management Plan is centered around regularly updating the public on proposed and permitted activities. In addition, as the MMB moves toward implementing the alliance, as suggested in Activity CBO-3.5, it will give consideration to how this group may be informed and involved in the permit process.</p> <p>As described in Monument Management Plan Activity P-3.5, the MMB plans to make several parts of the permit life-cycle available online, including permit reports. Currently all Monument permit summaries and full applications are posted online. While review comments are not available in full, they are summarized in State Land Board submittals for those activities occurring in state waters.</p> <p>As stated in the Monument Management Plan, Activity P-1.4, the MMB engages outside experts in the review of permit applications and will continue to do so.</p>
<b>Unique Comments</b>	
22-05. Comment	<p>3.6.3 Coordinated Field Operations Action Plan. Ocean Conservancy strongly supports Activity CFO-2.3: Assess threats that field activities pose to Monument resources. This activity is very important to ensuring the NWHI ecosystems retain ecological integrity, remain resilient, and are not adversely impacted by research and field activities. We believe that this action plan should be made a priority, and developed and implemented before additional or proposed research, construction, or restoration occurs. However, before any impacts may be assessed, a baseline assessment of current and recent conditions is required with which to compare future activities and their impacts. The baseline assessment should include recent activity and the status of resources relative to this human activity. Furthermore, permitted activities should not be monitored for threat assessment solely on activity reports prepared by the permittee. An independent source should also be certifying and verifying the accurateness of these reports. This action plan should address all of these concerns.</p>
22-05. Response	<p>Activity CFO-2.3, “Assess threats that field activities pose to Monument Resources,” is already being partially implemented through the permit reporting requirements. All human activities in the Monument are closely managed and monitored through the interagency permitting process (Strategy P-2 and Appendix A), the Papahānaumokuākea Information Management System (Activity IM-1.3), and the Evaluation Action Plan (Section 3.6.4). Data about the number, activities, and potential impacts of visitors and permitted activities is maintained in the Information Management</p>

<b>Comment Category 22 - Permitting</b>	
	<p>System. Monument staff verify the information collected by the permits. The MMB recognizes the importance of evaluating the cumulative impacts of human activities conducted in the Monument and has begun to collect data for this analysis. Assessing and analyzing required permit reports for all permitted Monument human activities will be a primary means for resource managers to understand the cumulative impact of ongoing activities (see Activity P-2.2, Analyze permit data to inform management decision making). In addition, information about past activities, such as military uses, is critical to our understanding of the Monument’s ecosystem and to establish a baseline for the health and condition of its natural, cultural, and historic resources. Establishing such a baseline is necessary in order to analyze how current activities, either individually or cumulatively, are impacting Monument resources. Such past activity data is one of the many data sources that we will incorporate into the Information Management System (Activity IM-1.1, Activity IM-1.4, and Activity P-2.1).</p> <p>The MMB is committed to conducting a threat assessment (also referred to as a risk assessment) of human activities in the Monument. A fundamental component of the threat assessment is to have a baseline understanding of the Monument ecosystems and how these may be influenced by natural and human activities. Strategies MCS-1, Continue and expand research, characterization and monitoring of marine ecosystems, and MCS-2, Assess and prioritize research and monitoring activities, will provide the fundamental monitoring data and information that is essential, along with the human use and impact data described above, to complete a comprehensive threat assessment. While data is mostly collected and analyzed for local areas in the Monument, collectively it supports other efforts to evaluate the threats to the NWHI at a Monument or regional scale. The threat assessment will evaluate the potential threats from outside the Monument (e.g., climate change, marine debris) and localized threats (alien species establishment). This analysis will provide managers with information to help evaluate potential activities and the level of threat. In response to the comments, text changes were made to the Monument Management Plan in Section 3.4.1, Permitting Action Plan, Permit Tracking, and Activity P-2.2.</p>
22-06. Comment	<p>The first thing is upholding the precautionary principle. In previous iterations of this document and also in the very strong and visionary state refuge rules the precautionary principle is there and it's very clear. It says that we don't do things if we're uncertain about it. And in the face of scientific uncertainty we just don't move ahead with activities that may have an impact. That is no longer in the Monument Management Plan. We would really like to see that put back in and upheld at every level of this Management Plan. Speaking to that, the permits -- one of the ways that we recognize that we limit human activities is through the permitting system. That we really strongly limit access to this place through that system. But what we have kind of seen over the past few years is without a strong framework for, you know, for defining through a publicly accountable process what should be going up there, we kind of end up granting permits ad hoc. We've kind of -- we haven't been asking that hard question about what activities should go on up there and what, you</p>

<b>Comment Category 22 - Permitting</b>	
	know, what should that be limited to. And it's that very programmatic approach to permitting with the life-cycle of accountability we should know from the beginning what is being proposed in a publicly accountable way. People have an opportunity to give public comments on it up to the very end where the people who have the permits are then accountable for their activities.
22-06. Response	<p>In terms of the precautionary principle, the MMB has identified eleven guiding principles for managing the Monument. The seventh guiding principle is as follows: "Errs on the side of resource protection when there is uncertainty in available information on the impacts of an activity" honors the approach of "do no harm" consistent with the precautionary principle in which historic, cultural and natural resource protection and integrity is favored.</p> <p>All Monument permit applications are posted to the Monument Web site for a minimum of 30 days before the MMB and the State Land Board make decisions. The public can also review and comment on all permit-related environmental assessments that are posted to the Monument Web site for a minimum of 15 days. In addition, there is an opportunity to provide public testimony at State Land Board meetings for all activities proposed in the Hawai'i State Marine Refuge. Activity P-3.5 in the Permitting Action Plan in the Monument Management Plan is centered around regularly updating the public on proposed and permitted activities. In addition, as the MMB moves toward implementing the alliance, as suggested in Activity CBO-3.5, it will give consideration to how this group may be informed and involved in the permit process.</p>
22-07. Comment	No permit (or permit conditions) issued jointly by the Co-Managers should override, dilute, or erode the strong protections established in state law and by previous permit provisions adopted by this Board.
22-07. Response	As of June 2007, the Co-Trustees have issued unified Monument permits, rather than separate permits from each of the three managing agencies. All legal requirements, from federal and state agencies, are incorporated into the unified permits. State guidelines are also still considered when issuing a Monument permit. The Board of Land & Natural Resources also adopted all joint-permit provisions.
22-08. Comment	The DMMP and Co-Managers must clearly, transparently, and objectively determine the conservation research & activity needs of the Monument and permit only specific research & activities that are in support of these conservation priorities. We suggest following the Special Activity Permit Application Review Checklist developed by the State's Division of Aquatic Resources for permits issued for state waters around the main islands.
22-08. Response	Activity 2.1 (Priority Management Need Understanding and Interpreting the NWHI, Marine Conservation Science) stipulates that the MMB will produce a Natural Resources Science Plan to guide and regulate Monument research. This

<b>Comment Category 22 - Permitting</b>	
	<p>step-down plan will define and prioritize research activities based on management needs to protect, conserve, and when possible, restore ecosystems within the Monument. Research would be prioritized by the necessity of information for management purposes. Due to the remoteness of the NWHI, research would be limited via vessel and research station space, so only those research activities ranking highest in management priority would be granted available accommodation. Currently, all permit applicants must address how their proposed activities would help the Monument. In addition, the MMB has developed a checklist and compliance sheet similar to what is done for the main Hawaiian Islands to verify that all permit conditions and other regulations are met.</p>
22-09. Comment	<p>p. 221 line 2, Change from: “designed to enhance understanding of Monument resources and activities and improve resource management decisionmaking.” To: “designed to enhance understanding of Monument resources and activities to improve resource management decisionmaking.”</p>
22-09. Response	<p>The Monument Management Plan has been changed in the reference section of the document to reflect this suggestion.</p>
22-10. Comment	<p>The Draft Environmental Assessment states that “The Monument is important both nationally and globally, as it contains one of the world’s most significant marine and terrestrial ecosystems and areas of cultural significance” which I believe is true and would strongly oppose increased commercialism, military activities, or commercial fishing in the area. We must limited future activities that harm this critical environment and maybe discontinue activities that have the possibility of harm.</p>
22-10. Response	<p>All permits granted by the Co-Trustees must meet the Findings in Presidential Proclamation 8031, which also make up the Monument’s permitting criteria. One of these criteria is demonstrating that proposed activities can be conducted with adequate safeguards for the cultural, natural, and historic resources and ecological integrity of the Monument. There is currently very limited commercial fishing in the Monument, and that will be phased out by 2011. Military activities are exempt from the permitting process. The MMB will continue to encourage the military to voluntarily follow the standard protocols and best management practices.</p>
22-11. Comment	<p>Permitting Action Plan – Section 3.4.1                      The Permitting Action Plan appropriately discusses a methodology for ensuring a unified and expedited review process for all permits. What is lacking in this discussion are activities to identify consequences for permit violations. Without sufficient penalties, permits are useful only for data collection, not restrictions on use of Monument resources. The General Counsel of all co-Trustees and the Coast Guard must be involved to ensure that regulations and permits contain all necessary language to apply discouraging penalties. Research Permits</p>

<b>Comment Category 22 - Permitting</b>	
	<p>We hope that the Draft Science Plan will consider a system to assign values to proposed research. The permit application should require applicants to identify how the research will assist management needs and/or marine management. All proposed research permits should be open for a public comment period. Additionally, proposed permits should be scored by managers according to how well the research will meet management needs and how invasive they will be. Managers should use these scores when deciding which permits to authorize; the scoring mechanism would provide a transparent process to ensure that research is conducted in accordance with and to support Monument management priorities.</p>
22-11. Response	<p>A general term and condition of all permits states that a violation of the Proclamation, implementing regulations, or any term or condition of the permit may result in permit suspension, modification, nonrenewal, or revocation. In addition, failure to fulfill permit requirements may affect consideration of future permit applications.</p> <p>In the Priority Management Need, Understanding and Interpreting the NWHI, Marine Conservation Science Action Plan, Activity 2.1 stipulates that the MMB will produce a natural resources science plan to guide and regulate research conducted in the Monument. This step-down plan will define and prioritize research activities based on management needs to protect, conserve, and when possible, restore ecosystems within the Monument. Research will be prioritized by the necessity of information for management purposes. Due to the remoteness of the NWHI, research will be limited by vessel and research station space, so only those research activities ranking highest in management priority would be granted available accommodation. Currently, all permit applicants must address how their proposed activities would help the Monument.</p> <p>All Monument permit applications are posted to the Monument Web site for a minimum of 30 days before the MMB and the State Land Board make a decision. The public can also review and comment on all permit-related environmental assessments, which are posted to the Monument Web site for a minimum of 15 days. In addition, there is an opportunity to provide public testimony at State Land Board meetings for all activities proposed in the Hawai‘i State Marine Refuge. The Permitting Action Plan in the Monument Management Plan calls for regularly updating the public on proposed and permitted activities (Activity P-3.5).</p>
22-12. Comment	<p>We strongly urge the Co-Managers to require a daily impact/take log be kept of all resources taken from the Monument and any observed/suspected/potential impacts to Monument resources or ecosystem integrity. We also support the keeping of waste logs as part of the cruise logs, as required under general permit condition 22.</p>
22-12. Response	<p>Within 30 days of the expiration of every permit, a report is due, summarizing all activities undertaken. This includes dates of all arrivals and departures from islands and atolls within the Monument, names of all persons involved in permitted activities, details of all specimens collected and handled and any other pertinent information, GPS locations of all samples collected and transects, results of work to date, copy of all data collected, and a proposed schedule of</p>

<b>Comment Category 22 - Permitting</b>	
	publication or production of final work. In addition, permittees with vessel authority must maintain a daily vessel discharge log, as well as a cruise log.
22-13. Comment	Table 2.1: Goal 3: Manage human activities to maintain ecosystem integrity and prevent negative impacts by allowing only those activities that do not threaten the natural character or biological integrity of any NWHI ecosystem and are consistent with long-term protection.
22-13. Response	In response to several comments about the need to protect resources, the MMB modified the Vision, Mission, and Goals 1, 2, and 3 in Table 2.1 to better reflect a commitment toward resource protection.
22-14. Comment	Table 2.1: Goal 9: Limit extractive activities to those necessary for management and Native Hawaiian cultural practices.
22-14. Response	Native Hawaiian practices are already allowed by permit if the activity meets all Proclamation findings. All permits granted by the Co-Trustees must meet the Findings in Presidential Proclamation 8031, which also make up the Monument's permitting criteria, one of which is demonstrating that proposed activities can be conducted in a manner that is compatible with the management direction of the Monument. Goals 1 and 3 have been revised (see Vol. I, Table 2.1). In response to several comments about the need to protect resources, the MMB modified the Vision, Mission, and Goals 1, 2, and 3 in Table 2.1 to better reflect a commitment toward resource protection.
22-15. Comment	<p>Permitting Action Plan: The RAC recommends that in order to prevent negative human impacts to this very rare, fragile, and unique resource the MMB limit access to only those activities consistent with Presidential Proclamation 8031 and the implementing regulations of the Monument. All permitted activities must be designed to enhance understanding of Monument resources for the express purpose of improving resource management decision-making. Permits should be for non-commercial purposes, deemed appropriate and necessary, consistent with management-critical needs and benefit the NWHI. Research permits, for example, should be written so that the research to be conducted is required to serve management-critical research priorities.</p> <p>The RAC recommends that the unified Monument application form provide sufficient detail from applicants to meet all applicable state and federal laws and regulations, including EO's, in addition to the specific requirements of the Monument Proclamation and to permit the MMB to make an informed decision as to whether the proposed activities will comply not only with all legal requirements but also with the mission, management principles, and goals of the Monument.</p>
22-15. Response	The MMB will continue to work to revise the permit application to best inform decision making, as discussed in permitting Strategy P-1. In response to several comments about the need to protect resources, the MMB modified the

<b>Comment Category 22 - Permitting</b>	
	Vision, Mission, and Goals 1, 2, and 3 in Table 2.1 to better reflect a commitment toward resource protection. In addition, we added language to the Permitting Action Plan Activity 1.4 to state that “Those experts consulted on a permit must pass the conflicts of interest policy developed to ensure an independent and objective review of permit applications.”
22-16. Comment	Page 227, activity 2.2 line 22 - add the MAC and the public in the sentence with, “This system will allow Monument Co-Trustees and partners to better. . . “ - PLACEHOLDER page 113 or 227 new activity
22-16. Response	Specifically adding the MAC is not necessary because it, or its equivalent, would be considered one of the Co-Trustees partners, along with other groups and individuals who may be interested in the data.
22-17. Comment	3.4.1 - permitting action plan - add the link agreement by NH RAC Members (25 June 08)
22-17. Response	The meaning of this comment is unclear, and we are unable to respond.
22-18. Comment	p. 125 Delete on line 7 “nonmandatory”
22-18. Response	The word “nonmandatory” has been deleted from Section NHCH-5.3, page 125, line 7.
22-19. Comment	Permit action plan should link or reference TES 1.4 (cumulative impacts to monk seals)
22-19. Response	A link to the TES Action Plan has already been made.
22-20. Comment	P. 219 Change desired outcome in permitting action plan to change “allowing” to “limiting access only for those activities” (line 13) Change line 15 to state, “consistent with Presidential Proclamation 8031, and applicable laws and executive orders.”
22-20. Response	We have changed Goal 3 and the desired outcome to reflect this comment.
22-21.	Page 221 - Line three, “Permits shall only be given to - instead of “priority is given to. . . “



<b>Comment Category 22 - Permitting</b>	
<b>Comment</b>	
22-21. Response	The Monument Management Plan is a road map that provides guidance on management approaches over the next 15 years. The Monument Management Plan and step-down plans provide an indication of priority research needs, but we cannot anticipate all emerging issues and environmental stressors over the next 10 to 15 years; therefore, we have retained the language.
22-22. Comment	P. 219 Due to the importance of cultural oversight and education in the permit application process and the explicit reference of the significance and import of the Monument to Native Hawaiians, section 3.1.2 should be listed among the key links to other action plans.
22-22. Response	Our overall emphasis on protecting the health, diversity, and resources of the NWHI ecosystems is our constant and highest concern. Presidential Proclamation 8031 created the Monument and also established the permitting procedures and criteria. All permits issued must meet the findings in the proclamation, one of which is demonstrating that proposed activities can be conducted with adequate safeguards for the cultural, natural, and historic resources and ecological integrity of the Monument. As such we have included a link to the Native Hawaiian section.
22-23. Comment	P. 219 line. 11 remove minimize
22-23. Response	We did not remove “minimize” from this section because part of the goal of the permitting program is to minimize human impacts where they cannot otherwise be prevented.
22-24. Comment	Change line 30 on page 226, activity 1.4 to state, “The MMB shall consult with independent technical experts, including Native Hawaiian cultural practitioners on permit applications.”
22-24. Response	It is currently part of the standard permit process to have all applications reviewed by representatives of the Native Hawaiian community; thus, Native Hawaiians are included in the general term “independent expert.” We have added language to Activity P-1.4 to clarify this.
22-25. Comment	Page 229, activity 3.5 to state on line 15 - to add lifecycle of permits, public comment, etc. notify the public of activities to be conducted in the Monument, and actively solicit public comments,
22-25. Response	While it is not feasible to hold month-long public hearings on all of the islands for all permits, there are several ways the public can provide comments on Monument permit applications. As of February 1, 2008, following the Monument’s Public Notification Policy, all permit applications are posted on the Monument Web site for public review. They are online for at least 30 days, often longer, and public comment is welcome at any time. In addition, permit application

<b>Comment Category 22 - Permitting</b>	
	involving activities in state waters are heard before the State’s Board of Land and Natural Resources, whose meetings are open to the public.
22-26. Comment	Page 229, activity The URL and the Monument listserv shall serve . . . ”
22-26. Response	The Monument listserv includes a sizable number of people interested in Monument activities but not necessarily in each permit application received. To be respectful of their mailboxes, we will continue to post proposed and permitted activities on our Monument Web site only.
22-27. Comment	Page 220, line 36 - Under Monument permit criteria, in some areas, access. . . ”
22-27. Response	It was not necessary to add “in some areas” to the sentence because it is the permit criteria and conditions that determine the type and location of an activity that could be allowed. All Monument permit applications are posted to the Monument Web site for a minimum of 30 days before the MMB and the State Land Board make decisions ( <a href="http://hawaiiireef.noaa.gov/resource/permit_sum.html">http://hawaiiireef.noaa.gov/resource/permit_sum.html</a> ). The public can also review and comment on all permit-related environmental assessments that are posted to the Monument Web site for a minimum of 15 days. In addition, there is an opportunity to provide public testimony at State Land Board meetings for all activities proposed in the Hawai‘i State Marine Refuge. The Permitting Action Plan in the Monument Management Plan contains an activity centered around regularly updating the public on proposed and permitted activities (Activity P-3.5).
22-28. Comment	P. 221 These permits shall be non commercial, deemed appropriate and necessary, consistent with management critical needs and benefit the NWHI. Sentences 2-13 shall be re-written to be consistent with management-critical research priorities.
22-28. Response	This section of the document on permits references specific permit criteria and conditions called for in the Proclamation both in Appendix F and the Monument Regulations in Appendix E. Additionally, the research section already states that such permits are only given to entities designed to enhance our understanding of Monument resources and improve resource management decision making. Additional elaboration is not necessary. The MMB cannot say that all the permits must be noncommercial because the proclamation provides special criteria and requirements for special ocean use permits, which could be given to a commercial entity, such as one that brings visitors to Midway.
22-29. Comment	Page 221, Add sentence after line 35 change sentence to state, “Co-trustees shall not issue a permit unless it meets all applicable federal and state regulations.”

<b>Comment Category 22 - Permitting</b>	
22-29. Response	As stated on page 225, line 5, the Monument permit program allows for a comprehensive review of proposed activities and will be administered to ensure compliance with Presidential Proclamation 8031, as well as with other applicable federal and state laws and regulations. As such, no change is needed in Section 3.4.1.
22-30. Comment	Page 224, Change from: “The MMP will track, and monitor all permitted activities” To: The MMP will track, monitor, and report on all permitted activities”
22-30. Response	Permitting Activities P-2.4 and P-3.5 describe reporting processes for permitted activities.
22-31. Comment	Page 226, add “Those experts consulted on a permit must pass the conflicts of interest policy developed to ensure an independent and objective review of permit applications.”
22-31. Response	The MMB periodically engages outside experts on technical review of permit applications. These external experts are limited in scope to provide recommendations on the technical merits of the permit application. They do not have any decision making authority to grant or deny the permit. All efforts are made to ensure the experts have no conflicts of interest in the proposed activity or with the Monument. The recommended language change was not incorporated into the text since a specific Monument "conflict of interest" policy has not been formally adopted.
22-32. Comment	Page 227, This will include summary reports presented on a regular basis to the MAC, Monument Co-trustees and partners, which would contain, at a minimum, basic data on the nature, location, and level of permitted activities occurring within Monument waters, data on the potential and observed impacts of activities occurring within Monument boundaries, and the opportunity for public review and comments.
22-32. Response	Activities P-2.4 and P-3.5 describe plans to report on permitted activities. Summary reports or briefings on permitted activities will be reported under activities described in Action Plan CBO 3.5.2.
22-33. Comment	Under Activity MTA-2.3: Improve existing pre-access information for inclusion on the Monument website and in permit application materials, we suggest that emergency response information be included on the list of information provided to all permit applicants. Such information might include materials outlining what to do in the event of an emergency as well as emergency response training for permittees and information on what kinds of supplies or materials permittees should have on board to respond to an emergency situation. Given the unavoidable risks associated with maritime and aviation transportation in the Monument, the DMMP should attempt to minimize the expansion of transportation activities by ensuring the greatest possible efficiencies in all Monument transportation. Specifically, we urge inclusion of a new strategy under this action plan: “Strategy MTA 3: Coordinate maritime transportation and aviation activities to reduce

<b>Comment Category 22 - Permitting</b>	
	overall transportation impact.” Activities under this strategy could include scheduling flights to ensure planes are full, making sure maritime traffic either transits through the Monument as quickly and safely as possible, or conducts multiple tasks while in Monument waters to reduce the need for repeat trips, and so forth.
22-33. Response	The Monument Emergency Response and Assessment Team will develop and coordinate information on emergency response for Activity MTA-2.3, as envisioned in Activities ERDA-1.1 and ERDA-2.1. The MMB agrees with the concept of the commenter’s proposed language, “Coordinate maritime transportation and aviation activities to reduce overall transportation impact.” However, the MMB feels this is already incorporated in the Coordinated Field Operations Action Plan (3.6.3), and in particular in Strategy CFO-2, Enhance interagency planning and coordination for field operations and develop protocols and process that will be utilized throughout the life of the plan.
22-34. Comment	The original language in the NOAA Draft Sanctuary Management Plan pertaining to a ban on bioprospecting should be retained in the current DMMP: “As a result, research related applications, such as those associated with bioprospecting will not be authorized within the sanctuary.” Unfortunately this language was removed from the current version of the DMMP. This language should be reinstated. Alternatively, co-management of the NWHI as an ecosystem should mean that the strongest protections of any of the three Co-Managers should be applied. In the case of bio-prospecting, the State of Hawaii took action to protect Native Hawaiian cultural and biological resources by adding a condition on all research permits that prohibits bioprospecting. This condition should be applied to all permitted activities conducted anywhere in the NWHI. All permits issued to access the Monument should extend state protections against bioprospecting, which states: “This permit is not to be used for nor does it authorize the sale of collected organisms. Under this permit, the authorized activities must be for non-commercial purposes not involving the use or sale of any organism, by-products, or materials collected within the Monument for obtaining patent or intellectual property rights.”
22-34. Response	All Monument permits dealing with collecting samples or specimens specifically prohibit the sale of collected organisms. Bioprospecting is defined in the glossary as the “search for new chemicals, compounds, genes and their products in living things that will have some value to people.” It inherently involves identifying biological resources with potential commercial value that may be developed into marketable commodities, such as pharmaceuticals, pesticides, and cosmetics. The special condition applied to these permits states that authorized activities must be used for noncommercial purposes not involving the use or sale of any organisms, by-product, or materials collected within the Monument for obtaining patent or intellectual property rights. Thus, bioprospecting for commercialization would not be permitted. Language was added in Section 3.4.1, Permitting Action Plan, in the Monument Management Plan to clarify this.
22-35. Comment	We received several comments stating that the MMP should include a Monument Advisory Council which would review and analyze permits and research activities on a regular basis.

<b>Comment Category 22 - Permitting</b>	
	Page 225, line 42, add the MAC
22-35. Response	Permitting Activity P-1.1 specifically relates to coordination and decision making among MMB members. While advice from an advisory body will be considered, it will be incorporated elsewhere.
22-36. Comment	The first thing you should do is not have a Management Plan but have a restoration plan. It's not a matter of conserving what's out there. That has -- you've let that one slip in the last three years. I think if you look at what other agencies, other people have done setting up sanctuaries like this, all of them recognize to begin with that you have to have a permit system that's locked in with the plan. That is until you have a plan in place you should not have a permit system. There should be a moratorium. And looking at what has happened with the out-of-control permit system that's in there that has not only resulted in take but in a lot of public issues points to why you really, really need a moratorium.
22-36. Response	Before the Monument was established, each Co-Trustee agency reviewed and issued permits. After Monument designation, the Co-Trustees still maintained permitting responsibilities. Ecological restoration is one of the core activities of conservation management. Management is ongoing, and the managers are required to make decisions using the best scientific information available, thus, necessitating a system for evaluating what activities are acceptable in the Monument (a permitting system). The Proclamation requires a Management Plan to establish a roadmap to carry out all activities and specifies activities that will be carried out. A number of ecological restoration plans already exist and will be implemented.
22-37. Comment	OHA also inquires as to the permitting processes that will be considered in order to comply with federal and state laws for management of Papahānaumokuākea. In a typical environmental assessment, the applicant provides a list of permits required, and we check that list for accuracy and offer suggestions on how best to comply or improve the project. In this case, we see no such list to comply with a host of regulations that several of the described types of management projects mandate. The only indication of compliance OHA has is in the environmental assessment on page 27, which states. "Some of the additional plans are completed, including NEPA, section 7 of ESA, section 106 of NHPA and MMPA."
22-37. Response	Permitting processes are described in Appendix A of the Monument Management Plan. All permits granted by the Co-Trustees must meet the findings in Presidential Proclamation 8031, which also make up the Monument's permitting criteria. All permitted activities must also comply with NEPA, the Endangered Species Act, and all other applicable federal and state regulations.
22-38. Comment	Strategy CFO-6: Within 5 years improve the small boat operational capacity to enable quick, reliable access to the region in support of management and continue to enhance the program throughout the life of the plan. This strategy states that: "improved access to the islands and atolls of the NWHI has been identified as a top priority"

<b>Comment Category 22 - Permitting</b>	
	<p>The Co-Trustees must ensure that the “precautionary principle” is applied to all Monument activities including improving access and facilities. Monument resources should not be placed at-risk or endangered by activities that build operational capacity. Strategy CFO-6 should ensure that any future development will not endanger Monument resources and diminish ecological integrity. And, if Activity CFO-2.3 determines that threats associated with any activity proposed in this action plan might have a negative impact on resources, they should not be permitted. Furthermore any activity proposed in this activity should undergo full environmental review and incorporate appropriate mitigation measures.</p>
22-38. Response	<p>The FWS has requirements for complying with environmental laws and regulations at its facilities. The requirements are in the Fish and Wildlife Service Manual, specifically Part 560, Pollution at FWS Facilities, Environmental Compliance 560 FW 1. These requirements meet or exceed all applicable federal environmental laws and regulations, including the ESA, MMPA, and NEPA.</p> <p>Our objective is to comply with all applicable environmental laws and regulations when performing our activities and when designing, constructing, managing, operating, and maintaining our facilities. In addition, it is our policy to implement sustainable management practices that move beyond full compliance with environmental laws and regulations and set an example in environmental leadership.</p> <p>The FWS Division of Engineering, Branch of Environmental Compliance develops policy and provides technical assistance and regulatory guidance to regions and field offices, including managing our national environmental audit and compliance efforts. Regular audits are conducted to assure compliance with applicable environmental laws and regulations.</p> <p>Table 1.2 in the EA lists some of the infrastructure projects that may require additional NEPA analysis.</p>
22-39. Comment	<p>Section 3.2 Conserving Wildlife and Habitats</p> <p>Conservation measures must be in place before Management Plan permits can be issued.</p>
22-39. Response	<p>Our overall emphasis on protecting the health, diversity, and resources of the NWHI ecosystems is our constant and highest concern. Presidential Proclamation 8031 created the Monument and also established the permitting procedures and criteria. All permits issued must meet the findings in the proclamation, one of which is demonstrating that proposed activities can be conducted with adequate safeguards for the cultural, natural, and historic resources and ecological integrity of the Monument.</p>
22-40. Comment	<p>Section 3.6 Achieving Effective Monument Operations</p> <p>Proclamation 8031, as of June 15, 2006, appropriated and withdrew all forms of entry to the Monument waters, abolishing existing fishing leases (F3, top). Permission to kill sharks and other protected marine life are in direct</p>

<b>Comment Category 22 - Permitting</b>	
	violation of the Proclamation.
22-40. Response	The commenter's understanding of Presidential Proclamation 8031 is incorrect. Presidential Proclamation 8031 prescribes numerous prohibitions and regulated activities to protect the Monument's resources. However, as protective as these provisions are, the Proclamation never intended to prohibit all human use and access to the Monument. The Proclamation made specific allowances for the continuation of a small, permitted commercial bottomfish fishery (until 2011), limited sustenance fishing (if the fish is consumed in the Monument), vessel transit, and armed forces actions. The Proclamation also established a permit system to allow a narrow range of other activities, provided there is a finding that the activity 1) is research designed to further understanding of the Monument resources and qualities, furthers educational value of the Monument, assists in the conservation and management of the Monument, allows Native Hawaiian practices, allows a special ocean use, and allows recreation. These permitted activities will be allowed only if there are adequate safeguards for the resources and ecological integrity of the Monument and if the activity meets the findings of the Proclamation (see Proclamation 8031, and Vol. III, Appendix D).
22-41. Comment	For all permits there must be public hearings on all the main islands for a month and at least 30 days for public comments for all permits.
22-41. Response	While it is not feasible to hold month-long public hearings on all of the islands for all permits, there are several ways the public can comment on Monument permit applications. As of February 1, 2008, following the Monument's Public Notification Policy, all Monument permit applications are posted to the Monument Web site for public review ( <a href="http://papahanaumokuakea.gov">http://papahanaumokuakea.gov</a> ). They are posted online for at least 30 days, often longer, and public comment is welcome at any time. The public can also review and comment on all permit-related environmental assessments that are posted to the Monument Web site for a minimum of 15 days. In addition, there is an opportunity to provide public testimony at State Land Board meetings for all activities proposed in the Hawai'i State Marine Refuge. The Permitting Action Plan in the Draft Monument Management Plan contains an activity centered around regularly updating the public on proposed and permitted activities (Activity P-3.5).
22-43. Comment	Having the Hawai'i State Land Board in control of permits is just one example of how the proposed plan is doomed to fail. The political nature of the Land Board and bureaucratic infighting within the Department of Land and Natural Resources (DLNR) has already contributed to the failure of effective management within the Monument. Recent permit refusals, unrealistic bureaucratic restrictions, and inappropriate penalties to scientists has hampered vital research and has created an environment of mistrust with the very group that has the most to offer the managers of the monument. Given the long-standing political nature of the Land Board there is no way forward while this institution holds a stranglehold on operations within the monument. The current and proposed plan will guarantee that managers will not have the



<b>Comment Category 22 - Permitting</b>	
	information needed to maintain the integrity of the coral reef ecosystem in the NWHI in the future. I urge the current co-trustees to relinquish the day-to-day operations of the monument to an impartial, apolitical agency of professional natural resource managers. This Papahānaumokuākea Management Authority could be modeled on the GBRA and operate within the broad mandates of the co-trustees but without the political meddling that has damaged the monument thus far.
22-43. Response	Hawai'i Administrative Rules Chapter 60.5 that established the State Marine Refuge in the NWHI specifies that the State Land Board must review and approve permits for activities in state waters. Changing this process requires an administrative rule change and is beyond the authority of the MMB. Similarly, creating an independent agency like GBRMPA to manage the Monument is also beyond the authority of the MMB and the Co-Trustees and would likely require congressional legislation to enact.

<b>Comment Category 23 - Pollution</b>	
<b>Summarized Comments</b>	
23-01. Comment	<p>The comments below express concerns regarding discharges from ships in Monument waters.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) Gray water is a problem for approved boats to dispose of costing lots of fuel and wasted time to take it outside the monument. The damage from dumping gray water into the ocean in the monument will not have any detrimental effect on the ecosystem but does have a financial burden on the permittees. Discharging gray water 3 miles off shore should be an adequate safe guard to the environment.</li> <li>2) We strongly urge the Co-Managers to better protect Monument and Refuge resources by clearly defining “discharging or depositing any material or matter into the Monument” and limiting the use of harmful materials that could be discharged into Monument waters.</li> <li>3) We also suggest the following be incorporated as best practices for vessels permitted to access the NWHI. S Sewage/Black water/grey water - discharge: Take all steps to avoid dumping in the Monument: 1. plan cruise track to include scheduled discharges at approved offshore areas, based on sewage storage capacity. 2. store all sewage to be dumped in approved offshore areas 3. in the event that transit to an appropriate offshore area is not possible sewage discharge shall only be conducted to leeward of any island or reefs and in water no less than 50 deep, with sufficient offshore current to provide for proper flushing and dilution. 4. consider retrofit of vessels to a sewage incineration system (incinerating heads/toilets) as preferable over discharge of chlorine treated sewage. Personal care: 1. assuming that anything onboard a vessel may inadvertently/inappropriately go overboard,</li> </ol>

<b>Comment Category 23 - Pollution</b>	
	<p>stipulate what products &amp; cleansers may or may not be brought onboard based upon impact to the environment. 2. Store and discharge greywater following the same guidelines as blackwater sewage, in consideration of the potentially dangerous chemicals &amp; pathogens present.</p> <p>Vessel maintenance: 1. assuming that anything onboard a vessel may inadvertently/inappropriately go overboard, stipulate what products &amp; chemicals may or may not be brought onboard based upon impact to the environment 2. no discharges from deck within 12 miles of land 3. prohibit cleansers, solvents, and chemicals from being used on-deck while in monument waters. Deckwash should be with freshwater only. No on-deck showers using soap or chemicals. 4. no paint scraping, rust busting, or other vessel maintenance activities that produce solid particles that may inadvertently be blown or washed overboard.</p> <p>Engineering: 1. reduce diesel emissions with exhaust scrubbers, and to the greatest extent of the available technology. In some cases it may be necessary to retrofit vessels to meet improved standards. 2. require pre-voyage USCG inspections of engine cooling system overboard discharge to prevent inadvertent discharge of ethylene glycol into monument waters. These inspections should extend to all related tender vessels. 3. require pre-voyage USCG inspections of bilge water Oily Water Separator sensor &amp; system for proper function &amp; use.</p>
23-01. Response	MMB staff Board have formed a Monument Discharge Working Group to ensure that the provisions of Presidential Proclamation 8031 associated with discharges from ships are correctly interpreted and enforced as part of the permitting process.
<b>Unique Comments</b>	
23-02. Comment	<p>And I don't want even them to use the bottom of our water for some kine chemicals they want to use over here in Hawaii. They already did. Because I know some of our animals get all kind disease, especially the pigs. They say about the pigs and the goats and the sheep, they not the one that destroying all our birds. It's the two-legged animal. Because you know, I never seen one dog or pig climb the mountain on the steep side of the mountain to get the birds eggs or something like that. I know the rat they bring here, and the mongoose, we kind of get used to the Hawaii squirrel they call mongoose. But so far, you know, we have to live with what they get. But stop bringing any more snakes and all kind of geckos and that Coqui frog. We get enough of our frogs. We don't like something else that they're bringing. They keep on bringing all kind of stuff. Stop bringing that. And for us, these people that bring in stuff like that, they should eat 'em right there. Because why? They don't check people bringing in stuff, but we check stuff going out. They interrogate us for our plants and anything. But most stuff that we use now is all from down America. So what the sense, we going back, we take some picture like that. But we're not able to take it because it came from there. When get disease, we take the diseases back too. I don't see no disease. When you eat 'em the disease is gone.</p>

<b>Comment Category 23 - Pollution</b>	
23-02. Response	Because there have been quarantine programs in place for many years, very few alien species have been introduced into the Northwestern Hawaiian Islands. As part of this plan, preventing the introduction of alien species will be a continuing program to ensure the native species of the Monument continue to thrive.
23-03. Comment	Section 3.6 Achieving Effective Monument Operations Toxic dump sites (unregulated landfills) often uncharacterized and leaking, contaminating adjacent lands and waters, must be a top priority. BRAC procedures may not be sufficient to protect indigenous biota.
23-03. Response	We have a specific strategy and related activities to address toxic dump sites in the Monument. It is Strategy HMC-2: “Within 10 years, investigate and inventory sources of known contamination from historic uses of the NWHI and, where appropriate, coordinate with responsible parties to develop plans and complete cleanup actions.” The Monument managers will use all tools and applicable laws to clean up toxic dump sites.
23-04. Comment	It would be nice to see the waste removal and incineration into energy practiced on these islands. Maybe you could be an example for our (habitated) islands.
23-04. Response	We do have recycling programs in place for all field camps in the Monument. However, the quantity of waste generated is too small to support the generation of energy through incineration.
23-05. Comment	Looking at the habitat management I wondered if when waste is generated in the islands if it’s taken out or put in dumps there. I hope it’s taken out. KAHEA had a concern also about assessing the carrying capacity of the islands before the plan is put into place. When I talked with someone she thought this was being done but I think that is a valid concern. For a discussion on assessing the carrying capacity, see response 04-02.
23-05. Response	For short term field visits, waste is packed out at the end of the visit. At Tern Island and Laysan Island, solid waste is removed one to two times per year, and there are no landfills on these islands. At Midway, waste is reduced through recycling and incineration, and residual products are placed in a small landfill.
23-06. Comment	Studies conducted by the U.S. Fish and Wildlife Service (FWS), Coast Guard, Navy, and the University of Hawai’i have documented contamination in soil, sediment, and biota at French Frigate Shoals, Kure, and Midway which include petroleum and oils, asbestos, lead, DDT pesticide, arsenic, heavy metals, and battery acids. Dissolved iron from these sites also fuels cyanobacteria growth. Direct impacts to black-footed albatrosses, in the form of reduced hatching success, have been linked to high organochlorine levels and elevated levels of mercury impaired immune function in black-footed albatrosses. On Midway, over 500 birds are burrowing in contaminated soil. Some fish and other biota have PCB levels that rival levels found in fish near major PCB manufacturers on the mainland. Unlined landfills remain on some of these

**Comment Category 23 - Pollution**

islands, and Kure Atoll and French Frigate Shoals both have point sources of PCBs due to former LORAN stations, which qualify as hazardous waste. While some cleanup efforts have been made, elevated levels of contamination remain in island soils, nearshore sediment, biota, and the dump continues to erode into the sea.

OHA appreciates this disclosure, and we realize that these are inherited problems; however, the list of terribles described above does not match the sometimes pristine description in the draft management plan or environmental assessment. Nor do they match the mission and vision of this management plan. It also serves as an embarrassment, and OHA wonders what implications these horrors may have for the World Heritage application. One wouldn't expect a hazardous dump to be tolerated in Yellowstone National Park or Hawai'i Volcanoes National Park (also a World Heritage site), and we shouldn't imagine that these sorts of conditions will be allowed to remain in Papahānaumokuākea either.

Page 60 of the draft management plan notes that the Navy "has returned on several occasions to conduct further remediation" on Midway. Page 59 states that, "While the Coast Guard has mounted cleanup actions at both sites, elevated levels of contaminants remain in island soils, nearshore sediment, and biota." OHA strongly suggests that the two federal agencies coordinate with the other co-trustee (the state of Hawai'i) to encourage those responsible for this pollution to clean it up. In international law this is known as the polluter pays principle, and it makes good sense to apply it in Papahānaumokuākea.

Otherwise, OHA inquires as to the lack of compliance with state and federal environmental laws presented by these sites and by the proposed actions presented in these documents. The no-dig areas described in the Midway Atoll NWR Conceptual Site Plan on page 24 where contaminants were left in place at the surface level are yet another sad example. OHA also notes section 2.2.2 of the environmental assessment which lists some of the federal and state laws regulatory environment as well as section 2.5.1.2 which lists the regulatory environment pertaining to water quality in Papahānaumokuākea.

OHA notes that the Clean Water Act (CWA) is listed, specifically sections 403 and 404. As such, OHA is deeply concerned over the apparent lack of compliance with the CWA. We inquire as to whether a CWA, Section 402 National Pollutant Discharge Elimination System has been authorized. OHA is certain that the leakage of hazardous materials into the nearshore environment would also violate the state of Hawai'i Department of Health state water quality standards, which are mentioned on pages 131 and 132 of the environmental assessment. We remind the managers that much of the nearshore waters in Papahānaumokuākea are state waters, and therefore submerged lands, which are also ceded lands.

OHA also inquires as to compliance with the Rivers and Harbors Act, sections 10 and 13 for work or structures in or affecting navigable waters and for the discharge of refuse matter into or affecting navigable waters.

We also note that funding for remediation of polluted sites is lacking. Table 3.1 Total Estimated Cost to Fully Implement Action Plans by Year does not even have a category for clean up of hazardous and polluted sites. Habitat Management

<b>Comment Category 23 - Pollution</b>	
	<p>Conservation (HMC) Plan 2 is the only one that tangentially deals with contaminated sites. The plans propose to “investigate and inventory” (HMC-2), “evaluat[e] effects of contamination” (HMC-2.1), “verify integrity of known landfills and dumps and to conduct remediation if necessary” (HMC-2.3). However, these documents resonate with a series of deep contaminants listed in various sections that cry for more than monitoring of effects and investigation. For example, the migratory bird action plan states on page 161 that “Minimizing threats to migratory bird populations remains a primary concern.” Then, on the same page, it states that contaminants will be “monitored” with no mention of clean up. OHA reminds the managers of Papahānaumokuākea of their mandate to protect, maintain, and restore wildlife habitats. Remediation of known sites must be done in a timely manner, and monitoring for results of clean up should be a priority.</p> <p>Fingerprinting of oil sources on the international level and tracing marine debris is also proposed; however with an admitted lack of funding and obvious sources of pollution that need attention so readily abundant, OHA inquires as to the wisdom of not addressing those prior to attempting the more exotic methods and sources that threaten Papahānaumokuākea. Also, OHA urges that the managers seek to increase the capacity for species in the area in a variety of ways and we would rather see the ecosystem receive what limited attention there is than see something like two visitor centers being constructed with finite funds. This also matches with the ecosystem-based management style and no net loss of habitat goal recited in these documents.</p>
23-06. Response	<p>We agree that known sites must be remediated in a timely manner, and monitoring for results of clean up should be a priority. Under the Comprehensive Environmental Response, Compensation and Liability Act, the Responsible Party (RP) for contamination is required to ensure the contamination is remediated and not released to the environment. The FWS has worked with the EPA, NOAA, and the RPs to investigate and respond to the hazardous waste issues on both Midway and Tern. The RPs are the US Navy and the US Coast Guard, respectively. Cost to monitor, remove, or otherwise remediate the contamination remains the RPs’ financial obligation. The Monument managers will continue to work with the EPA and the RPs to pursue response and remediation where needed.</p>
23-07. Comment	<p>What will happen if pesticides used for rat and mice eradication are not properly disposed of and end up in the freshwater system or in the landfills?</p>
23-07. Response	<p>We share your concerns regarding the use of poisons, and we are taking the utmost care to ensure beneficial effects outweigh potential harm. In this case, the nonnative, invasive species are so abundant and virile that our options have become limited. Poisons are a necessary tool to prevent the loss of native ecosystems to invasive nonnative species, such as mice. However, when poisons are used, it is with caution, care, and concern for the biological and cultural resources that we are mandated to protect.</p>

<b>Comment Category 23 - Pollution</b>	
23-08. Comment	Page 70-71, lines 36-41 and lines 1-41. The discussion of Waste Discharge, Ballast Water Discharge, and Introduction of Alien Species must be grounded in international law and the authorization granted by the Presidential Proclamation. The current discussion provides little and no reference to international law and how the plan intends to comply with the Presidential Proclamation.
23-08. Response	The plan cites the International Convention for the Prevention of Pollution from Ships. In addition, management of the Monument in relation to waste discharge and ballast water discharge must comply with all applicable international, federal, and state laws and regulations.
23-09. Comment	Section 3.1 (New) Remediation and Restoration Plan Remediation of toxic wastes, removal of relic structures and mostly military artifacts, especially from Kure and Midway Atolls and French Frigate Shoals, must be completed in conformance with BRAC protocols and consistent with RCRA (Resource Conservation and Recovery Act) and Superfund requirements, with a final Record of Decision published for the completion of remediation of the uncharacterized, unregulated toxic dump sites prior to the Compatibility Determination required for Management Plan approval. Consideration of any of the consumptive uses contemplated in the Midway Atoll Conceptual Plan, should be withdrawn as inconsistent with No Take Policy. The Monument now stands in violation of the Clean Water Act, especially for the toxic plumes emanating from the toxic dump sites and being taken up by surrounding biota. Remediation should bring these violations into CWA compliance so that an NPDES Permit may issue and a Compatibility Determination can be made.
23-09. Response	The Monument Co-trustees defer to the EPA as to whether the Monument is in violation of the Clean Water Act. However, the FWS has worked closely with the EPA over many years to ensure that remediation of hazardous wastes at Midway Atoll and Tern Island meet regulatory standards.
23-10. Comment	I shall now recommend a new type of support ship: the Garbage Collector. People used to believe the oceans were limitless, but now they know otherwise. While being watchful of marine life, the ship would collect and compact and if the hold were full, compact the mass with a cable to be towed externally and also to facilitate linking for a compacted "trash train."
23-10. Response	While we appreciate the suggestion, it is presently not feasible to collect trash in the open ocean via a support ship.
23-11. Comment	We request that petroleum-based soaps and detergents as well as untreated lab waste be prohibited from greywater discharge. Biodegradable and non-petroleum alternatives are easily available and considered effective for onboard

<b>Comment Category 23 - Pollution</b>	
	cleaning and bathing activities utilizing the greywater discharge system. Further, MSD II Type MSDs often require the use of holding tank additives. Discharge in treated sewage effluent of any additive that contains formaldehyde, formalin, phenol derivatives, or ammonia compounds should be prohibited.
23-11. Response	The Monument managers also support the use of green technologies and products in the course of managing Monument resources.



<b>Comment Category 24 - Prioritization</b>	
<b>Summarized Comments</b>	
24-01. Comment	<p>Several commenters had questions regarding the Monument budget.</p> <p>Comment:</p> <ol style="list-style-type: none"> <li>1) The \$355 million budget is daunting. Yet, it is even more troubling to find that there is no clear assessment of priorities among the many projects that are listed. Also, the “assignment” of funding responsibilities is problematic. For example, does it make sense to task the FWS with responsibility for funding the many infrastructure improvements at Midway or Tern island when all the Trustees are so dependent logistically on the operational condition of these facilities?</li> <li>2) The plan is ambitious and comprehensive. It consists of six priority areas and twenty-two action plans and if implemented will cost on average \$23 million dollars a year if funding is appropriated by Congress. What will happen if the plan is not fully funded?</li> <li>3) Page 101, line 14 states: The total estimated cost to implement the Monument Management Plan over the next 15 years is \$355,218,480. Comment: The estimated cost is unrealistic as this would amount to over \$20 million annually to undertake Monument activities. While we recognize that many of the activities are important, certainly not all are critical to the management of the Monument. Given that NOAA cannot reasonably expect to receive \$20 million annually for the management of the Monument, we recommend that NOAA prioritize the Action Plans based on management critical needs.</li> </ol>
24-01. Response	<p>Prioritizing activities in the management plan is not a linear process, nor is it necessarily measured by the amount of funds allocated. Several factors apply when setting the implementation schedule and allocating funds; these include natural, cultural, and historic resource needs, funding, agency capacity, planning and environmental review, and community input and support. Each MMB and partner ICC agency develops annual budget projections and priorities and allocates funds based on its own programmatic, legal, and policy requirements. The cycle and timelines for funding and planning vary, and management agencies cooperate in areas where program priorities overlap. For example, one agency may take the lead on behalf of all responsible agencies that have a common mandate. In other overlapping areas, multiple agencies may share responsibility for activities to address core management needs, thereby creating a strengthened shared focus. This cooperation uses public funds more efficiently within the co-management structure. The seven MMB agencies annually share implementation schedules and priorities to identify opportunities where coordination and efficiencies would apply.</p>
<b>Unique Comments</b>	

<b>Comment Category 24 - Prioritization</b>	
24-02. Comment	<p>Conserving Wildlife and Habitats Action Plans: The highest priority management-critical research activities are those that: 1) support recovery of threatened, endangered, and rare species, 2) habitat conservation, and 3) reduction of threats to monument resources. These priority ranked research activities should provide the basis for permitting and funding. With regard to the highest recovery priorities in the NWHI, we believe that the actions requiring attention most urgently are (1) developing a captive care program to improve Hawaiian monk seal juvenile survival, (2) reducing shark predation on pups and juveniles at French Frigate Shoals, and (3) preventing entanglement in marine debris.</p> <p>The RAC agrees that research, including characterization and monitoring, are important to record baselines and monitor ecosystem changes in the face of global issues of climate change, ocean acidification and sea level rise. We would like to see stronger language on the aforementioned activities included in the DMMP, while ensuring that scientific pursuits yield specific management benefit and will be incorporated into cumulative impact assessments, carrying-capacity estimates, and limits placed on human access.</p>
24-02. Response	<p>The MMB has revised the Monument Management Plan Sections 3.1 and 3.1.1. Although these revisions do not correlate directly to your suggested placement, these revisions address your comments by incorporating additional language to further detail the need for research, to directly link all research conducted with management needs, and to consider cumulative impacts of research.</p> <p>To address specific details for research-related topics, a Natural Resources Science Plan will be created to guide and regulate research in the Monument, as defined in the Priority Management Need Understanding and Interpreting the NWHI, Marine Conservation Science Activity 2.1. This step-down plan will define and prioritize research activities based on management needs to protect, conserve, and when possible, restore ecosystems within the Monument. Based largely on the HAMER plan, research areas will be defined and activities will be prioritized based on the necessity for information for management purposes, including the highest priority management critical activities you point out.</p> <p>Due to the remoteness of the NWHI, research activities will be limited by vessel and research field station space, so only those research activities ranking highest in management priority will be accommodated.</p> <p>The MMB appreciates the extensive information provided by the commenters on the science of global warming, sea level rise, ocean temperature rise, productivity decrease, El Niño/Southern Oscillation (ENSO) frequency changes, and ocean acidification. We will forward this information to the science team, whose members will consider it when developing the Natural Resources Science Plan (see Activity MCS-2.1) and in helping focus monitoring efforts to detect the potential impacts of climate change on habitats and species. As noted in Section 1.4, Environmental and Anthropogenic Stressors, climate change has potential short- and long-term consequences for Monument resources. The MMB is committed to using data from existing monitoring and restoration efforts (see Strategy MCS-1, Continue and expand research,</p>

<b>Comment Category 24 - Prioritization</b>	
	<p>characterization, and monitoring of marine ecosystems, numerous activities in the Threatened and Endangered Species Action Plan [3.2.1], and the Habitat Management and Conservation Action Plan [3.2.3]). The MMB also is committed to directing future research and monitoring to investigate how climate change is impacting individual species, assemblages, habitats, and ecosystems in the Monument. For further information on the Monument Management Plan’s response to climate change, please see response to comment 11-1.</p>
24-03. Comment	<p>In general, Ocean Conservancy supports the vision, mission, guiding principles and goals of the DMMP. We support inclusion of a precautionary approach as one of the Monument’s guiding principles: “Err on the side of resource protection when there is uncertainty in available information on the impacts of an activity.” However, we believe this is a weaker commitment to conservation and protection than the inclusion of the precautionary principle, as was recommended by the Reserve Advisory Council. We strongly recommend clarifying that Goal 1 (“Protect, preserve, maintain, and where appropriate restore the natural biological communities and their associated biodiversity, habitats, populations, native species, and ecological processes.”) is the primary and preeminent goal of the Monument and, in the event of a conflict between Goals, this primary goal takes precedent. For example, if supporting research activities under Goal 2 or offering visitor opportunities under Goal 8 were found to be inconsistent with conservation, these activities should not occur. Furthermore, the existing mission statement appears to place protection of ecological values, native cultural values and historical values on co-equal footing. We believe that protection of ecological resources should be unambiguously recognized as the highest priority of the Monument and this goal would take precedence in the event conflicts arise.</p>
24-03. Response	<p>The MMB revised the vision statement to say “To forever protect and perpetuate ecosystem health and diversity and Native Hawaiian cultural significance of Papahānaumokuākea.”</p> <p>The MMB also revised the mission statement to say “Carry out seamless integrated management to ensure ecological integrity and achieve strong long-term protection and perpetuation of NWHI ecosystems, Native Hawaiian culture, and heritage resources for current and future generations.”</p> <p>These changes were made to more clearly convey that protecting ecosystem integrity, health, and diversity is an underlying and primary purpose of the Monument. The MMB is also more clearly stating that it is important to protect and perpetuate the Native Hawaiian cultural significance of the Monument.</p> <p>Given the strong resource protection language in the revised vision and mission statements, the Guiding Principles language (see Table 2.1), and detailed permit criteria, procedures, and findings, the MMB does not agree with the commenter’s view to state that Goal 1 will always be preeminent in cases of conflict with other goals. While the MMB strives to manage the Monument in a manner consistent with the Guiding Principles and to meet all Monument goals, it</p>

<b>Comment Category 24 - Prioritization</b>	
	recognizes there may be limited situations when the MMB, in order to meet some of the Proclamation’s access and use allowances, may need to balance how it is able to meet the various goals.

<b>Comment Category 25 – Research</b>	
<b>Summarized Comments</b>	
25-01. Comment	<p>The following comments were editorial suggestions for the Monument Management Plan.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) Modify Strategy MCS-2: to read “Assess, prioritize and authorize only management critical research and monitoring activities over the life of the plan.” This will become the new MSC-1.</li> <li>2) MCS-2: 2.1: Develop a prioritized management - critical research plan.</li> <li>3) MCS-2: 2.2(a): should read “develop and implement protocols for monitoring research impacts and ecosystem(s) conditions.”</li> <li>4) MCS-2: 2.2(b) (new): Assess effectiveness of the research in terms of meeting management needs. Assess impact of research on the ecosystem(s).</li> <li>5) MCS-2: 2.4: should read “Implement management-critical research plan.”</li> <li>6) MCS-2: 2.5: should read “Organize regular public research update meetings.”</li> </ol>
25-01. Response	The MMB has revised Section 3.1.1 of the Plan (Marine Conservation Science Action Plan) to reflect these and other concerns.
25-02. Comment	<p>The comments below recommend that research priorities should also include mapping, biological surveys and other studies of deep water habitats including sea mounts and the large bathymetric ridge in the Monument. Topics should include marine debris, ocean mounts, deep water coral communities and other deep ocean animals. Other suggestions were: broad scale basic ecological studies relevant to understanding the effects of climate change, and a variety of monitoring plans for wide-ranging vertebrates like turtles, monk seals, and albatrosses.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) Table 2.1: Goal 2: Support, promote, and coordinate research, ecosystem characterization, and monitoring that increases understanding of the NWHI, improves management decision-making, and is consistent with conservation and protection.</li> </ol>

**Comment Category 25 – Research**

- 2) While marine debris is a larger problem in shallow water because many items float rather than sink, at what depth does it cease to be of concern? To our knowledge, there has never been a coordinated depth zonation study for marine debris starting from land and going down to at least 400 m at a site known for its accumulation (e.g., Pearl and Hermes) and/or a site near a monk seal colony. Monk seals, as I am sure most are aware, have been documented to frequent precious coral beds down to depths of 400 m (see Frank Parrish’s studies and his National Geographic Explorer production). We think a study of this type could and should be mentioned in the plan. How much bottomfishing debris (anchors, anchor lines, fishing leads and fishing lines) exists on popular deepwater fishing sites? This might be important to document particularly following the closure of the fishery in the next 4-5 years. In the main Hawaiian Islands, alien species have been documented in deeper than typical SCUBA depths (see Sam Kahng’s various papers on *Carijoa riseii*). Is this species in the monument and if so, how deep does it go given that monument waters are clearer and thus likely pushing it to even deeper depths than in the MHI (*C. riseii* is negatively phototaxic). How big of a threat is it to the monument’s black coral beds? Again, we think this should be mentioned as a potential research effort in the plan. A likely study site and one for long-term monitoring focus would be Middle Bank at the lower end of the monument.
- 3) Therefore, my proposal is that NO research should be conducted in or around the NWHI for the next 10 years unless it will benefit the protection and restoration of these islands. After 10 years researchers can go in and do their tests on the status of restoration efforts only when approved by the citizen based advisory council.
- 4) Permission should only be granted to research absolutely necessary for protection and recovery of threatened and endangered species and their habitats, and restoration of those habitats as needed. Research having only tangential or general relevance to critical management decisions in the Monument should be revised to clearly distinguish between these two categories of research proposals.
- 5) In addition to the Proclamation findings and permitting criteria, the Research and Monitoring Action Plan must prioritize research and provide criteria that managers will use regularly to fund and prioritize research activities in the Monument.
- 6) 3.1.1 Marine Conservation Science Action Plan. Ocean Conservancy is concerned that the “Desired Outcome” stated at the beginning of this section fails to capture all of the research outcomes that are required for effective Monument management. The statement should reflect all five of the thematic areas in the Hawaiian Archipelago Marine Ecosystem Research Plan (HAMER Plan) and repeated here in this section. As currently written it fails to cover the critical need to research and understand human impacts, among other elements.  
  
Under “Strategies to Achieve the Desired Outcome”, Strategies MCS-1, 2 and 314 are not linked to the basic requirement that all research serve to improve management of the Monument. We suggest that these strategies

<b>Comment Category 25 – Research</b>	
	<p>should read something like [emphasis on added language]:</p> <ul style="list-style-type: none"> <li>• MCS-1: Continue and expand that research, characterization and monitoring of marine ecosystems for the life of the plan that will advance and improve management of the Monument.</li> <li>• MCS-2: Assess and prioritize research and monitoring activities over the life of the plan with respect to the contribution it will make to improving management of the Monument.</li> <li>• MCS-3: Communicate results of research and monitoring over the life of the plan and how that research and monitoring has been or will be used to improve Monument management.</li> </ul> <p>7) 3.1 and 3.2: The RAC has consistently over the years recommended that any and all research in the NWHI should be focused exclusively on whether such research is essential to management. Keeping this in mind and to consolidate the action plans that involve scientific research into one section, the RAC recommends that these two sections be reorganized as follows.</p> <p style="padding-left: 20px;">3.1 Conserving Wildlife and Habitats</p> <p style="padding-left: 40px;">Threatened and Endangered Species Action Plan</p> <p style="padding-left: 40px;">Migratory Birds Action Plan</p> <p style="padding-left: 40px;">Habitat Management and Conservation Action Plan</p> <p style="padding-left: 40px;">Research and Monitoring Action Plan</p> <p style="padding-left: 20px;">3.2 Conserving Cultural and Historic Resources</p> <p style="padding-left: 40px;">Native Hawaiian Culture and History Action Plan</p> <p style="padding-left: 40px;">Historic Resources Action Plan</p> <p style="padding-left: 40px;">Maritime Heritage Action Plan</p>
25-02. Response	<p>The revised research Action Plan Section 3.1.1 now reflects some of these suggested changes. To address specific details for research-related topics, a Natural Resources Science Plan will be created to guide and regulate research in the Monument, as defined in the Priority Management Need Understanding and Interpreting the NWHI, Marine Conservation Science Activity 2.1. This step-down plan will define and prioritize research activities based on management needs to protect, conserve, and when possible, restore ecosystems within the Monument. Based largely on the HAMER plan, research activities will be prioritized by the necessity of information for management purposes, including the highest priority management critical activities you point out.</p> <p>Due to the remoteness of the NWHI, research will be limited by vessel and field station space, so only those research</p>

<b>Comment Category 25 – Research</b>	
	<p>activities ranking highest in management priority will be accommodated. In addition, Marine Conservation Science Activity 2.1 stipulates that the MMB will produce a Natural Resources Science Plan to guide and regulate research in the Monument. It is in this step-down plan where detailed research and monitoring activities beyond the scope of management activities will be developed and discussed in great detail and where salient questions such as yours will be incorporated.</p> <p>In the Priority Management Need Managing Human Resources, cumulative impacts of human activities are addressed via the following activities, located in the Permitting Section: P-2.1, P-2.2 and P-2.3. These activities are designed to address the cumulative impacts of both research and human impacts on the Monument. They will be used to assess and evaluate these effects to aid in management decisions to provide the Monument with the best overall protection and resource conservation. These impacts will also be addressed in numerous sections of the Natural Resources Science Plan, in which more detailed studies will evaluate the cumulative impacts ongoing within the boundaries of the Monument.</p> <p>Investigations into the sources, types, and accumulation rates of marine debris and its removal and prevention are described in the Marine Debris Action Plan (3.3.1). Monument Management Plan Sections 3.1 and 3.1.1 have undergone a major revision. Although these revisions do not correlate directly to your suggested placement, your comments were addressed by incorporating additional language to 1) further detail the need for research, 2) to directly link any research conducted with management needs, and 3) to consider cumulative impacts of research.</p>
25-03. Comment	<p>The comments below express concern and objection to bioprospecting activities within the Monument.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) ABSOLUTELY NO BIOPROSPECTING EVER.</li> <li>2) Additionally, a new Action Plan should be added to the DMMP regarding protection of indigenous resources from bioprospecting that may occur during activities authorized under the remaining 5 priority Action Plan groupings. This must include an enforcement action plan, a penalty schedule, and methods for repatriating resources taken from Native Hawaiians.</li> </ol>
25-03. Response	<p>There is no place within the Monument Management Plan where bioprospecting is proposed. All Monument permits dealing with specimen or sample collecting specifically prohibit the sale of collected organisms. Bioprospecting, which is defined in the glossary as the “search for new chemicals, compounds, genes and their products in living things that will have some value to people,” inherently involves identifying biological resources with potential commercial value that may be developed into marketable commodities, such as pharmaceuticals, pesticides, and cosmetics. The special condition applied to these permits states that authorized activities must be noncommercial and must not involve the use or sale of any organisms, by-products, or materials collected within the Monument for obtaining patent or intellectual</p>



<b>Comment Category 25 – Research</b>	
	property rights. For this reason, commercial bioprospecting would not be permitted. To clarify this, language was added in Section 3.4.1, Permitting Action Plan, in the Monument Management Plan. Please refer to the Enforcement Action Plan, Section 3.4.2, as well as NHCH 2.7 for more information on repatriation.
<b>Unique Comments</b>	
25-04. Comment	p. 120 the phrase “complementary Western science” would be rejected by many Hawaiians. Recommend remove this phrase
25-04. Response	The MMB contends that the categorization and wording is sufficient for its management purposes.
25-05. Comment	The former section 3.1 (p105), is now retitled “3.2 Conserving Cultural and Historic Resources.” The old section 3.1 (p105) should be rewritten to reflect the new strategies and activities (following): 3.1 Conserving Wildlife and Habitats (3.1.1 Threatened and Endangered Species Action Plan, 3.1.2 Migratory Birds action plan, 3.1.3 Habitat Management and Conservation Action Plan, 3.1.4 Research and Monitoring Action Plan). Then, the new: 3.2 Conserving Cultural and Historical Resources (3.2.1 Native Hawaiian Culture and History Action Plan, 3.2.2 Historic Resources Action Plan, 3.2.3 Maritime Heritage Action Plan)
25-05. Response	We believe that the existing structure of the document suits the purposes of the Co-Trustees and, thus, have not made the proposed changes.
25-06. Comment	Information Management Action Plan – Section 3.6.2. MCBI applauds and looks forward to implementation of the various data management and access technologies discussed in this Action Plan. We encourage the public release of as much data as possible, operating on the principle of open rather than closed government. Information management will be useful both to researchers and the public. While there is substantial attention paid to incorporating old data into the information management programs, there is no mention of incorporating new data and research. There needs to be a plan to keep the system up-to-date, and to ensure that everyone given a research permit must turn over their data, along with any requests for keeping the data from public disclosure, to the permit grantor, who will then forward it to the appropriate database holder. Only if these procedures are identified will the information management program be successful and useful in the future.
25-06. Response	Information management and data incorporation are integral components to manage Monument resources. Numerous activities in the Monument Management Plan include data integration for comprehensive information management. It is our intent to make much of this information available to the public and scientific community.

<b>Comment Category 25 – Research</b>	
25-07. Comment	In addition to portraying the NWHI as a “natural laboratory,” the DMMP specifically singles out a specific research group, the Hawaii Institute of Marine Biology (HIMB), for activities in the Monument. It does not serve the Monument resources to pre-determine which research institutes will work for the conservation of the Monument. Moreover, it must be noted that this institute has been associated with violations of strict state NWHI Refuge rules in the past. We urge the Co-Managers to delete this reference to a specific group, which appears to privilege it above other research institutions and organizations.
25-07. Response	Contracts with various institutions and organizations, such as the Hawaii Institute of Marine Biology, have resulted from specific congressional appropriations. As such, these relationships will continue to be established with various institutions. However, it does not preclude additional formations of partnerships between the Monument and other institutions and organizations. The Monument Management Plan has been changed to address the concern about a “natural laboratory.”
25-08. Comment	The “Marine Conservation Science Action Plan,” as written, allows an invasive precedent for research, and should be removed. Instead, we recommend identifying the science necessary to meet the needs of the Action Plans on “Conserving Wildlife and Habitats” and “Reducing Threats.” These sections should consist of a clear accounting of the study necessary to carry out such conservation or threat reduction; including a monitoring component for all human activities and research in the Monument.
25-08. Response	Resource managers and policymakers need comprehensive information about habitats, the ocean, and their natural and social environments to make wise decisions. Baseline data, monitoring, characterization, and research are essential components to determine normal and abnormal temporal changes and provide the basis for determining if management activities are effective or need to be modified based on continually changing conditions. In terrestrial environments, much of this basic understanding has been and continues to be gathered over decades. In the Monument’s marine environments, especially deep water habitats, such understanding is not easily attainable. The MMP reflects many nationally recognized natural and social science needs for ecosystem-based management, such as the US Commission on Ocean Policy (2005) and the President’s Ocean Action Plan.
25-09. Comment	Under Strategy MCS-2.121 there is no mention of climate change. There can be little doubt that, in time, ocean warming, sea-level rise, stronger storms, altered ocean hydrodynamics and/or acidification will have profound effects on the PMNM. Therefore, it is imperative that research plans and activities be focused on understanding how climate change will affect Monument ecosystems and how management can enhance the resilience of those ecosystems. Under “Research on human impacts” there is no mention of past human impacts, such as those discussed above. We recommend that the DMMP should address the restoration of the NWHI ecosystem to a completely functional, intact and resilient

<b>Comment Category 25 – Research</b>	
	system, which will require management that will bring about the recovery of resources that were depleted by past resource extraction and research to support that activity. This is a distinctly different justification from supporting exploitation and management of those resources in the MHI.
25-09. Response	As noted in Section 1.4, Environmental and Anthropogenic Stressors, climate change has potential short-term and long-term consequences to Monument resources. The MMB is committed to using data from existing monitoring and restoration efforts (see Strategy MCS-1 “Continue and expand research, characterization, and monitoring of marine ecosystems,” numerous activities in the Threatened and Endangered Species Action Plan [3.2.1], and the Habitat Management and Conservation Action Plan [3.2.3], and directing future research and monitoring efforts to investigate how climate change is impacting individual species, assemblages, habitats, and ecosystems in the Monument.
25-10. Comment	<p>Under Strategy MCS-2 it is stated that: “Consistency with HAMER and links to similar research in the main Hawaiian Islands will be maintained so that science conducted in this portion of the archipelago can be used across the archipelago.” We recognize that research conducted in the Main Hawaiian Islands (MHI) may be applicable to the PMNM, and vice versa. However, care must be taken before research in the PMNM is undertaken because of a connection to research in the MHI. If there is a clear connection between the ecosystems in the two areas then research, if appropriate (see below), in both would be justified. Otherwise, research should be allowed in the Monument on a very limited basis and only for the expressed purpose of investigating the possibility of a connection. If none is found within a prescribed timeframe then the research should be suspended. In addition, not all research would be appropriate under this argument. Considerable fisheries research takes place in the MHI, but with the closure of the bottomfish fishery in 2011 there will not be any commercial or recreational fisheries in the NWHI. Therefore, it will not be acceptable to allow fisheries research in the NWHI simply because research is taking place in the MHI and there may be a biological connection. For example, it has long been claimed by the National Marine Fisheries Service and the Western Pacific Fisheries Management Council that bottomfish stocks are connected throughout the archipelago. However, there is no peer reviewed science to support this assumption and the one peer-reviewed study that is available that addresses the issue actually suggests the opposite. Thus, there is no justification for conducting bottomfish research, which would damage Monument resources, to ostensibly contribute to understanding MHI bottomfish stocks. The same argument applies to lobsters, reef fish, and precious corals. More importantly, because there will not be any commercial fisheries in NWHI, such research would not have any application to the management of PMNM resources. The exception might be for those species that are or hopefully will be undergoing recovery from decades of commercial fishery, if there is compelling, scientific evidence of a MHI-NWHI connection, which is not the case at this time. Species or populations that are in need of rebuilding include:</p> <ul style="list-style-type: none"> <li>• Spiny and slipper lobsters (<i>Panulirus marginatus</i> and <i>Scyllarides squammosus</i>) that were overfished to the point of</li> </ul>

<b>Comment Category 25 – Research</b>	
	<p>collapse but have not recovered since the fishery was closed in 2000.</p> <ul style="list-style-type: none"> <li>• Bottomfish species which have been fished down varying amounts, but in some cases the depletion may be in excess of 50%.</li> <li>• Black-lipped pearl oysters, which were severely depleted early in the 20th Century and have only recently begun to show signs of recovery.</li> </ul>
25-10. Response	<p>A Natural Resources Science Plan (Activity MCS-2.1) will be developed in the first year of implementation. This science plan will include the following thematic areas: 1) research on ecological processes and connectivity, 2) research on biodiversity and habitats, 3) research on human impacts, 4) research on ecosystem change, indicators, and monitoring, and 5) modeling and forecasting ecosystem change. This plan will include information on investigating how species and populations are interconnected between the MHI and the NWHI and will look at which species or populations may require specific recovery activities.</p> <p>The connection to HAMER does not imply that research conducted in the MHI should be mirrored in the NWHI, but rather that if similar types of research are ongoing in both areas and if methods are consistent and so forth, then this may allow for more powerful comparative studies.</p> <p>All permits granted by the Co-Trustees, including those for general research and fisheries research, must meet the findings in Presidential Proclamation 8031, which also make up the Monument’s permitting criteria. One of these findings is demonstrating that proposed activities can be conducted with adequate safeguards for the cultural, natural, and historic resources and ecological integrity of the Monument. All permitted activities must also comply with the National Environmental Protection Act, the Endangered Species Act, and all other applicable federal and state regulations. Therefore, any fisheries research, including any research based on connectivity with areas outside the Monument, would be permitted in accordance with the Proclamation creating the Monument as well as with applicable federal and state laws.</p>
25-11. Comment	<p>Issue Requests for Proposals to Scientists: The Monument funding structure should include an opportunity for scientists to fulfill “requests for proposals” issued by the Co-Managers based on the management needs of the ecosystem. This to say, instead of simply granting whatever random research permit request is brought to the Monument Management Board, the Co-Managers should actively identify what science is needed to make informed management decisions, draft a request, and grant only those permits that best meet the terms of that request.</p>
25-11. Response	<p>While the Monument does not currently issue Requests for Proposals, we have initiated Memorandums of Agreement with various research agencies in which the Monument states research that is needed to enhance management needs and</p>

<b>Comment Category 25 – Research</b>	
	<p>the partner agency fulfills those mandates.</p> <p>Marine Conservation Science Activity 2.1, in the Priority Management Need Understanding and Interpreting the NWHI, stipulates that the MMB will produce a Natural Resources Science Plan to guide and regulate research in the Monument. This step-down plan will define and prioritize research activities based on management needs to protect, conserve, and when possible, restore ecosystems within the Monument. Research activities will be prioritized by the necessity of information for management purposes. Due to the remoteness of the NWHI, research will be limited by vessel and field station space, so only those research activities ranking highest in management priority will be accommodated.</p>
25-12. Comment	<p>Ocean Conservancy strongly believes that the Monument should not be used as a private laboratory for scientists to pursue basic research. As noted throughout this comment letter, research activities result in threats and impacts to Monument resources. The Monument should only be subject to research impacts if there is a clear and over-riding benefit to the Monument.</p> <p>This principle is clearly identified in the Draft Management Plan under “Monument Goals”:                      “Goal 2: Support, promote, and coordinate research, ecosystem characterization, and monitoring that increases understanding of the NWHI and improves management decision making.” [emphasis added]</p> <p>The principle is also committed to under “Strategy MCS-2”: “A management-driven Natural Resources Science Plan will be developed and assessed on a regular basis to ensure that marine and terrestrial research and monitoring conducted in the NWHI is appropriate, relevant, and necessary to ensure effective management, improve management decision making, and advance ecosystem science.” [emphasis added]</p> <p>Ocean Conservancy typically supports the use of marine protected areas for research that will advance our understanding of marine ecosystems and human impacts because it may lead to better conservation and management. However, in this case, because of the unique and special nature of the Monument we believe that it should be spared as many human impacts as possible, specifically those that are not consistent with the need for science-based conservation and management decisions.</p>
25-12. Response	<p>In the Priority Management Need Understanding and Interpreting the NWHI, Marine Conservation Science Activity 2.1 stipulates that the MMB will produce a Natural Resources Science Plan to guide and regulate research activities conducted in the Monument. This step-down plan will define and prioritize research activities based upon management needs to protect, conserve and when possible, restore ecosystems within the Monument. Research activities will be prioritized by the necessity of information for management purposes. Due to the remoteness of the NWHI, research activities will be limited via vessel and research station space, therefore, only those research activities ranking highest in management prioritization will be granted available accommodation.</p>

<b>Comment Category 25 – Research</b>	
25-13. Comment	<p>Activity TES-2.5: Prevent human interactions with cetaceans.</p> <p>Efforts will be made to prevent negative human-cetacean interactions that may occur as a result of visitor programs or research activities through design controls on both. The controls will aim to prevent disturbance to cetaceans resting in Monument lagoons or nearshore areas and prevent [suggest the word “restrict” instead] geological research using sound levels known to be dangerous to marine mammals.</p>
25-13. Response	<p>Sonar use is subject to the ESA and MMPA regulations. Activity TES-2.5 was reworded to say “... controls will aim to prevent disturbance to cetaceans resting in Monument lagoons or nearshore areas and restrict disturbance to Cetaceans ....”</p>
25-14. Comment	<p>We would also like the term “natural laboratory” to be removed, and replacement language added to describe how the Northwestern Hawaiian Islands can serve as a global “control” site to better understand the global issues described previously.</p>
25-14. Response	<p>We have changed the Monument Management Plan to reflect this comment (please see Marine Conservation Science, Section MCS-3.1.1). The thought that the NWHI may serve as a global control site is a good one. This is especially true when comparing the NWHI to other Pacific coral reefs, to which it is most similar. This is captured with new wording in the “Current Status and Background” section, which states that the NWHI “provides a unique opportunity to understand how pristine ecosystems respond to change and compare these natural responses with other sites with greater human impact. This understanding will be particularly important for evaluating the effects and ecological implications of climate change in the Monument, as compared with other sites around the Pacific.”</p>
25-15. Comment	<p>The justification for deepwater research in the monument and the deepwater research portion of this plan are not adequately developed. First, while land and shallow water habitats may be the focus of the monument’s management efforts, it cannot be ignored that 98.5% of the monument waters are deeper than 100 meters (based on a GIS extraction of ETOPO-2 bathymetry inside the monument boundaries, Fig 1). It should be noted that the plan’s definition of 30 m being the start of deepwater habitat was considered too shallow for the resolution of this bathymetry analysis. Even so, this translates to 139,000 of the 141,000 square miles of the monument waters, most of which are completely unknown and poorly understood. It is therefore likely that in 100 or 1000 years from now when technological advances will provide much greater access to the deep sea, the monument’s impact on conserving the world’s natural environments may be far greater for deepwater habitats than for either land or shallow water habitats.</p> <p>Taking a closer look at just the relatively low resolution ETOPO-2 global relief data or even nautical charts, a number of important observations can be made. For example, French Frigate Shoals, the Brooks Banks, St. Rogatien and West St.</p>

<b>Comment Category 25 – Research</b>	
	<p>Rogation are all part of the same large bathymetric ridge feature (Fig. 1). Since waters do not reach the surrounding full ocean depths between these features as they do to all sides, there may be implication for organism transport between these banks and also isolation from those outside this feature. It may indeed be considered a refuge within a refuge. Further, the northern tip of this large feature and that of the ridge from Gardner Pinnacles just to the west extends outside the Monument boundary, albeit while doing so at abyssal depths. On the southern side, the large ridges of Pioneer Bank and West Northampton Seamount extend to or almost to that Monument boundary, while those off the eastern side of Maro Reef extend toward other banks and seamounts within the Monument (Fig. 2) (Smith et al., 2003). It would be interesting to study if these deep sea ridges provide pathways for the migration of organisms up and down the archipelago. From submersible dives in 2003 and 2007, we already know that dense deep sea communities reside at water depths greater than 1000 m (Smith et al., 2004; Baco-Taylor et al., 2006)</p>
25-15. Response	The MMB will address research topics as a part of the Natural Resources Science Plan. Deep water habitats are one component to be considered.
25-16. Comment	<p>Activity MCS-1.3 and 1.4 (page 110) - 1) If one vessel is named in this section, then other vessels should as well, particularly since it was the RVs Kilo Moana and Ka'imikai-o-Kanaloa (KoK) that have to date provided a larger portion of the deepwater mapping data in the monument. We suggest the following change: Line 23: Working with NOAA, SOEST, and other partners, the MMB will use data collected with the multibeam sonar systems on RV's Hi'ialakai, Kaimikai-o-Kanaloa (KOK), Kilo Moana, and other vessels..... Line 31: Some specific details of projects that need to be conducted should be added here such as age dating of deepwater corals and analyzing them for paleoceanographic climate change information, surveying deep coral communities and what factors are most important for promoting high densities. Other projects could include distribution patterns of deepwater animals relative to substrate types and Hawaii's Oxygen Minimum Zone (OMZ which is located at 600-1000 m). We know that some other researchers are going to provide comments on projects involving global climate change so we will not include that topic here. One very important consideration is the role the monument could have in understanding deepwater habitats, particularly seamounts throughout the Pacific. For example, cobalt-rich manganese crusts occur on seamounts as well as island slopes and banks in a large region of the central Pacific. The zone of their formation has been drawn right through the monument boundaries just south of French Frigate Shoals (Clark, unpublished). These crusts, along with manganese nodules that form on the abyssal plains, have potential commercial value. As technology develops and the terrestrial sources of strategic and more common minerals declines, these resources will likely be targeted in the future for commercial mining. However, manganese crust invertebrate and fish communities that would be disrupted by these operations are very poorly known. The monument offers an excellent opportunity to provide that type of information since a substantial portion of</p>



<b>Comment Category 25 – Research</b>	
	the hard substrate within its boundaries below 800 m is believed to have these crusts.
25-16. Response	Reference to vessel names has been removed from Activity MCS-1.3. The Monument Management Plan discusses background information on vessels in Volume I, Section 3.6.3, Coordinated Field Operations Action Plan.
25-17. Comment	<p>Marine Conservation Science Action Plan – Section 3.1.1.</p> <p>Overall, the plan is comprehensive in its scope of activities, but fails to state what scientific research is necessary or critical to establish ecosystem-based management and fulfill the conservation mandate of the Proclamation. We look forward to the forthcoming Science Plan to help fill in many of the Draft Plan’s missing details and identify clear management priorities. We expect that the Science Plan, when developed, will include priorities for research consistent with the following: 1. Science necessary to effectively implement ecosystem-based management to achieve the Monument’s protection purpose, i.e., research to help managers track and respond to the health and function of the Monument’s ecosystems and its key species and habitats, and; 2. Identification of management priorities and a discussion of how research acting on these priorities will help address ecosystem-based management. The Draft Plan identifies a budget that gives more to interpretation and science than to conservation and resource protection. Again, protection is the vision, mission, and purpose of the Monument. Therefore, it is only appropriate that funding for conservation be increased, especially in support of the critically endangered Hawaiian monk seal and other threatened or endangered species and the threats to them. Research that is outside the scope of ecosystem-based management or that does not directly address Monument natural resources should be allowed based on whether such research is non-invasive, and only as funding, staffing, and logistical support resources allow after conservation actions are addressed. In order to establish ecosystem-based management to effectively protect Monument resources, we suggest that the following should be prioritized or considered:</p> <ul style="list-style-type: none"> <li>• Conduct a competent ecological history of the region to assess effects from anthropogenic influences and establish appropriate baselines for management.</li> <li>• Characterize the ecology of the entire area, including deep water and offshore habitats, to ensure a complete accounting of Monument resources.</li> <li>• Establish a monitoring program of indicator species and environmental data to track changes in the ecosystem and to help trigger management and protection activities.</li> <li>• Freely and openly allow data access to all co-Trustees; access for the public should be defined and implemented and should be as open as possible. A strategy for promptly processing relevant information should be developed to inform managers of deteriorating or changing conditions.</li> </ul>

<b>Comment Category 25 – Research</b>	
	<ul style="list-style-type: none"> <li>• Partner with other researchers to look at connections to other regions and initiatives at different spatial scales, for example:                             <ul style="list-style-type: none"> <li>o Tracking of albatross leaving the Monument for other parts of the Pacific,</li> <li>o Tracking of monk seals and green turtles moving throughout the Hawaiian archipelago, and</li> <li>o Tracking marine debris entering the Monument from locations throughout the Pacific.</li> </ul> </li> <li>• Establish a priori priorities for active management versus monitoring in the event of budget shortfalls. Evaluate the appropriate intervals for monitoring natural resources to maximize management efforts and ongoing funding.</li> <li>• Given the looming and potentially significant impacts of climate change, including a rise in sea-level, and increasing acidification and warming of ocean waters, the marine conservation science plan must address the significance and impacts of these changes and to the NWHI ecosystem and efforts to mitigate them. • Create a regularly-scheduled research workshop to facilitate discussions between researchers and managers regarding research that applies to management goals, as well as ways to use research time and effort more effectively. The workshop should be used to collaboratively develop research priorities and identify how to best leverage opportunities to access the region.</li> <li>• Adopt a scientific code of conduct for researchers and their transportation and support staff. As part of this, researchers’ informal agreement not to engage in sustenance fishing in the Monument should be formalized.</li> </ul>
25-17. Response	The comments that you provide are detailed suggestions that will be considered as a part of the Natural Resources Science Plan.

<b>Comment Category 26 - Tourism</b>	
<b>Summarized Comments</b>	
26-01. Comment	<p>The comments below express concern about the number of people allowed on Midway Atoll, especially in relationship to the number of visitors.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) Very concerned about the number of people allowed on Midway - protect the resources first! Sensitive burrows. Sensitive coral habitat.</li> <li>2) Strict rules must be in place to address the inherent conflict of interest created by a tourist program in an extremely fragile marine preserve. Thus, we strongly urge the Co-Managers to establish a cap on the number of tourists allowed to visit the Monument in one day, as well as a maximum visit-length per person. These two</li> </ol>

<b>Comment Category 26 - Tourism</b>	
	<p>numerical limits should be developed after a cumulative impact and risk assessment has been conducted and a numerical carrying capacity for the region can be identified based on an understanding of all the human stressors on this ecosystem and the standards of the precautionary approach to decision-making. In the meantime, the current 50-visitors per night maximum should be applied to day-only visitors.</p> <ol style="list-style-type: none"> <li>3) Strictly limit tourism activities in the Monument. To ensure the human footprint in the Monument is not deepened, set a maximum limit on the number of tourists visiting Midway based on current tourism levels.</li> <li>4) Keep human visitors to a minimum - leave only footprints.</li> <li>5) I'm concerned in our group -- we were one of three groups, I think, on this trip -- and how many visitors is too many? And we were 14. I know sometimes you hear the number 50. Wow. I don't think that's appropriate. I really think the numbers have to be a lower number.</li> <li>6) That's also why we're asking for very strong controls on tourism. People have mentioned the World Heritage site and what World Heritage site status has done to other places like the Galapagos. We need to protect against that. If this train is going to go forward we need to have some strong caps on tourism. I don't know if people know this but the last commemoration of the battle of Midway 1,500 people were on Midway. And I'm not sure that this island can handle that kind of human activity on any great extent. We need to have a cap. Right now there's a cap that only 50 people can spend the night there. I say we start with that as day visitors. It's only 50 day visitors. You've got to prove you can prevent that harm, the footprint from that if you increase tourism, that that footprint won't increase.</li> <li>7) Very concerned about the number of people allowed on Midway - protect the resources first! Sensitive burrows. Sensitive coral habitat.</li> <li>8) No tourism or commercial fishing should be allowed in the monument.</li> <li>9) Our only hope is a well policed "no go" policy that extends to the military, commercial fishing, tourist, and research activities.</li> </ol>
26-01. Response	<p>The Draft Midway Atoll Visitor Services Plan set a limit of 50 overnight visitors at any one time, reflecting current limitations of seating capacity of the 15-person charter aircraft and the available housing in Charlie Barracks (24 rooms). During the height of the Cold War, approximately 5,000 people lived on Midway, but that number dropped in the 1980s to about 500 personnel and to even fewer people during the base closure process from 1993 to 1996. When the previous visitor program operated from 1996 to 2001, up to 100 overnight visitors were allowed at any one time, with a maximum overall population of about 250 people. A 15-year plan allowing the 50-person visitor capacity is reasonable, even though in the initial years we are likely to allow fewer visitors. Based on the past two decades of observations, we have found</p>

<b>Comment Category 26 - Tourism</b>	
	that the 50-person cap does not materially interfere with or detract from wildlife and their habitats. If we detect such detraction, we will revise the program accordingly.
26-02. Comment	<p>The comments below express concerns regarding the exclusion of certain groups of people from the Monument.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) The Monument is a cultural and biological refuge, not a resource to be exploited for the economic gain of the visitor industry. From a Native Hawaiian perspective, it is considered wao akua (a sacred place). Wao akua were left wild and were seldom accessed by people because of their critical role in the process of life and death or creation and afterlife. Great concern exists about the breadth and scope of greater numbers of visitors within the Monument from wildlife and ecotourism tours as well as cruise ships. The impacts include and are not limited to disparate environmental and cumulative effects on the Monument, unequal access to the economically privileged, and the potential for transgressions against, and dilution of, Native Hawaiian Culture.</li> <li>2) The people of the United States have made this Monument possible, all it's scientific value not with standing; it just seems plane wrong to exclude those people from their new Monument. After all, as mentioned above, only a few intrepid souls are likely to venture so far. Some non scientific people will be allowed into the Monument. This will amount to a special class of people; these are the Hawaiians, who will be allowed to certain areas for religious practices. Insofar as others are also allowed in this would not be a problem. One would surmise that permitting Hawaiian priests while excluding the average citizen not only establishes a special class of U.S. citizen, but violates the U.S. Constitutional requirement to separate church and state. This Monument is, after all, the United States of America. I do not mean to suggest that Hawaiians should be excluded from the Monument, nor should anyone, including Hawaiians, be prevented from practicing their beliefs; it just does not seem right to allow some citizens and exclude others on the basis of religion.</li> <li>3) Please change the proffered access policy to allow access to the Monument by the average citizen. It is our Monument. You are keeping safe it for us.</li> </ol>
26-02. Response	<p>Presidential Proclamation 8031 provides for Midway Atoll to be the “window to the Monument,” the only site where recreation is allowed. The Co-Trustees have limited the number of overnight visitors to no more than 50 at any one time. Up to three larger groups (50 to 800 people, with no more than 400 day visitors at any one time) are allowed to visit Midway each year. All visitor activities are under Monument permits and must meet the Proclamation’s findings and requirements. Visiting a remote island in the midst of the Pacific is indeed an expensive activity. We continue to look for ways to reduce costs, and we encourage other entities to seek grants or other funding sources that will allow a broader range of people to visit Midway. We feel the visitor program enhances our ability to share the importance of the NWHI,</p>

<b>Comment Category 26 - Tourism</b>	
	as well as its sacred status to Native Hawaiians, and to share this with a broader group of people.
26-03. Comment	<p>The comments below were opposed to provisions in the Midway Atoll visitor program that allowed cruise ships to visit Midway Atoll.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) OHA notes that in 2005, 2006, and 2007, one cruise ship visited Midway Atoll each year and that now three cruise ships, with 800 passengers each, are proposed in the environmental assessment's preferred alternative and the Midway Atoll NWR Conceptual Site Plan. OHA inquires as to the feasibility and possibility of charging these users to generate revenue. While OHA does see this proposed increase in cruise ship presence as a cause for concern, we also are realistic about the opportunities it can present if carefully controlled, insured and regulated.</li> <li>2) Disagree with the provisions that would allow cruise ships to visit.</li> <li>3) No cruise ships should be allowed to anchor off shore within the boundaries.</li> <li>4) No cruise ships should be allowed to stop and unload any passengers in NWHI.</li> <li>5) I'm concerned about mentioning of the cruise ships. I can't imagine bringing in huge numbers of people. They say they handle it once or twice a year. I think Midway is so special that overwhelming it just to get people there is not going to be a good thing to happen.</li> <li>6) So I'm very concerned about the cruise ship. Because it seems like that's an awful lot of people that get there at one time. When I went there they had -- they had a limit of 100 people a day on Midway including staff and everything else. That seemed adequate protecting the resources. But I think having that many people on a cruise ship to get off one time is a big concern. And in fact all these people have to go out there to provide hospitality. It just seems like their time should be spent doing things for the resources. That's my main concern.</li> <li>7) I also think on cruise ships they should be not allowed anywhere near that Monument. They have dumped in marine sanctuaries in California. They have dumped in Penguin Banks on Moloka'i. It's well known, their record. They've ruined it for themselves. I'm sorry, they need to stay away from the Monument.</li> <li>8) There's a concern about the -- that there be no cruise ships in the management area.</li> <li>9) The other issue I have with the Draft Management Plan is tourism. I have to admit that I'm a little bit jealous of everyone who's gotten to be there and commune with this incredible place. I don't think that I'm ready to say that that should never happen. But when I hear about 800 people on a cruise ship I can't see it. I live in a sustainable community off-grid. We have new people come in every day. I know what an incredible shift it means to actually use a composting toilet, solar power. It's actually pretty mild. For some people it's over the top. If you have a</li> </ol>

**Comment Category 26 - Tourism**

group of 10 or 30 people and you're teaching them how to behave, you're on Midway, and you have a writers' workshop I can see that that's doable. If you have 800 people using composting toilets it's not going to work. It's just a fallacy that this kind of area can support that much tourism. And I think for me if it means I don't ever get to go there that's okay. There needs to be some place on this planet that is so worthy of saving that it means maybe you don't get to go or it's hard to go.

- 10) Then when I was reading the Management Plan I read about you would allow up to three cruise ships, I just about passed out. Because if you all are asking us to wash our shoelaces in concern about invasive species, just knowing the amount of pollution that those cruise ships can dump, and even though as someone mentioned: Well, they're not allowed to dump in the Monument -- I'm sorry. Isn't that the northern gyre? All of that stuff swirls around. And when you're on the island and you look at the dead chicks and you see what's in their bolus, and you see that it's BIC lighters, it's toothbrushes, it's the little teeny lightbulbs. It's everything that's been tossed into the water. It's heart breaking. So to think that you would allow cruise ships -- the folks on the cruise ships do not need to come to Midway in that capacity. They can fly in. They can get there. If you do allow people to get there in that extra special way, there are so many birders that come. I was mentioning one of the gals, she said Midway was on her "Bucket List". I don't know if you've seen that movie. But anyway, it's before they "kick the bucket" they want to get there. And it just meant the world. She felt that she had died and gone to heaven to be on Midway. That's the kind of person that you want on Midway, not someone who's just bought a lot of trinkets at the ABC Store in O'ahu and now is getting to go up to Midway to check out some stuff. I think it presents the wrong attitude.
- 11) It's very, very sad. I'm very hurt. It's very hurtful to read the plan because it looks like a Resource Management Plan. It looks like you're building something, you're building tourism. Cruise ships, scary, plastic, pollution.
- 12) The cruise ships. Don't think that's a good idea up there. We have so much more to learn about this place before we open up. Not allowing more cruise ships.
- 13) Cruise ships? No way. Cruise ships have to go. It just puts a load on in the area that is unacceptable and it can't be sustained. It's just not a realistic situation. I think that there should be little to no activity on Midway during the nesting and chick season. We heard comment of the chicks being under the carts, et cetera. I probably will never be out there. But knowing it's there is all I need. It's like many other areas, Mother Nature dealt us a beautiful hand but man has destroyed every place they have gone. We don't need to destroy this little spot that's left. We're not reinventing the wheel. We have seen the action. We can look right here on the main islands of Hawai'i and see the devastation. It's listed as one of the most devastated environments in the world. And so we have a rather pristine area out here. We need to protect, maintain what is there. As I say I'll probably never see it. But I don't

<b>Comment Category 26 - Tourism</b>	
	<p>have to see it just knowing it's there for the migrating birds. The migrating birds can come here. But they don't come here. Why don't they come here? Because of man. They're not out there because they like that island better than this island. They're out there because there's nobody there. The more activity we put out there, regardless what it's for -- I understand and appreciate science and that kind of activity -- but to make tourism out there is nonsense. It's absolutely ridiculous. We have already ruined these islands of Hawai'i. Let's don't keep up that process.</p> <p>14) Cruise Ships (p.73) The DMMP mentions that two cruise ships visited Midway in 2004, and one cruise ship visited the site in the years 2005, 2006, and 2007. Are the number of cruise ships officially regulated, or have they been in the past? How and to what degree does the Monument financially benefit from these visits? Will the rising price of oil have an impact on the number of cruise ships that visit the Monument? How many cruise ships are estimated to visit the Monument each year? Activity VS-1.2: Provide Visitors with Opportunities to Learn About and Appreciate the Monument's Cultural and Historic Resources (p. 239) On occasions when cruise ship passengers are visiting Sand Island for the day, how will they be managed? Will these 800+ visitors be required to stay in groups led by Monument personnel? Will they be allowed to explore the island on their own?</p> <p>15) No cruise ships. I am surprised and dismayed that cruise ships are allowed anywhere in the Monument. Even at Midway Atoll, already heavily impacted by human presence for over a century, cruise ships are invasive. They are a danger to coral reefs and to the purity of the water. Oil spills, dumping of waste water, anchoring and running aground are potential dangers not worth risking. Cruise ships should be banned from the entire Monument, including Midway Atoll.</p> <p>16) Specifically, I disagree with the provisions that would allow cruise ships to visit the place.</p> <p>17) no cruise ships!!! Allowing cruise ships (which everyone knows are polluting the oceans) totally sends the wrong message...it flies in the face of your vision of ecosystem protection ("cultivate an ocean ecosystem stewardship ethic") of the Monument.</p> <p>18) Cruise ships should only be permitted in the vicinity of Midway and only with the strictest regulation of discharge of wastes and other activities deleterious to native ecosystems.</p>
26-03. Response	<p>In reviewing the many comments expressing general objections to cruise ships, we understand that much of the concern is related to impacts of large numbers of people at Midway at one time. While cruise ships may provide more than a mode of transportation to some of their passengers, we regard their visitation to the Monument as a means to carry members of the public to Midway. In this respect, there is little difference between a large ship and a large airplane that may also convey people to Midway. To address the concern, we concluded we need to refocus parts of the Midway Atoll</p>



**Comment Category 26 - Tourism**

Visitor Services Plan toward the purpose of large-scale visits rather than the means of transport.

In addition to providing for overnight visitors, we believe it is equally important to allow day visitors to come to Midway—the “window to the Monument.” All visitors would learn about and experience its unique wildlife and historic resources, as well as the natural and cultural resources of the Monument and its importance to Native Hawaiians. The short-term visits would allow a broader range of visitors, including veterans and their families, many of whom may otherwise have difficulty getting to Midway and staying an entire week.

We have rewritten the objective in the visitor services plan to reflect bringing up to three larger groups (from 50 to 800 visitors) to Midway each year. These groups may arrive via aircraft or passenger vessel. All groups must meet all Monument findings and requirements specified in Presidential Proclamation 8031 and its implementing regulations at 50 CFR 404.11, including obtaining the appropriate (usually Special Ocean Use) Monument permit. In addition, passenger vessels and aircraft must meet specific Refuge requirements. No more than three such permits for large groups will be approved per year, and as in the past, all will be related to learning about the atoll’s wildlife and historic resources, and the Monument’s cultural significance.

Unless the Refuge Manager has approved a higher number (e.g., to participate in a ceremony commemorating the Battle of Midway), no more than 400 visitors would come ashore at any one time. In the past, Midway has hosted numerous large groups, numbering from 250 to 1,800 visitors each. Because they are limited to existing roads and trails, we have not documented any negative impacts from these visits. Visitors remain in areas where albatrosses are already acclimated to human presence, and they are restricted from any area where Hawaiian monk seals or green turtles are present. However, because the largest groups in our view taxed our ability to provide the high quality visitor experience we desire, we are now limiting the size of large groups to no more than 800 people. In our experience, these visits have had a very positive impact on our guests, with many expressing their commitment to maintaining such special wildlife habitats, doing their part to reduce threats to wildlife, and their appreciation for those who so valiantly fought the Battle of Midway.

Before arriving, passengers participate in an orientation session to ensure a safe visit for both humans and wildlife. They also learn during these orientations about the natural and historic resources of Midway Atoll, as well as of the broader Monument, and about the cultural significance of the NWHI to Native Hawaiians.

All large groups would be divided into smaller groups for walking tours along roads and trails. Because Midway does not have the infrastructure to support such large groups overnight, they typically arrive after sunrise and spend from 8 to 12 hours on Sand Island. Group sponsors provide water and food for their passengers and remove all trash generated by the visit from the atoll when they depart.

Most of those issues raised in public comment were previously addressed in the Interim Visitor Services Plan and

<b>Comment Category 26 - Tourism</b>	
	<p>compatibility determinations. New information raised in public comment included questions regarding this type of “mass tourism” and whether large groups of visitors would show proper respect and reverence for the NWHI as a place sacred to Native Hawaiians and the quality of experience with scores of visitors on-island simultaneously. Although no physical evidence of Native Hawaiian culture remains on Midway, it is particularly important to us to impart the sense of sacredness Native Hawaiians hold for the NWHI. Thus cultural briefings are required, reaching a far broader audience than just agency personnel, researchers, and other permittees. Also, we note that visitors arriving for week-long versus one-day visits may have different expectations of quality of visitor experience, and we hope to meet those differing expectations by scheduling such groups at different times.</p> <p>The National Wildlife Refuge System Administration Act of 1966, as amended, directs Refuge managers to facilitate compatible wildlife-dependent recreation (defined as hunting, fishing, wildlife observation and photography, and environmental education and interpretation), and makes these uses priority public uses of the National Wildlife Refuge System in planning and management. Uses are compatible when, in the sound professional judgment of the manager, they do not “materially interfere with or detract from” the purpose or purposes for which a National Wildlife Refuge was established. Presidential Proclamation 8031 leaves Midway Atoll as the only portion of the Monument open to public recreation, although it also prohibits extractive uses, such as hunting and fishing.</p> <p>In our determination, it is important that we do not arbitrarily discriminate between the types of visitors and how they arrive. Past experience at Midway has shown many natural resource converts among those who came for its history, and vice versa. Visitation to Midway is an important opportunity to gain awareness and support for the Monument.</p> <p>Cruise ship companies do pay significant fees when bringing visitors to Midway, but that is not the reason they are permitted to come. Our overriding goal is to allow visitors the opportunity to experience and learn about remote island ecosystems and the Monument’s significant wildlife, cultural, and historic resources.</p>
26-04. Comment	<p>The comments below suggest we broaden the recreational activities to be offered at Midway Atoll; e.g., offering SCUBA diving, sportfishing, golfing, windsurfing, and sailing.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) I would like to see scuba diving here and the reason is there is alot of other things besides the coral reef and the REEF HOTEL to see in a beautiful part of the world and on the island or inside the reef also plus not mention wrecks of the Corsair US NAVY World War 2 plane in the outside the reef and all the other stuff like the anchors where they used to park the large sailing vessels. Also i would like to see sport fishing out here and I have heard that it was a good source of fun and eating also for the island and it would be a good thing to have that back. I love fishing no matter what kind it is. Also I am certified PADI Master Scuba Diver with over 100 dives and I</li> </ol>

<b>Comment Category 26 - Tourism</b>	
	<p>would be willing to help out whenever needed to go diving with Instructors. Plus a golf driving range or a small golf course would be nice not during bird season cause Morale and the weekend there isnt alot to do outside and i am a Outdoors guy and this island is small but it could be a great place for all these to be at and so thanks and hope this happens.</p> <p>2) I would like you to consider sailing or windsurfing in small craft in the lagoon at Midway.</p>
26-04. Response	<p>The National Wildlife Refuge System Administration Act of 1996, as amended, requires that any proposed or existing use of a national wildlife refuge must be appropriate. It also requires that this use must not materially detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the National Wildlife Refuge. For the most part, approved recreation on a refuge is wildlife dependent. Activities such as golfing, windsurfing, and sailing are not wildlife dependent, do not support the Refuge System’s mission or purposes, and may negatively affect Midway’s wildlife resources. Therefore, these activities are not considered appropriate on Midway Atoll. Sportfishing is precluded by Presidential Proclamation 8031, which established Papahānaumokuākea Marine National Monument. Alternatively, scuba diving to observe wildlife and historic resources has been determined to be compatible and is included within the Midway Atoll Visitor Services Plan. Our goal is to reestablish an active dive program for visitors on Midway by May 2011 through the use of a concessionaire.</p>
<b>Unique Comments</b>	
26-05. Comment	<p>The last one is world heritage status. There are a lot of concerns about world heritage status linking to vastly increasing tourism numbers.</p>
26-05. Response	<p>Inclusion on the World Heritage List would have no effect on visitor use or visitation policy. World Heritage listing does not require that sites be open to visitors. The Monument’s visitation policy—that only Midway Atoll will be open to the public, at a maximum of 50 overnight visitors a day—would not be affected by the Monument becoming a World Heritage site.</p>
26-06. Comment	<p>How will tourists take to any inspection for possible alien species introduction? Will the barges, sea planes, cruise ships be fumigated?</p>
26-06. Response	<p>To date, our visitors have been very understanding of the need to inspect their luggage to prevent the introduction of alien species. Inspection takes place as they depart Midway also, to prevent the importation of new alien species to Hawai‘i. Vessels are not “fumigated” per se, but they are inspected before departing for the Monument and are treated, as necessary. Containers transporting goods to the islands are treated for insects before departure, and rodent traps are set</p>

<b>Comment Category 26 - Tourism</b>	
	within the containers.
26-07. Comment	In your Draft Management Plan you talked about the possibility of allowing up to 50 visitors a night. I'm really concerned about that number because with our 14 people we had approximately three people with us at all times. There was a gentleman named Winn Simpman (phonetic) the Oceanic Society. Murray, who's name I forget, was with Fish and Wildlife. Then there was a wildlife biologist who also came with us on certain things. I think it was John Clavetor. (Phonetic) Anyway, we had a lot of oversight and we learned a tremendous amount. If you had triple or quadruple that amount I would say you'd have to triple and quadruple the amount of people. Unless you had a whole bunch of volunteers I can't see paying for that many more professionals. Having a smaller group also developed a lot of camaraderie. We were able to talk to the Fish and Wildlife staff. And I think when you have a smaller group you develop really intense advocates for the islands.
26-07. Response	Although we agree that visitors generally learn more in small groups, we believe allowing 50 overnight visitors is well within the biological carrying capacity of Midway Atoll and would not materially detract from wildlife conservation. At the same time it would allow more people to experience and learn about the Monument.
26-08. Comment	I want to thank you for all that you're trying to do for the Hawaiian Islands. I have learned a lot tonight from the comments that other people have made also. To me I kept connecting these special islands with the Galapagos Islands in the sense that the Galapagos Islands are a place that people tried to preserve because they were unique. We keep hearing that they're having a lot of problems as the years go by because of so much tourism and so much debris. And I hope that you will keep in mind—I appreciated the earlier person who commented about comparing this with other places—but I hope you'll also keep in mind places like the Galapagos where they have not strongly enough managed it it would appear, their tourism. Unfortunately they're seeing some damage resulting from it.  So I know that you're doing your best. And I hope you will continue to listen to the community. And I hope we can really preserve these islands. Just like a lot of other people I still want to go there but I'm willing to forego it. I've never been to the Galapagos. I'd rather forego going there than contribute to the problems.
26-08. Response	Our existing limits on tourism—no more than 50 overnight visitors at any one time, and up to 3 large day-use groups per year (numbering 50 to 800, with no more than 400 daytime visitors on island at any one time)—are designed to provide appropriate opportunities for visitors to learn about and experience Monument resources without negatively impacting them.
26-09. Comment	Finally, I would like to speak to a little bit of the ideas about the visitor plan. Again, and I think it talks to a little bit the unique Hawaiian nature of this place. I'm concerned people have talked about carrying capacity. I had the opportunity to

<b>Comment Category 26 - Tourism</b>	
	<p>speak to the gentleman that says he spends most of his time, he lives there. I'm concerned that we're not doing enough to maintain the unique Hawaiian character and heritage of the place. I'm very respectful of the military activities and the history that goes on with them. And I think it's important that people have an opportunity to stay connected to that. But I believe by offering the opportunity for more and more people to visit there that potentially we're moving in a direction that the main Hawaiian Islands have gone which is a bit of a cultural dilution. And if it's going to be the place the idea of bringing the place to the people and not the people to the place. I'd like to emphasize that idea. If we do bring the people to the place that they have a very culturally connected experience. Ecotourism is not necessarily something that I find to be deeply connected to culture. And I have a lot of concerns that as we bring more and more people there that there's potential for transgression against the Native Hawaiian culture.</p>
26-09. Response	<p>Under Presidential Proclamation 8031, recreational visitation within the Monument is limited to Midway Atoll. The Co-Trustees have limited the number of overnight visitors to no more than 50 at any one time. Up to three larger groups (50 to 800 people, with no more than 400 day visitors at any one time) are allowed to visit Midway each year. All visitor activities are under Monument permits and must meet the Proclamation's findings and requirements. The visitor program enhances our ability to share the importance of the NWHI, as well as its sacred status to Native Hawaiian communities, and to share this with a broader group of people.</p>
26-10. Comment	<p>I do not agree with the access policies which have been promulgated. It seems to me that with the cessation of commercial activities the area will thrive. With the only area open to public access being Midway Island, for the vast majority of people, access will be impossible.</p> <p>The fact is, even if all areas were accessible by the public, very few people would actually visit the area. It is remote. One would think that a reasonable permit process including some testing process to ensure visitors understood what was permitted and what was not, combined with a monitoring operation would allow access without risk to the environment.</p>
26-10. Response	<p>Presidential Proclamation 8031, which established the Monument, authorized recreational visitors at Midway Atoll only. The managing agencies have no authority to allow access for recreational visitors elsewhere.</p>
26-11. Comment	<p>I read in the original bill that vessels would have to have a monitoring device; this seems like a reasonable thing. It also seems reasonable that people who want to visit the Monument, as a rule, would be people who value what is being done and consequently would be unlikely to cause harm. It seems quite likely that these visitors could actually be used for the benefit of the monument. At the very least concerned visitors could provide random monitoring of the area and could report suspicious activity, removing some flotsam and jetsam, and possibly some other services.</p>
26-11.	<p>Individuals who wish to access the Monument for nonrecreational activities may apply for a Monument permit for their</p>

<b>Comment Category 26 - Tourism</b>	
Response	activities. Activities would need to meet all the permit criteria and findings of the Proclamation, as found in Appendix D of the Monument Management Plan.
26-12. Comment	Stays might be extended to include added time for habitat restoration and beach clean-up.
26-12. Response	We are willing to work with our visitor program permittees to allow visitors to stay longer on Midway, as long as the numbers of overnight visitors does not exceed 50 people per night and that transportation arrangements can be made. We have no requirement that visitors stay only a specified period, except for the daytime only larger groups.
26-13. Comment	By all means allow people into the garden of Papahānaumokuēa, but with the understanding that they must pay for the privilege by helping tend that garden. There are ample ways they can do this: scientific research, debris removal, replenishment of native flora and fauna, educational programs for schools, etc. Cruise ships, exploitative fishing vessels, and others who consume without replenishing should be prohibited.
26-13. Response	The Midway Atoll Visitor Services Plan specifically seeks to provide opportunities for visitors to give back to the Monument through habitat restoration, beach cleanups, wildlife monitoring, and historic restoration. Visitors—whether they stay only a few hours or for many days—also are encouraged to share their experiences when they return home, often to school groups, interest groups, neighbors, or other entities. Under the terms of the Presidential Proclamation establishing the Monument, commercial fishing vessels will be phased out of the Monument no later than June 6, 2011.
26-14. Comment	I do think that providing strategic access to the Monument, especially to those who may be able to inspire others, is warranted. Documentary producers, writers, and musicians are one such group. Teachers are another important constituency, especially if they can be supported in providing distance learning opportunities (via web cams, etc.) to their students. Politicians and business people, who make policy and have the power to influence how business is conducted, should see this special place and come to understand a little about it. The list goes on.
26-14. Response	We agree; such access is provided for within the Monument Management Plan and Midway Atoll Visitor Services Plan.
26-15. Comment	Not too many people take advantage of the opportunity to visit this wonderful destination. Too bad, too. More people should take this beautiful site in on land and under the sea. Take our word for it, it is worth the time, the bucks, the experience. It is one you will never, ever forget. And that's a promise. I don't want too many people to go. And I don't want them to all go at the same time. But I certainly believe that if you go, you will appreciate it even more.
26-15.	We agree, which is why we have consistently supported a visitor program on Midway Atoll.

<b>Comment Category 26 - Tourism</b>	
<b>Response</b>	
26-16. Comment	There is concern about visitation. I fortunately was, for my—I was there during the start of the visitor program, and I think we made some mistakes. And I'm happy to see that those mistakes have been corrected in the revised plan. The only unfortunate thing about the visitor program from my perspective is that you can't get enough people out there who really want to see it. You're physically limited by the transportation and facilities and, frankly, now by cost. So there will always be people that can't go. But I would encourage you to let that program rebuild.
26-16. Response	The Midway Atoll Visitor Services Action Plan and its associated Midway Atoll Visitor Services Plan would allow the program to grow from the current level of approximately 15 overnight visitors to 50 overnight visitors within existing infrastructure limitations. At least for the next 15 years, we have not planned for expanding beyond that level. We agree that transportation and facilities are limiting factors, particularly transportation. In the Coordinated Field Operations Action Plan, we propose to identify alternative aircraft transportation between Honolulu and Midway within five years.
26-17. Comment	So, finally, you also mentioned—these are some little details—that you might rent golf carts to people. Renting the bicycles is okay. But we noticed that even on the bigger golf carts in the heat of the day the chicks sit underneath the golf carts. Even though there were maybe eight people getting onto a golf cart, sometimes we would almost miss that there was a chick hiding underneath. So I just think renting it to your everyday visitor might not be the best idea.
26-17. Response	Although we encourage our visitors to either walk or ride bicycles as their means of transportation on Midway, some people are physically incapable of doing so. To accommodate their needs, we try to have small golf carts available to rent. Anyone renting a golf cart is provided specific directions about safely operating the vehicle within a bird colony.
26-18. Comment	I feel there should be highly controlled very small-scale ecotourism on Midway. If just a very few are allowed to see the treasures of this marine monument, maybe they can spread the word to the many that it is imperative to protect this entire marine area. That's really all I have to say. It's worth protecting. Do whatever you can to protect it.
26-18. Response	We agree, which is why we have consistently supported a visitor program on Midway Atoll.
26-19. Comment	Fails to set a cap on the number of day-visitors to Midway.
26-19. Response	We have modified the Midway Atoll Visitor Services Plan to allow no more than three large daytime visits each year. Each visit may bring as many as 800 people to Midway, but no more than 400 may be on the island at any one time, unless Refuge management has specifically approved a larger number to participate in an event, such as a ceremony



<b>Comment Category 26 - Tourism</b>	
	honoring the Battle of Midway.
26-20. Comment	For any permitted human activity in the NM a precautionary principle of “leave no trace” must be employed. Everything that gets carried in gets carried out as is the practice now in many protected areas within the national park system.
26-20. Response	When large groups of visitors visit Midway, their sponsors are required to remove any trash generated by the visit. It is not feasible for smaller groups of visitors traveling on the current small charter aircraft to take back any trash they generate, so this refuse is processed on island.
26-21. Comment	Space should be limited to 30 at any one time and should students, contractors and researchers as well as eco-tourists.
26-21. Response	The infrastructure at Midway can accommodate approximately 120 people at any one time, and we strive to keep the total number at approximately that level. We could not meet our operational requirements with only 30 staff and contractors.
26-22. Comment	<p>Probably the most amazing vacation I ever had was the week-long cruise of the Great Barrier Reef in Australia. It was a relatively small boat (approx. 15 passengers plus crew). All the cruises on the reef were controlled, licensed and did no damage.</p> <p>As I understand it, there are no plans to allow similar cruises in the Northwestern Islands. That’s a shame because no pictures or films I’ve seen have even halfway matched the beauty of being there.</p> <p>Not only would this policy deny a life-time experience to the public, educating and publicizing the value and worth of the Northwestern Islands, but would also keep the informal eyes of the passengers and crews from noticing and reporting illegal trespassers. Isn’t illegal fishing still a problem there?</p> <p>Totally banning anyone but scientists seems to be a remarkably “dog in the manger” attitude.</p>
26-22. Response	This type of cruise would probably be precluded by the requirements of Presidential Proclamation 8031, as well as the remoteness of the area. The Proclamation does allow Special Ocean Uses outside of Midway Atoll but mandates that the activity not involve the use of a commercial passenger vessel. Sailboats operators may be issued recreational permits to pass through the Monument en route to Midway, but they must meet all requirements, such as those for hull inspections and vessel monitoring systems.
26-23. Comment	HHF has reservation about the Preferred Alternative for Midway Atoll Visitor Services (Section 1.6.14). While it is important to provide educational opportunities, as well as heritage- and eco-tourism options for a limited number of visitors, that need must be carefully considered against the potential impact to the resources. Where synergy is possible and the visitation enhances the resource (such as through volunteer activities), it is much more supportable than simple

<b>Comment Category 26 - Tourism</b>	
	tourism. HHF will support the careful expansion and implementation of visitor services with the explicit commitment to use of the precautionary principle, wherein the well-being of the history and natural resources is prioritized over the use or convenience of the visitor. HHF also recommends that regular and meaningful opportunities for input from public interest groups be sought to help ensure accountability and necessary course corrections.
26-23. Response	We appreciate your support of our small-scale visitor program at Midway and assure you it will be closely monitored to avoid impacts on any natural or historic resources. We are working with a potential permittee who is interested in bringing a visitor group to Midway specifically to work on a historic restoration project. As you point out, visitor volunteers can play an important role in meeting our mission.
26-24. Comment	No tourism should be planned for at least 10 years, or until restoration is complete and then in only a very limited way.
26-24. Response	Our small-scale visitor program not only brings us help with our restoration program, but it helps educate people about the impacts humans can have on remote island ecosystems from their homes far away. We feel the educational value of the visitor program far outweighs any potential negative impacts.
26-25. Comment	So, I think it would be worthwhile to see if the concessions could begin working, if they're not already and I'm sorry, I'm totally ignorant, but if there is a way of ensuring that some day, maybe the concession comes home to Hawaii, it's Hawaii based, Hawaiian based, you know, and this isn't racist or anything, but, you know, it's also natural. You remember, those islands are ultimately among the firstborn children, only which the kanaka followed afterwards, you know, the Hawaiians followed afterwards, so it would be worth to bring some of this connection of spirit in it and see if the concession, you know, can have a local base rather than a mainland or even a foreign or let's go to a Jacques Cousteau or something, I mean, you know.
26-25. Response	At present, we have no concessionaires at Midway, but we do have several permittees who are bringing visitors to the atoll under Special Ocean Use permits. We would welcome and encourage permit applications from Native Hawaiians to bring one or more groups of visitors to Midway. If in the future we offer opportunities for visitor concessionaire operations, we would be required to follow federal contracting procedures. Again, Native Hawaiian or other Hawaiian groups are encouraged to respond to any solicitations for concessionaire operations.
26-26. Comment	Throughout the determinations, there appears to be a theme of unconsciousness around how greater visitor activity will potentially have negative or destructive cultural impacts. As we saw in proceeding documents, this is a fundamental error that has resonated throughout the entirety of the DMMP and needs to be addressed at its core.
26-26.	Under Presidential Proclamation 8031, recreational visitation within the Monument is limited to Midway Atoll. The Co-

<b>Comment Category 26 - Tourism</b>	
Response	Trustees have limited the number of overnight visitors to no more than 50 at any one time. Up to three larger groups (50 to 800 people) are allowed to visit Midway each year. All visitor activities are under Monument permits and must meet the Proclamation’s findings and requirements. We feel the visitor program enhances our ability to share the importance of the NWHI, as well as its sacred status to Native Hawaiian communities, and to share this with a broader group of people.
26-27. Comment	<p>Midway Atoll Visitor Services Action Plan – Section 3.4.3</p> <p>MCBI supports a visitor program to Midway, as long as the conditions of the program are sufficient to ensure that conservation of the NWHI ecosystem, its unique flora and fauna, and other resource protections, remain the top priority and are achieved within the context of the program. Activity VS-1.3 would establish monitoring of the visitor program, but the results of this monitoring are not mentioned in Strategy VS-2, which would assess the overall success and needs of the program. Because protection is the goal of the Monument, the biennial assessment of the visitor program must explicitly consider and defer to monitoring results and resource needs, not just to finances and visitor satisfaction.</p> <p>It is not clear why wildlife dependent and independent activities are given different review timeframes. On the surface, it would seem that wildlife dependent activities should have the shorter of the two timeframes.</p> <p>Visitor impact should be mitigated by restricting locations for visitor interactions. For example, steps should be taken to minimize visitor impact to fragile coral reefs by controlling entry/exit locations. MCBI feels that, given the draw of the Monument, monthly and yearly limits should be placed on the total number of short-duration prearranged visits discussed in Strategy VS-1. Education of visitors should include ways that Monument restrictions are relevant to other areas. For example, this will be a prime opportunity to educate visitors about interactions with wildlife, ways to prevent damage to coral reefs while snorkeling and diving, and the impact of marine debris throughout the Pacific.</p> <p>Most importantly, given funding and staffing restrictions, the visitor program should not take priority over necessary research and management activities to protect the NWHI ecosystem and cultural resources with the Monument. While there will certainly be an allure to spending time and money on the visitor program (as seen in proposed budget of the Draft Plan), it can never be forgotten that protection is the purpose of this Monument. In that vein, and as mentioned above, MCBI applauds Activity CFO-1.3, which would develop renewable energy and waste reduction systems in development plans.</p>
26-27. Response	<p>We agree that the visitor assessment should include the results of monitoring the impact of visitors and have modified the text in Strategy VS-2 accordingly. In addition, the Refuge Manager has the authority to immediately alter any aspect of the visitor program deemed to have a negative impact on wildlife or historic resources.</p> <p>The reevaluation period for wildlife-dependent and nonwildlife-dependent activities is mandated by the National Wildlife Refuge System Improvement Act of 1997. Congress also stated in the act that “compatible wildlife-dependent recreation</p>

<b>Comment Category 26 - Tourism</b>	
	is a legitimate and appropriate general public use of the System, directly related to the mission of the System and the purposes of many refuges, and which generally fosters refuge management and through which the American public can develop an appreciation for fish and wildlife.” We are very supportive of the visitor program on Midway Atoll as the “window to the Monument,” the only location within its boundaries where people may learn about and experience its unique resources. Our current requirements of no more than 50 overnight visitors at any one time and no more than 800 day visitors at up to three events per year provide adequate limits without establishing a yearly cap.
26-28. Comment	Passage without interruption must no longer be allowed.
26-28. Response	Passage without interruption is allowed under Proclamation 8031. Ship reporting requirements adopted by the IMO and PMNM regulations require vessels with e-mail capability to provide notification upon entering and leaving the reporting area around the Monument. Vessels without e-mail capability must provide notice at least 72 hours before entering the Monument and within 12 hours after they leave.
26-29. Comment	I think like one of the speakers said tonight, that we—I think it was the Surfrider Foundation, we need to think more of this as a conservation effort, rather than a tourist attraction, and we need to keep human intervention to a minimum. Horror stories of people saying that there are going to be cruise ships or groups of 50 people a day spending the night on one of these preserved islands is just unthinkable. We should learn from our brothers and sisters on the Galapagos Islands who are taking a very minimal amount of people, but they’ve almost destroyed the habitat there biologically. We need to really, really keep this to a very bare minimum of human contact, if at all, and why we would allow things like fishing or anything to be taken is just against the whole purpose of having the monument, which should be and is espoused to be conservation.
26-29. Response	Protecting the health, diversity, and resources of the NWHI ecosystems is our constant and highest concern. Although we have not included specific annual limits on the number of people accessing the area in the Monument Management Plan, we closely manage and monitor all activities through the interagency permitting process, the Papahānaumokuākea Information Management System, and the Monument Evaluation Action Plan (3.6.4). The number of tourists visiting the Monument at any one time is also limited through the Midway Atoll Visitor Services Plan.

<b>Comment Category 27 – Transportation</b>	
<b>Unique Comments</b>	
27-01.	The comments below provide input regarding the concerns for the additional risks introduced through the increase of

<b>Comment Category 27 – Transportation</b>	
Comment	<p>traffic in the Monument.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) OHA understands that inspections are mandatory for all vessels prior to entering the Monument and that continuous passage is not prohibited. OHA suggests prohibiting the transit of hazardous cargo through Papahānaumokuākea. We also recommend requiring a certificate of financial responsibility and/or insurance for vessels entering the area. A polluter pays principle should be adopted throughout Papahānaumokuākea that extends to any type of harm caused. Another suggestion is to not prohibit transit but to regulate it by designating sea lanes through Papahānaumokuākea.</li> <li>2) 3.3.3 Maritime Transportation and Aviation Plan. We appreciate that the Maritime Transportation and Aviation Action Plan acknowledges that both maritime transportation and aviation bring with them risks to Monument resources. However, Ocean Conservancy urges revision of the DMMP to more specifically discuss the fact that any future increase in access to and use of the Monument related to activities described in the Plan, will necessarily result in increased airplane traffic and increased risks associated with transportation. Discussion of maritime transportation and aviation uses of the NWHI associated with military activities such as RIMPAC should be included in the “Current Status and Background” section at Page 205 and should be addressed under all appropriate Strategies and Activities in this action plan.</li> <li>3) Maritime transportation in particular presents what is likely the greatest threat of catastrophic damage to the NWHI via an oil spill or major vessel grounding. Given the potential for extreme damage from such an incident, the DMMP should identify all available measures to reduce the risk of such an event. Fundamental to the task of reducing risks associated with maritime transportation is a basic understanding of how many ships are in the Monument, where they are and what they are doing. The DMMP recognizes the need for better information to assess (and then reduce) hazards associated with transportation activities under Activity MTA-2.1 Conduct studies on potential aircraft and vessel hazards and impacts and identifies specific studies that might be conducted such as noise and light impacts and a discharge study. Although we support pursuit of specific hazard studies, we believe there is a fundamental need for development of a comprehensive vessel reporting system for all vessels entering or transiting the Monument.</li> </ol>
27-01. Response	<p>When developing the Monument Management Plan, we considered the threats and relative risks to Monument resources from commercial shipping, including from hazardous cargo. We also considered the protective measures from the International Maritime Organization designating the Monument as a Particularly Sensitive Sea Area. The International Maritime Organization is a specialized agency of the United Nations that addresses navigation safety and protects the environment from commercial shipping activities. Protective measures developed by the United States and adopted by</p>

<b>Comment Category 27 – Transportation</b>	
	<p>the International Maritime Organization, in association with Particularly Sensitive Sea Area designation, include Areas To Be Avoided and a ship reporting system. These measures appear on international nautical charts and have multiple uses, as follows: They direct ships away from coral reefs, shipwrecks, and other ecologically or culturally sensitive areas in the Monument; they encourage ships to use three transit corridors in between Areas To Be Avoided if they must transit through the Monument; and they facilitate a timely response to emergencies.</p> <p>At this time, these international protective measures, in conjunction with those in Presidential Proclamation 8031 and implementing regulations, appear adequate to address the threats to the Monument from commercial shipping. The measures are consistent with international law, in particular customary international law, as reflected in the 1982 United Nations Convention on the Law of the Sea. Of course, Monument staff would monitor the adequacy of these measures, and, if deemed necessary, we may consider additional measures.</p> <p>The MMB added language to the Maritime Transportation and Aviation Action Plan (3.3.3) need for action. We also added military vessel and aircraft use to the current status and background.</p>
<b>Unique Comments</b>	
27-02. Comment	I would like to see greater emphasis placed on the issue of potential groundings by vessels passing through or near to the archipelago. The fear of a major oil spill kept me up at night when stationed at Midway, but it is the prospect of a spill at a more remote location in the archipelago that carries with it the greatest risk to fish and wildlife.
27-02. Response	Emergency response for events such as vessel groundings, oil, fuel, or chemical spills, or releases of hazardous substances is addressed through the Area Contingency Plan for the Hawaiian Islands. This is a local plan under the larger structure of the National Response Plan. The Monument Co-Trustees and Interagency Coordinating Committee will address NWHI responses as part of the Area Contingency Plan. The Emergency Response and Natural Resource Damage Assessment Action Plan describes strategies and activities to plan for and respond to an emergency within the established Incident Command System for the region. The plan also applies to other unanticipated events that fall outside the scope of the Area Contingency Plan for the Hawaiian Islands. Because of the extensive infrastructure found at Midway Atoll, Monument has developed several Midway-specific contingency plans, as follows: Emergency Spill Response Plan, Spill Prevention and Control Counter Measure Plan, and Airport Emergency Action Plan.
27-03. Comment	Under Activity MTA-1.1 Coordinate implementation of domestic and international shipping designations with appropriate entities, the DMMP discusses the April 2, 2008 designation of the NWHI as a Particularly Sensitive Habitat Area (PSSA) by the International Maritime Organization. Ocean Conservancy strongly supports this designation and we were particularly pleased to see that this designation included expansion and amendment of six existing “Areas to be Avoided” and establishment of a ship reporting system for vessels transiting the Monument. The DMMP notes that a:

<b>Comment Category 27 – Transportation</b>	
	<p>“ship reporting system is mandatory for ships entering or departing a U.S. port of place and recommendatory for other ships.” The DMMP also includes discussion of a Vessel Monitoring System in the Enforcement Action Plan: Activity EN-2.2 Operate a Vessel Monitoring System for all permitted vessels and Activity EN-2.3 Integrate additional automated monitoring systems and ship reporting systems for all vessels transiting the Monument. However, it is not clear from the current DMMP text whether such systems are currently capable of tracking all vessels within Monument water and if not, how vessel traffic that does not come under the existing VMS or PSSA requirements will be tracked.</p> <p>A recent baseline study, Franklin (2008), documented the magnitude and spatial distribution of vessel traffic patterns in the NWHI for the first time. Noting that the NWHI has not had access to an automatic identification system (AIS) or radar array to facilitate the tracking and identification of vessel traffic and provide information on past or present vessel activity, Franklin concludes: “Future efforts to monitor vessel traffic in the PMNM would benefit greatly from the delivery of near-realtime or realtime information from a suite of technologies such as satellite imagery, high frequency surface radar, or remote AIS receivers.” Such technology is available and is currently utilized in other areas of the U.S. For example, in the San Francisco Bay area, the public can track all commercial vessels in real time via a public website. We urge revision of the Maritime Transportation and Aviation, Emergency Response and Enforcement Action Plans to explicitly require implementation of a comprehensive system for tracking all vessels within NWHI waters and to include discussion of any existing “holes” in such comprehensive coverage and how they can be filled.</p>
27-03. Response	<p>The law enforcement agencies and the Coast Guard charged with enforcing the laws and regulations within the Monument are examining an array of technologies and will use those that help protect the Monument and to detect those who would harm it. We will continue to use existing technologies to the greatest extent, while identifying opportunities to expand the use of new technologies, to the extent allowable under domestic and international law.</p>

<b>Comment Category 28 - Volunteers</b>	
<b>Summarized Comments</b>	
28-01. Comment	<p>The following comments are requests for more volunteer opportunities be made available within the Monument.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) Increase volunteering opportunities.</li> <li>2) Far more volunteers would be available if they did not have to commit to 3 months. I believe efforts should be made to shorten the time commitment to 30 days.</li> <li>3) And volunteer opportunities are a really good way to get people involved. I’m not sure how that’s going to be</li> </ol>



<b>Comment Category 28 - Volunteers</b>	
	<p>encouraged. But I would like to see maybe the possibility of shorter term volunteer trips. Not many people can take a whole month or two months off to be able to give back. Maybe there could be shorter trips that really work people hard. And the people who can't go on these volunteer trips as well as the education workshops, perhaps there is a way that they can earn their spot. So it's not just the people who sign up first or not just the people who can pay, you know. I'm sure it costs a lot to go there. If there is a way that they can earn it by actually doing things where they live on their own island, being able to demonstrate that they can take care of their place as well as the Northwestern Hawaiian Islands, and continue to do that when they return from their trip.</p>
28-01. Response	<p>Most volunteer positions within the Monument are from three to six months, due to limited means of access to remote islands and to increased training efficiencies and expertise. Even with these sizable time commitments, many more people apply to become volunteers than we can physically accommodate; for this reason, we will maintain the current requirements.</p>
<b>Unique Comments</b>	
28-02. Comment	<p>How do you plan to recruit and qualify volunteers for work on these islands?</p>
28-02. Response	<p>As indicated in the Constituency Building and Outreach Action Plan, volunteers play an important role in habitat restoration and wildlife monitoring within the Monument. Due to infrequent opportunities for transport to the islands, most volunteer opportunities are a minimum of three months in duration, with some up to six months or longer. Requirements, duties, and other pertinent information are available on the Internet at <a href="http://www.fws.gov/hawaiianislands">www.fws.gov/hawaiianislands</a> and <a href="http://www.fws.gov/midway">www.fws.gov/midway</a>.</p>

**Comment Category 29- Cumulative Impacts****Summarized Comments**29-01.  
Comment

Comments suggested the plan should include an assessment of the cumulative impacts of activities permitted by the MMB over the last two years and resulting from implementation of the Proposed Action.

Comments:

- 1) That's why we're also seeking a cumulative impact assessment. A cumulative impact assessment gives you the information your need to make informed management decisions. But you're not doing one of those.
- 2) As is noted in the chapter 4 of the DEA, the National Environmental Policy Act (NEPA) requires evaluation of the proposed project regarding cumulative effects; significant unavoidable negative effects; the relationship between short term uses and long term productivity; and any irreversible or irretrievable commitment of resources. Unfortunately the analysis within the DEA is woefully inadequate in regards to each of these criteria.
- 3) And we're also talking the short past term, the last two years. The last two years haven't gotten any environmental review whatsoever. They need to be part of the cumulative impact assessment, the integrated permitting plan, all the things that were up on the screen during the PowerPoint presentation about all we have done in the last two years.
- 4) The Draft EA does not effectively address the pre-existing or past conditions and how the proposed actions will interact with the already highly fragile ecosystem that exists within the Monument. In addition to all the quantified impacts from military activity, shipwrecks, fishing and other activities, the last two years has seen a range of activities and permits issued, yet in analyzing the cumulative impacts of proposed actions, there is no mention of the impacts and effects that these recent activities have had within the Monument. It is appropriate for the DMMP and EA to analyze each of these previously and presently occurring actions when considering what the cumulative effect of proposed actions will be within the Monument. Instead of objectively assessing the risks and impacts of past and on-going human activities in the Monument, the DMMP and DEA declare all currently allowed activities and procedures to be the baseline for analysis. This means there has been no independent review of the permitting process, current research activities, military exercises and tourism activities. The DEA should evaluate all current activities and procedures in the Monument for cumulative harm & risks to public trust resources. Co-managers should establish a numerical carrying capacity for activities in the Monument based on the precautionary principle.
- 5) Page 241: The Cumulative Effects on natural resources is not an analysis and is incomplete. For example, there is no analysis on Monument and its management activities and their cumulative impacts to the Hawaiian monk seal. The Hawaiian monk seal is one of the planet's most endangered species and is declining in the NWHI at an

<b>Comment Category 29- Cumulative Impacts</b>	
	<p>alarming rate. However, the cumulative impact section does not describe the overall effect of the Monument on this species. This seems to be not in line with NEPA. Moreover, conclusory statements regarding potential cumulative effects are not justifiable without proper analysis and leaves the reader doubting the overall benefit to natural resources that occur in the NWHI.</p>
29-01. Response	<p>40 CFR Parts 1500-1508 requires Federal agencies to conduct an assessment of cumulative impacts resulting from implementation of the Proposed Action. Volume II, Chapter 4: Other NEPA Analyses contains the cumulative impact assessment for the Papahānaumokuākea Marine National Monument Management Plan.</p> <p>The MMB recognizes the importance of evaluating the cumulative impacts of human activities conducted in the Monument and is collecting data for this analysis. Assessing and analyzing required permit reports for all permitted Monument human activities will be a primary means for resource managers to understand the cumulative impact of ongoing activities (see Activity P-2.2, Analyze permit data to inform management decision making). In addition, information about past activities, such as military uses and fishing, is critical to our understanding of the Monument’s ecosystem and to establish a baseline for evaluating the health and condition of the its natural, cultural, and historic resources and analyzing how current activities, either individually or cumulatively, are impacting Monument resources. Such past activity data is one of the many data sources that we will incorporate into the Information Management System (Activity IM-1.1, Activity IM-1.4, and Activity P-2.1).</p> <p>A fundamental component of any threat or risk assessment is to have a baseline understanding of the Monument ecosystems and how these may be influenced by natural and human activities. Strategies MCS-1, Continue and expand research, characterization and monitoring of marine ecosystems, and MCS-2, Assess and prioritize research and monitoring activities, will provide the fundamental monitoring data and information that is essential, along with the human use and impact data described above, to conduct such assessments. While data is mostly collected and analyzed for local areas in the Monument, collectively it supports other efforts to evaluate the threats to the NWHI at a Monument or regional scale. In response to the comments, we have changed the text to the Monument Management Plan in Section 3.4.1, Permitting Action Plan, Permit Tracking, and Activity P-2.2.</p> <p>Until a comprehensive analysis of threats, including human uses, is completed, the MMB as a matter of policy seeks to ensure that access is consistent with Proclamation 8031 and that, wherever possible, activities are combined to limit multiple visits to a given area. Carrying capacity could need to be assessed for biological, ecological, cultural, physical, social, infrastructure, and other conditions for any given area. However, the MMB must first focus its efforts on establishing baseline parameters for measuring changes to the health, quality, or function of Monument resources; then, we must assess the relative individual and cumulative impacts from human activities on these resources. Information collected and analyzed will depend on the activity and the specific ecosystem that the activity is conducted in. The</p>

<b>Comment Category 29- Cumulative Impacts</b>	
	<p>results from the cumulative impact analysis, the risk assessment, and the monitoring conducted in the Monument will help define these values over time. It will not be possible to consider various carrying capacities for the Monument resources until these data can be analyzed. It will also be important that these values be regularly revisited as we learn more about the ecosystem and the changing environment.</p>
29-02. Comment	<p>Comments suggested the plan should include an assessment of the cumulative, short and long-term impacts resulting from global warming, military, and commercial activities.</p> <p>Comments:</p> <ol style="list-style-type: none"> <li>1) We also need to look at some serious long-term future things like global warming. The cumulative impact assessment currently doesn't even consider global warming. We all recognize that this is going to happen. It's going to have serious management implications.</li> <li>2) 'It's also why people feel so strongly about not having any military activity in the Northwestern Hawaiian Islands. If we don't put our foot down it's gonna happen.</li> <li>3) A cumulative impact assessment means you look at long-term past, things that have happened. And we're talking about the military carpet bombing, all of the different attempts at commercial exploitation in the Northwestern Hawaiian Islands.</li> </ol>
29-02. Response	<p>The present environmental conditions and baseline analyzed as part of the EA reflect the impacts to date of activities that have occurred in the Monument as well as the effects of climate change. The management strategy for the Monument includes on-going monitoring of resources and qualities to inform future management actions.</p> <p>The MMB recognizes the importance of evaluating the long-term cumulative impacts of human activities conducted in the Monument and is collecting data for this analysis. Assessing and analyzing required permit reports for all permitted Monument human activities will be a primary means for resource managers to understand the cumulative impact of ongoing activities (see Activity P-2.2, Analyze permit data to inform management decision making). In addition, information about past activities, such as military uses and fishing, is critical to our understanding of the Monument's ecosystem and to establish a baseline for evaluating the health and condition of the its natural, cultural, and historic resources and analyzing how current activities, either individually or cumulatively, are impacting Monument resources. Such past activity data is one of the many data sources that we will incorporate into the Information Management System (Activity IM-1.1, Activity IM-1.4, and Activity P-2.1).</p> <p>A fundamental component of any threat or risk assessment is to have a baseline understanding of the Monument ecosystems and how these may be influenced by natural and human activities. Strategies MCS-1, Continue and expand research, characterization and monitoring of marine ecosystems, and MCS-2, Assess and prioritize research and</p>

**Comment Category 29- Cumulative Impacts**

monitoring activities, will provide the fundamental monitoring data and information that is essential, along with the human use and impact data described above, to conduct such assessments. While data is mostly collected and analyzed for local areas in the Monument, collectively it supports other efforts to evaluate the threats to the NWHI at a Monument or regional scale. In response to the comments, we have changed the text to the Monument Management Plan in Section 3.4.1, Permitting Action Plan, Permit Tracking, and Activity P-2.2.

Until a comprehensive analysis of threats, including human uses, is completed, the MMB as a matter of policy seeks to ensure that access is consistent with Proclamation 8031 and that, wherever possible, activities are combined to limit multiple visits to a given area. Carrying capacity could need to be assessed for biological, ecological, cultural, physical, social, infrastructure, and other conditions for any given area. However, the MMB must first focus its efforts on establishing baseline parameters for measuring changes to the health, quality, or function of Monument resources; then, we must assess the relative individual and cumulative impacts from human activities on these resources. Information collected and analyzed will depend on the activity and the specific ecosystem that the activity is conducted in. The results from the cumulative impact analysis, the risk assessment, and the monitoring conducted in the Monument will help define these values over time. It will not be possible to consider various carrying capacities for the Monument resources until these data can be analyzed. It will also be important that these values be regularly revisited as we learn more about the ecosystem and the changing environment.

---

---

**APPENDIX A**  
**AGENCY COMMENTS AND RESPONSE LETTERS**

00362

**BOB JACOBSON**  
Councilmember  
*Chair, Environmental Management Committee*  
*Vice-Chair, Finance Committee*  
*Vice-President Hawai'i State Association of Counties*



333 Kilnuea Avenue, Second Floor  
Ben Franklin Building, Hilo, Hawai'i 96720  
Mailing Address: 25 Aupuni Street, Suite 200  
Phone: (808) 961-8263  
Fax: (808) 961-8912  
E-Mail: [bjacobson@co.hawaii.hi.us](mailto:bjacobson@co.hawaii.hi.us)

**HAWAI'I COUNTY COUNCIL**  
*County of Hawai'i*

July 17, 2008

Papahānaumokuākea Marine National Monument  
Box 50167  
Honolulu, HI 96850

Re: Draft Environmental Assessment, Papahānaumokuākea Marine National Monument

The Papahānaumokuākea Marine National Monument is a national treasure and we need to remember to protect our monuments and our ocean and its fragile environment with the utmost care.

The Draft Environmental Assessment states that "The Monument is important both nationally and globally, as it contains one of the world's most significant marine and terrestrial ecosystems and areas of cultural significance" which I believe is true and would strongly oppose increased commercialism, military activities, or commercial fishing in the area. We must limited future activities that harm this critical environment and maybe discontinue activities that have the possibility of harm.

Aloha,

Council Member Bob Jacobson

*District 6 -- Upper Puna, Ka'a, and South Kona*  
*Hawai'i County Is An Equal Opportunity Provider And Employer*



**STATE OF HAWAII**  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

**LARINA B. THIELSEN**  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSIONER OF WATER RESOURCES MANAGEMENT  
**RUSSELL V. TRUMB**  
POST DEPUTY  
**KEVIN C. KAWAHARA**  
DEPUTY DIRECTOR - WATER  
**AQUATIC RESOURCES**  
BOATING AND OCEAN RECREATION  
BUREAU OF COUNTY AFFAIRS  
COMMISSIONER ON WATER RESOURCES MANAGEMENT  
CONSERVATION AND COASTAL LANDS  
CONSERVATION AND RESOURCES ENFORCEMENT  
ENGINEERING  
FORESTRY AND WILDLIFE  
GEOTECHNICAL ENGINEERING  
KARUKOAWA ISLAND RESERVE COMMISSION  
LAND  
STATE PARKS

November 21, 2008

Mr. Bob Jacobson, Council Member  
Hawai'i County Council  
25 Aupuni Street, Suite 200  
Ben Franklin Building  
Hilo, Hawaii 96720

Re: Hawai'i County Council's July 17, 2008 Comments on the Draft Management Plan for the Papahānaumokuākea Marine National Monument

Dear Mr. Jacobson:

Thank you for providing comments on the Draft Papahānaumokuākea Marine National Monument Management Plan (draft MMP), Environmental Assessment (EA), and its associated documents. The draft MMP is the product of an extensive coordinated planning process undertaken by the Monument Management Board (MMB) on behalf of the Co-Trustee agencies: US Fish and Wildlife Service, the National Oceanic and Atmospheric Administration and the State of Hawai'i, Department of Land and Natural Resources. The MMB is comprised of representatives of these three agencies and the Office of Hawaiian Affairs.

The draft EA contained in Volume II evaluates the likely environmental consequences of the activities contained in the Monument Management Plan (MMP). The draft EA was developed in accordance with the National Environmental Policy Act and Hawai'i Revised Statutes (HRS) Chapter 343.

Under Chapter 343 HRS, the Department of Land and Natural Resources (DLNR) is required to respond in writing to comments received from agencies during the course of the draft MMP public review process. This letter is DLNR's response to your agency's comments. All responses to comments were prepared jointly by the members of the MMB and will also be included in Volume 5 of the final MMP and associated documents. The Hawai'i County Council's (Council) comments were considered in the preparation of the final MMP, EA and associated documents and in many cases, where appropriate, the documents were amended to address your comments as outlined below.

Comment. In your letter you state in part that the Hawai'i County Council "strongly opposes increased commercialism, military activities or commercial fishing in the area."

Response. The management plan provides that all activities occurring within Papahānaumokuākea must be consistent with the Findings in Presidential Proclamation 8031 and that they occur pursuant to permits approved by the monument's Co-Trustees. Among the permitting criteria that must be satisfied is a



finding that the proposed activities can be conducted with adequate safeguards for the cultural, natural and historic resources and ecological integrity of the Monument.

*Commercial Activities*

Two examples of where the MMP limits or forbids commercial activities are tourism and the sale of physical or biological samples collected from the monument:

- Proclamation 8031 specifically provides that Midway Atoll will be the "window to the Monument," and will be the only site where recreational activities are allowed. The MMP will limit the number of overnight visitors to no more than 50 at any one time. Up to three larger groups (50 to 800 people, with no more than 400 day visitors at any one time) will be allowed to visit Midway each year. All visitor activities are under Monument permits and must meet the Proclamation's findings and requirements. It is believed that the visitor program will enhance the monument's ability to share the importance of the NWHI; as well as its sacred status to Native Hawaiian communities; with a broader group of people.
- All Monument permits dealing with the collection of samples or specimens specifically prohibit the sale of collected organisms. Although "bioprospecting", the search for new chemicals compounds, genes and their products in living things that will have some value to people, is not specifically addressed in the MMP it inherently involves the identification of biological resources with potential commercial value that may be developed into marketable commodities such as pharmaceuticals, pesticides and cosmetics. The special condition applied to collection permits states that authorized activities must be for noncommercial purposes; may not result in the sale of any organism's by-product and that no materials or byproducts of the materials collected within the Monument may be used to obtain patent or intellectual property rights. Accordingly, bioprospecting for commercialization will not be permitted.

*Commercial fishing*

- There are currently eight permitted bottomfish vessels operating within the Monument, with all of catch being regulated by caps on total harvest. All commercial fishing in the Monument will be phased out by 2011.

*Military Activity in the Monument*

Military activities are exempt from the permitting process. Proclamation 8031 provides in part that:

- "The prohibitions required by this proclamation shall not apply to activities and exercises of the Armed Forces (including those carried out by the United States Coast Guard) that are consistent with applicable laws"; and
- "All activities and exercises of the Armed Forces shall be carried out in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on monument resources and qualities".

Please note, however, that while the military is exempt from prohibitions and permits otherwise required by the Proclamation, they are still required to adhere to all other all other applicable laws and regulations, including, but not limited to the National Environmental Protection Act; Endangered Species Act; the Marine Mammal Protection Act; the National Wildlife Refuge System Administration Act; the Fish and

Wildlife Coordination Act; the Migratory Bird Treaty Act; Clean Water Act; the Comprehensive Environmental Response, Compensation, and Liability Act; the Oil Pollution Act; the National Historic Preservation Act; and cultural consultation under the Native American Graves Protection and Repatriation Act. The MMP requires the Monument managers to work with the Armed Forces to ensure their activities "shall be carried out in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on monument resources and qualities."

Comment. The Hawai'i County Council recommended that "future activities within the monument should be either limited or discontinued if these activities could either cause harm or present a possibility of harm to the monuments critical environment."

Response. The MMP has identified eleven guiding principles for monument management. The seventh principle requires that the monument "errs on the side of resource protection when there is uncertainty in available information on the impacts of an activity;" and that the monument adheres to the "do no harm" approach to permitting consistent with the precautionary principle in which historic, cultural and natural resource protection and integrity are favored.

DLNR appreciates your interest and comments on the Papahānaumokuākea Marine National Monument draft management plan. We look forward to your continued involvement as work begins on the implementation phase of the program.

Sincerely,



LAURA H. THIELEN  
Chairperson

00007



Carlie S Wiener  
<cwiener@hawaii.edu>  
05/28/2008 12:13 PM

To: PMNM\_MMP\_Comments@fws.gov  
cc:  
Subject: submission of comments for the outreach section of the draft management plan

### Outreach Plan Comments – Monument Management Draft Plan

#### General Comments:

- Well planned broad-ranging education plan
- I really like the development of the interpretive themes and guides

#### Outreach Plan activities and Suggestions:

- Add outreach and constituency objectives for an international audience to broaden recognition, (i.e.) the Monument should eventually have global recognition like the great barrier reef
- A baseline study or content analysis should be done of current perceptions, attitudes and literature in media relating to the Monument and/or the Northwestern Hawaiian Islands.
- Development of traveling teacher boxes with pre-done lesson plans and supplies that can travel to schools in the outer islands. In my experience I have found that there is a serious disconnect with the kids and the knowledge that the Northwestern Hawaiian Islands even exists. This disconnect is more prevalent on islands besides Oahu which is often targeted in outreach.
- Emphasize experiential learning using both Northwestern Hawaiian Islands and Main Hawaiian Islands connections
- Use a rotating "guest" for school visits on the islands outside of Oahu
- Junior scientists shadowing program – have management employees and scientists related to the Monument interact with Hawaii students, have them job shadow, learn what the job entails and provide internships for local students
- Include an annual magazine publishing related to new discoveries, management breakthroughs and related research findings, this can be different than the already published newsletters, it could be used as an accompanying study guide in schools
- Creation of a Northwestern Hawaiian Islands ocean sciences textbook to be used in schools
- Greater Monument focus or presence at teacher workshops and environment, science and education conferences.
- Creation of a science exhibit at the Mokupapa Discovery Center
- Creation of a Pacific Teachers Cruise, bring together teachers from all over the Pacific to do outreach work and traditional connecting/learning in the Monument.
- Designate a national day devoted to the Monument to aid in recognition
- Add local marine science objectives to the ocean literacy section of the management plan.

Warmest Regards,

Carlie Wiener  
Northwestern Hawaiian Islands Research & Outreach  
Hawaii Institute of Marine Biology  
P.O. Box 1346 Kaneohe, HI 96744  
www.himb.hawaii.edu.  
cwiener@hawaii.edu  
808.236.7496  
808.744.5203  
Cell: 808-628-8666

LINDA LINGLE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

November 21, 2008

LAURA H. THIELEN  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
RUSSELL V. TESLU  
FIRST DEPUTY  
KEN C. KAWAHARA  
DEPUTY DIRECTOR - WATER  
AGRICULTURE DIVISION  
BOATING AND OCEAN RECREATION  
BUREAU OF CONVEYANCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
CONSERVATION AND COASTAL LANDS  
CONSERVATION AND RECREATION ENFORCEMENT  
DIVISIONS  
FORESTRY AND WILDLIFE  
HISTORICAL PRESERVATION  
KAOLOAWE ISLAND RESERVE COMMISSION  
LAND  
STATE TRAILS

Ms. Carlie Wiener  
Northwestern Hawaiian Islands Research & Outreach  
Hawaii Institute of Marine Biology  
P.O. Box 1346  
Kaneohe, HI 96744

Re: Response to Hawaii Institute of Marine Biology's May 28, 2008 Comment Letter on  
the Draft Papahānaumokuākea Marine National Monument Management Plan

Dear Ms. Wiener:

Thank you for providing comments on the Draft Papahānaumokuākea Marine National Monument Management Plan (draft MMP), Environmental Assessment (EA), and associated documents. The draft MMP is the product of an extensive coordinated planning process undertaken by the Monument Management Board (MMB) on behalf of the Co-Trustee agencies: US Fish and Wildlife Service, the National Oceanic and Atmospheric Administration and the State of Hawai'i, Department of Land and Natural Resources. The MMB is comprised of representatives of these three agencies and the Office of Hawaiian Affairs.

The draft EA contained in Volume II evaluates the likely environmental consequences of the activities contained in the Monument Management Plan (Volume I). The draft EA was developed in accordance with the National Environmental Policy Act and Hawai'i Revised Statutes (HRS) Chapter 343 of the State of Hawai'i.

Under Chapter 343 HRS, the Department of Land and Natural Resources (DLNR) is required to respond in writing to comments received from agencies during the course of the draft MMP public review process. This letter is DLNR's Chapter 343 response to your agency's comments. All responses to comments were prepared jointly by the members of the MMB and will also be included in Volume 5 of the final MMP and associated documents. The Hawaii Institute of Marine Biology (HIMB) comments were considered in the preparation of the final MMP and EA and associated documents and where appropriate, the documents were amended to address your comments as outlined below.

Section 3.5.2 - *Constituency Building and Outreach*

All of HIMB comments pertain primarily to Section 3.5.2 - *Constituency Building and Outreach*, of the MMP. All of the activities referenced below are contained in that section of the MMP.

Ms. Carlie Wiener  
November 21, 2008  
Page 2 of 2

*Comment.* HIMB, along with several other commenters, offered valuable suggestions for measuring and evaluating current perceptions, identifying target audiences, evaluating messages, and developing outreach products in support of Papahānaumokuākea Marine National Monument.

*Response.* Activity CBO-1.1 - *Develop An Integrated Communications Strategy Based On An Assessment Of Ongoing Activities And Future Needs*, requires development of an integrated communications strategy based on an assessment of ongoing activities and future needs. This strategy will identify target audiences, messages, means of communications, as well as a means to evaluate the MMP's effectiveness.

Under Activity CBO-1.5 - *Research And Implement New Technologies And Tools To Increase Public Understanding Of The NWHI Ecosystems Within Five Years*, the Monument managers are required to facilitate research and to implement new technologies and tools to increase public understanding of NWHI ecosystems, including the use of telepresence technologies.

*Comment.* HIMB also recommended that the Outreach Plan "[i]nclude an annual magazine publishing related to new discoveries, management breakthroughs and related research findings, this can be different than the already published newsletters, it could be used as an accompanying study guide in schools."

*Response.* Under Section 3.5.2 - *Constituency Building and Outreach*, the Plan requires the development and updating of printed materials to aid Monument constituencies in understanding key aspects of the Monument. While the production of an annual magazine would be consistent with Activity CBO-2.2 - *Continue To Develop And Update Printed Materials To Aid Monument Constituencies In Understanding Key Aspects Of The Monument*, the managing agencies will also develop numerous annual reports that may serve the same purpose.

*Comment.* HIMB also recommended that a science exhibit based upon the Papahānaumokuākea Marine National Monument be created at the Mokupapa Discovery Center.

*Response.* The development of additional exhibits at Mokupapa will be addressed in the overarching Monument interpretive strategy that will be developed under Activity CBO-4 - *Develop and implement an overarching Monument interpretive strategy, including site-specific planning documents for the Monument's visitor facilities, within 5 years.*

DLNR appreciates your interest and comments on the Papahānaumokuākea Marine National Monument draft management plan. We look forward to your continued involvement as work begins on the implementation phase of the program.

Sincerely,

LAURA H. THIELEN  
Chairperson

00364



Christopher Kelley  
<ckelley@hawaii.edu>  
07/21/2008 04:05 PM

To: PMNM\_MMP\_Comments@fws.gov  
cc: jrsmith@hawaii.edu, Frank Parrish <Frank.Parrish@noaa.gov>  
Subject: Re: MonumentPlan\_CommentsFromHURL

Hello:

Attached are comments from the Hawaii Undersea Research Laboratory (HURL) on the Draft Monument Management Plan. We felt the plan was very well written so our congratulations to all those who contributed. The comments we provide here are mostly general and directed at the deep water aspects of the plan, which we felt could benefit from some additional material given the proportion of the monument that is below 100 m depth.

If you have any questions regarding these comments, please don't hesitate to contact either John or myself by email or phone 956-7437 (Kelley) or 956-9669 (Smith).

Christopher Kelley  
Program Biologist, HURL



Monumentplan\_CommentsfromHURL.doc

## Papahānaumokuākea Management Plan Comments

### General comments:

The justification for deepwater research in the monument and the deepwater research portion of this plan are not adequately developed. First, while land and shallow water habitats may be the focus of the monument's management efforts, it cannot be ignored that 98.5% of the monument waters are deeper than 100 meters (based on a GIS extraction of ETOPO-2 bathymetry inside the monument boundaries, Fig 1). It should be noted that the plan's definition of 30 m being the start of deepwater habitat was considered too shallow for the resolution of this bathymetry analysis. Even so, this translates to 139,000 of the 141,000 square miles of the monument waters, most of which are completely unknown and poorly understood. It is therefore likely that in 100 or 1000 years from now when technological advances will provide much greater access to the deep sea, the monument's impact on conserving the world's natural environments may be far greater for deepwater habitats than for either land or shallow water habitats.

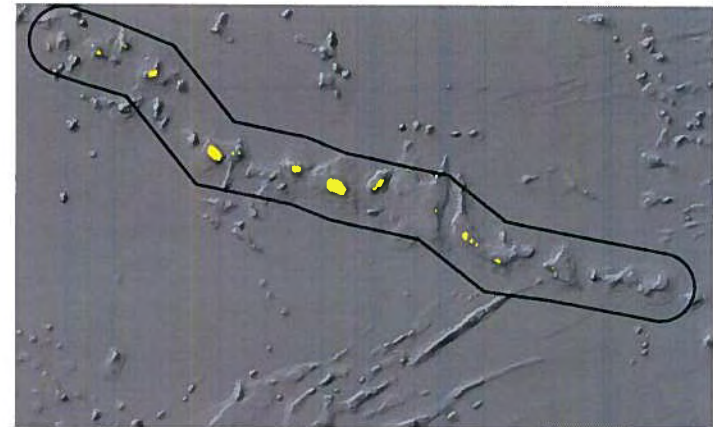


Fig 1: ETOPO-2 global bathymetric data showing the seafloor inside and around the Monument boundaries (black lines). Yellow polygons are the areas of the seafloor with the boundaries that are shallower than 100 m.

Taking a closer look at just the relatively low resolution ETOPO-2 global relief data or even nautical charts, a number of important observations can be made. For example, French Frigate Shoals, the Brooks Banks, St. Rogatien and West St. Rogatien are all part of the same large bathymetric ridge feature (Fig. 1). Since waters do not reach the surrounding full ocean depths between these features as they do to all sides, there may be implication for organism transport between these banks and also isolation from those outside this feature. It may indeed be considered a refuge within a refuge. Further, the northern tip of this large feature and that of

the ridge from Gardner Pinnacles just to the west extends outside the Monument boundary, albeit while doing so at abyssal depths. On the southern side, the large ridges of Pioneer Bank and West Northampton Seamount extend to or almost to that Monument boundary, while those off the eastern side of Maro Reef extend toward other banks and seamounts within the Monument (Fig. 2) (Smith *et al.*, 2003). It would be interesting to study if these deep sea ridges provide pathways for the migration of organisms up and down the archipelago. From submersible dives in 2003 and 2007, we already know that dense deep sea communities reside at water depths greater than 1000 m (Smith *et al.*, 2004; Baco-Taylor *et al.*, 2006).



Fig. 2. From left to right, the rift zone ridges of Maro Reef, West Northampton Seamount, and Pioneer Bank as mapped by the RVs *Kilo Moana* and *KoK*. Pisces submersible dives were carried out on Pioneer ridge in 2003.

Like the main Hawaiian Islands and other oceanic volcanic island chains, the NWHI carry a long geologic history as the tectonic plate they ride on traverses the Pacific Ocean, with the ongoing processes of island and reef subsidence, erosion from various causes, and new islands being built by the hot spot. In effect, the NWHI-Emperor chain is a veritable timeline crossing the northern Pacific Ocean basin, the longest on Earth. While protecting the geology is not the focus of the Monument, it does provide the substrate, habitat, current modification, and the platform on which the shallow ecosystems are perched – the small islands, banks, and atolls. Ocean acidification leading to the deterioration of reefs is a popular topic these days. The NWHI, like the main islands and other such places, contain a sequence of fossil reefs that have subsided to great depths and which cap the volcanic seamounts making up the great bulk of the Northwestern Hawaiian “Islands”. What can we learn about similar such episodes of environmental change in the geologic past by studying these ancient reefs? The fossil reefs in the MHI are fairly well studied (*e.g.*, Moore and Fomari, 1984; Moore and Campbell, 1987; Jones, 1995, Grigg, 1987). How do they tie in with those in the NWHI? While we are at it – what can we learn by extending studies to the Emperor Seamounts and going even farther back in time?

Natural geohazards have also been a large part of the NWHI. Giant submarine landslides and resultant tsunamis have been well studied in the MHI (*e.g.*, Moore *et al.*, 1989; Moore and Moore 1984). In the late 1980s to mid 1990s, the U.S. Geological Survey carried out the EEZ surveys of the entire MHI and NWHI chain, mapping with the long range GLORIA sidescan sonar system out to 200 nm from the coasts. Fascinating geologic features were revealed and

many papers published, along with providing the basemap for numerous follow-on, more detailed studies. Regarding the giant landslides, some of which are the largest on Earth, roughly 20 have been delineated in the MHI and another approximately 50 in the NWHI (Moore, *et al.*, 1994a, b). None of the landslide features in the NWHI have been studied further, to the best of our knowledge. While these catastrophic events in the NWHI are prehistoric, they have played a major role in reshaping the seamounts and platforms now providing the ecosystems of the Monument and may have provided pathways for distributing organisms to different depths and locations (perhaps wiping out some communities) in ways that we have not even conceived of yet.

Anthropogenic and natural threats clearly exist for the monument’s deepwater habitats; but are more difficult and more expensive to study. As pointed out on page 68, the only active fishery currently in the monument is the deepwater bottomfish fishery, yet only one study has been conducted on two banks to evaluate the impacts from this fishery (*ref.*). Neither of these banks were found to have substantial coral beds in bottomfishing depths however, what impacts could fishing be having on banks that do (*e.g.*, Brooks Bank was mentioned in the Kelley & Ikehara (2006) paper as a site of extensive black coral beds)? More research should be conducted to answer this question. There has been deep coral trawling in the northern end of the monument (Parrish and Baco-Taylor?, 2007) yet there is no reference in the plan to possibly evaluating the effects of these activities. Recently published studies have found that the colonies of commercially targeted deepwater species can grow to be thousands of years old (Roark *et al.*, 2006). How old can these and other corals get and could the monument be preserving communities of the oldest animals on the planet? Where are the most important deepwater coral beds in the monument and would it be possible to monitor these areas more closely for illegal activity? Studies are now ongoing to determine whether certain topographic features and oceanographic conditions promote the formation of particularly dense deepwater coral beds. Since locating every deepwater coral bed in the monument is cost prohibitive, we think the plan should be to provide a reference to the need to develop a greater understanding of where they likely occur and consider increased protective measures for these areas.

While marine debris is a larger problem in shallow water because many items float rather than sink, at what depth does it cease to be of concern? To our knowledge, there has never been a coordinated depth zonation study for marine debris starting from land and going down to at least 400 m at a site known for its accumulation (*e.g.*, Pearl and Hermes) and/or a site near a monk seal colony. Monk seals, as I am sure most are aware, have been documented to frequent precious coral beds down to depths of 400 m (see Frank Parrish’s studies and his National Geographic Explorer production). We think a study of this type could and should be mentioned in the plan. How much bottomfishing debris (anchors, anchor lines, fishing leads and fishing lines) exists on popular deepwater fishing sites? This might be important to document particularly following the closure of the fishery in the next 4-5 years.

In the main Hawaiian Islands, alien species have been documented in deeper than typical SCUBA depths (see Sam Kahng’s various papers on *Carrijoa riseii*). Is this species in the monument and if so, how deep does it go given that monument waters are clearer and thus likely pushing it to even deeper depths than in the MHI (*C. riseii* is negatively phototactic). How big of a threat is it to the monument’s black coral beds? Again, we think this should be mentioned as a

potential research effort in the plan. A likely study site and one for long-term monitoring focus would be Middle Bank at the lower end of the monument.

We believe it is important to add more details on deepwater corals in the monument to the "corals" section that starts on page 27. There is a lot of very valuable information provided in Parrish and Baco (2007) including the number of species of deepwater corals that have been documented in the Hawaiian Archipelago to date (137 gorgonian octocorals and 63 species of azooxanthellate scleractinians), past harvesting techniques, stressors, etc. Just last November, two new potential genera of deepwater bamboo corals were collected by submersible at a single site off Twin Banks (Watling, pers comm).

#### Activity MCS-1.3 and 1.4 (page 110)

1) If one vessel is named in this section, then other vessels should as well, particularly since it was the RVs *Kilo Moana* and *Ka'imikai-o-Kanaloa (KoK)* that have to date provided a larger portion of the deepwater mapping data in the monument. We suggest the following change:

Line 23: Working with NOAA, SOEST, and other partners, the MMB will use data collected with the multibeam sonar systems on RV's *Hi 'ialakai*, *Kaimikai-o-Kanaloa (KOK)*, *Kilo Moana*, and other vessels.....

Line 31: Some specific details of projects that need to be conducted should be added here such as age dating of deepwater corals and analyzing them for paleoceanographic climate change information, surveying deep coral communities and what factors are most important for promoting high densities. Other projects could include distribution patterns of deepwater animals relative to substrate types and Hawaii's Oxygen Minimum Zone (OMZ which is located at 600-1000 m). We know that some other researchers are going to provide comments on projects involving global climate change so we will not include that topic here. One very important consideration is the role the monument could have in understanding deepwater habitats, particularly seamounts throughout the Pacific. For example, cobalt-rich manganese crusts occur on seamounts as well as island slopes and banks in a large region of the central Pacific. The zone of their formation has been drawn right through the monument boundaries just south of French Frigate Shoals (Clark, unpublished). These crusts, along with manganese nodules that form on the abyssal plains, have potential commercial value. As technology develops and the terrestrial sources of strategic and more common minerals declines, these resources will likely be targeted in the future for commercial mining. However, manganese crust invertebrate and fish communities that would be disrupted by these operations are very poorly known. The monument offers an excellent opportunity to provide that type of information since a substantial portion of the hard substrate within its boundaries below 800 m is believed to have these crusts.

#### **Activity TES-2.5: Prevent human interactions with cetaceans.**

Efforts will be made to prevent negative human-cetacean interactions that may occur as a result of visitor programs or research activities through design controls on both. The controls will aim to prevent disturbance to cetaceans resting in Monument lagoons or nearshore areas and prevent

[suggest the word "restrict" instead] geological research using sound levels known to be dangerous to marine mammals.

#### 3.5 Coordinating Conservation and Management Activities

Education and outreach efforts should be extended beyond the Hawaii population and visitors to the discovery centers and the Monument itself to the U.S. mainland and internationally. The goal is to create greater awareness for this refuge, coral reef ecosystems worldwide, and reduce the effects of detrimental human-caused activities inside and outside the Monument (*e.g.*, marine debris, global climate change, illegal fishing, dumping, etc) that will result in degradation of the Monument resources. Perhaps some formal program competition could be run, much like taking a science teacher on the space shuttle, where a teacher (and class?) could be introduced to the Monument as part of a research cruise or land expedition. To have wider impact, this competition would not be restricted to those located in Hawaii. There could be dual awards for Hawaii and the mainland (or other). Funding for this program could either be built into the annual Monument budget or proposals could be written to other line office RFPs or agencies.

#### References:

- Grigg, R. W. (1997). "Paleoceanography of coral reefs in the Hawaiian-Emperor Chain-- revisited." *Coral Reefs* v. 16 supp.: p. 533-538.
- Jones, A. T. (1995). "Geochronology of drowned Hawaiian coral reefs." *Sedimentary Geology* v. 99: p. 233-242.
- Moore, J.G., D.A. Clague, R.T. Holcomb, P.W. Lipman, W.R. Normark, and M.E. Torresan, Prodigious submarine landslides on the Hawaiian Ridge, *Journal of Geophysical Research*, v. 94 (no. B12), p. 17,465-17,484, 1989.
- Moore, J. G. and D. J. Fornari (1984). "Drowned reefs as indicators of the rate of subsidence of the island of Hawaii." *Journal of Geology* v. 92: p. 752-759.
- Moore, J.G., and G.W. Moore, Deposit from a giant wave on the island of Lanai, Hawaii, *Science*, v. 226 (no. 4680), p. 1312-1315, 1984.
- Moore, J. G. and J. F. Campbell (1987). "Age of tilted reefs, Hawaii." *Journal of Geophysical Research* v. 92(no. B3): p. 2641-2646.
- Moore, J.G., W.R. Normark, and R.T. Holcomb, Giant Hawaiian landslides, *Annual Review of Earth and Planetary Sciences*, v. 22, p. 119-144, 1994b.
- Moore, J.G., W.R. Normark, and R.T. Holcomb, Giant Hawaiian underwater landslides, *Science*, v. 264 (no. 5155), p. p. 46-47, 1994c.

Note: the Baco-Taylor and Smith references are already included in the draft plan bibliography

LINDA LINGLE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

November 21, 2008

Dr. Christopher Kelly, Program Biologist  
Hawai'i Undersea Research Laboratory  
University of Hawai'i at Manoa  
1000 Pope Road, MSB 303  
Honolulu, HI 96822

Re: Hawai'i Undersea Research Laboratory July 21, 2008 Comments on Draft  
Papahānaumokuākea Marine National Monument Management Plan

Dear Dr. Kelly:

Thank you for providing comments on the Draft Papahānaumokuākea Marine National Monument Management Plan (draft MMP), Environmental Assessment (EA), and associated documents. The draft MMP is the product of an extensive coordinated planning process undertaken by the Monument Management Board (MMB) on behalf of the Co-Trustee agencies: US Fish and Wildlife Service, the National Oceanic and Atmospheric Administration and the State of Hawai'i, Department of Land and Natural Resources. The MMB is comprised of representatives of these three agencies and the Office of Hawaiian Affairs.

The draft EA contained in Volume II evaluates the likely environmental consequences of the activities contained in the Monument Management Plan (Volume I). The draft EA was developed in accordance with the National Environmental Policy Act and Hawai'i Revised Statutes (HRS) Chapter 343.

Under Chapter 343 HRS, the Department of Land and Natural Resources (DLNR) is required to respond in writing to comments received from agencies during the course of the draft MMP public review process. This letter is DLNR's Chapter 343 response to your agency's comments. All responses to comments were prepared jointly by the members of the MMB and will also be included in Volume 5 of the final MMP and associated documents. The Hawai'i Undersea Research Laboratory (HURL) comments were considered in the preparation of the final MMP, EA and associated documents and in many cases, where appropriate, the documents were amended to address your comments as outlined below.

General Comments

In the introduction to its general comments, HURL suggested that justification for deepwater research and in the monument and the deepwater research portion of the draft management plan were not adequately

LAURA H. THELEN  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL V. TRUJILLO  
PRESIDENT

KEITH C. KAWABARA  
DEPUTY DIRECTOR - WATER

AGRICULTURE  
BOATING AND OCEAN RECREATION  
BUREAU OF CONSERVATION  
COMMISSION ON WATER RESOURCE MANAGEMENT  
CONSERVATION AND FORESTAL LANDS  
CONSTITUTION AND RESOURCES ENFORCEMENT  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
KAIKOLAHE ISLAND RESERVE COMMISSION  
LAND  
STATE PARKS

Dr. Christopher Kelly  
November 21, 2008  
Page 2 of 3

developed. HURL then provided a substantial amount of relevant information to expand upon these concerns. The information provided by HURL is appreciated and as explained below, will be useful in the future development of research priorities for the monument. Similar concerns related to a need for more detailed descriptions of many research activities that will occur in the monument were provided by other reviewers during the public comment process.

Response. Detailed descriptions and more robust development of future scientific research plans for the monument are outside the scope of the management plan itself, which provides a broad outline of all of the activities that will be occurring within the monument. With respect to natural sciences research, the MMP requires that a Natural Resources Science Plan (Activity MCS-2.1) be developed in the first year of plan implementation. This science plan will include the following thematic areas: 1) research on ecological processes and connectivity, 2) research on biodiversity and habitats, 3) research on human impacts, 4) research on ecosystem change, indicators, and monitoring, and 5) modeling and forecasting ecosystem change.

Its stated purpose is to guide and regulate research in the Monument. This step-down plan will define and prioritize research activities based on management needs to protect, conserve, and when possible, restore ecosystems within the Monument. Research activities will be prioritized by the necessity of information for management purposes. Due to the remoteness of the NWHI, research will be limited by vessel and field station space, so only those research activities ranking highest in management priority will be accommodated.

With respect to deepwater research, the following language was added to Activity MCS-1.3: "As resources in this habitat are virtually unknown in the NWHI, it is imperative to understand the dynamics of deep-water habitat to protect and manage them in the future."

Responses to HURL's specific comments are provided below.

Comment. HURL suggested that the need for marine debris research should have been discussed in greater detail.

Response. Investigations into the sources, types, and accumulation rates of marine debris and its removal and prevention are described in the Marine Debris Action Plan (3.3.1). Monument Management Plan Sections 3.1 and 3.1.1 have undergone a major revision. HURL's comments were addressed by incorporating additional language to 1) further detail the need for research, 2) to directly link any research conducted with management needs, and 3) to consider cumulative impacts of research.

Comment. HURL recommended that more detail be added to the deepwater corals discussion that is contained in Section 1.2 "Status and Condition of Natural Resources".

Response: Additional information of deepwater corals was added to Section 1.2.

Comment. HURL recommended that the names of following vessels be added to the list of vessels contained in MCS-1.3: RV Kilo Moana and Ka'imikai-o-Kanaloa (KoK).

Response. References to all vessels were deleted from MCS-1.3 so as not to give the impression that any particular vessel had special standing.



Dr. Christopher Kelly  
November 21, 2008  
Page 3 of 3

MARINE MAMMAL COMMISSION  
4340 EAST-WEST HIGHWAY, ROOM 700  
BETHESDA, MD 20814-4447

00621

15 July 2008

**Comment.** HURL recommended the following change to the language in Activity TES-2.5 - Prevent human interactions with cetaceans: replace the word "prevent" with "restrict" in the sentence ending with "... prevent geological research using sound levels ..."

**Response.** Sonar use is subject to the ESA and MMPA regulations. Activity TES-2.5 was reworded to say "... controls will aim to prevent disturbance to cetaceans resting in Monument lagoons or nearshore areas and restrict disturbance to Cetaceans ...."

**Comment.** HURL recommended that education and outreach efforts be extended beyond the Hawaii population and visitor discovery centers to the U.S. mainland and internationally.

**Response.** Activities OEL-1.5, OEL-1.8, and NHCH-2.3 allow students and teachers educational opportunities in the Monument and do not preclude participation by the international community. Activity OEL-1.8 has been revised as follows: "Facilitate at least two opportunities per year for educational groups, private/nonprofit environmental or historical organizations to conduct wildlife-dependent or historical courses or to administer informal educational camps, within 2 years."

DLNR again wishes to thank your interest and for reviewing and commenting on the Papahānaumokuākea Marine National Monument draft Monument Management Plan, draft Environmental Assessment and the associated documents. We look forward to your continued involvement and participation as the implementation phase of the project moves forward.

Sincerely,



LAURA H. THIELEN  
Chairperson

Susan White, Ph.D.  
Superintendent, Fish and Wildlife Service  
Papahānaumokuākea Marine National Monument  
Box 50167  
Honolulu, HI 96850-5000

Dear Dr. White:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the draft management plan for the Papahānaumokuākea Marine National Monument and offers the following comments and recommendations. The purpose of the draft management plan is to identify proposed policies and activities that the Fish and Wildlife Service, National Oceanic and Atmospheric Administration, and Hawaii Department of Land and Natural Resources would pursue jointly as co-trustees to manage the Papahānaumokuākea Marine National Monument.

#### RECOMMENDATIONS

The Marine Mammal Commission commends the authors for preparing an exceptionally good draft plan. The authors have had to integrate a complex array of challenges to protect natural and cultural resources; differing legal, jurisdictional, and programmatic mandates within co-trustee management agencies; and previous draft and interim planning documents. The resulting plan is coherent, insightful, and well-thought-out and lays a solid foundation for what could become one of the world's best examples of large-scale ecosystem-based management. To improve the plan, the Marine Mammal Commission recommends that the co-trustees—

1. adopt the draft plan subject to modifications addressed in the following specific comments, particularly including the following points:
  - a. highlight the most urgent recovery needs for Hawaiian monk seals in the Northwestern Hawaiian Islands (NWHI) (i.e., developing monk seal care and intervention methods to increase juvenile seal survival, minimizing shark predation at French Frigate Shoals, and preventing entanglement in marine debris)
  - b. add the following two new activities to Endangered and Threatened Species Action Plan strategy TES-1 for recovering Hawaiian monk seals: (1) improve and apply monk seal care capabilities and interventions for increasing juvenile seal survival and (2) reduce shark predation on monk seal pups
  - c. add the following new activity to Endangered and Threatened Species Action Plan strategy TES-2 for conservation of cetaceans: initiate passive acoustic monitoring system to detect calls of endangered whales, other marine mammals, and fishes, and to establish an ambient underwater sound budget for natural and anthropogenic sound sources
  - d. expand the mission statement to note explicitly the primary importance of restoring damaged or depleted Monument resources

PRINTED ON RECYCLED PAPER

PHONE: (301) 504-0087  
FAX: (301) 504-0099

- e. add a new “guiding principle” that calls on managers to perpetuate and, where possible, restore significant natural and cultural resources over the long term while ensuring that impacts and risks inherent in research and management activities are no more than short-term or minor and clearly outweigh potential adverse effects
  - f. reorganize the list of six priority management categories and the action plans and activities under those categories to better reflect Monument priorities, with revised sections entitled “conserving and restoring wildlife and wildlife habitat” listed first and “conserving and restoring cultural and historic resources” listed second
2. appoint a representative of the Marine Mammal Commission to the Monument Interagency Coordinating Committee
  3. establish a Monument Advisory Council, with a purpose and membership comparable to that of the current Coral Reef Ecosystem Reserve Advisory Council, to provide advice and recommendations to the co-trustees on Monument research and management activities
  4. review and, as appropriate, revise the Memorandum of Agreement for managing the Monument to—
    - a. reflect the new name of the Monument,
    - b. identify provisions and a schedule for periodically updating the Monument management plan,
    - c. modify the Monument mission statement to reflect the aspiration for restoring significant natural and cultural resources as mentioned in 1d above,
    - d. add the recommended guiding principle mentioned in 1e above to the list of guiding principles, and
    - e. incorporate such other changes as may be deemed appropriate and necessary in light of recent progress and developments.

#### SPECIFIC COMMENTS

##### Volume I

Pages 12–21. Islands and marine habitats of the Papahānaumokuākea: This section describes major environmental features at the various atolls and banks within the Monument. The description of French Frigate Shoals notes that it currently supports the largest colony of Hawaiian monk seals. The descriptions of Laysan Island, Lisianski Island, Pearl and Hermes Reef, Kure Atoll, and Midway Atoll should note that they also support important breeding colonies of monk seals. Also, the descriptions of Mazo Reef and Gardner Pinnacles should note that they are important feeding areas for monk seals.

This section also should note other marine mammal species that are important components of certain marine habitats in the Monument. In this regard, the summaries of reef biota at Midway, Pearl and Hermes Reef, and French Frigate Shoals should note that atoll lagoons provide resting habitat for local populations of spinner dolphins and that pelagic waters provide habitat for several species of whales and dolphins, including overwintering humpback whales.

Page 38, Line 30: Insert the words “under the Endangered Species Act” after the word endangered.

Page 36, Marine Mammals: The first six paragraphs provide a good summary of key points regarding the status, distribution, and ecology of Hawaiian monk seals within the National Monument. Although the first paragraph notes that the species is endangered and declining, the text does not reflect the magnitude of concern regarding its long-term existence in the NWHI. To better reflect this concern, we suggest adding something like the following after the sentence ending on line 15, page 36:

Monk seal numbers in the NWHI have declined persistently since the first counts of the species in the 1950s. Despite efforts to mitigate known impacts, recent beach counts are less than two-thirds the size of initial counts and are expected to decline further due to poor recruitment of breeding-age seals. The past and projected declines have elevated monk seal recovery to a crisis situation as indicated in the recently revised Hawaiian Monk Seal Recovery Plan (NOAA Fisheries 2007).

Page 41, Endangered and Threatened Species: This section notes that 23 species listed as endangered or threatened under the Endangered Species Act occur within the Monument. The State of Hawaii also designates species as endangered and threatened under state law. It would be helpful to clarify which species are listed under both federal and state authorities and whether there are any species in the NWHI that are listed under state law but not under federal law.

Page 56, lines 5–11: This paragraph discusses the effects of past human activities on wildlife, reefs, and islands in the NWHI. Past human activity is believed to have had a major effect on Hawaiian monk seals and, to reflect this understanding, we suggest that something like the following be added to the end of this paragraph:

Impacts of these activities on Hawaiian monk seals were particularly acute and may explain much of the decline in the monk seal population in the years following World War II (Ragen and Lavigne 1999<sup>1</sup>).

The citation for Ragen and Lavigne 1999 should be added to the bibliography at the end of this volume.

Page 62, Line 23: A new subsection should be added between the sections on Climate Change and Weather Changes called something like “Rising Sea Level.” The new subsection should describe how sea level increase has affected, and is likely to continue to affect, various species and the ecosystem in the NWHI. For example, several islets at French Frigate Shoals that were once vegetated and used as breeding habitat by seabirds, monk seals, and other wildlife have been lost or severely reduced in size as a result of rising sea level, and additional losses of limited terrestrial

<sup>1</sup> Ragen, T.J., and D.M. Lavigne. 1999. The Hawaiian monk seal: biology of an endangered species. Pages 224–245 in: J. Twiss and R. Reeves, eds. Conservation and management of marine mammals. Smithsonian Institution Press, Washington, D.C.

Susan White, Ph.D.  
15 July 2008  
Page 4

habitat in the NWHI are likely. At a minimum, the new text should describe how sea level rise reduce monk seal haul-out habitats (see Baker et al. 2006<sup>2</sup>). The citation for Baker et al. 2006 also should be added to the bibliography at the end of the volume.

**Pages 63–64, Diseases:** This section notes that diseases are a significant threat to certain coral species and sea turtles. The section should also note that the introduction of diseases is an important conservation concern for Hawaiian monk seals, seabirds, and perhaps other wildlife species in the Monument.

**Page 68, Lines 27–29:** The sentence here incorrectly implies that lobster harvests have been prohibited since 1991. This sentence should be revised to read as follows:

The NWHI crustacean (lobster trap) fishery was temporarily closed in 1993 due to uncertainty about the stock's status. In 1994 and 1995 lobster catches resumed at reduced levels under a research program, and between 1996 and 1999 harvests comparable to the research catch were again authorized under a harvest guideline management system. Since 2000 harvest guidelines for the NWHI have remained at zero with no catch.

Also, in the paragraph on bottomfish fishing, the last two sentences should be moved to the beginning of the next paragraph so that all discussion of bottomfish fishing appears in the same paragraph.

**Page 69, Line 8:** A new sentence should be added noting that collisions with vessels can seriously injure or kill whales and that the humpback whale, which occurs in the NWHI more frequently than previously thought, is likely the species most susceptible to vessel collisions in the Monument (Laist et al. 2001<sup>3</sup>). A citation for Laist et al. 2001 should be added to the bibliography at the end of this volume.

**Page 82, Papahānaumokuākea Interagency Coordination Committee:** This section notes that an interagency coordinating committee will be established to assist in implementing Monument management, but that the committee has not yet been appointed. As part its statutory responsibilities under Title II of the Marine Mammal Protection Act, the Marine Mammal Commission has had a longstanding interest and involvement in marine mammal research and management activities in the NWHI. Among other things, it provided the initial recommendations for listing the Hawaiian monk seal as endangered and for designating critical habitat for the species. It also has intermittently funded research on monk seals in the NWHI and has been actively involved in recommending and reviewing major NWHI research and management actions by the

<sup>2</sup> Baker, J.D., C.L. Littman, and D.W. Johnson. 2006. Potential effects of sea level rise on terrestrial habitats of endangered and endemic megafauna in the Northwestern Hawaiian Islands. *Endangered Species Research* 2:21–30.

<sup>3</sup> Laist, D.W., A.R. Knowlton, J.G. Mead, A.S. Collet, and M. Podesta. 2001. Collisions between ships and whales. *Marine Mammal Science* 17:35–75.

Susan White, Ph.D.  
15 July 2008  
Page 5

Navy, the National Marine Fisheries Service, the Fish and Wildlife Service, and the Hawaii Division of Land and Natural Resources throughout the past 30 years. In view of our commitment to conserving NWHI resources, the Marine Mammal Commission requests that a Commission representative be included on the Monument Interagency Coordinating Committee.

**Page 82, Lines 37 to 40:** This section notes that the National Oceanic and Atmospheric Administration listed the NWHI Coral Reef Ecosystem Reserve to be a candidate for sanctuary designation in 2001 and that it established a reserve advisory council to provide advice on the designation. Because the council was mandated by the Executive Order establishing the Reserve and was active before the Reserve was identified as a candidate sanctuary, we suggest deleting the sentence on lines 38 to 40 and adding a new sentence at the end of the preceding paragraph reading something like the following:

The Executive Order also directed that the National Oceanic and Atmospheric Administration establish a reserve advisory council to provide recommendations and advice on research and management activities, including the preparation of a reserve operations plan and the designation of the Reserve as a national marine sanctuary.

**Pages 87–93, Section 2.3, Initial Management:** This section notes that Executive Orders and accompanying regulations establishing the Monument emphasize the need for ecosystem-based management. The section provides a thoughtful and very helpful description of crucial elements needed to translate this complex and often vaguely defined concept into practice for purposes of managing Monument resources.

**Page 89, Line 15:** The bullet on this line describing adopted Monument regulations for commercial fishing would be more accurate if it were changed to read “prohibit certain commercial fisheries immediately and phase out all other commercial fishing by 2012.”

**Page 96, Table 2.1:** This table summarizes the Monument's vision, mission, guiding principles, and goals. The vision, mission, and guiding principle statements on this table are taken directly from the co-trustees' 8 December 2006 Memorandum of Agreement for Promoting Coordinated Management of the Northwestern Hawaiian Islands Marine National Monument in Appendix H. These statements provide an exceedingly helpful and thoughtful foundation for managing Monument resources, and the Marine Mammal Commission commends the co-trustees for articulating such a useful and well-developed conceptual framework for Monument decision-making. It would be helpful to note in the text accompanying this table that the statements of vision, mission, and guiding principles are set forth in that Memorandum of Agreement.

Notwithstanding the overall strengths of this framework, we believe that two modifications should be made to the statements on this table. First, the mission statement should be expanded to refer explicitly to the need for and importance of restoring resources that have been degraded or damaged by past human activity. Although the Monument has a relatively intact and healthy complement of wildlife resources compared to most other tropical island environments, human

activity has nonetheless introduced many alien species and contaminants, significantly depleted fish and wildlife populations, and brought many other changes that have damaged, degraded, or diminished components of the area's natural heritage. Extensive effort is needed to undo those impacts. Therefore, although protecting and perpetuating Monument resources is an essential part of the Monument's mission, in our view an equally important aspect of its mission should be to undo the negative effects of past human activity to the extent possible and consistent with the maintenance of significant cultural features and values. Such remediation is not reflected in the Monument's current mission statement. Therefore, the Marine Mammal Commission recommends that the mission statement be expanded to read as follows:

Carry out seamless integrated management to restore and achieve strong, long-term protection and perpetuation of NWHI ecosystems, Native Hawaiian traditional and customary cultural and religious practices, and heritage resources for current and future generations. (new language underlined)

Second, the guiding principles in this table should reflect the mission statement's aspiration to restore and protect Monument resources over the long term. As noted on page 95, the guiding principles are intended to provide direction for making informed management decisions about human activities consistent with the vision and mission statements. Restoration activities will require that managers carefully consider and balance short-term or minor impacts and risks against prospects for restoring and perpetuating natural and cultural resources for future generations. Such will be the case for endangered and threatened species in particular (e.g., Hawaiian monk seals, certain birds, and endemic plants). Short-term impacts and risks also are inherent in work to remove alien and invasive species; clean up contaminants, marine debris, and other forms of pollution; and remove, relocate, refurbish, restore or utilize cultural or historical resources. The need to consider and accept short-term or minor impacts in pursuit of long-term management objectives articulated in the Monument's vision and mission statements is not reflected in the guiding principles in this table. Therefore, the Marine Mammal Commission recommends that the list of guiding principles for managing Monument resources be expanded by adding something like the following:

perpetuates and, where possible, restores significant natural and cultural resources over the long term while ensuring that impacts and risks inherent in research and management activities are no more than short-term or minor and clearly outweigh potential adverse effects.

Pages 97–99, Six Priority Plan Groupings: This section notes that the plan contains 22 action plans organized under six priority management needs. The current order of these six needs does not clearly reflect the priorities expressed in the vision and mission statements. For example, the need listed first is entitled "understanding and interpreting the NWHI," whereas the Monument's mission is preserving wildlife and cultural resources. To emphasize the prime importance of protecting wildlife and cultural resources, actions to conserve wildlife and wildlife habitat should be mentioned first. A category for conserving and restoring cultural and historic resources should be given comparable priority. Such activities are now scattered within the understanding and interpreting

category. In addition, research and monitoring studies that could have been included under the understanding and interpreting category are listed under conserving wildlife and habitat. To relate research activities with management needs, the approach used in the conservation of wildlife category seems preferable. In that section, research activities are linked to specific wildlife conservation issues rather than grouping most of them separately under an understanding and interpreting category. In any event, to better convey management priorities, the Marine Mammal Commission recommends that consideration be given to reorganizing the presentation of priority management needs and activities so they better reflect Monument priorities, with the section on wildlife conservation listed first and a new category on conservation of cultural and historic resources listed second. For reasons noted earlier, we also suggest that the category for wildlife be renamed something like "conserving and restoring wildlife and wildlife habitat."

Page 99, line 25: This line states that interagency coordination is needed to "maintain *existing* resource protection measures..." (emphasis added). However, this plan and the Executive Orders establishing the Monument call for a significant increase in protection through measures that, in part, would be implemented based on this plan. Although greater coordination among agencies likely will result in cost savings to help address new initiatives, cost estimates and action plans identified in subsequent sections of the draft plan indicate that many, if not most, agency partners will be called upon to increase staff and funding support for actions outlined in the draft plan. We therefore suggest that the words "maintain existing resource protection" be changed to read something like "expand resource protection measures as called for by the Monument's designation, increase support for related research and management work."

Page 102–104, Table 3.1: This table provides cost estimates totaling \$355 million to implement action plans identified in the draft management plan over the 15-year planning horizon. It would be helpful if the accompanying text provided an explanation of how these estimates were derived.

Page 107, Section 3.1.1, Marine Conservation Science Action Plan: This action plan, which is the first of five action plans designed to improve understanding and interpretation of NWHI resources, discusses actions to investigate, monitor, and integrate information on natural resources within the Monument. As presently written, the title does not clearly convey the activities covered under this section. In addition, the title of this action plan also differs from other action plan titles in this section in that all other titles identify particular classes of resources (e.g. Native Hawaiian cultural, historic, and maritime heritage resources). A more appropriate title that would better complement other action plan titles in this section might be something like "Natural Resources Monitoring and Assessment Action Plan." Also, although the "current status and background" section of this action plan identifies a number of past major investigations of natural resources, it does not, but should, mention long-term research initiatives by the National Marine Fisheries Service on Hawaiian monk seals and by the Fish and Wildlife Service on seabirds. This section appears to highlight appropriate strategies and activities; however, it should be noted that this plan needs to prioritize listed activities and to undergo periodic updating.

**Page 129, Section 3.1.3. Historic Resources Action Plan:** To better distinguish this action plan on land-based structures and artifacts from submerged historical resources (e.g., sunken whaling ships, other significant wrecks, and historical artifacts) addressed under the "Maritime Heritage Action Plan," a more appropriate title for this action plan would probably be something like "Land-based History and Heritage Action Plan."

**Page 143, Section 3.2. Conserving Wildlife and Habitats:** As noted above, we believe a better title for this section would be "Conserving and Restoring Wildlife and Habitats."

**Pages 145–158, Section 3.2.1. Threatened and Endangered Species Action Plan:** Because some activities identified under this action plan address species that are neither threatened nor endangered under the ESA (e.g., spinner dolphins and certain other non-listed cetaceans), the title of this section is somewhat misleading. In addition, there are other important species or species groups (e.g., depleted lobster and oyster populations, certain top predators such as sharks and giant trevally, and certain endemic insects and plants) that are neither endangered nor threatened but which would be appropriate subjects for focused research and management. The only other section on wildlife, however, is for migratory birds. Activities to address some of the other species (e.g., restoring black-lipped pearl oysters under Activity HMC-1.1) are scattered under other sections of the draft plan, particularly the section on ecosystems. Therefore, we suggest that a new action plan be added entitled something like "Non-Endangered Wildlife Action Plan." This action plan could identify strategies and activities focused on individual species, such as spinner dolphins, oysters, lobsters, and certain plants, that do not fit in the endangered species and migratory bird action plans.

**Page 145, Hawaiian Monk Seals:** This paragraph notes in part that Hawaiian monk seals are declining and that a recently revised Hawaiian Monk Seal Recovery Plan identifies actions that the Monument Management Board and others can take to help reverse the ongoing decline. This explicit and prominent recognition of the importance of monk seal recovery for Monument management planning is important and appreciated.

**Page 145, Cetaceans:** This section notes that 6 endangered whales and 18 non-ESA listed cetaceans occur in the Monument and that recovery plans for several of the endangered whale species have been adopted or drafted. Elsewhere, the draft management plan notes that local spinner dolphin populations exist at French Frigate Shoals and the Monument's westernmost atolls. Because those populations may well occur entirely or principally within the Monument's boundaries, Monument managers should be particularly mindful of their conservation needs, and it would be helpful to note this in the plan. If a separate action plan is developed for wildlife species that are neither listed species under the ESA nor migratory birds, the discussion of spinner dolphins and other non-ESA listed cetaceans should be moved to that section.

**Page 147, Need for Action:** This section notes that coordinated action is required to protect "these 23 endangered and threatened species." To clarify which 23 species these are, it would be helpful to reference the list of species in Table 1.4 on page 41.

**Page 148, lines 1–23, Strategy TES-1, Support activities that advance recovery of the Hawaiian monk seal for the life of the plan:** The second paragraph of this section lists eight activities described in the recently revised Hawaiian Monk Seal Recovery Plan as being of particular relevance to seals within the Monument. A reference to the recovery plan should be provided. In general, this section is helpful; however, it does not list all the activities identified in the plan that are particularly important with regard to monk seal management within the Monument. To be complete, the list should be expanded to include the following: (a) reducing male aggression toward pups, juveniles, and adult females, (b) responding to biotoxin impacts, and (3) reducing impacts of contaminants. In addition, to highlight the highest-priority monk seal recovery needs in the Monument, we suggest that something like the following be added to the end of this paragraph.

With regard to the NWHI, the Hawaiian Monk Seal Recovery Team, the Marine Mammal Commission, and the National Marine Fisheries Service believe that the actions requiring attention most urgently are (1) developing a captive-care program to improve juvenile survival, (2) reducing shark predation on pups and juveniles at French Frigate Shoals, and (3) preventing entanglement in marine debris.

**Pages 148–149, Activities TES 1.1–1.5:** This portion of the plan identifies five activities to advance monk seal recovery within the Monument. These activities are helpful and will clearly further Hawaiian monk seal recovery goals; however, only one activity (TES-1.1, removal of marine debris) squarely addresses the highest-priority needs mentioned in the previous comment. To help address the most urgent needs, the Marine Mammal Commission recommends that the list of activities in support of monk seal recovery be expanded to include two additional activities: (1) improve and apply methods for increasing juvenile monk seals survival rates in the NWHI, and (2) reduce risks of shark predation on monk seal pups.

Narrative under the first of these additional activities could note that juvenile mortality has increased significantly in the NWHI since the 1980s and early 1990s; various captive-care projects, including translocations, have been tried with varying levels of success to increase juvenile survival; new captive-care methods are being investigated and developed to improve survivorship rates; and Monument staff and assets will be used as appropriate and feasible to assist captive-care work involving the capture, transport, care, and release of juvenile monk seals in the NWHI. Narrative under the second activity could note that predation on monk seal pups by Galapagos sharks at French Frigate Shoals increased sharply in the late 1990s, claiming perhaps 50 percent of all pups born at the atoll; the National Marine Fisheries Service concluded that predation was a behavior learned by a few individual sharks and initiated efforts in 2000 to remove individual sharks believed to be exhibiting that behavior; the number of monk seal pups and juveniles killed by sharks has since declined but remains above historic levels; and Monument staff will work with the Service to ensure that plans for mitigating shark predation are consistent with Monument management policies and objectives and, as possible, support or assist research to evaluate shark behavior and shark predation risks and improve the effectiveness of related mitigation efforts.

**Page 149–150, TES-2, Determine the Status of Cetacean Populations and Verify and Manage Potential Threats:** Currently little is known about cetacean populations, particularly large whales, occurring in and around the Monument's pelagic waters. A cost-effective, low-impact way to gather data on these species and populations, as well as certain fishes, is through passive acoustic monitoring (PAM). The Pacific Islands Fisheries Science Center is in the process of developing a PAM system for the Pacific Islands region. Among other things, recordings of whale calls could help determine whether blue whales using Monument waters belong to the eastern or western North Pacific populations; document the seasonal occurrence of odontocetes, including hard-to-study beaked whales; assess underwater sound from anthropogenic (ships, sonar) and natural (seismic) sources; and establish a baseline 'acoustic budget' for the region for comparison with other areas and for longitudinal studies. Establishing PAM stations within the Monument would be an important contribution to the Center's developing program and would help Monument managers assess and manage cetacean populations. **The Marine Mammal Commission therefore recommends** that the strategy for assessing and managing cetacean populations be expanded to identify an activity to initiate a passive acoustic monitoring system to detect and analyze calls of endangered whales, other marine mammals, and fishes and to establish an ambient underwater sound budget for natural and anthropogenic sound sources.

**Page 149, Activity 2.2, Conduct Spinner Dolphin Mark and Recapture Photo-identification Surveys:** The narrative for this activity states that spinner dolphin surveys at Midway and Kure Atolls and Pearl and Hermes Reef will be continued. Spinner dolphins also occur at French Frigate Shoals. We suggest adding a sentence noting that surveys also will be undertaken to develop baseline information for assessing the status of the population at that atoll.

**Pages 165–177, Section 3.2.3, Habitat Management and Conservation Action Plan:** This section identifies activities for restoring habitats significantly altered or damaged by past human activity. Stocks of lobsters, which were important components of reef biota and a potentially important prey for Hawaiian monk seals, have been seriously depleted for reasons that include intensive commercial fishing from the late 1970s to 1999. Available information suggests spiny lobster stocks have not recovered, and slipper lobsters have expanded into areas previously dominated by spiny lobsters. As we understand it, hatchery techniques have been developed for raising American lobsters through their pelagic phases to the age at which they settle on the seafloor. These techniques might be modified and used to help restore depleted spiny and slipper lobster populations at banks within the Monument that are seriously depleted compared to historic levels. Alternatively, it might be possible to translocate three-year-old lobsters to boost reproductive potential. We suggest that this section be expanded to include possible hatchery or translocation techniques to restore depleted lobster stocks within the Monument. Such efforts might be pursued in conjunction with efforts to monitor monk seal prey selection to determine if improvements in lobster stocks lead to improved juvenile monk seal survival.

**Page 181–187, Section 3.3.1, Marine Debris Action Plan:** This section identifies strategies and activities to document and mitigate impacts of marine debris, including entanglement, injury, and mortality of monk seals. The activities identified in this section constitute important steps for

assessing and mitigating these impacts, and the Marine Mammal Commission strongly endorses their inclusion in this plan.

**Activity MD-1.5, Work with fishery management councils to address marine debris prevention with U.S. fishing fleets:** This section notes that the Monument Management Board will work with the Western Pacific and North Pacific Fishery Management Councils to initiate an "accountability requirement for all vessels that utilize the type of gear that contribute to the marine debris problem." Large fragments of net debris—particularly trawl nets—appear to pose the principal threat for Hawaiian monk seals, and actions under this activity to minimize the loss of these nets would be particularly important. The Marine Mammal Commission strongly supports the activity described in this section. In working with fishery councils, we suggest that consideration be given to either requiring net deposits or establishing a fund that could be used to reimburse fishermen who return to disposal or recycling centers their old or ready-to-retire trawl nets of the types found in the NWHI. Prevalence of certain types of trawl net recovered during NWHI debris clean-up efforts might serve as a measure of the effectiveness of such an approach.

**Page 186, Line 1:** Insert the words "marine debris" in the title of this activity between the words "standardize" and "monitoring."

**Page 208, Line 28:** This line notes that vessel operators will be advised of the need to report any hazardous interactions between aircraft or vessels and protected species or other wildlife. The reporting of such interactions should be mandatory for any permit to enter the Monument. Given its importance, this might merit listing as a separate activity in this section.

**Page 211–216, Section 3.3.4, Emergency Response and Natural Resources Damage Assessment Action Plan:** This section identifies activities to respond to and remove hazards from shipwrecks, oil spills, and similar emergencies. The activities could help protect Hawaiian monk seals and other natural resources, and the Marine Mammal Commission strongly endorses their inclusion in this plan.

**Page 217, Line 17:** Insert the words "and after" between the words "military activity during" and "World War II."

**Page 219–230, Section 3.4.1, Permitting Action Plan:** This section identifies strategies and activities for implementing a permit system to manage human activities in the Monument. Among other things, it identifies various types of permits, permit review criteria, and general permit terms and conditions. The permit process integrates permit systems that were previously administered independently by the federal and state agencies now serving as co-trustees for the Monument. The measures identified in this section are appropriate and important for managing human activities in the Monument, and the Marine Mammal Commission strongly endorses their inclusion in the plan.

**Page 256–257, Strategy CBO-1, Coordinate Monument outreach and engage Monument constituencies:** Strategy CBO-1 describes actions that will be taken to communicate information on

Susan White, Ph.D.  
15 July 2008  
Page 12

Monument resources and management activities to the public and to build public support for the Monument. As currently drafted, the activities do not include a clear, effective mechanism for soliciting and integrating constituent advice into Monument research and management actions. This was recognized as an important need in the Executive Orders designating the Northwestern Hawaiian Island Coral Reef Ecosystem Reserve, which established a Reserve Advisory Council to provide advice and recommendations on the designation and management of any sanctuary established to protect NWHI resources.

Although designation of the Papahānaumokuākea Marine National Monument superseded the need for sanctuary designation, it directed that Monument management be based on plans for designating a sanctuary, which would include ongoing involvement of the Reserve Advisory Council. In our view, the council has been a source of constructive advice, relaying constituent views to resource managers, and both the spirit and intent of Monument designation require that a comparable Monument Advisory Council be included as part of the Monument management system. Accordingly, the Marine Mammal Commission recommends that the strategy in the draft management plan be expanded to include a Monument Advisory Council whose purpose and membership is comparable to that of the current Coral Reef Ecosystem Reserve Advisory Council (i.e., to provide advice and recommendations to the co-trustees on Monument research and management). Although this Council should replace the current Reserve Advisory Council, we believe at least some members of the current council should be among initial appointees to the Monument Council to facilitate a smooth transition.

Page 264, Line 2: Insert the word "information" between the words "resources" and "exchange" in the title of this activity.

Page 298, Activity CFO-6.2: It also would be appropriate to note that the two new vessels at Midway supported under this activity would be available for transporting seals or otherwise assisting in monk seal recovery work.

Page 301, Activity CFO-9.2, Complete planning for and construct a captive-care monk seal facility on Sand Island: The Marine Mammal Commission appreciates and strongly endorses inclusion of such a facility in the proposed plan. The end of the first line of the narrative should be changed to read "...has been identified as a critical need for recovery of this species."

Page 301, Activity CFO-9.3, Provide logistical infrastructure and transportation support for threatened and endangered species recovery actions: The Marine Mammal Commission appreciates and strongly supports such assistance for the monk seal and other endangered species recovery programs active within the Monument. With regard to monk seals, we assume the reference to juvenile survival in the first sentence of the narrative in this section (line 13) refers to improving juvenile monk seal survival. To clarify this, we suggest that the beginning of this sentence be changed to read "Advanced recovery efforts, particularly efforts to address juvenile survival of monk seals, will require..."

Susan White, Ph.D.  
15 July 2008  
Page 13

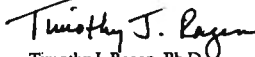
Pages 321-350, References: A citation for the revised Hawaiian Monk Seal Recovery Plan should be added to the bibliography.

### Volume III

Appendix H, Monument Memorandum of Agreement: The provisions in this agreement, signed by the co-trustees on 8 December 2006, provide the foundation for cooperative activities to implement Monument management. Sections VA and B of the agreement call for an annual review of its provisions to determine whether they should be modified and, if so, to adopt amendments in writing with concurrence of all co-trustees. With the adoption of a final Monument Management Plan, we believe it would be appropriate to reexamine and incorporate changes in the Memorandum of Agreement to reflect recent developments and new thoughts regarding the direction of Monument management activities. Most obviously, the name of the agreement should be changed to reflect the new name of the Monument. In addition, with completion of a Monument management plan, section IV A.3.a, which directs that a Monument management plan be developed, should be deleted and replaced with guidance on periodically reviewing and updating, and perhaps implementing, the management plan. As mentioned earlier, we also suggest adding a new guiding principle in section II. E. 3 that directs managers to recognize and carefully weigh management activities that may cause short-term, minor impacts to sanctuary resources against prospects for restoring and perpetuating resources or conditions that have been degraded or eliminated by past human activity. The Marine Mammal Commission therefore recommends that, in conjunction with steps to adopt a final management plan, co-trustees for the Monument review and, as appropriate, revise the Memorandum of Agreement on managing the Monument to (1) reflect the new name of the Monument, (2) identify provisions for reviewing and revising the Monument Management Plan, (3) add a new guiding principle recognizing the need to restore and perpetuate significant natural and cultural resources while ensuring that expected impacts and risks to Monument resources inherent in related management activities are no more than short-term or minor, and (4) incorporate other changes as may be deemed necessary and appropriate in light of recent progress and developments.

As noted above, the Marine Mammal Commission commends the authors for preparing an exceptionally good draft management plan. We hope these comments are helpful. If you or your staff has questions on any of these comments and recommendations, please call.

Sincerely,

  
Timothy J. Ragen, Ph.D.  
Executive Director

Cc: Ms. Athline Clark  
Ms. T. Aulani Wilhelm



LINDA LINGLE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

November 21, 2008

Laura H. Thielen  
Chairperson  
Board of Land and Natural Resources  
Commission on Water Resource Management  
Russell Y. Teiwi  
First Deputy  
Ken C. Kawahara  
Deputy Director - Water  
Aquatic Resources  
Boating and Ocean Recreation  
Bureau of Environmental  
Commission on Water Resource Management  
Conservation and Coastal Lands  
Conservation and Resource Enforcement  
Bioscience  
Forestry and Wildlife  
Historic Preservation  
Kahoolawe Island Reserve Commission  
Land  
State Parks

Dr. Timothy J. Ragen, Executive Director  
Marine Mammal Commission  
4340 EAST-WEST HIWAY, Room 700  
Bethesda, MD 20814-4447

Re: Marine Mammal Commission, July 15, 2008 Comments on Draft Papahānaumokuākea  
Marine National Monument Management Plan

Dear Mr. Ragen:

Thank you for providing comments on the Draft Papahānaumokuākea Marine National Monument Management Plan (draft MMP), Environmental Assessment (EA), and associated documents. The draft MMP is the product of an extensive coordinated planning process undertaken by the Monument Management Board (MMB) on behalf of the Co-Trustee agencies: US Fish and Wildlife Service, the National Oceanic and Atmospheric Administration and the State of Hawai'i, Department of Land and Natural Resources. The MMB is comprised of representatives of these three agencies and the Office of Hawaiian Affairs.

The draft EA contained in Volume II evaluates the likely environmental consequences of the activities contained in the Monument Management Plan (Volume I). The draft EA was developed in accordance with the National Environmental Policy Act and Hawai'i Revised Statutes (HRS) Chapter 343 of the State of Hawai'i.

Under Chapter 343 HRS, the Department of Land and Natural Resources (DLNR) is required to respond in writing to comments received from agencies during the course of the draft MMP public review process. This letter is DLNR's Chapter 343 response to your agency's comments. All responses to comments were prepared jointly by the members of the MMB and will also be included in Volume 5 of the final MMP and associated documents. The Marine Mammal Commission's (MMC) comments were considered in the preparation of the final MMP, EA and associated documents and in many cases, where appropriate, the documents were amended to address your comments as outlined below.

#### Recommendations

Prior to providing its specific comments, the MMC provided several recommendations for overall plan improvement. These will be addressed in the order provided for in the comment letter.

Dr. Timothy J. Ragen  
November 21, 2008  
Page 2 of 15

*Comment.* [H]ighlight the most urgent recovery needs for Hawaiian monk seals in the Northwestern Hawaiian Islands (NWHI) (i.e., developing monk seal care and intervention methods to increase juvenile seal survival, minimizing shark predation at French Frigate Shoals, and preventing entanglement in marine debris).

*Response.* The suggested changes were incorporated into Strategy TES-1 Support activities that advance recovery of the Hawaiian monk seal for the life of the plan.

*Comment.* The MMC suggested that the following two new activities be added to the Endangered and Threatened Species Action Plan strategy TES-1 for recovering monk seals: (1) improve and apply monk seal care capabilities and interventions for increasing juvenile seal survival and (2) reduce shark predation on monk seal pups.

*Response.* The following language was added to Activity CFO-9.2 "Complete planning for and engineer a captive care monk seal facility on Sand Island" would greatly improve the MMB's captive care and intervention capabilities."

Within the existing Coordinated Field Operations Action Plan, Activity CFO-9.2, the following language can now be found: "Complete planning for and engineer a captive care monk seal facility on Sand Island" would greatly improve captive care and intervention capabilities. Additionally, Activity TES-1.6 "Reduce shark predation on monk seals" was added to the Endangered and Threatened Species Action Plan to monitor and explore options for reducing shark predation on monk seals. See discussion below re: TES-1.6/CFO-9.2 regarding the Endangered and Threatened Species Action Plan.

*Comment.* The MMC recommended that the following new activity be added to the Threatened and Endangered Species Action Plan strategy TES-2 for conservation of cetaceans: "Initiate passive acoustic monitoring system to detect calls of endangered whales, other marine mammals, and fishes, and to establish an ambient underwater sound budget for natural and anthropogenic sound sources."

*Response.* A Natural Resources Science Plan (Activity MCS-2.1) will be developed in the first year of implementation. This science plan will include the following thematic areas: 1) research on ecological processes and connectivity, 2) research on biodiversity and habitats, 3) research on human impacts, 4) research on ecosystem change, indicators, and monitoring, and 5) modeling and forecasting ecosystem change. This plan will assess the need determine an acoustic budget for the Monument and explore ways to monitor natural and human made sounds such as the use of passive acoustic monitoring."

*Comment.* The MMC recommended that the mission statement for the MMP explicitly note the primary importance of restoring damaged or depleted Monument resources; and that a new "guiding principle" be added that calls on managers to perpetuate and, where possible, restore significant natural and cultural resources over the long term while ensuring that impacts and risks inherent in research and management activities are no more than short-term or minor and clearly outweigh potential adverse effects.

*Response.* In response to numerous comments, the Monument mission statement was revised to clarify that management actions are linked to ecological integrity. The revised language makes clear that the mission is not to restore the area but to "ensure ecological integrity and achieve long-term protection and

perpetuation of NWHI native ecosystems..." However, as it relates to restoration, new language was added to Goal 1, which now states "Support, preserve, maintain, and where appropriate restore the physical environment and the natural biological communities and their associated biodiversity, habitats, populations, native species, and ecological integrity." Goal 2 was modified to state "Support, promote, and coordinate research, ecosystem characterization and monitoring of the NWHI improves management decision-making and is consistent with conservation and protection." Finally, Goal 3 was modified to state "Manage and only allow human activities consistent with Proclamation 8031 to maintain ecological integrity and prevent or minimize negative impacts for long-term protection."

It was felt that the existing guiding principles "Incorporates the best practices, scientific principles, traditional knowledge, and an adaptive management approach" and "errs on the side of resource protection when there is uncertainty in available information on the impacts of an activity" encompasses the basic concept of the commenters proposed addition to the Guiding Principle.

*Comment.* MMC recommended that the list of six priority management categories be reorganized and the action plans and activities under those categories to better reflect Monument priorities, with revised sections entitled "conserving and restoring wildlife and wildlife habitat" listed first and "conserving and restoring cultural and historic resources" listed second.

*Response.* The MMP is organized into six priority management categories and 22 action plans. All six of the priority management categories contain specific strategies and activities that will need to be implemented so that the management efforts achieve the resource protection mission and goals for the Monument. The MMB recognizes that some action plans have more detail than others. Some of the plans identify the need to create more detailed step-down plans that will specifically identify and prioritize needs and activities. These include the Natural Resources Science Plan, the Maritime Heritage Resources Plan and the Native Hawaiian Cultural Research Plan.

The prioritization of activities in the management plan is not a linear process nor is it measured by the order of the category in the document or by the amount of funds allocated to individual action plans. Several factors apply when setting the implementation schedule and allocating funds; these include available but are not limited to natural, cultural, and historic resource needs; funding; agency capacity; completion of necessary planning and environmental review; and community input and support. Each year the MMB will determine the annual Monument priorities based on the factors listed above.

*Comment.* MMC requested that a representative of the Marine Mammal Commission be appointed to the Monument Interagency Coordinating Committee.

*Response.* The description about the Interagency Coordinating Committee was updated to reflect that this group does not have a fixed membership and meets periodically or as specific topics require. As appropriate, the MMB will invite the MMC to participate in topics related to marine mammals.

*Comment.* MMC recommended that a Monument Advisory Council be established, with a purpose and membership comparable to that of the current Coral Reef Ecosystem Reserve Advisory Council, to

provide advice and recommendations to the co-trustees on Monument research and management activities.

*Response.* As stated in CBO-3.5, the MMP contains language that commits the managers to the creation of an "alliance" advisory body. Since the Draft MMP was released, it was decided that the advisory body would have a similar structure to the Reserve Advisory Council with representation from constituency groups that represent all of the stewardship responsibilities of the Monument. The co-trustees are developing an MOA to establish such a group. The final details need to be resolved based upon specific legal restrictions from all of the co-trustees. Examples of details that need to be resolved include financing of the group, timing of the group's advice, opening meetings to the public, and Federal Advisory Committee Act requirements or exemptions.

*Comment.* With regard to the Co-Trustee Memorandum of Agreement for managing the Monument, the MMC recommended the following amendments:

- a. reflect the new name of the Monument,
- b. identify provisions and a schedule for periodically updating the Monument management plan,
- c. modify the Monument mission statement to reflect the aspiration for restoring significant natural and cultural resources as mentioned in 1d above,
- d. add the recommended guiding principle that calls on managers to perpetuate and, where possible, restore significant natural and cultural resources over the long term while ensuring that impacts and risks inherent in research and management activities are no more than short-term or minor and clearly outweigh potential adverse effects, and
- e. incorporate such other changes as may be deemed appropriate and necessary in light of recent progress and developments.

*Response.* Strategy AC-2 addresses the need to review and modify agency agreements. The MMB will fully consider these recommendations as the MOA is reviewed and updated.

#### Specific Comments

##### Volume I

##### Section 1.1 - Monument Setting

*Comment.* This comment by MMC refers to the "Islands and marine habitats of the Papahānaumokuākea" discussion in this section. The MMC recommended that the descriptions of Laysan Island, Lisianski Island, Pearl and Hermes Reef, Kure Atoll, Maro Reef Gardner, Pinnacles and Midway Atoll should discuss how these locations support either important breeding colonies or feeding areas for of monk seals. Additionally, MMC recommended that the section contain additional discussion on other marine mammal habitats in the monument; specifically that the summaries of reef biota at Midway, Pearl and Hermes Reef, and French Frigate Shoals should note that atoll lagoons provide resting habitat for local populations of spinner dolphins and that pelagic waters provide habitat for several species of whales and dolphins, including overwintering humpback whales.

*Response.* This section of the document was revised in accord with the MMC recommendations.

#### Section 1.2 - Status and Condition of Natural Resources

*Comment.* In the discussion on endangered cetacean species portion of this section, the MMC recommended that the words "under the Endangered Species Act" be added after the word "endangered".

*Response.* The clarification requested by MMC was made to the final MMP.

*Comment.* In the marine mammal discussion in Section 1.2, the MMC recommended the addition of the following language: "Monk seal numbers in the NWHI have declined persistently since the first counts of the species in the 1950s. Despite efforts to mitigate known impacts, recent beach counts are less than two-thirds the size of initial counts and are expected to decline further due to poor recruitment of breeding-age seals. The past and projected declines have elevated monk seal recovery to a crisis situation as indicated in the recently revised Hawaiian Monk Seal Recovery Plan (NOAA Fisheries 2007).

*Response.* This section of the MMP was updated with language similar to that provided by MMC.

*Comment.* Table 1 of Section 1.2 lists endangered and threatened species that have been observed in the monument. MMC notes that the table does not identify species that are similarly listed under Hawai'i state law.

*Response.* All species found within the monument that are listed as a federal threatened and endangered species are also listed as a state of Hawaii threatened or endangered species. There are no NWHI species on the state threatened and endangered list that is not named on the federal list

#### Section 1.4 - Environmental and Anthropogenic Stressors

*Comment.* Section 1.4 contains discussion regarding the effects of past human activities on wildlife, reefs, and islands in the NWHI. MMC suggested that the following language be added: Impacts of these activities on Hawaiian monk seals were particularly acute and may explain much of the decline in the monk seal population in the years following World War II (Ragen and Lavigne 1999). The citation for Ragen and Lavigne 1999 should be added to the bibliography at the end of this volume.

*Response.* This section of the document was updated with the language provided by the commenter.

*Comment.* MMC suggested that a new subsection should be added to Section 1.4, between the subsections on Climate Change and Weather Changes to be captioned "Rising Sea Levels" and that it contain a discussion on how sea level increase has affected, and is likely to continue to affect, various species and the ecosystem in the NWHI. Additionally, MMC provided several topics that should be included and discussed in this new subsection. For example, several islets at French Frigate Shoals that were once vegetated and used as breeding habitat by seabirds, monk seals, and other wildlife have been lost or severely reduced in size as a result of rising sea level, and additional losses of limited terrestrial habitat in the NWHI are likely. At a minimum, the new text should describe how sea level rise reduce monk seal haul-out habitats (see Baker et al. 2006). The citation for Baker et al. 2006 also should be added to the bibliography at the end of the volume.

*Response.* The language in this section has been updated to reflect potential impacts of sea level rise on wildlife. Additional references to impacts from climate change were added throughout the document.

*Comment.* In the "Diseases" subsection of Section 1.4, there is a discussion regarding the effects of past human activities on wildlife, reefs, and islands in the NWHI and on the threat that diseases present to certain coral species and sea turtles. MMC suggests that this section also note that the introduction of diseases is an important conservation concern for Hawaiian monk seals, seabirds, and perhaps other wildlife species in the Monument.

*Response.* This section of the document was updated to include that diseases may be a threat to marine mammals.

*Comment.* MMC states that the Fishing subsection of Section 1.4 contains language that incorrectly implies that lobster harvests have been prohibited since 1991; and that the discussion should be revised to more accurately reflect the actual history and status of lobster harvest fishery in the NWHI. There were additional formatting recommendations regarding the bottomfish fishery discussion.

*Response.* The language in this section pertaining to the lobster fishery was clarified to indicate the actual status of the fishery. Other recommended changes to the bottomfish discussion were made.

*Comment.* MMC recommended that language similar to the following be added to the Section 1.4 discussion on Transportation Hazards and Groundings: that collisions with vessels can seriously injure or kill whales and that the humpback whale, which occurs in the NWHI more frequently than previously thought, is likely the species most susceptible to vessel collisions in the Monument (Laist et al. 2001). MMC also recommended that a citation for Laist et al. 2001 be added to the bibliography at the end of this volume.

*Response.* This section of the document was updated with the language provided by MMC.

#### Section 2.2 - Policy Framework

*Comment.* Section 2.2 contains a subsection that discusses the Papahānaumokuākea Interagency Coordination Committee. The MMC requested that MMC be included on the Monument Interagency Coordinating Committee.

*Response.* As noted above, the description of the Interagency Coordinating Committee was updated to reflect that this group does not have a fixed membership and meets periodically or as specific topics require. As appropriate, the MMC will be invited to participate in topics related to marine mammals.

*Comment.* MMC recommended that language contained in the Section 2.2 discussion on the NWHI Coral Reef Ecosystem Reserve be amended to explain that the Executive Order which directed that the reserve be a candidate for sanctuary designation also directed NOAA to establish a reserve advisory council to provide recommendations and advice on research and management activities, including the preparation of a reserve operations plan and the designation of the Reserve as a national marine sanctuary.

*Response.* This recommendation was incorporated into the MMP.

### Section 2.3 - Initial Management

*Comment.* MMC recommended that the Section 2.3 discussion describing adopted Monument regulations for commercial fishing would be more accurate if it were changed to read "prohibit certain commercial fisheries immediately and phase out all other commercial fishing by 2012."

*Response.* The language in this section has been modified according to the MMC's suggestion.

### Section 2.4 - Vision, Mission, Guiding Principles

*Comment.* The MMC recommended that modifications be made to the language of Section 2.4 and Goals Table 2.1. The first was that the mission statement should be expanded to refer explicitly to the need for, and importance of, restoring resources that have been degraded or damaged by past human activity. The second was that the list of guiding principles for managing Monument resources be expanded by adding something like the following: perpetuates and, where possible, restores significant natural and cultural resources over the long term while ensuring that impacts and risks inherent in research and management activities are no more than short-term or minor and clearly outweigh potential adverse effects.

*Response.* In response to numerous comments, the Monument mission statement was revised to clarify that all resource management actions are linked to ecological integrity. The revised language makes it clear that the mission is not to restore the area but to "ensure ecological integrity and achieve long-term protection and perpetuation of NWHI native ecosystems..." However, as it relates to restoration, new language was added to Goal 1, which now states "Support, preserve, maintain, and where appropriate restore the physical environment and the natural biological communities and their associated biodiversity, habitats, populations, native species, and ecological integrity."

Goal 2 was modified to state "Support, promote, and coordinate research, ecosystem characterization and monitoring of the NWHI improves management decision making and is consistent with conservation and protection." Finally, Goal 3 was modified to state "Manage and only allow human activities consistent with Proclamation 8031 to maintain ecological integrity and prevent or minimize negative impacts for long-term protection. The MMP reflects the belief that the existing guiding principles "incorporates the best practices, scientific principles, traditional knowledge, and an adaptive management approach"; and "errs on the side of resource protection when there is uncertainty in available information on the impacts of an activity" encompasses the basic concept of the commenters proposed addition to the Guiding Principle.

### Section 2.5 - Management Action Plans

*Comment.* Section 2.5 discusses Six Priority Action Plan Groupings that serve to organize 22 action plans under six priority needs. The MMC suggests that the current order of these six needs does not clearly reflect the priorities expressed in the vision and mission statements. To emphasize the prime importance of protecting wildlife and cultural resources, the MMC suggests that actions to conserve wildlife and wildlife habitat should be mentioned first and that a category for conserving and restoring cultural and historic resources should be given comparable priority.

Lastly, to better convey management priorities, the MMC recommends that consideration be given to reorganizing the presentation of priority management needs and activities to better reflect Monument priorities, with the section on wildlife conservation listed first and a new category on conservation of cultural and historic resources listed second. The MMC also suggested that category for wildlife be renamed something like "conserving and restoring wildlife and wildlife habitat."

*Response.* As the MMC noted, the MMP is organized into six priority management categories and 22 action plans. All six of the priority management categories contain specific strategies and activities that will need to be implemented so that the management efforts achieve the resource protection mission and goals for the Monument. It is recognized that some of the action plans have more detail than others, while some of the plans identify the need to create more detailed step-down plans that will specifically identify and prioritize needs and activities. These include the Natural Resources Science Plan, the Maritime Heritage Resources Plan and the Native Hawaiian Cultural Research Plan.

The prioritization of activities in the management plan is not a linear process nor necessarily measured by the order of the category is listed in the document nor by the amount of funds allocated to individual action plans. Several factors apply when setting the implementation schedule and allocating funds; these include available but are not limited to natural, cultural, and historic resource needs; funding; agency capacity; completion of necessary planning and environmental review; and community input and support. Each year the MMB will determine the annual Monument priorities based on the factors listed above.

*Comment.* In section 2.5 there is a discussion on "Coordinating Conservation and Management Efforts." MMC suggests that the words "maintain existing resource protection" be changed to read "expand resource protection measures as called for by the Monument's designation, increase support for related research and management work."

*Response.* This section of the MMP was modified this to read "expand resource protection, increase support for related research and management work."

### Section 3.0 – Action Plans to Address Priority Management Needs

*Comment.* Table 3.1 of Section 3.0 provides cost estimates totaling \$355 million to implement action plans identified in the draft management plan over the 15-year planning horizon. MMC recommends that text be added explaining how these estimates were derived.

*Response.* Clarifying text was added to the section of the MMP that described the total cost to implement the MMP.

#### Subsection 3.1.1 - Marine Conservation Science Action Plan

*Comment.* Subsection 3.1.1 discusses actions to investigate, monitor, and integrate information on natural resources within the Monument. MMC suggests that a more appropriate title would be "Natural Resources Monitoring and Assessment Action Plan." MMC also suggests that this subsection should discuss long-term research initiatives by the National Marine Fisheries Service on Hawaiian monk seals

and by the Fish and Wildlife Service on seabirds. Additionally, MMC recommends that the strategies and activities described in this subsection be prioritized and undergo periodic updating.

*Response.* The existing title "Marine Conservation Science Action Plan" adequately describes the action plan. Additional mention was given in this section to research on monk seals and seabirds; however, the "Threatened and Endangered Species Action Plan" provides more specific references. This management plan does not prioritize listed activities; this will be done by the MMB on an annual basis as budgets are developed. Finally, the plan will be updated every 5-years.

#### Section 3.1.3 - Historic Resources Action Plan

*Comment.* MMC suggests that Section 3.1.3 be amended to better distinguish this action plan on land-based structures and artifacts from submerged historical resources (e.g., sunken whaling ships, other significant wrecks, and historical artifacts) addressed under the "Maritime Heritage Action Plan." MMC suggests that this action plan be renamed "Land-based History and Heritage Action Plan."

*Response.* Following review of comments, a determination was made not to change the name of the Historic Resource Action Plan so as to distinguish it from the Maritime Heritage action plan. Each plan clearly describes its unique purpose. Accordingly, the existing names will remain the same.

#### Section 3.2.1 - Threatened and Endangered Species Action Plan

*Comment.* MMC suggested that because some of the activities identified under the Section 3.2.1 address species that are neither threatened nor endangered under the ESA, that the title of this section is somewhat misleading. MMC also notes that other important species or species groups that are not endangered or threatened would be appropriate subjects for focused research and management. As a remedy, MMC recommends that a new action plan be added entitled "Non-Endangered Wildlife Action Plan." This action plan could identify strategies and activities focused on individual species, such as spinner dolphins, oysters, lobsters, and certain plants that do not fit in the endangered species and migratory bird action plans.

*Response.* The "Threatened and Endangered Species" Action Plan includes species that have special ESA and MMPA protections, which includes all marine mammals. Language was added to clarify that the Threatened and Endangered Species Action Plan also refers to protected species under the MMPA, and a description of the MMPA was added to the background section. At this time, the suggested change to create another action plan with other wildlife was not adopted since specific activities that relate to other non-endangered, threatened or protected wildlife are located in other action plans including, Migratory Birds (3.2.2), Habitat Management and Conservation (3.2.3) and Marine Conservation Science (3.1.1).

*Comment.* MMC suggests that Monument managers need to be particularly mindful of the conservation needs of cetacean populations that occur entirely or principally within the Monument's boundaries and that it would be helpful to note this in the plan. MMC recommends that if a separate action plan is developed for wildlife species that are neither listed species under the ESA nor migratory birds, the discussion of spinner dolphins and other non-ESA listed cetaceans should be moved to that section.

*Response.* A separate action plan was not developed for wildlife species that are neither listed species under the ESA nor are migratory birds. As such, the discussion of spinner dolphins and other non-ESA listed cetaceans remain where they were located in the draft MMP (see Threatened and Endangered Species Action Plan).

*Comment.* MMC notes that the "Need for Action" discussion in Section 3.2.1 states that coordinated action is required to protect "these 23 endangered and threatened species." MMC suggests that it would be helpful to clarify what 23 species these are and to reference the list of species in Table 1.4 of Section 1.2 - Status and Condition of Natural Resources.

*Response.* A link to the Table 1.4 was provided in this section.

*Comment.* MMC recommended that the following language be added to Strategy TES-1: "With regard to the NWHI, the Hawaiian Monk Seal Recovery Team, the Marine Mammal Commission, and the National Marine Fisheries Service believe that the actions requiring attention most urgently are (1) developing a captive-care program to improve juvenile survival, (2) reducing shark predation on pups and juveniles at French Frigate Shoals, and (3) preventing entanglement in marine debris."

*Response.* This section of the MMP was amended with the language provided by the MMC.

*Comment.* MMC recommends that the list of activities in support of monk seal recovery that are listed in Activities TES 1.1-1.5 be expanded to include two additional activities: (1) improve and apply methods for increasing juvenile monk seals survival rates in the NWHI, and (2) reduce risks of shark predation on monk seal pups. MMC further recommended narrative for these two additional activities. For the first, MMC suggested that the activity should "note that juvenile mortality has increased significantly in the NWHI since the 1980s and early 1990s; various captive-care projects, including trans locations, have been tried with varying levels of success to increase juvenile survival; new captive-care methods are being investigated and developed to improve survivorship rates; and Monument staff and assets will be used as appropriate and feasible to assist captive-care work involving the capture, transport, care, and release of juvenile monk seals in the NWHI."

MMC also recommended that the activity should note that "predation on monk seal pups by Galapagos sharks at French Frigate Shoals increased sharply in the late 1990s, claiming perhaps 50 percent of all pups born at the atoll; the National Marine Fisheries Service concluded that predation was a behavior learned by a few individual sharks and initiated efforts in 2000 to remove individual sharks believed to be exhibiting that behavior; the number of monk seal pups and juveniles killed by sharks has since declined but remains above historic levels; and that Monument staff should work with the Service to ensure that plans for mitigating shark predation are consistent with Monument management policies and objectives and, as possible, support or assist research to evaluate shark behavior and shark predation risks and improve the effectiveness of related mitigation efforts."

*Response.* Activity CFO-9.2 of the Coordinated Field Operations Action Plan has been amended to read: "Complete planning for and engineer a captive care monk seal facility on Sand Island" would greatly improve captive care and intervention capabilities. MMC's suggested language change was added to this

section. Additionally, Activity TES-1.6 "Reduce shark predation on monk seals" was added to the Endangered and Threatened Species Action Plan to monitor and explore options for reducing shark predation on monk seals.

*Comment.* MMC recommended the following change to Strategy TES-2: Determine the Status of Cetacean Populations and Verify and Manage Potential Threats that is found in Section 3.2.1: "... that the strategy for assessing and managing cetacean populations be expanded to identify an activity to initiate a passive acoustic monitoring system to detect and analyze calls of endangered whales, other marine mammals, and fishes and to establish an ambient underwater sound budget for natural and anthropogenic sound sources."

*Response.* A Natural Resources Science Plan (Activity MCS-2.1) will be developed in the first year of the MMP's implementation. This science plan will include the following thematic areas: 1) research on ecological processes and connectivity, 2) research on biodiversity and habitats, 3) research on human impacts, 4) research on ecosystem change, indicators, and monitoring, and 5) modeling and forecasting ecosystem change. This plan will assess the need determine an acoustic budget for the Monument and explore ways to monitor natural and human made sounds such as the use of passive acoustic monitoring."

*Comment.* Activity 2.2, Conduct Spinner Dolphin Mark and Recapture Photo-identification Surveys in Section 3.2, provided that spinner dolphin surveys at Midway and Kure Atolls and Pearl and Hermes Reef will be continued. Spinner dolphins also occur at French Frigate Shoals. MMC suggested adding a sentence noting that surveys also will be undertaken to develop baseline information for assessing the status of the population at that atoll.

*Response.* The language in Activity 2.2 was updated to reflect MMC's suggestion.

#### Section 3.2.3 - Habitat Management and Conservation Action Plan

*Comment.* Section 3.2.3 identifies activities for restoring habitats significantly altered or damaged by past human activity. MMC suggested that this section be expanded to include possible hatchery or translocation techniques to restore depleted lobster stocks within the Monument and that these efforts might be pursued in conjunction with other efforts to monitor monk seal prey selection to determine if improvements in lobster stocks lead to improved juvenile monk seal survival.

*Response.* The desired outcome statement for the MMP's Habitat Management and Conservation Action Plan (3.2.3) has been changed to better reflect the need and priority to restore species and habitats, when appropriate. This concept is further strengthened by changes made in Monument Goal 1 in Table 2.1 "Protect, preserve, maintain, and where appropriate restore the natural biological communities and their associated biodiversity, habitats, populations, native species, and ecological processes."

Many of the restoration activities described in the MMP focus on the terrestrial habitats and ecosystems. This is because FWS has been monitoring these systems for a longer period of time and there is a clearer understanding of restoration activities that need to be taken. A complete of an understanding about the marine habitats and ecosystems is not yet available. Such information needs and possible restoration

activities for the marine systems will be addressed in the "The Natural Resources Science Plan (Activity MCS-2.1).

Likewise, any attempt at restoration of lobster stocks in the NWHI would requires further research and identification of the stressors, including the further characterization of ecosystem dynamics that may have contributed to the decline of the species and stocks. Some research is being conducted, and restoration programs that may be considered in the future are generally included in this plan already. Therefore, a separate activity is not required now, but may be added later if appropriate. Specific research lobster as monk seal prey will continue as the Hawaiian Monk Seal Recovery Plan is implemented.

#### Section 3.3.1 - Marine Debris Action Plan

*Comment.* Section 3.3.1 identifies strategies and activities to document and mitigate impacts of marine debris, including entanglement, injury, and mortality of monk seals. The activities identified in this section constitute important steps for assessing and mitigating these impacts, and the Marine Mammal Commission strongly endorses their inclusion in this plan.

*Response.* MMC's comment is noted.

*Comment.* Activity MD-1.5 - *Work with fishery management councils to address marine debris prevention with U.S. fishing fleets* states that the Monument Management Board will work with the Western Pacific and North Pacific Fishery Management Councils to initiate an "accountability requirement for all vessels that utilize the type of gear that contribute to the marine debris problem." The MMC strongly supports the activity described in this section and suggests that in working with fishery councils, consideration be given to either requiring net deposits or establishing a fund that could be used to reimburse fishermen who return to disposal or recycling centers old or ready-to-retire trawl nets of the types found in the NWHI.

*Response.* The MMB consider this recommendation as it works with the regional Fishery Management Councils to address marine debris prevention from U.S. and international fishing fleets.

*Comment.* MMC suggests that the first sentence in Activity MD-2.2 be amended by inserting the words "marine debris" in the title of this activity between the words "standardize" and "monitoring."

*Response.* This section of the document was amended using the language provided by MMC.

#### 3.3.3 - Maritime Transportation and Aviation

*Comment.* Activity MTA-2.3 *Improve existing pre-access information for inclusion on the Monument website and in permit application instructions* provides in part that vessel operators will be advised of the need to report any hazardous interactions between aircraft or vessels and protected species or other wildlife. MMC suggests that the reporting of such interactions should be mandatory for any permit to enter the Monument. MMC also suggested that a reporting requirement could be listed as a separate activity in this section.

*Response.* There are two existing activities that involve providing information to and briefing vessel operators and permit holder prior to accessing the monument, including MTA-2.3 "Improve existing pre-access information for inclusion on the Monument website and in permit application instructions" and P-3.4 "Develop a pre-access training and briefing program." These measures are adequate, but will monitor to determine if more targeted information or training is needed.

#### Section 3.3.4 - Emergency Response and Natural Resources Damage Assessment Action Plan

*Comment.* The MMC strongly endorses the inclusion of Section 3.3.4 in the MMP. The MMC notes that this section identifies activities to respond to and remove hazards from shipwrecks, oil spills, and similar emergencies, all of which could help to protect Hawaiian monk seals and other natural resources.

*Response.* The Emergency Response and Natural Resource Damage Assessment Action Plan was designed to respond to emergencies that would help protect all wildlife, not just monk seals. Further, added protection to monk seals is addressed in TES 1.2 "Support and facilitate emergency response for monk seals," which is part of the threatened and endangered species action plan.

#### Section 3.4 - Managing Human Uses

*Comment.* The MMC recommends the following language change to the third paragraph in the introduction to Section 3.4. Insert the words "and after" between the words "military activity during" and "World War II."

*Response.* The language in this section has been modified according to the MMC's suggestion.

#### Section 3.4.1 - Permitting Action Plan

*Comment.* The measures identified in Section 3.4.1 are appropriate and important for managing human activities in the Monument. The MMC strongly endorses their inclusion in the plan.

*Response.* The Permitting Action Plan will be included in the final plan.

#### Section 3.5.2 - Constituency Building and Outreach

*Comment.* The MMC noted several concerns with the draft MMP version of Strategy CBO-1. *Coordinate Monument outreach and engage Monument constituencies.* This strategy describes actions designed to facilitate the communication of information on Monument resources and management activities to the public and to build public support for the Monument. MMC suggests that "as currently drafted, the activities do not include a clear, effective mechanism for soliciting and integrating constituent advice into Monument research and management actions." Additionally, MMC suggests that while designation of the Monument superseded the need for sanctuary designation, it directed that Monument management be based on plans for designating a sanctuary, which would have included ongoing involvement of the sanctuary's Reserve Advisory Council. In MMC's view the sanctuary council was a source for constructive advice and it provided an avenue for relaying constituent views to managers.

MMC recommended that Strategy CBO-1 be expanded to include a Monument Advisory Council whose purpose and membership would be comparable to the current *Coral Reef Ecosystem Reserve Advisory Council*. MMC also recommended that some members of the current *Reserve* council should be among initial appointees to the Monument Council to facilitate a smooth transition.

*Response.* As stated in CBO-3.5, the MMP contains language that commits the managers to the creation of an "alliance" advisory body. Since the Draft MMP was released, it was decided that the advisory body would have a similar structure to the Reserve Advisory Council with representation from constituency groups that represent all of the stewardship responsibilities of the Monument. The co-trustees are developing an MOA to establish such a group. The final details need to be resolved based upon specific legal restrictions from all of the co-trustees. Examples of details that need to be resolved include financing of the group, timing of the group's advice, opening meetings to the public, and Federal Advisory Committee Act requirements or exemptions.

#### 3.5.3 - Native Hawaiian Community Involvement

*Comment.* In Activity NHCI-1.3: *Establish an annual cultural resources exchange*, MMC suggests inserting the word "information" between the words "resources" and "exchange" in the title of this activity.

*Response.* The suggested language change was not made as the intent of the "exchange" in this Activity is to share much more than information.

#### 3.6.3 - Coordinated Field Operations

*Comment.* Regarding Activity CFO-6.2, the MMC suggested that the language be amended to note that the two new vessels at Midway supported under this activity would be available for transporting seals or otherwise assisting in monk seal recovery work.

*Response.* This section of the document was updated with the language provided by MMC.

*Comment.* The MMC strongly endorses Activity CFO-9.2 which will require that planning for and construct of a captive-care monk seal facility on Sand Island be completed. MMC recommends that the end first line of the narrative be changed to read " ... has been identified as a critical need for recovery of this species."

*Response.* The language in activity CFO-9.2 has been modified according to MMC's suggestion.

*Comment.* Activity CFO-9.3 provides for logistical, infrastructure, and transportation support for threatened and endangered species recovery actions. MMC recommended that first sentence be changed to read that "[a]dvanced recovery efforts, particularly efforts to address juvenile survival of monk seals, will require . . ."

*Response.* The suggested language change was not made in activity CFO-9.3 since this activity applies to all wildlife and not just monk seals.



Dr. Timothy J. Ragen  
November 21, 2008  
Page 15 of 15

**References**

*Comment.* MMC recommended that a citation to the revised Hawaiian Monk Seal Recovery Plan be added to the bibliography.

*Response.* The citation to the revised Monk Seal Recovery Plan been updated.

**Volume III**

**Appendix H - Monument Memorandum of Agreement**

*Comment.* The MMC recommended that in adopting a final management plan the co-trustees review and, as appropriate, revise the Memorandum of Agreement on managing the Monument to (1) reflect the new name of the Monument, (2) identify provisions for reviewing and revising the Monument Management Plan, (3) add a new guiding principle recognizing the need to restore and perpetuate significant natural and cultural resources while ensuring that expected impacts and risks to Monument resources inherent in related management activities are no more than short-term or minor, and (4) incorporate other changes as may be deemed necessary and appropriate in light of recent progress and developments.

*Response.* Strategy AC-2 addresses the need to review and modify agency agreements. These recommendations will be fully considered when the MOA is reviewed and updated.

DLNR again wishes to thank your interest and for reviewing and commenting on the Papahānaumokuākea Marine National Monument draft Monument Management Plan, draft Environmental Assessment and the associated documents.

Sincerely,



LAURA H. THIELEN  
Chairperson



"Call, Kevin L CIV  
MDA/GCG"  
<Kevin.Call@mda.mil>  
07/02/2008 06:44 AM

To: <PMNM\_MMP\_Comments@fws.gov>  
cc:  
Subject: MDA Comments on Management Plan and Environmental Assessment  
for PMNM (UNCLASSIFIED)

00066

Classification: UNCLASSIFIED  
Caveats: NONE

This transmits the comments of the Missile Defense Agency on the Papahānaumokuākea Marine National Monument Draft Monument Management Plan and Draft Monument Management Plan Environmental Assessment. As noted in the detailed comments, Section 5.5 of the Management Plan Scoping Report (September 25, 2007) states that one issue that was raised is the lack of a discussion of activities of the Missile Defense Agency, whose activities may put debris within the Monument boundaries. The Missile Defense Agency previously provided background material from NEPA studies that described and discussed missile defense activities that occur or would occur in or near the Monument and can provide assistance in drafting specific language for the Monument Management Plan and/or its Environmental Assessment, if requested.

The Point of Contact for these comments is:

Kevin L. Call  
Office of General Counsel  
(256) 450-1767

Classification: UNCLASSIFIED  
Caveats: NONE



PAPAHANAUMOKUAKEA MARINE NATIONAL MONUMENT.doc

## PAPAHANAUMOKUAKEA MARINE NATIONAL MONUMENT

Review by Missile Defense Agency  
Office of General Counsel

### DRAFT MONUMENT MANAGEMENT PLAN

1. On page 73, line 1, it states: "The following information summarizes the main types of vessels operating in the Monument." Military vessels are not mentioned.

*Suggested language:*

#### **Military Vessels**

Navy vessels conduct training and participate in testing activities in the Hawaii Range Complex (which encompasses the Monument), including, in particular, activities in the vicinity of Nihoa and surrounding waters within the Monument. These activities, which include a variety of anti-submarine and surface and air warfare training, are described and analyzed in detail in the Hawaii Range Complex Final Environmental Impact Statement/Overseas Environmental Impact Statement (May 2008). In addition, vessels that support missile defense tests occasionally operate in Monument waters. Missiles are launched from floating platforms and ships within or near Monument waters.

2. On page 76, line 22, associated protective measures for Particularly Sensitive Sea Area designation includes a reporting system for vessels transiting the Monument.

The text should note that this reporting requirement does not include military vessels.

3. Page 79, lines 1-10 discusses the Presidential Proclamation and implementing regulations for the Monument. There is no mention of the special status of military activities in the Monument.

*Suggested language:*

Following the sentence ending the middle of line 7: "The prohibitions required by Proclamation 8031 and the joint implementing regulations do not apply to activities and exercises of the Armed Forces".

4. Page 89, lines 2-32 discuss the Monument regulations, prohibitions and permitting requirements. There is no reference to military activities.

*Suggested language:*

Following line 32: "The prohibitions required by Proclamation 8031 and the initial Monument regulations do not apply to activities and exercises of the Armed Forces. These activities and exercises are not subject to permitting requirements."

5. Page 205, lines 13-29, describing marine traffic, do not mention Navy and other military vessels that operate in the Monument.

*Suggested language:*

In line 27, following (Franklin 2008), insert "Navy ships and vessels conduct training and participate in testing activities in the Hawaii Range Complex, which encompasses the Monument, and vessels that support missile defense tests occasionally operate in Monument waters".

6. Page 205, lines 42-48 indicate that "All" activities conducted in the Monument must meet requirements in Proclamation 8031, without distinguishing military activities.

*Suggested language:*

In line 42, following "Monument" add "with the exception of activities and exercises of the Armed Forces,"

7. Page 208, line 11, mentions "mandatory hull inspections and cleaning for all vessels accessing the Monument." Military vessels would not be subject to such requirements. However, the Interagency Coordinating Committee could likely facilitate informal arrangements with the Defense agencies to avoid introduction of alien species into the Monument.

8. Page 217, lines 20-23, characterize the current activities within the NWHI, without mentioning military activities.

*Suggested language:*

In line 20, following "Current activities are limited primarily to" add "Navy training and testing activities, missile defense testing."

9. Page 218, lines 17-21, give the impression that "all" activities within the Monument would require permits, including military activities.

*Suggested language:*

At the end of line 21, add a sentence that states: "The permit program would not apply to activities and exercises of the Armed Forces."

10. Page 248, line 13 indicates areas of cooperation with the Department of Defense and the Navy to include "minimizing" military activities in the Monument. The word "minimizing" should be deleted. The Navy and DoD are committed to being good stewards of areas they use in their testing and training activities and, consistent with Proclamation 8031, will conduct these activities "in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on monument

resources and qualities.” However, the remoteness of the area of the Pacific that includes the Monument also makes it ideal for missile testing, and some of this testing will include areas within the Monument. There should not be an expectation that these missile testing activities will be curtailed or reduced in the future.

#### DRAFT MONUMENT MANAGEMENT PLAN ENVIRONMENTAL ASSESSMENT

1. Page 50, Section 1.6.12, Permitting. There is no indication that the permit requirements would not include activities and exercises of the Armed Forces.

*Suggested language:*

At the end of the first paragraph in Section 1.6.12, add a sentence that states: “As noted in the Monument Management Plan, the prohibitions in Presidential Proclamation 8031, including permitting requirements, do not apply to activities and exercises of the Armed Forces.”

2. Page 109, Section 2.4.1.1, second paragraph. The list of activities occurring in the waters of the NWHI does not include military activities.

*Suggested language:*

After “research and management” add “Navy and DoD training and testing activities”.

3. Page 110, bottom and 111 top. The text states: “The military still conducts limited operations and missile tracking in the general area around the Monument.” This does not properly reflect the on-going military activities occurring in parts of the Monument.

*Suggested language:*

Delete the quoted sentence and substitute the following: “The Navy conducts training and participates in testing activities within the Hawaii Range Complex, which encompasses the Monument. In addition, the Defense Department conducts missile defense testing, including missile intercepts, in and around the Monument.

4. Page 112, under Current Human Uses and Activities. The text does not accurately reflect the military activities occurring in the Monument.

*Suggested language:*

In the second sentence under the heading “Current Human Uses and Activities”, add “from Midway Atoll” after “departure of the military”. Also, after “research”, add “Navy training and testing, missile defense testing.” Finally, substitute the following for the first part of the second to the last sentence under this heading: “In addition, activities and exercises of the Armed Forces, emergency response . . .”

5. Page 116, second to last paragraph. The discussion concerning permits does not distinguish military activities, etc., that are not included.

*Suggested language:*

At the beginning of the second sentence in this paragraph, begin with: “With the exception of armed forces activities, emergencies, law enforcement, and free passage”

6. Page 129, first paragraph under the Federal Regulations heading, does not distinguish military vessels from those vessels that need to provide notification before entering and after leaving the Monument.

*Suggested language:*

In the second sentence under this heading, after “issuance of permits,” add “with the exception of military vessels [and others, as applicable]”,

7. Pages 134-135. With respect to discharges from vessels, different requirements may apply to Navy and DoD vessels, which are not subject to the Monument regulations. EPA has been working with DoD, to develop regulations for discharges of various types from DoD vessels.

8. Page 137, second paragraph under Section 2.5.2.2 – Regulatory Environment, does not accurately reflect the requirements for military vessels.

*Suggested language:*

At the beginning of the second sentence, add: “With the exceptions noted above,”

9. Page 138, first paragraph under Vessel Activity. There is no mention of military vessels.

*Suggested language:*

In the third line of the paragraph, after “is made up of” add “DoD vessels conducting training and testing activities,”.

10. Page 157, first sentence under Alien Species Action Plan. See previous comments concerning the requirement for hull inspection and cleaning not being applicable to military vessels.

11. Page 158, first sentence under Enforcement Action Plan – Planning and Administrative Activities. See previous comments concerning the monitoring and ship reporting systems not being applicable to military vessels.

12. Page 182-183, last paragraph concerning quarantine protocols and hull inspections and cleaning. See previous comments concerning these requirements not being applicable to military vessels.

13. Page 229, first paragraph under Enforcement Action Plan – Planning and Administrative Activities. See previous comments concerning monitoring and ship reporting systems not being applicable to military vessels.

14. Page 242, the second full sentence states: “Human use is now limited to managers, contractors, researchers, and visitors of the Monument.” There is no mention of military activities.

*Suggested language:*

After “Human use is now limited to” add “DoD training, testing and missile defense activities.”

We note that Section 5.5 of the Management Plan Scoping Report (September 25, 2007) states that one issue is no discussion of activities of the Missile Defense Agency (MDA), whose activities may put debris within the Monument boundaries. MDA has provided background material from NEPA studies that described and discussed missile defense activities that would occur in or near the Monument and can provide assistance in drafting specific language for the Monument Management Plan and/or its Environmental Assessment if requested.

LINDA LINGLE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

November 21, 2008

LAURA H. TIERLÉN  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION OF WATER RESOURCE MANAGEMENT  
RUSSELL Y. TREJFI  
FIRST DEPUTY  
KEN C. MAWANARA  
DEPUTY DIRECTOR - WATER  
AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
BUREAU OF CONVEYANCES  
COMMISSION OF WATER RESOURCE MANAGEMENT  
CONSERVATION AND GEOTECHNICAL LABS  
CONSERVATION AND RESOURCES SPONSORSHIP  
ENGINEERING  
FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
KAUAI AND NIIHAU RESERVE COMMISSION  
LAND  
STATEWAYS

Mr. Kevin L. Call  
Missile Defense Agency  
Office of General Counsel  
Room 2025  
Building 5222, Martin Road  
Redstone Arsenal, AL 35898

Re: Missile Defense Agency Comments on Draft Papahānaumokuākea Marine  
National Monument Management Plan and Environmental Assessment

Dear Mr. McCall:

Thank you for providing comments on the Draft Papahānaumokuākea Marine National Monument Management Plan (draft MMP), Environmental Assessment (EA), and associated documents. The draft MMP is the product of an extensive coordinated planning process undertaken by the Monument Management Board (MMB) on behalf of the Co-Trustee agencies: US Fish and Wildlife Service, the National Oceanic and Atmospheric Administration and the State of Hawai'i, Department of Land and Natural Resources. The MMB is comprised of representatives of these three agencies and the Office of Hawaiian Affairs.

The draft EA contained in Volume II evaluates the likely environmental consequences of the activities contained in the Monument Management Plan (Volume I). The draft EA was developed in accordance with the National Environmental Policy Act and Hawai'i Revised Statutes (HRS) Chapter 343.

Under Chapter 343 HRS, the Department of Land and Natural Resources (DLNR) is required to respond in writing to comments received from agencies during the course of the draft MMP public review process. This letter is DLNR's response to the Navy's comments. All responses to comments were prepared jointly by the members of the MMB and will also be included in Volume 5 of the final MMP and associated documents. The Missile Defense Agency (MDA) comments were considered in the preparation of the final MMP, EA and associated documents and in many cases, where appropriate, the documents were amended to address your comments as outlined below.

Volume I - Draft Monument Management Plan

*Comment.* The MDA expressed concern in several instances that the draft MMP and EA did not accurately portray its activities within the monument and that the document's explanation of Presidential Proclamation 8031's military exemption was inadequate. MDA suggested that additional

Mr. Kevin L. Call  
November 21, 2008  
Page 2 of 2

language be added to clarify the exemption in a number of different sections of the document to better reflect ongoing military activities in and around the Monument.

*Response.* Language has been added to MMP to clearly identify the Armed Forces exemption (see Vol. I, Section 2.3 "Initial Management"). Additionally, specific changes regarding military activities and presence within the Monument were made to the following sections of the MMP: Section 1.4 - Environmental and Anthropogenic Stressors, Section 1.5 - Global Significance, Section 2.1 Legal Framework, Section 2.3 Initial Management, Section 3.4 Managing Human Uses, and Section 3.5.1 Agency Coordination

Section 3.3.3 Maritime Transportation and Aviation (Activity MTA-1.1) has been revised to clarify that armed forces' vessels are not required to submit to International Maritime Organization (IMO) requirements. A new Appendix was added to Volume III to reflect current IMO provisions.

After review of all comments, it was determined that additional language noting the exemption throughout the balance of document wherever the Proclamation's regulations are mentioned would be redundant.

Volume II - Draft Environmental Assessment

*Comment.* As with draft MMP, the MDA had specific recommendations for a number of sections in the Environmental Assessment (EA) where it believed it would be appropriate to reiterate the Presidential Proclamation 8031's exemptions for military activities occurring within the Monument.

*Response.* The EA has been modified in section 2.4.1.3 to clarify ongoing military activities; including conducting training and testing activities within the Monument, are exempted by the proclamation.

Certain specific changes suggested by MDA regarding military presence and activities were incorporated into several sections of the EA. These sections included Section 2.4.1 - Human Uses (Introduction/Region of Influence and Federal Regulations) and Section 2.5 - Other Factors (Vessel Activity) and Section 4.0 - Socioeconomic Resources (Human Uses and Activities) where the section was revised to include "DoD training, testing and missile defense activities"

As with the MMP, it was felt that adding additional language regarding the exemption throughout the balance of Environmental Assessment where the Proclamation's regulations are mentioned would have been redundant.

The DLNR again wishes to thank you interest in and for reviewing and commenting on the Papahānaumokuākea Marine National Monument draft Monument Management Plan and draft Environmental Assessment.

Sincerely,



LAURA H. THIELEN  
Chairperson



"Luster, Jeffrey P.  
CAPT JAGC"  
<jeffrey.luster@navy.mil>  
>

07/08/2008 10:46 AM

To: <PMNM\_MMP\_Comments@fws.gov>  
cc: "Schregardus, Donald R. SES DASN (Environment) Pentagon, . BF986"  
<donald.schregardus@navy.mil>  
Subject: DEPUTY ASST SECRETARY OF THE NAVY (ENVIRONMENT)  
COMMENTS

00103

Dear Madam or Sir:

Please find attached a .pdf copy of comments on the Draft Papahānaumokuākea Marine National Monument Management Plan and associated Environmental Assessment signed out today by Mr. Donald Schregardus, the Deputy Assistant Secretary of the Navy (Environment).

V/r Jeff Luster

Captain Jeffrey P. Luster, JAGC, USN

Sr. Counsel (Fleet & Operational Environmental Law)

Office of the Ass't Secretary of the Navy (Installations & Environment)

(703) 614-3137



<<8 Jul DASN E Ltr to USFWS Re HNM.pdf>> 8 Jul DASN E Ltr to USFWS Re HNM.pdf



DEPARTMENT OF THE NAVY  
OFFICE OF THE ASSISTANT SECRETARY  
(INSTALLATIONS AND ENVIRONMENT)  
1000 NAVY PENTAGON  
WASHINGTON, D.C. 20380-1000

July 8, 2008

Co-Trustees  
U.S. Fish and Wildlife Service  
Papahānaumokuākea Marine National Monument  
Box 50167  
Honolulu, Hawai'i 96850

Dear Co-Trustees:

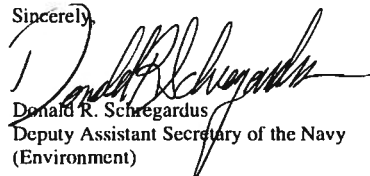
Thank you for providing the Department of the Navy the opportunity to review and comment on the Draft Papahānaumokuākea Marine National Monument Management Plan and associated Environmental Assessment.

While we fully support the Co-Trustees' effort to develop a Monument Management Plan that would serve as a collective guiding framework to enable you to effectively and efficiently achieve the President's overall vision of the Monument, we have concerns that the draft documents are inconsistent with the President's proclamation of June 15, 2006 establishing the Monument as it pertains to Department of Defense activities in the Monument. We feel that the documents must recognize and fully preserve the exemption for Armed Forces action set forth in the President's proclamation, and that neither the Monument Management Plan nor the Environmental Assessment should interpret this exemption as a requirement to minimize Navy or Department of Defense activities in the Monument. The Navy is fully committed to ensuring that its activities shall be carried out in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on Monument resources and qualities.

These comments have been coordinated with the Office of the Secretary of Defense. Our specific concerns are set forth in comments submitted by Commander, U.S. Pacific Fleet on July 7, 2008. We welcome the opportunity to meet with your representatives to review our comments.

The Department of the Navy will continue to support the Co-Trustees in the development of the Monument Management Plan. Thank you for considering our comments. I am the Department of the Navy's point of contact on this matter.

Sincerely,



Donald R. Schregardus  
Deputy Assistant Secretary of the Navy  
(Environment)



"Leech, Dean W CAPT  
COMPACFLT  
N01CE1DWL"  
<Dean.Leech@navy.mil>  
>

To: <PMNM\_MMP\_Comments@fws.gov>  
cc: "Vavra, Randy LCDR COMPACFLT N01CE1RV"  
<randy.vavra@navy.mil>, "Eldredge, Daniel E CDR COMPACFLT  
N01CE1DE" <daniel.eldredge@navy.mil>  
Subject: COMMENTS ON DRAFT MANAGEMENT PLAN AND EA

00093

07/07/2008 07:54 AM

Attached are comments to the draft management plan and environmental assessment.

V/R

Dean

CAPT Dean Leech, JAGC, USN  
Pacific Fleet Environmental Counsel  
251 Makalapa Drive  
Pearl Harbor, Hawaii 96815  
(808) 471-4954  
Cell 808.864.8047



<<Navy Comments 2 Jul 08.pdf>> Navy Comments 2 Jul 08.pdf



DEPARTMENT OF THE NAVY  
COMMANDER  
UNITED STATES PACIFIC FLEET  
390 HANALAPA DRIVE  
PEARL HARBOR, HAWAII 96860-5121

IN REPLY REFER TO:  
5090  
Ser N01CE1/0676  
2 July 2008

U.S. Fish and Wildlife Service  
Papahānaumokuākea Marine National Monument  
Box 50167  
Honolulu, HI 96850

SUBJ: COMMENTS ON PAPAHAANAUMOKUAKEA MARINE NATIONAL MONUMENT  
DRAFT MONUMENT MANAGEMENT PLAN AND DRAFT ENVIRONMENTAL  
ASSESSMENT

To Whom It May Concern:

We appreciate the opportunity to review and the efforts of your team in preparing the Papahānaumokuākea Marine National Monument Draft Monument Management Plan and Environmental Assessment consisting of four volumes. Enclosure (1) details the U.S. Pacific Fleet's concerns.


Any analysis and plan must carefully remain within the boundaries established by the Presidential Proclamation, associated regulations, and the United States' overarching commitments under customary international law and the United Nations' Convention on the Law of the Sea.

The draft management plan and environmental assessment fail to accurately articulate the ability of the Department of Defense, including the U.S. Navy, to carry out activities and exercises in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on Monument resources and qualities. The volumes repeatedly fail to acknowledge this authority and, to the extent actions of the armed forces are acknowledged, do so in an inaccurate and imprecise manner. We recommend that the drafters review and reference the Hawaii Range Complex Environmental Impact Statement/Overseas Environmental Impact Statement (HRC EIS/OEIS) and its Record of Decision. The HRC EIS/OEIS is the single most comprehensive analysis of military readiness activities throughout the Hawaiian Islands, including the Papahānaumokuākea Marine National Monument.

SUBJ: COMMENTS ON PAPAHAANAUMOKUAKEA MARINE NATIONAL MONUMENT  
DRAFT MONUMENT MANAGEMENT PLAN AND DRAFT ENVIRONMENTAL  
ASSESSMENT

The Pacific Fleet's point of contact is Lieutenant Commander Randy Vavra who may be reached at (808) 474-6389.

Sincerely,

  
RIOS  
CAPT, USN, CEC  
Deputy Fleet Engineer  
By direction



SPECIFIC COMMENTS ON DRAFT PAPHANAUMOKUJAKEA MANAGEMENT PLAN AND ENVIRONMENTAL ASSESSMENT

VOLUME I: DRAFT MONUMENT MANAGEMENT PLAN (organized by page number)

Page 70, lns 34-35:

The discussion discusses an event that should have occurred before this draft management plan was released. Recommend updating the discussion or deleting it.

Page 70-71, lns 36-41 and lns 1-41

The discussion of Waste Discharge, Ballast Water Discharge, and Introduction of Alien Species must be grounded in international law and the authorization granted by the Presidential Proclamation. The current discussion provides little and no reference to international law and how the plan intends to comply with the Presidential Proclamation.

Pages 72-73, lns 8-45 and lns 1-4

Discussion of lights and noise impacts fails to accurately capture the entire range of light and noise sources including an analysis of ambient light noise levels. "Noise" in the water is more accurately described as "energy" in the water. The discussion also inappropriately focuses on sonar by noting that it is of "particular concern". This untoward singling out of the issue du jour should be deleted. This lack of analysis does a disservice to the species and the National Monument by ignoring all other sources and fails to provide an in-depth discussion of the entire range of sources, discussion of peer-reviewed scientific articles detailing why energy in the water is or may be an issue of concern and how energy in the water may or may not affect the many species that inhabit the National Monument.

Page 73-74, lns 6-46 and lns 1-10

The discussion of various categories of vessels appears to be focused on several select categories with no background information or explanation as to why these are singled out. It also fails to mention that vessels of all nations' armed forces may transit through waters of the National Monument.

Page 76, lns 16-26

The discussion of the ship reporting system should note that some categories of vessels, such as vessels of the armed forces, are exempt from any reporting system.

Page 79, lns 6-7

1

Enclosure (1)

This description of the regulations should also list "exemptions" after the word "prohibitions" to ensure readers understand the complete scope of the regulations.

Page 89, lns 2-32

This description should list the prohibited activities and the exempted activities to ensure readers understand the complete scope of the regulations.

Page 149, lns 10-16

This discussion of human interactions fails to define and describe nearshore ship traffic and how it actually affects monk seals based on peer reviewed science. Any restrictions imposed in the National Monument for Monk Seals would likely be carried over to the main Hawaiian Islands where ship traffic is much greater in frequency and intensity. Accordingly, restrictions based on geography, intensity and frequency would have a severe impact. This section also fails to define and describe "unnecessary research" and criteria intended for use to define and regulate beach use, noise and the thresholds that will be used to create any regulations.

Page 155, lns 16-21

Recommend rewriting this paragraph to reflect that the Endangered Species Act requires that federal agencies consult with NOAA for marine species and FWS for terrestrial species on actions that the federal agencies conclude may affect listed or endangered species. This more accurately describes the ESA requirements. As currently drafted, the management plan does not clearly establish the consultation requirements federal agencies taking the action must follow.

Page 173, lns 22-32

This description of altitude restrictions is not accurate. There is no minimum altitude above national refuges and national monuments nor does DoD prescribe a minimum altitude.

Page 174, lns 3-7

This description incorrectly describes FWS policy and federal regulation. The regulation and policies cited do not require that the Hawaiian Islands NWR proposed for designation in 1974 be managed as a Wilderness area. In fact, because Congress did not do so in 1974 indicates that it is not a wilderness area and the Wilderness Act is wholly inapplicable.

Page 191, lns 20-32

2

Enclosure (1)

The Plan should clearly articulate how the Coast Guard regulations, IMO guidelines and State DLNR laws fall, or do not fall, within the Presidential Proclamation/regulations and to whom they apply. The current discussion raises significant international law and federal/state Supremacy clause issues.

Page 205 lns 13-29

Marine traffic in the Monument is described without mentioning that vessels of armed forces, including those of other nations, may transit through and conduct activities within the Monument.

Page 206, lns 39-42

This discussion of anthropogenic noise does not identify any scientific analysis regarding anthropogenic ship noise or studies unique to the resources of the National Monument. As such, it is unfounded and should be deleted.

Page 207, lns 1-9

Discussion of the PSSA designation should include a statement that armed forces vessels are not required to submit to these requirements. Additionally, the PSSA designation and associated documents should be an appendix in Volume IV.

Page 218, ln 21

The permitting discussion does not account for activities for which permits are not required, including exercises and activities of the armed forces and emergency/law enforcement activities.

Page 248, lns 10-15

This discussion does not accurately reflect the authorization for activities and exercises of the armed forces. There is no requirement in the Presidential Proclamation that the armed forces minimize activities in the Monument. The proclamation only requires that "activities and exercises of the Armed Forces shall be carried out in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on the Monument resources and qualities." This does not equate to minimizing activities.

#### REVIEW OF THE DRAFT ENVIRONMENTAL ASSESSMENT

Page 78

The ROI should be depicted through a chart or viewal. As drafted, the reader does not understand the size and scope of the ROI being discussed. This is particularly important because the description of impacts does not accurately identify all human activities within the ROI.

3

Enclosure (1)

Page 109, Section 2.4.1.1, second paragraph. The list of activities occurring in the waters of the NMNI should include "Navy and DoD training and testing activities".

Page 110-111

The sentence stating "The military still conducts limited operations . . . around the Monument," does not accurately reflect armed forces activities. The sentence should be replaced with the following, "The Navy conducts training and testing activities within the Hawaii Operating Area, which includes a portion of the Monument. In addition, the Defense Department conducts missile defense testing, including missile intercepts, in and around the Monument."

Page 112

The text states in part that "access by the armed forces for emergency response, enforcement, and passage without interruption are allowed without permit." This line does not accurately convey the regulations and should be amended as follows: "In addition, by regulation, the prohibitions of the proclamation do not apply to emergency and law enforcement activities and activities and exercises of the Armed Forces including those carried out by the U.S. Coast Guard."

Page 133

Discussion of the ROI should not be solely focused on the few marine and terrestrial areas as currently depicted. Based on the EA's definition of the ROI at pages 79 and 80 which identifies 13 resource areas or categories, the discussion on page 133 mentions a few apparently unrelated areas of concern. It then mentions "land-based military activities". The previous discussion of the 13 categories is surprisingly vague regarding human activities before mentioning military land based activities. The discussion of the resource areas should also discuss land fills and associated pollution issues, water quality including Honolulu's Consent Decree of the early 1990s, the amount of waste dumped at sea and Honolulu's ongoing dispute with the EPA over its permit, development and associated impacts on marine and terrestrial species and their habitat as well as erosion and non-point source pollution.

4

Enclosure (1)

LINDA LINGLE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

November 21, 2008

LAURA R. THIELER  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCES MANAGEMENT

RUSSELL Y. TSAI  
FIRST DEPUTY

KEN C. KAWAHARA  
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
BUREAU OF CONSERVATION  
COMMISSION ON WATER RESOURCES MANAGEMENT  
CONSERVATION AND COASTAL LANDS  
CONSERVATION AND RESOURCES ENFORCEMENT  
DEPARTMENT OF FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
KAWAIIAN ISLAND RESPONSE COMMISSION  
LAND  
STATE PARKS

Mr. Donald R. Schregardus  
November 21, 2008  
Page 2 of 8

Mr. Donald R. Schregardus  
Deputy Assistant Secretary of the Navy (Environment)  
Office of the Assistant Secretary (Installations and Environment)  
1000 Navy Pentagon  
Washington, D.C. 20350-1000

Re: Department of the Navy/U.S. Pacific Fleet Comments on Draft Papahānaumokuākea  
Marine National Monument Management Plan and Environmental Assessment

Dear Mr. Schregardus:

Thank you for providing comments on the Draft Papahānaumokuākea Marine National Monument Management Plan (draft MMP), Environmental Assessment (EA), and associated documents. The draft MMP is the product of an extensive coordinated planning process undertaken by the Monument Management Board (MMB) on behalf of the Co-Trustee agencies: US Fish and Wildlife Service, the National Oceanic and Atmospheric Administration and the State of Hawai'i, Department of Land and Natural Resources. The MMB is comprised of representatives of these three agencies and the Office of Hawaiian Affairs.

The draft EA contained in Volume II evaluates the likely environmental consequences of the activities contained in the Monument Management Plan (MMP). The draft EA was developed in accordance with the National Environmental Policy Act and Hawai'i Revised Statutes (HRS) Chapter 343.

Under Chapter 343 HRS, the Department of Land and Natural Resources (DLNR) is required to respond in writing to comments received from agencies during the course of the draft MMP public review process. This letter is DLNR's response to the Navy's comments. All responses to comments were prepared jointly by the members of the MMB and will also be included in Volume 5 of the final MMP and associated documents. The Department of the Navy and the U.S. Pacific Fleet's (Navy) comments were considered in the preparation of the final MMP, EA and associated documents and in many cases, where appropriate, the documents were amended to address your comments as outlined below.

General Comments – Presidential Proclamation 8031 Military Exemption

At the outset, we have noted that the Navy expressed concern in several instances that the Draft Monument Management Plan and EA did not accurately portray its activities within the Monument or that the document's explanation of Presidential Proclamation 8031 military exemption was inadequate. The Navy suggested that additional language be added to clarify the exemption in a number of different sections of the document to better reflect ongoing military activities in and around the Monument.

*Response.* To address these concerns, the Monument Management Plan has been revised to include language that identifies the Armed Forces exemption (see Vol. I, Section 2.3 "Initial Management"). In addition, a new Appendix was added to Volume III to reflect International Maritime Organization (IMO) provisions. The MMB concluded that adding more language regarding the exemption throughout the document where the regulations are mentioned would be redundant. The EA was modified in section 2.4.1.3 to clarify that ongoing military activities, including conducting training and testing activities occur within the Monument. Additionally, the EA was modified in section 2.5.2.3 to clarify that military vessels conduct training and testing activities in the Monument.

Comment Specific Responses – Vol. I Draft Monument Management Plan

Section 1.4. Environmental and Anthropogenic Stressors

*Comment.* Referencing the *Vessel Groundings, Oil and Fuel Spills* discussion of this section, the Navy notes that the draft MMP states that the MMB was working with the Army, Navy and Coast Guard on a vessel salvage project in the area of Kure Atoll's lagoon in Spring of 2008, and that because this project refers to an event before the draft MMP was released, the discussion should have been updated or deleted.

*Response.* The vessel salvage project has not been completed. The monument managers are currently exploring salvage options, including a partnership with the Navy, to remove the sunken vessel from the Kure Atoll lagoon.

*Comment.* Referring to the *Waste Discharge, Ballast Water Exchange and Introduction of Alien Species* discussions in this section, the Navy states that the "discussion of Waste Discharge, Ballast Water Discharge, and Introduction of Alien Species must be grounded in international law and the authorization granted by the Presidential Proclamation. The current discussion provides little and no reference to international law and how the plan intends to comply with the Presidential Proclamation."

*Response.* To support its *Waste Discharge, Ballast Water Exchange and Introduction of Alien Species* discussion, the MMP cites for authority the International Convention for the Prevention of Pollution from Ships. In addition, management of the Monument in relation to waste discharge and ballast water discharge must comply with all applicable international, federal, and state laws and regulations.

Light and Noise Impacts

*Comment.* The Navy comments that "[d]iscussion of lights and noise impacts fails to accurately capture the entire range of light and noise sources including an analysis of ambient light noise levels. "Noise" in the water is more accurately described as "energy" in the water. The discussion also inappropriately focuses on sonar by noting that it is of "particular concern." This untoward singling out of the *issue du jour* should be deleted. This lack of analysis does a disservice to the species and the National Monument by ignoring all other sources and fails to provide an in-depth discussion of the entire range of sources, discussion of peer-reviewed scientific articles detailing why energy in the water is or may be an issue of concern and how energy in the water may or may not affect the many species that inhabit the National Monument."

*Response.* The MMP identifies mid-frequency tactical sonar used by military vessels as being of particular concern in the Monument because some of the other sources of underwater sound energy that have been shown to be dangerous to marine mammals such as seismic research are not as likely to occur

in the vicinity of the Monument. Additional information has been added to section 2.2.3.3 in the MMP for clarification.

#### Vessel Activity

*Comment.* With regard to this section's discussion of vessels and vessel activity within the monument, the Navy notes that vessel traffic in the monument is described without mentioning that vessels of armed forces, including those of other nations, may transit through and conduct activities within the Monument.

*Response.* The final MMP has been revised to include information on military activities in the Monument; see Vol. I, Section 1.4 "Environmental and Anthropogenic Stressors" and the Maritime Transportation and Aviation Action Plan (3.3.3).

#### Section 1.5 – Global Significance

*Comment.* The Navy notes that in the Particularly Sensitive Sea Area (PSSA) discussion did not include a statement that armed forces vessels are not required to submit to these requirements.

*Response.* Activity MTA-1.1 in the Monument Management Plan has been revised to clarify that armed forces vessels are not required to submit International Marine Organization (IMO) requirements. In addition, a new Appendix was added to Volume III to reflect the IMO provisions.

#### Section 2.1 Legal Framework and Sec. 2.3 Initial Management

*Comment.* The introductory paragraphs in these sections describe the joint implementing regulations promulgated pursuant to Presidential Proclamation 8031. The Navy notes that this discussion does not include the military exemption provisions of these regulations.

*Response.* The Monument Management Plan has now been revised to include language that identifies the Armed Forces exemption (see Vol. I, Section 2.3 "Initial Management"). It was felt that adding additional language regarding the exemption throughout the document where the regulations are mentioned would be redundant. The EA was modified in section 2.5.2.3 to clarify the Department of Defense (DoD) vessels conduct training and testing activities in the Monument.

#### Section 3.2.1 - Threatened and Endangered Species – Monk Seals

*Comment.* The Navy suggests that the discussion on reduction of impacts of human interaction with Monk seals (TES-1.4), "... fails to define and describe near shore ship traffic and how it actually affects monk seals based on peer reviewed science. Any restrictions imposed in the National Monument for Monk Seals would likely be carried over to the main Hawaiian Islands where ship traffic is much greater in frequency and intensity. Accordingly, restrictions based on geography, intensity and frequency would have a severe impact. This section also fails to define and describe "unnecessary research" and criteria intended for use to define and regulate beach use, noise and the thresholds that will be used to create any regulations."

*Response.* Interactions with marine mammals, including Hawaiian monk seals are prohibited anywhere in U.S. jurisdiction, including the Monument, unless allowed under permit or authorization (for species protected under the Marine Mammal Protection Act but not the Endangered Species Act). Best practices for vessels as well as other best practices for any work in the Monument are shared with permittees. Best

management practices can be found in Appendix I, and vessel best practices, as well as other ocean etiquette guidelines, will eventually become available to the public at the NOAA website. Activity TES-1.4 calls for "Reducing the likelihood and impact of human interactions on monk seals." The text description provides examples of some of the activities that could negatively impact monk seals, such as research, so that they could be given more careful scrutiny during the permit review process to avoid harm to monk seals or their habitat. More specific details about efforts to reduce human impacts to monk seals can be found in the NOAA Monk Seal Recovery Plan.

Currently, there are no additional restrictions or regulatory measures being proposed to protect monk seals from near shore ship traffic in the Monument or the Main Hawaiian Islands.

The term "unnecessary" was deleted, as the intent was aimed at all research activities that could impact monk seals.

#### Endangered Species Act Consultations

*Comment.* The Navy has recommended "rewriting this paragraph to reflect that the Endangered Species Act requires that federal agencies consult with NOAA for marine species and FWS for terrestrial species on actions that the federal agencies conclude may affect listed or endangered species." In the Navy's opinion, this "more accurately describes the ESA requirements. As currently drafted, the management plan does not clearly establish the consultation requirements federal agencies taking the action must follow."

*Response.* Section 3.2.1 Threatened and Endangered Species, Strategy TES-8, of the MMP has been edited and the following information was added: "Section 7(a)(2) of the Endangered Species Act (ESA) requires that federal agencies consult with NOAA Fisheries for listed species under its jurisdiction and with the FWS for listed species under its jurisdiction (jurisdiction for sea turtles is shared by the two agencies) on actions that the federal agencies conclude may affect listed species or designated critical habitat."

#### Section 3.2.3 Habitat Management and Conservation

*Comment on "Overflight restrictions over wildlife refuges and national monuments (Activity HMC-9.1)."* The Navy believes that the description of altitude restrictions in this discussion is not accurate and that "[t]here is no minimum altitude above national refuges and national monuments nor does DoD prescribe a minimum altitude."

*Response.* OPNAVINST 3710.7T, Section 5.5.1 provides a specific restriction of flying over noise sensitive areas such as national parks, national monuments, and national recreational areas at altitudes of less than 3,000 feet above ground level except when in compliance with an approved traffic or approach pattern, designated VR or IR route, or special use airspace.

*Comment on "Wilderness Stewardship Responsibilities in the Monument. (Strategy HMC-10)."* The Navy states that "This description incorrectly describes FWS policy and federal regulation. The regulation and policies cited do not require that the Hawaiian Islands NWR proposed for designation in 1974 be managed as a Wilderness area. In fact, because Congress did not do so in 1974 indicated that it is not a wilderness area and the Wilderness Act is wholly inapplicable."

*Response.* The question of whether the 1974 designation gives rise to wilderness designation considerations is being reviewed by federal agency senior staff and the Council of Environmental Quality in Washington D.C. Resolution of this issue is beyond the scope of the DLNR response to comments.

#### Section 3.3.2 Alien Species

*Comment.* In the *Existing Laws, Regulations and Protocols* discussion portion of this section, reference is made to the US Coast Guard's "Mandatory Ballast Water Management Program for U.S. Waters." The Navy suggests that the MMP "should clearly articulate how the Coast Guard regulations, IMO guidelines and State DLNR laws fall, or do not fall, within the Presidential Proclamation/regulations and to whom they apply." The Navy also suggests that "the current discussion raises significant international law and federal/state Supremacy clause issues."

*Response.* Presidential Proclamation 8031 states in part that:

1. The prohibitions required by this proclamation shall not apply to activities and exercises of the Armed Forces (including those carried out by the United States Coast Guard) that are consistent with applicable laws.
2. Nothing in this proclamation shall limit agency actions to respond to emergencies posing an unacceptable threat to human health or safety or to the marine environment and admitting of no other feasible solution.
3. All activities and exercises of the Armed Forces shall be carried out in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on monument resources and qualities.
4. In the event of threatened or actual destruction of, loss of, or injury to a monument resource or quality resulting from an incident, including but not limited to spills and groundings, caused by a component of the Department of Defense or the USCG, the cognizant component shall promptly coordinate with the Secretaries for the purpose of taking appropriate actions to respond to and mitigate the harm and, if possible, restore or replace the monument resource or quality.

Additionally, the Proclamation provides that nothing in the proclamation shall be "deemed to diminish or enlarge the jurisdiction of the State of Hawaii." Accordingly, all state laws will continue to apply in State waters. Further, the MMP notes that Armed Forces are not subject to the IMO adopted access restrictions and reporting requirements in the monument when they are conducting activities and exercises within the monument.

#### Section 3.3.3 Maritime Transportation and Aviation

*Comment.* With reference to the "*Current Status and Background*" discussion of this section, the Navy notes that "Marine traffic in the Monument is described without mentioning that vessels of armed forces, including those of other nations, may transit through and conduct activities within the Monument."

*Response.* The Monument Management Plan has been revised to include information on military activities in the Monument; see Vol. I, Section 1.4 "Environmental and Anthropogenic Stressors" and the Maritime Transportation and Aviation Action Plan (3.3.3).

*Comment on Coordinate implementation of domestic and international shipping designations with appropriate entities.* (Activity MTA-1.1.) This section, in part, discusses the designation of the Monument as a Particularly Sensitive Sea Area (PSSA) by the IMO. It notes that ship traffic has been

identified as one of the primary anthropogenic threats to vulnerable Monument resources. The Navy comments that the MMP discussion of anthropogenic noise does not identify any scientific analysis regarding anthropogenic ship noise or studies unique to the resources of the National Monument. As such, it is unfounded and should be deleted.

*Response.* Discussion on anthropogenic ship noise can be found in section 1.4 "Environmental and Anthropogenic Stressors", in the section captioned *Light and Noise Impacts*. The specific section of the document referenced by the comment does not pertain to impacts from ship noise, but rather relates to the many potential impacts from "ship traffic," including groundings, hazardous materials spills, and sewage and ballast water discharges. The text has been modified to reflect this threat.

*Comment.* The Navy also suggests that "[d]iscussion of the PSSA designation should include a statement that armed forces vessels are not required to submit to these requirements. Additionally, the PSSA designation and associated documents should be an appendix in Volume IV."

*Response.* Activity MTA-1.1 of the MMP has been revised to clarify that armed forces vessels are not required to submit IMO requirements. In addition, a new Appendix was added to Volume III to reflect the IMO provisions.

#### Section 3.4 Managing Human Uses

*Comment.* The Navy expresses concern that the MMP Action Plan related to permitting goals in this section did not account for exempted military exercises and activities and emergency/law enforcement activities.

*Response.* As noted earlier in this response letter, the MMP has been revised to include language that identifies the Armed Forces exemption (see Vol. I, Section 2.3 "Initial Management"). In addition, a new Appendix was added to Volume III to reflect the IMO provisions. Adding additional language regarding the exemption throughout the document whenever the referenced regulations were mentioned was felt to be redundant.

#### Section 3.5.1 Agency Coordination

*Comment.* Regarding *Activity AC-3.1: Enhanced communication and cooperation with the DoD and the US Navy Pacific Fleet*, the Navy states that the MMP discussion "does not accurately reflect the authorization for activities and exercises of the armed forces. There is no requirement in the Presidential Proclamation that the armed forces minimize activities in the Monument. The proclamation only requires that 'activities and exercises of the Armed Forces shall be carried out in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on the Monument resources and qualities.' This does not equate to minimizing activities."

*Response.* The MMB has revised AC-3.1 to delete reference to "minimizing" military activities in the Monument.

#### **Vol. II - Environmental Assessment**

Consistent with its comments on Volume I of MMP, the Navy had specific language suggestions for a number of sections in the Environmental Assessment (EA) where it believed it appropriate to reiterate the

Mr. Donald R. Schregardus  
November 21, 2008  
Page 7 of 8

Presidential Proclamation 8031 exemptions for military's presence and activities occurring within the Monument.

To address these concerns, the EA has been modified in section 2.4.1.3 to clarify ongoing military activities including conducting training and testing activities within the Monument are exempted by the proclamation.

Certain specific changes suggested by MDA were incorporated into sections of the EA as well:

Sec. 2.1 - Affected Environment

*Comment.* This chapter describes the physical, biological and economic conditions that occur within the "region of influence" (ROI) of the Proposed Action Alternative. The Navy comments that "[t]he ROI should be depicted through a chart or visual. As drafted, the reader does not understand the size and scope of the ROI being discussed. This is particularly important because the description of impacts does not accurately identify all human activities within the ROI."

*Response.* Language was added in the introduction to Chapter 2 of the EA to clarify the region of influence (ROI). Additionally, Figure 2.1 was added to depict the ROI.*Sec. 2.4 Socioeconomics.*

*Comment.* The Navy notes that the lists of activities occurring in the waters of the Monument do not include military activities.

*Response.* Section 2.4 has been amended to include "DoD training, testing and missile defense activities."

Sec. 2.4.1.3 - Resources Overview

Per the Navy's request, the MMP has amended this Section to include the following language: "The Navy conducts training and testing activities within the Hawaii Operating Area, which includes a portion of the Monument. In addition, the Defense Department conducts missile defense testing, including missile intercepts, in and around the monument."

Sec. 2.5.1.3 - Resources Overview

*Comment.* The Navy provided the following comment on Sec. 2.5.1.3 *Existing Water Quality Conditions - Marine Environment*: "Discussion of the ROI should not be solely focused on the few marine and terrestrial areas as currently depicted. Based on the [draft] EA's definition of the ROI at pages 79 and 80 which identify 13 resource areas or categories, the discussion on page 133 [of the draft EA] mentions a few apparently unrelated areas of concern. It then mentions "land-based military activities." The previous discussion of the 13 categories is surprisingly vague regarding human activities before mentioning military land based activities. The discussion of the resource areas should also discuss landfills and associated pollution issues, water quality including Honolulu's Consent Decree of the early 1990s, the amount of waste dumped at sea and Honolulu's ongoing dispute with the EPA over its permit, development and associated impacts on marine and terrestrial species and their habitat as well as erosion and non-point source pollution."

*Response.* The ROI for water resources primarily includes those islands where specific actions take place. Section 2.5.1.3 of the EA is an overview of water resources, which includes a description of the

Mr. Donald R. Schregardus  
November 21, 2008  
Page 8 of 8

existing water quality conditions within the ROI. Vessel discharges, spills, shipwrecks, marine debris and land-based military activities have contributed to the contamination of marine water resources in the ROI and are therefore mentioned in this section. A discussion of landfills can be found in sections 2.4.2.3 and 2.5.1.3 of the EA. A discussion of past and present human activities within the Monument can be found in previous sections including 2.4.1, 2.4.2 and 2.4.3. While the water resources in the Main Hawaiian Islands are very important, the ROI for water resources in the EA for the Papahānaumokuākea Marine National Monument Management Plan is limited to marine and terrestrial waters and water resources of the Monument. Discussion of water resources in Honolulu specifically has not been included in the EA.

The DLNR again wishes to thank you interest in and for reviewing and commenting on the Papahānaumokuākea Marine National Monument draft Monument Management Plan and draft Environmental Assessment.

Sincerely,



LAURA H. THIELEN  
Chairperson

- c: Lieutenant Commander Randy Vavra, U.S. Pacific Fleet
- Captain Dean Leech, JAGC, USN, Pacific Fleet Environmental Counsel
- Captain J.P. Rios, USN, CEC, Deputy Fleet Engineer



Western  
Pacific  
Regional  
Fishery  
Management  
Council

01006

July 23, 2008

Ms. Susan White  
FWS Superintendent  
Papahānaumokuākea Marine National Monument  
PO Box 50167  
Honolulu, HI 96850-5000

PMNM\_MMP Comments@fws.gov

Dear Ms. White,

Thank you for the opportunity to provide comments on the Draft Monument Management Plan and the accompanying Environmental Assessment. Please find attached comments on these documents compiled by the staff of the Western Pacific Regional Fishery Management Council (Council).

Sincerely,

Kitty M. Simonds  
Executive Director

## Comments on the Draft Monument Management Plan (Volumes I – IV)

Compiled by Staff of the Western Pacific Regional Fishery Management Council  
July 23, 2008

### VOLUME I: Draft Monument Management Plan

#### Section 1.0 Introduction

Page 1, lines 1 – 4 states: Presidential Proclamation 8031, issued by George W. Bush on June 15, 2006, set aside the Northwestern Hawaiian Islands (NWHI) as the Papahānaumokuākea Marine National Monument (Monument), thereby creating the largest fully protected marine conservation area in the world.

**Comment:** Describing this area as “fully protected” appears to be misleading as commercial fishing for bottomfish and pelagic species will be allowed to continue pursuant to specific annual catch limits (e.g. 350,000 lbs. for bottomfish species 180,000 lbs. for pelagic species) until June 2011. Additionally, under this draft Monument management plan, non-commercial extraction of Monument resources for subsistence, sustenance and scientific research will be allowed in perpetuity, with no specified limits on the level or amount of extraction that may occur. Furthermore, even carefully planned non-extractive research and management activities may unintentionally and adversely impact Monument resources such vessel grounding and introduction of alien species or diseases into marine and terrestrial environments of the NWHI.

While this management plan contains plans to prevent and minimize human impacts such as vessel groundings and unintentional introduction of alien species into the Monument such impacts cannot be fully prevented and thus the Monument cannot be considered fully protected. We recommend this sentence be revised to read: “*Presidential Proclamation 8031, issued by George W. Bush on June 15, 2006, set aside the Northwestern Hawaiian Islands (NWHI) as the Papahānaumokuākea Marine National Monument (Monument), thereby creating one of the world’s largest marine protected areas.*”

Page 68, line 27 states: The crustacean (lobster-trap) fishery has not had a harvest guideline set for the NWHI since that time; no crustacean fishery has operated in the NWHI since 2000.

**Comment:** The regulations at 50 CFR 665.50(b)(2) require NMFS to publish an annual harvest guideline for lobster Permit Area 1, comprised of Federal waters around the NWHI which it has done so annually until 1999. Additionally, Proclamation No. 8031 specifically directed the Secretary of the Interior and the Secretary of Commerce to ensure that NWHI lobster permit holders be subject to a zero harvest guideline. Therefore, we recommend that this sentence be amended to read: “*No crustacean (lobster-trap) fishery has operated in the NWHI since 1999. Between 2000 and 2005, NMFS has set an annual harvest guideline of zero lobsters for this fishery. Although 15 federal NWHI lobster permits continue to remain valid, Proclamation No. 8031 directed the Secretaries to ensure that these commercial lobster fishing permit be subject to a zero annual harvest limit.*”



**Page 68, line 45 to Page 69, lines 1 – 2 states:** In practice, bottomfish harvest is below catch limits and is thought not to be the contributing factor to the overfishing status of the bottomfish stocks in the archipelago.

**Comment:** As of April 1, 2008, Hawaii's archipelagic bottomfish stocks were no longer subject to an overfishing condition as the final rule implementing Amendment 14 to the Fishery Management Plan for Bottomfish and Seamount Groundfish Fisheries of the Western Pacific Region effectively reduced fishing effort by the amount required by NMFS to end overfishing (73 FR 18415, April 4, 2008). We recommend that this sentence be revised to read: "*Bottomfish harvest is below catch limits.*"

#### Section 2.0 Management Framework

**Page 79, line 12 – 13 states:** The Monument includes areas and management authorities that are under the jurisdiction of one or multiple Federal agencies or the State of Hawaii. For example, the Monument, an area of approximately 139,739 square miles, includes the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve ....

**Comment:** The NWHI Coral Reef Ecosystem Reserve was established through Executive Orders 13178 and Executive Order 13196 and has been previously been determined by NOAA to have the force of law. From a legal standpoint, these Executive Orders contain numerous provisions relating to fishing such as the authorization of certain fishing activities that were in existence at the time the orders were executed, subject to fishing caps, closed areas and other restrictions. However, some of the provisions of Proclamation No. 8031 which established the Monument are inconsistent with the provisions of Executive Orders 13178 and Executive Order 13196. For example, Executive Orders 13178 and Executive Order 13196 appears to allow non-federally permitted pelagic handline and trolling vessels who are licensed by the State of Hawaii and fished in the NWHI prior to 2000 to continue to fish within the NWHI while the provisions of Proclamation No. 8031 allows only federally permitted bottomfish fishermen to fish in the NWHI.

We recommend NOAA specifically clarify in the Monument management plan whether the provisions of Proclamation No. 8031 supersedes the provisions of Executive Orders 13178 and Executive Order 13196 related to authorized fishing activities, fishing caps and closed fishing areas.

#### Section 3.0 Action Plans to Address Priority Management Needs

**Page 101, line 14 states:** The total estimated cost to implement the Monument Management Plan over the next 15 years is \$355,218,480.

**Comment:** The estimated cost is unrealistic as this would amount to over \$20 million annually to undertake Monument activities. While we recognize that many of the activities are important, certainly not all are critical to the management of the Monument. Given that NOAA cannot reasonably expect to receive \$20 million annually for the management of the Monument, we recommend that NOAA prioritize the Action Plans based on management critical needs.

**Page 105, line 32 states** that one of the desired outcomes of the action plans are to increase understanding of the distribution, abundances and functional linkages of organisms and their habitats in space and time to improve ecosystem based management in the Monument.

**Comment:** In numerous instances, the Monument Management Plan refers to the NWHI as the world's largest marine protected area and an area of global biodiversity conservation. As the world's largest marine protected area, the Monument can also provide insight for improved management throughout the Hawaiian Archipelago. As the Monument comprises nearly four fifths of the Hawaiian archipelago, we recommend that the Monument Management Plan include strategies to address the benefits to the MHI resulting from the spillover of reef and bottomfish and provide a means of measuring these benefits should they exist.

**Page 145, Threatened and Endangered Species Action Plan:** The Monument Management Plan recognizes that the Hawaiian monk seal is one of the world's most endangered marine mammals and its population is in crisis.

**Comment:** Studies cited in the plan have found that standing stock of fish in the NWHI are 260 times greater than in the MHI and that 54 percent of the total fish biomass in the NWHI consists of apex predators compared to just 3 percent in the MHI.

Yet, despite the apparent wealth of fish biomass in the NWHI, monk seals continue to decline there but, continue to increase in the MHI. This suggests apex predators may be having a negative impact on the survival of the Hawaiian monk seal as they may be outcompeting seals for food. However this is not even recognized in the Monument Management Plan and there are no strategies to address this situation. Additionally it is thoroughly documented that Hawaiian monk seals are sensitive to human interactions and have been known to abandon areas which are visited by humans. However, the Monument Management Plan proposes to allow an ever increasing number of humans to access the NWHI which may further displace monk seals and discourage feeding, breeding and growth.

We recommend that the draft Management Plan include strategies to address apex predator competition with the Hawaiian monk seals and include measures to limit and established hard caps on the number of individuals that are allowed to access the emergent lands of the NWHI annually.

**Page 86 line 8 states:** Ceded lands are currently held in trust by the State of Hawai'i as part of the public land trust and continue to hold a considerable amount of legal, historical, and sentimental significance to Native Hawaiians.

**Comment:** Native Hawaiians have a deep spiritual relationship with the land and oceans, not just ceded lands in the Northwestern Hawaiian Islands. We recommend this sentence be revised to read: "*Ceded lands are currently held in trust by the State of Hawai'i as part of the public land trust and continue to hold a considerable amount of legal, historical, and spiritual significance to Native Hawaiians.*"

**Page 220, line 22 states:** The Proclamation allows the Secretaries of the Interior and the Secretary of Commerce to issue permits for sustenance fishing outside any Special Preservation Area as a term or condition of any permit issued, if the activity is conducted in a manner compatible with the Proclamation.

**Comment:** The Proclamation also provides the Secretaries with particular guidance in exercising this discretion and requires the Secretaries to also consider the extent to which sustenance fishing may diminish Monument resources qualities and ecological integrity, as well as any indirect, secondary or cumulative effects of the activity and the duration of such effects. The Proclamation also mandates the Secretaries to develop procedures for systematic reporting of sustenance fishing.

We understand that the Monument Co-Trustees have authorized sustenance fishing for bottomfish and pelagic fishing in association with several Monument access permits in 2007, and Monument Co-Trustees themselves have applied for and received a Monument Conservation and Management Permit (Permit # PMNM 2008-001) authorizing over 200 individuals to access the Monument to conduct various activities, including sustenance fishing. Additionally, we understand that both NOAA research vessels (Oscar Elton Sette and the Hiialakai) have also applied for and received Monument permits in 2008 authorizing individuals covered by the permit to engage in sustenance fishing from those platforms.

Upon reviewing each of the various types of Monument Permit Applications (e.g., Research, Education, Conservation and Management, Native Hawaiian Practices, Special Ocean Use and Recreational) we found that each application contains a field that allows applicants to identify the various types of activities to be conducted under the permit, including sustenance fishing. However, the applications do not require the applicant to provide any information on how sustenance fishing is to be conducted such as the location or duration of fishing activity, the total number of hours of fishing that will be conducted under the permit or number of fish to be taken under the permit.

Without this information it is not apparent how Monument Co-Trustees are able to evaluate the extent to which sustenance fishing activity may diminish Monument resources, qualities and ecological integrity or any indirect, secondary or cumulative effects of the activity and the duration of such effects. Additionally, there do not seem to be any associated data reporting requirements in either the Monument Management Plan or Volume III: Appendices, Supporting Documents and References although Proclamation No. 8031 specifically directs the Secretaries to develop procedures for systematic reporting of sustenance fishing.

In light of the requirements and considerations regarding sustenance fishing in the Monument mandated by Proclamation No. 8031, we recommend that the Monument Management Plan include procedures for systematic reporting of sustenance fishing.

We also recommend the Monument Management Plan clearly describe the process by which the Monument Management Board or Co-Trustees will evaluate permit applications to determine the extent to which sustenance fishing requests may or may not diminish monument resources, qualities and ecological integrity. If the Monument Management Board is simply relying on

existing fishery control rules, such as maximum sustainable yield, catch per unit effort and spawning potential ratio as mechanisms to determine the extent to which sustenance fishing requests may or may not diminish monument resources, qualities and ecological integrity, that should be clearly articulated.

## VOLUME II: Draft Environmental Assessment

### General Comment:

- Although Volume II is a continuation of Volume I, the term "Co-Trustees" should be defined for those who don't read Volume I.
- Based on CEQ regulations implementing the National Environmental Policy Act (NEPA), implementing the Monument Management Plan would be considered a major federal action (40 CFR §1508.18). In terms of NEPA, an Environmental Impact Statement (EIS) should have been prepared to provide the public with a clear understanding of the environmental and socio-economic benefit of implementing the Monument and Monument Management Plan. Instead, an Environmental Assessment (EA) was prepared. However, the EA does not discuss or nor attempt to analyze the significance (overall or otherwise) of the proposed action to the protection of natural resources, marine heritage sites, the State of Hawaii and to the United States.
- Statements such as "beneficial effect" and "short-term minor negative effect" appear throughout the document. However these terms lack definitions and are without adequate analysis to determine their significance. Furthermore CEQ regulations (40 CFR § 1508.2) state that "Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial."
- Without preparation of an EIS and no discussion of significance in the EA, the reader is left with assuming that the implementation of the Monument Management Plan will result in a Finding of No Significant Impact by the agency. Is it NOAA's position that the implementation of the Monument Management Plan will have no significant benefits?

### Specific Comments:

The third paragraph under the header: **Note to Readers** needs to inform readers of the additional authority and regulations under the Council's fishery management plans that have been approved by the Secretary of Commerce/NOAA and in place since long before 2006. Readers and decision-makers need to be fully informed as to the authority, history, management and status of NWHI fishing before providing comments or making decisions regarding this large and important area.

Additionally, the three agency statements under paragraphs 6 – 8 are disjointed and virtually indecipherable. They need to be written more clearly so that readers and decision makers can understand exactly what this EA covers and what it doesn't. It is also confusing to have three separate and semi-conflicting statements, how can each agency have a different idea of what is covered or not covered. The three statements should be combined into one coordinated statement, without agency headers. In addition, the cumulative impacts of all the existing actions already underway need to be analyzed in the EA so that readers understand the full scope of activities the NWHI will be subject to.

7

## Chapter 1: Introduction

**Page 1:** The monument mission is stated as "the strong long-term protection and perpetuation of the NWHI ecosystems".

**Comment:** This does not appear to be fully consistent with the President's Proclamation and the EO establishing the monument and should be revised accordingly so that the President's overall intent for the monument can be realized.

In addition Executive Orders 13178 and 13196 should be included as additional appendices so that readers and decision makers can ascertain how well the draft plan meets all of the objectives contained in those guiding documents. If the monument plan is going to modify the motivations contained in the proclamation and EO, such modifications must be clearly identified as items for public comment. Otherwise this section establishes an objective with no legal basis to which readers and decision-makers will compare the monument plan and EA.

The introduction should also explain the rationale behind preparing an EA instead of an EIS for this major and controversial federal action.

**Page 2:** The EA states that the Monument is the largest fully protected marine conservation area in the world.

**Comment:** Describing this area as "fully protected" appears to be misleading as commercial fishing for bottomfish and pelagic species will be allowed to continue pursuant to specific annual catch limits (e.g. 350,000 lbs. for bottomfish species 180,000 lbs. for pelagic species) until June 2011. Additionally, under this draft Monument management plan, non-commercial extraction of Monument resources for subsistence, sustenance and scientific research will be allowed, with no specified take limits on the level of extraction that may occur. Furthermore, even authorized non-extractive research and management activities may adversely impact Monument resources such as the grounding of the chartered marine debris clean up vessel *Casitas*, which resulted in acute damage to the coral reef ecosystem at Pearl and Hermes.

While this management plan contains plans to prevent and minimize human impacts such as vessel groundings and unintentional introduction of alien species into the Monument, because human access to the Monument for multiple purposes will be allowed to continue, such impacts cannot be fully prevented and thus the Monument cannot be considered fully protected. We recommend this sentence be revised to read: "*Presidential Proclamation 8031, issued by George W. Bush on June 15, 2006, set aside the Northwestern Hawaiian Islands (NWHI) as the Papahānaumokuākea Marine National Monument (Monument), thereby creating one of the world's largest marine protected areas.*"

**Page 6, Scope of Analysis:** It is virtually impossible to tell what is covered by this document and what is not. The introduction should provide readers with a clear understanding of what the EA does and does not cover from a NEPA perspective. A table would be useful here for that purpose. In addition, the cumulative impacts of all the existing actions already underway need to be analyzed in the EA so that readers understand the full scope of activities the NWHI will be

8

subject to. Such disclosure is at the heart of any NEPA analysis. This cumulative impacts analysis should be referenced here.

This section also needs to discuss the decision to analyze only one action alternative as there would appear to be a myriad of ways to achieve the objectives of the monument. Limiting the document to two alternatives (implement the plan or no action) establishes a false dichotomy for readers and decision-makers and implies that the plan must either be adopted or abandoned. We suggest that the document include a range of reasonable alternatives, as required by NEPA.

**Page 7, Alternatives Considered but not Analyzed:**

Regarding the Midway Conceptual Plan, the fact that another approach was “preferred” is not adequate justification for not analyzing Alternative C for Midway. Preferences and concerns from the public should be considered before such decisions are made, but they need full information on which to base their comments. Alternative C for Midway should be included in the EA, not summarily dismissed by the plan/EA drafters.

**Page 7-27, Description of No Action Alternative:** These sections need to provide much more details and specificity. There is not enough information here to allow readers to provide meaningful comments, or for decision-makers to use as a basis for their decisions. Some details (but not all) are in the monument plan however many readers will only read the EA and will not go back to the monument plan to search for additional information.

An EA needs to provide complete information to readers and decision-makers. If some activities are to be fleshed out in the future, the EA needs to note that they will be analyzed in future EAs and made available for public comment. This EA cannot claim to provide NEPA coverage for activities that have not been fully determined much less described and analyzed.

The No Action alternative is the baseline to which other alternatives are to be compared and it needs to be fully described. In addition readers and decision-makers need to clearly understand which activities in each action alternative would be new and which would continue under the No Action alternative.

The mandate, history, composition and processes of the Native Hawaiian Cultural Working Group need to be fully disclosed (what is its mandate, when was it formed, how many members are there, when does it meet, are the meetings open to the public, how are members selected, is there a requirement for members to be Hawaiians, how long do they serve, what happens to their recommendations, etc.). Although the identity of group members has not been disclosed to date, this has been a controversial group and the public needs to be fully informed as to its origins, composition and activities.

The first reference to the FWS Historic Preservation Plan needs to include details on what it contains, as well as information on where readers can obtain it in a timely manner. Readers cannot provide informed comments on the inclusion of something they can't see.

There are many additional actions underway or planned to protect NWHI monk seals, presumably these would continue and thus should be described in the No Action alternative. This is a three agency plan and should reference all the activities by those agencies, not just efforts by “monument staff”.

It is not clear who is included as “monument staff” and who is not. Are all NOAA, FWS and DLNR employees, staff or is it a smaller group of staffers hired specifically for the monument office? This needs to be clarified as many activities in this and other sections are attributed to the “monument staff” (e.g. providing data on seabird population and status, collecting and fingerprinting washed up oil, etc) but it is unclear who is actually performing this work.

In addition, the agency actually conducting the work and/or analyses in each action should be identified so that readers and decision-makers can understand how the agencies are working together and whether their combined resources are being used effectively and efficiently (and whether they would be so used under each of the action alternatives). The use of the generic term “MMB” obscures these details and is a disservice to readers and decision makers, especially in these times of limited agency resources and large environmental changes. For example, if one agency has a research program in place, it would be wasteful for another agency to obtain the resources and scientific expertise to establish its own program as opposed to supporting the already existing program. The current text does not allow readers to review or provide comments on this important issue.

Text referencing the MMB continuing to conduct ESA consultations should be modified to accurately indicate the statutory requirements for these consultations. For example NMFS (alone) is responsible for consultations on marine species and FWS (alone) is responsible for consultations on terrestrial species. The state of Hawaii does not appear to have any authority or responsibility for any ESA consultations; if they do it should be described here.

References throughout this section to activities that would be “expanded under the Proposed Action alternative” are confusing as this is the No Action alternative. The document needs to clarify what “Proposed Action alternative” is being referenced.

Throughout this section statements on scientific data and analyses that are “being provided” (e.g. data on migratory birds and non-migratory birds, bathymetric data, native Hawaiian ecological knowledge and management concepts, educational curricula, impacts of marine debris on cetaceans, protocols for safe aircraft and vessel operations etc.) need to include pointers for readers to find these data and analyses as in many cases we have been unable to locate them. If they are not to be made available to the public, that should be noted as it may influence public comments as well as the actions of decision-makers.

We are surprised and disappointed to see that there is no work underway to address the known lead point poisoning of birds (including potentially short-tailed albatrosses) on Midway. Managers and scientists have been aware of this reprehensible situation for years and it is fully in the managers' control yet nothing has been done.

The process and basis for approving/disapproving permit applications needs to be fully disclosed. How were criteria developed? What exactly are the criteria and how are permit applications measured against those criteria? This has been another opaque and controversial topic that needs to be fully described for readers and decision-makers.

**Pages 27-68, Description of the proposed action alternative:** These sections also need to provide greater detail and specificity. There is not enough here to allow readers to provide meaningful comments, or for decision-makers to use as a basis for their decisions. Some details (but not all) are in the monument plan however many readers will only read the EA and will not go back to the monument plan to search for additional information.

An EA needs to provide complete information to readers and decision-makers. If some activities are to be fleshed out in the future, the EA needs to note that they will be analyzed in future EAs and made available for public comment. This EA cannot claim to provide NEPA coverage for activities that have not been fully determined much less described and analyzed.

References to "monument staff" need to be clarified as above and the actual agency that would do each task needs to be clearly identified so that readers and decision-makers can understand how the agencies are working together and whether their combined resources are being used effectively and efficiently (and whether they would be so used under each of the action alternatives). The use of the generic term "MMB" obscures these details and is a disservice to readers and decision makers, especially in these times of limited agency resources and large environmental changes. For example, if one agency has a research program in place, it would be wasteful for another agency to obtain the resources and scientific expertise to establish its own program as opposed to supporting the already existing program. The current text does not allow readers to review or provide comments on this important issue.

Text needs to be added regarding what scientific information would be made available to the public and how and when this would occur. For some readers science for science's sake is not desirable, others may be dubious about the quality or usefulness of research results or their application to management measures. In order to provide meaningful comments the public needs to know what scientific information will be available to them, and when and how this would occur. At the moment it appears that unspecified research will occur and that it will be disseminated and used in unspecified ways. The public cannot provide meaningful comment on such a vague proposition, nor can it be the basis for well-informed decision making.

#### **Chapter 2: Affected Environment**

**Page 90:** The section on pelagic environment appears to be language taken direct from the 2001 Final EIS on the Pelagics FMP of the Western Pacific Region. This should be noted.

**Page 90:** Myers and Worm (2003) has been refuted by expert fisheries scientists from NOAA, National Marine Fisheries and the University of Hawaii, Pacific Fisheries Research Program. The EA should note the arguments against Myers and Worm study.

#### **Chapter 3: Environmental Effects**

**Page 155:** The document states that the black-footed albatross and Laysan albatross that nest almost exclusively in the NWHI are most affected by bycatch mortality. It should be noted in the document that the Western Pacific Fishery Management Council and NMFS have implemented successful seabird mitigation measures that have reduced seabird bycatch in the Hawaii based longline fishery by two orders of magnitude.

Furthermore, it should be noted that the Hawaii-based longline fishery interacted with a total of 90 seabirds in 2007, with 47 of those birds released alive. The Hawaii based longline fleet, which is subject to 100 % observer coverage in the shallow-set component and 20% in the deep-set component, has never been observed to interact with short-tailed albatross.

**Page 162** states that "bycatch of endangered and migratory birds and non-target marine species during sport and commercial fishing outside the Monument is a serious problem."

However, the document does not provide any information on sport fisheries occurring outside the Monument. It is our understanding that no sport fishing is occurring outside the Monument. As noted in the comment above, the Hawaii-based longline fleet has significantly reduced seabird bycatch, but the document does not provide information on this successful regulatory program.

Instead, the document makes unfounded statements that mislead the reader and public without providing proper information. Furthermore the statement about non-target species in this section dealing with threatened and endangered species is similarly misleading and lacks supporting information. These types of statements without adequate information calls into question the purpose and need of many of the activities suggested in this document.

**Page 165:** The environmental impacts section notes that there are occasional bird strikes during take off and landing of aircraft at Sand Island at Midway and Tern Island at French Frigate Shoal. Furthermore, the document states that Midway experiences 45 flights per year and FFS 27 flights per year. As these are National Wildlife Refuges, there should be specific estimates on the number of strikes that occur annually and should be included in the EA. Without a clear estimation on the number of seabird strikes with airplanes per year, it is difficult for the reader to ascertain this apparent impact on seabirds.

#### **Chapter 4: Other Required NEPA Analyses**

**Page 241:** The Cumulative Effects on natural resources is not an analysis and is incomplete. For example, there is no analysis on Monument and its management activities and their cumulative impacts to the Hawaiian monk seal. The Hawaiian monk seal is one of the planet's most endangered species and is declining in the NWHI at an alarming rate. However, the cumulative impact section does not describe the overall effect of the Monument on this species. This seems to be not in line with NEPA. Moreover, conclusory statements regarding potential cumulative effects are not justifiable without proper analysis and leaves the reader doubting the overall benefit to natural resources that occur in the NWHI.

LINDA LINGOLE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

November 21, 2008

LAURA H. TRELLEN  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
RUSSELL Y. TSUI  
FIRST DEPUTY  
KEN C. KAWAHARA  
DEPUTY DIRECTOR - WATER  
AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
BUREAU OF CONSERVATION  
COMMISSION ON WATER RESOURCE MANAGEMENT  
CONSERVATION AND COUNTY LANDS  
CONSERVATION AND RESOURCES IMPROVEMENT  
EDUCATION  
FORESTS AND WILDLIFE  
HISTORIC PRESERVATION  
MARSHLANDS AND WETLANDS COMMISSION  
LAND  
STATE FARMS

Ms. Kitty M. Simonds, Executive Director  
Western Pacific Regional Fishery Management Council  
1164 Bishop Street, Suite 1400  
Honolulu, HI 96813

Re: Western Pacific Regional Fishery Management Council's July 23, 2008 Comments on  
Draft Papahānaumokuākea Marine National Monument Management Plan

Dear Ms. Simonds:

Thank you for providing comments on the Draft Papahānaumokuākea Marine National Monument Management Plan (draft MMP), Environmental Assessment (EA), and associated documents. The draft MMP is the product of an extensive coordinated planning process undertaken by the Monument Management Board (MMB) on behalf of the Co-Trustee agencies: US Fish and Wildlife Service, the National Oceanic and Atmospheric Administration and the State of Hawai'i, Department of Land and Natural Resources. The MMB is comprised of representatives of these three agencies and the Office of Hawaiian Affairs.

The draft EA contained in Volume II evaluates the likely environmental consequences of the activities contained in the Monument Management Plan (Volume I). The draft EA was developed in accordance with the National Environmental Policy Act and Hawai'i Revised Statutes (HRS) Chapter 343 of the State of Hawai'i.

Under Chapter 343 HRS, the Department of Land and Natural Resources (DLNR) is required to respond in writing to comments received from agencies during the course of the draft MMP public review process. This letter is DLNR's Chapter 343 response to your agency's comments. All responses to comments were prepared jointly by the members of the MMB and will also be included in Volume 5 of the final MMP and associated documents. The Western Pacific Regional Fishery Management Council's (Council) comments were considered in the preparation of the final MMP, EA and associated documents and in many cases, where appropriate, the documents were amended to address your comments as outlined below.

Kitty M. Simonds  
November 21, 2008  
Page 2 of 12

Volume I - Draft Management Plan

Section 1.0 - Introduction

In its first substantive comment, the Western Pacific Regional Fishery Management Council (Council) references to the following language found on the first page of the introductory section: "Presidential Proclamation 8031, issued by George W. Bush on June 15, 2006, set aside the Northwestern Hawaiian Islands (NWHI) as the Papahānaumokuākea Marine National Monument (Monument), thereby creating the largest *fully protected* marine conservation area in the world." The Council suggests that describing the Monument as "fully protected" is misleading in that some commercial fishing will be allowed to continue until June, 2011. The council provides other examples, including the fact that non-commercial extraction of Monument resources for subsistence, sustenance and scientific research will be allowed in perpetuity and that "even carefully planned non-extractive research and management activities may unintentionally and adversely impact Monument resources such vessel grounding and introduction of alien species or diseases into marine and terrestrial environments of the NWHI."

The MMP has been amended and the introductory text now reads: "Presidential Proclamation 8031, issued by George W. Bush on June 15, 2006, set aside the Northwestern Hawaiian Islands (NWHI) as the Papahānaumokuākea Marine National Monument (Monument), thereby creating one of the world's largest marine protected areas."

Section 1.4 - Environmental and Anthropogenic Stressors

Comment. In the part of this section that describes fisheries that were associated with Monument waters, the Council refers to language that describes the crustacean fishery as not having had a harvest guideline set for the NWHI since 1991 and that no crustacean fishery had operated in the NWHI since 2000. The Council has pointed out that it had set "zero harvest" annual guidelines for these areas for the period between 2000 and 2005.

Response. The following language, suggested by the Council, has been substituted for the reference language contained in the DMMP: "No crustacean (lobster-trap) fishery has operated in the NWHI since 1999. Between 2000 and 2005, NMFS has set an annual harvest guideline of zero lobsters for this fishery. Although 15 federal NWHI lobster permits continue to remain valid, Proclamation No. 8031 directed the Secretaries to ensure that these commercial lobster fishing permit be subject to a zero annual harvest limit."

Comment. In the portion of this section that discusses the Monument's bottomfish fishery, the Council points to language that provides in part: "[i]n practice, bottomfish harvest is below catch limits and is thought not to be the contributing factor to the overfishing status of the bottomfish stocks in the archipelago." The Council pointed out that as of April 1, 2008 Hawai'i's archipelagic bottomfish stocks were no longer subject to an overfishing condition as the final rule implementing Amendment 14 to the Fishery Management Plan for Bottomfish and Seamount Groundfish Fisheries of the Western Pacific Region effectively reduced fishing effort by the amount required by NMFS to end overfishing (73 FR 18415, April 4, 2008).

Response. In accord with the Council's suggestion, the MMP has revised the cited language to now read: "Bottom fish harvest is below catch limits."

#### Section 2.0 - Management Framework

*Comment.* The Council has requested that the MMP be clarified as to whether the provisions of Proclamation No. 8031 supersede the provisions of Executive Orders 13178 and Executive Order 13196 related to authorized fishing activities, fishing caps and closed fishing areas in that part of the Monument previously known as the NWHI Coral Reef Ecosystem Reserve. The Council argues that some of the provisions of Proclamation No. 8031 are inconsistent with the provisions of Executive Orders 13178 and Executive Order 13196. As an example, the Council points out that Executive Orders 13178 and Executive Order 13196 appear to allow non-federally permitted pelagic handline and trolling vessels that were licensed by the State of Hawaii and fished in the NWHI prior to 2000 to continue to fish within the NWHI while the provisions of Proclamation No. 8031 allows only federally permitted bottomfish fishermen to fish in the in the Monument.

*Response.* Presidential Proclamation 8031 neither diminishes nor enlarges the jurisdiction of the State of Hawai'i. No fishing activity is allowed within State waters as regulated by Hawaii Administrative Rules Ch 60.5. The question of whether fishing activity in federal waters under Proclamation 8031 supersedes or is inconsistent with Executive Orders 13178 and 13196 is not a State issue. Fishing activities that were allowed to continue under the Executive Orders establishing the Coral Reef Ecosystem Reserve were either modified (i.e., commercial fishing for bottomfish and pelagic species) or prohibited within the Monument by Proclamation 8031. The Monument was established pursuant to the Antiquities Act. Only the fishing activities allowed by the Proclamation 8031 may be conducted within the Monument. The Management Plan will clarify that Proclamation 8031 is the controlling authority for Monument activities.

#### Section 2.2 - Policy Framework

With respect to that portion of this section dealing with ceded lands held in trust by the State of Hawaii, the Council suggested that the language be amended to better reflect the "legal, historical and sentimental significance to Native Hawaiians." While Council's comments were appreciated, it was felt that original language was preferable to the replacement language suggested by the Council.

#### Section 3.0 - Action Plans to Address Priority Management Needs

*Comment.* The MMP estimates that \$355,218,480 will be needed to fully implement all of the activities contained in the plan. The Council argues that this amount, which would average out to an approximate \$20 million dollar annual budget over the course of the next 15 years, is an unreasonable estimate in that the managers cannot expect that that level of consistent funding would be available during this time frame. The Council then suggests that the Action Plans contained in the MMP be prioritized based on management critical needs.

*Response.* Prioritizing activities in the management plan is not a linear process, nor is it necessarily measured by the amount of funds allocated. Several factors apply when setting the implementation schedule and allocating funds; these include natural, cultural, and historic resource needs, funding, agency capacity, planning and environmental review, and community input and support. Each member of the MMB and partner ICC agencies develops annual budget projections and priorities and allocates funds based on its own programmatic, legal, and policy requirements.

Additionally, the cycle and timelines for funding and planning vary, and management agencies cooperate in areas where program priorities overlap. For example, one agency may take the lead on behalf of all responsible agencies that have a common mandate. In other overlapping areas, multiple agencies may share responsibility for activities to address core management needs, thereby creating a strengthened

shared focus. This cooperation uses public funds more efficiently within the co-management structure. The seven MMB agencies annually share implementation schedules and priorities to identify opportunities where coordination and efficiencies would apply.

#### Section 3.1 - Understanding and Interpreting the NWHI

*Comment.* The Council recommends that this section be amended to state that the MMP include strategies to address the benefits to the main Hawaiian Islands resulting from the spillover of reef and bottomfish and provide a means of measuring these benefits should they exist.

*Response.* The purpose of the MMP is to describe strategies and activities that directly relate to the Monument's vision, mission, and goals. While some of the strategies and activities may have spillover effects that benefit adjacent areas, including the main Hawaiian Islands; developing strategies to address benefits outside the area of the Monument would be beyond the scope and authority of the Monument and this plan to itself.

#### Section 3.2.1 - Threatened and Endangered Species Action Plan

*Comment.* The Council believes that the endangered species action plan section of the DMMB failed to consider that apex predators may be having a negative impact on the survival of the endangered Hawaiian monk seal; that monk seals are sensitive to human interactions and have been known to abandon areas which are visited by humans and that DMMP proposes to allow an ever increasing number of humans to access the NWHI, an action that may further displace monk seals and discourage feeding, breeding and growth. The Council goes on to recommend that the MMP be amended to include strategies to address apex predator competition with the Hawaiian monk seals and that it include measures to limit and established hard caps on the number of individuals that are allowed to access the emergent lands of the Monument.

*Response.* To address some of these concerns amendments have been made to sections of the MMP dealing with protection of monk seal populations found within the Monument. Strategy TES-1 in the management plan describes how the MMB will complement and build on existing efforts to protect and recover the Hawaiian monk seal. In addition to the list of activities included in the draft management plan, a new activity has been added to the final management plan (TES 1.6) that describes actions to be taken to respond to shark predation on Hawaiian monk seals.

As it relates to human impacts, protecting the health, diversity, and resources of the NWHI ecosystems is our constant and highest concern. Although specific annual limits on the number of people accessing the area have not been included in the MMP, all activities are closely managed and monitored through the interagency permitting process and all federal actions are subject to Section 7 consultation under the Endangered Species Act. In addition, the number of tourists visiting the Monument at any one time is limited through the Midway Atoll Visitor Services Plan (Appendix B), which has already gone through an Endangered Species Act Section 7 consultation. The Papahānaumokuākea Information Management System (IM-1.3) and the Monument Evaluation Action Plan (3.6.4) will be used to track and evaluate human impacts.

#### Section 3.4.1 - Permitting Action Plan

*Comment.* As noted by the Council, Proclamation 8031 provides the Secretaries of the Interior and Commerce to issue permits for sustenance fishing outside Special Preservation Areas as a term or



condition of any permit issued so long as the activity is conducted in a manner compatible with the Proclamation. The council recommended that the MMP include procedures for systematic reporting of sustenance fishing. It also recommended that the MMP "clearly describe the process by which the Monument Management Board or Co-Trustees will evaluate permit applications to determine the extent to which sustenance fishing requests mayor may not diminish monument resources, qualities and ecological integrity."

**Response:** The Monument requires systematic reporting by permittees authorized to conduct sustenance fishing. Permittees must fill out a Monument Sustenance Fishing Data Sheet that contains the following information: date, gear type, number of lines in the water, start time, end time, number of fish and type caught, and latitude/longitude coordinates of the fishing activity. In addition, special conditions are also added to permits where sustenance fishing is authorized:

1. The permittee must track all sustenance fishing conducted aboard [insert vessel name here] in Monument waters outside of Special Preservation Areas and the Midway Atoll Special Management Area during the cruise and provide data as requested in the Monument's Sustenance Fishing Data Sheet.
2. Within 30 (thirty) days after the expiration date of the permit, the permittee must submit a completed Sustenance Fishing Data Sheet as part of the summary report of activities described in General Condition No. 20.c.

In 2007, approximately 153 fish were caught under the Monument's sustenance fishing provision. Three vessels were permitted to sustenance fish. The total number of fish caught in the Monument under the sustenance fishing clause is negligible compared to the thousands of tons of fish caught by the NWHI bottom fishery or the Pacific pelagic longline fishery.

#### Volume II Draft Environmental Assessment

##### **General Comments**

**Comment.** The Council suggested that the term "Co-Trustees" be defined in Volume II.

**Response.** "Co-trustees" is defined in Volume II, Section 1.1 of the EA.

**Comment.** The Council believes that an Environmental Impact Statement, rather than an Environmental Assessment (EA), was required under the provisions of the National Environmental Policy Act. The Council is concerned that the EA did not "discuss nor attempt to analyze the significance (overall or otherwise) of the proposed action to the protection of natural resources, marine heritage sites, the State of Hawaii and to the United States."

**Response.** The EA presents analyses of the impacts of implementing the two alternatives. An EA is prepared to determine whether or not the action significantly impacts the environment, and, if so, an EIS should be prepared. The results of the analyses are contained in the Finding of No Significant Impacts that accompanies the MMP.

**Comment.** The Council recommended that the terms "beneficial effect" and "short term minor negative effect" need to be defined in the EA and that the EA lacks the analysis needed to determine their significance. The Council cites for authority to CEQ regulations (40 CFR § 1508.2) which states that

"Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial."

**Response.** The terminology is listed in Section 3.1. As noted above, the analyses performed resulted in a Finding of No Significant Impact.

**Comment.** The Council suggests that absent preparation of a complete EIS and discussion of significance, the reader must assume that "the implementation of the [MMP] will result in a Finding of No Significant Impact by the agency." The Council then questions whether it is "NOAA's position that implementation of the MMP will have no significant benefits?"

**Response.** There is no requirement that all beneficial effects be deemed "significant."

##### **Specific Comments**

**Comment.** The Council recommends that the "Note to Readers" language in the EA be amended so as to more "fully inform [readers and decision makers] as to the authority, history, management and status of NWHI fishing before providing comments or making decisions regarding this large and important area." Additionally, the Council also recommends that the three agency statements under paragraphs 6 - 8 of "Notes to Readers" "be written more clearly so that readers and decision makers can understand exactly what this EA covers and what it doesn't;" that the three statements be combined into one coordinated statement, without agency headers and that the "cumulative impacts of all the existing actions already underway in the Monument be analyzed in the EA so that readers understand the full scope of activities the NWHI will be subject to."

**Response.** The Note to Readers in Volume II is intended to give the reader a general overview of the project and the EA. The Note to Readers has been revised to include a brief description of the analysis performed in the EA. The existing actions already underway were analyzed under the No Action Alternative (see Volume II, Chapter 3, Environmental Effects). New or expanded activities listed in the Proposed Action will be analyzed as appropriate under NEPA and HRS 343.

##### **Chapter 1: Introduction**

**Comment.** The Council contends that the portion of the monument mission statement that reads "the strong long-term protection and perpetuation of the NWHI ecosystems" is not fully consistent with the Proclamation and Executive Order that established the Monument. The Council also believes that Executive Orders 13178 and 13196 should be included as additional appendices to the documents to better enable "readers and decision makers . . . ascertain how well the draft plan meets all of the objectives contained in those guiding documents." Additionally, the Council also asks for an explanation of the rationale that was used in the decision to prepare an EA rather than an EIS for "this major and controversial federal action."

**Response.** There is disagreement with the Council's views on the consistency of the mission statement language and guidance provided by the enabling Proclamation and Executive order. The monument mission is, in fact, consistent with the provisions of the enabling proclamations. Because Proclamations 8031 and 8112 deal specifically with the Monument and direct the agencies to complete the management plan, they were included as an appendix. There are a host of other Executive Orders, laws, and regulations that pertain to the Monument, and they are all available online. Including them all as appendices would be unwieldy. Because an EA is the first step used in the NEPA process to determine

whether the action would result in a significant impacts finding, the resulting documentation would either be a FONSI or a finding that the action is likely to result in a significant impact (beneficial or negative), which would be followed with an EIS. In this case, a FONSI was prepared is included with the final set of MMP documents.

**Comment.** Referring to page 2 of the introduction, the Council again questions whether the Monument should be described as the largest “fully protected” marine conservation area in the world.

**Response.** Please see the response to the Council’s comments on Volume I - Draft Management Plan, Section 1.0 –Introduction above.

#### Scope of Analysis

**Comment.** The Council suggests that scope of analysis language is such that it is “virtually impossible” to tell what is covered by this document and what is not. The Council believes that the introduction should provided a better description of the scope of the EA, that the MMP would benefit from use of tables to augment that description and that the documents should contain an analysis of the cumulative impacts of all existing actions already underway in the Monument. The Council also recommends that the MMP analyze more than the two (implement the plan or no action) alternatives.

**Response.** This section has been changed to better reflect the scope of the EA.

#### Alternatives Considered by not Analyzed

**Comment.** The Council believes that Alternative C should have been part of the Midway Conceptual Plan analysis, stating that “the fact that another approach was “preferred” is not adequate justification for not analyzing Alternative C for Midway.”

**Response.** The Council is correct when it states that Alternative C is not preferred. However, the section also provides that the infrastructure cannot accommodate the number of staff and contractors described in that alternative. In addition, the restrictions that would be required for visitation are not consistent with the intent for Midway to serve as the only portion of the Monument open to the public. Based on these associated issues, Alternative C was not a reasonable alternative and would not be appropriate for analysis.

#### Description of No Action Alternative

The Council had numerous comments that concerned the “Description of No Action Alternative. While these comments address certain specific concepts, they do not reference particular pages or paragraphs. To provide clarity, the comments and responses related to this section will be addressed in a numerical fashion, based upon the order they follow in the Council’s letter.

1. **Comment.** At the outset, the Council suggests that the EA’s discussion of the No Action Alternative lacked the requisite level of detail and specificity needed to provide meaningful opportunity for comment. The council did not feel that information found in the MMP should serve as a source of support for discussion found in the EA – in other words, the Council believes that the document should be able to stand on its own. In those instances where the EA does not fully discuss activities that may occur in the future; the Council suggests that the EA describe how/when these activities will be addressed in future EA’s. Additionally, the Council believes that the No Action alternative needs

to be more fully described so as to enable readers to be better able to compare proposed actions with this alternative.

**Response.** The “Note to Readers” explains that to reduce repetition, the MMP and EA are inextricably linked. While this may be somewhat harder to follow, the two documents must be viewed together. These lengthy documents would have been even longer if all of the information had been presented in both volumes. The No Action alternative is fully described in the MMP.

2. **Comment.** The Council recommends that the mandate, history, composition and processes of the Native Hawaiian Cultural Working Group (which the Council describes as “controversial) needs to be fully disclosed. The Council believes that the identities of the group members should be identified and that more effort needs to be made to fully inform the public as to the groups origins, composition and activities.” identity of group members has not been disclosed to date, this has been a controversial group and the public needs to be fully informed as to “its origins, composition and activities.”

**Response.** The existing Cultural Working Group was established under the Reserve Advisory Council. Under the implementation of the MMP, the MMB has committed to regular consultation and engagement with the Native Hawaiian community and to the formal establishment of the Native Hawaiian Cultural Working Group (see NHCI-1 and 1.1), which provides one of many methods of involvement for Native Hawaiians. Those volunteers in the Working Group have already accepted responsibility for preserving and perpetuating Papahānaumokuākea and Native Hawaiian cultural connections to this place.

3. **Comment.** The Council recommends that the FWS Historic Preservation Plan discussion needs to include details on what it contains, as well as information on where readers can obtain it in a timely manner.

**Response.** The Historic Preservation Plan can be found on the Internet at [www.fws.gov/midway/MidwayHPP.pdf](http://www.fws.gov/midway/MidwayHPP.pdf).

4. **Comment.** The Council suggests that the EA needs to more fully discuss all of the actions underway or planned to protect the Monument’s monk seal population; and that the activities of all three agencies plans should be described, rather than using a generic reference to “monument staff.”

**Response.** The following text has been added to Vol. II, Section 1.5.5.1, “. . . endangered species and continued implementation of appropriate species recovery plans, such as that for the Hawaiian monk seal.” In addition, Strategy TES 1 in the management plan describes how the Monument management will complement the activities that advance the recovery of the Hawaiian monk seal. The key actions in the Monk Seal Recovery Plan can be found in the description in TES-1. Further, Activity TES-1.3 already states that the “feasibility of restoration will be evaluated to consider rebuilding habitat essential for the reproduction of monk seals and other protected species . . .,” so no change is needed. Although a few activities are described in the Management plan, in general, the plan does not republish all the monk seal recovery plan priorities or activities. This information can be accessed at the Web site [www.nmfs.noaa.gov/pr/recovery/plans.htm](http://www.nmfs.noaa.gov/pr/recovery/plans.htm). Each recovery activity is considered for its effects on other listed species and designated critical habitat to ensure compatible implementation.

5. **Comment.** The Council believes that the term “monument staff” be described with greater clarity so the reader can understand which agency is actually performing the activity. The Council posits that this additional information will enable better understanding of how the agencies are working together

and whether their combined resources are being used effectively and efficiently. The Council suggests that this would prevent situations where one agency has a research program in place and another agency seeks to obtain the resources and scientific expertise to establish its own research program. As written, the readers are not able to provide meaningful comment of this type of issue.

**Response.** Under the new paradigm of Papahānaumokuākea Marine National Monument, the three Co-Trustee agencies will be working together and pooling resources to the extent possible. The Monument Management Plan includes an agency lead for each of the activities. Each of the other agencies will participate in activities as time, funding, interest, and mandate dictate. It is impossible to predict exactly which staff members will work on the varied tasks of the Monument Management Plan. The intent of the Monument Management Plan is to allow for the pooling of the limited agency resources and avoid duplicative efforts.

6. **Comment.** The Council recommends that the text referencing the MMB continuing to conduct ESA consultations should be modified to more accurately indicate the statutory requirements for these consultations. As an example, the Council states that "NMFS (alone) is responsible for consultations on marine species and FWS (alone) is responsible for consultations on terrestrial species"; and that the "state of Hawaii does not appear to have any authority or responsibility for any ESA consultations."

**Response.** For various activities outlined in the plan, ESA consultation will need to occur. The lead agency for each of the activities will consult with the appropriate agency, as required under the ESA. If the State of Hawai'i is the lead agency for an activity, it may indeed be required to consult with either NOAA or FWS, as appropriate.

7. **Comment.** The Council believes that the phrase "expanded under the Proposed Action alternative" as used in this section (no action alternative) is confusing and that the MMP should clarify what "proposed action alternative" is being referenced.

**Response.** As stated in the Note to Readers, to reduce repetition, the MMP and EA are inextricably linked. While this may be somewhat harder to follow, the two documents must be viewed together. These lengthy documents would have been even longer if all of the information had been presented in both volumes. The No Action alternative is fully described in the MMP.

8. **Comment.** The Council has not been able to locate references to scientific data and analyses that are discussed in the EA. It suggests that the MMP include pointers to enable readers to find these data and analyses; and that failure to provide access to these studies would hamper meaningful review and comment on proposed Monument activities.

**Response.** Data collection and use is an important component of resource management. Each action plan and strategy incorporates data collection, as appropriate. The data referenced throughout the plan is developed, collected, and catalogued by MMB staff, permitted researchers, or sources outside the Monument. MMB staff will share data with the public through publications and educational materials.

9. **Comment.** The Council is concerned that the EA did not describe any work that was underway to address the known lead point poisoning of birds (including potentially short-tailed albatrosses) on Midway.

**Response.** Lead-based paint (LBP) abatement work started on Midway in 2007. By the end of Fiscal Year 2009, 15 buildings will have had their LBP either removed (on concrete houses) or encapsulated (on buildings with asbestos siding). The FWS is evaluating the soil around buildings with LBP to determine the level of cleanup required to make the environment safe for wildlife and people.

10. **Comment.** Regarding the permit application process, the Council believes that the process and basis for approving/disapproving permit applications needs to be fully disclosed. It would like to see more specific information on criteria and methods used to evaluate a permit application.

**Response.** All Monument permit applications are posted to the Monument Web site for a minimum of 30 days before the MMB and the State Land Board make decisions. The public can also review and comment on all permit-related environmental assessments that are posted to the Monument Web site for a minimum of 15 days. In addition, there is an opportunity to provide public testimony at the State Land Board hearings for all activities proposed in the Hawai'i State Marine Refuge.

#### Description of the Proposed Action Alternative

The Council's comments on this section of the EA will also be discussed in order presented in the Council's letter.

1. **Comment.** As with its comments on the No Action Alternative, the Council suggests that this section of the EA lacks sufficient detail and specificity and those readers should not be forced to refer back to the MMP document to fully understand the content found in the EA.

**Response.** As noted in the Note to Readers, to reduce repetition, the MMP and EA are inextricably linked. While this may be somewhat harder to follow, the two documents must be viewed together. These lengthy documents would have been even longer if all of the information had been presented in both volumes. The No Action alternative is fully described in the MMP.

2. **Comment.** The Council recommends that this section of the EA explain with greater clarity that some of the proposed activities that may occur in the Monument will be analyzed in future EAs and made available for public comment.

**Response:** We have clarified in section 1.8 of the EA that many of the activities outlined in the MMP are planning activities, which will be analyzed under NEPA when they are implemented.

3. **Comment.** The Council believes that the term "monument staff" be described with greater clarity in this section of the EA as well as the No Action Alternative section discussed above. The Council feels that this additional information will enable better understanding of how the agencies will be working together and whether their combined resources are being used effectively and efficiently.

**Response.** As stated above, under the new paradigm of Papahānaumokuākea Marine National Monument, the three Co-Trustee agencies will be working together and pooling resources to the extent possible. The MMP includes an agency lead for each of the activities. Each of the other agencies will participate in activities as time, funding, interest, and mandate dictate. It is impossible to predict exactly which staff members will be tapped to work on the varied tasks of the Monument Management Plan. The intent of the Monument Management Plan is to allow for the pooling of the limited agency resources and avoid duplicative efforts.

4. **Comment.** The Council recommends that language be added to the MMP that will explain what scientific information would be made available to the public and how and when this would occur. The Council suggests that unless the public is better informed as to the availability of research results, it will not be able to provide In order to provide meaningful comments the public needs to know what scientific information will be made available it will not be able to provide meaningful comment on scientific research that will be occurring in the Monument.

**Response.** All Monument permit applications, are posted to the Monument Web site for a minimum of 30 days before the MMB and the State Land Board make decisions. The public can also review and comment on all permit-related environmental assessments that are posted to the Monument Web site for a minimum of 15 days. In addition, there is an opportunity to provide public testimony at the State Land Board hearings for all activities proposed in the Hawai'i State Marine Refuge. Activity P-3.5 in the Permitting Action Plan in the MMP is centered around regularly updating the public on proposed and permitted activities. In addition, as the MMB moves toward implementing the alliance, as suggested in Activity CBO-3.5, it will give consideration to how this group may be informed and involved in the permit process. As described in MMP Activity P-3.5, the MMB plans to make several parts of the permit life-cycle available online, including permit reports. Currently all Monument permit summaries and full applications are posted online. While review comments are not available in full, they are summarized in State Land Board submittals for activities occurring in state waters.

#### Chapter 2: Affected Environment

**Comment.** The Council points out that page 90 the section on pelagic environment contains language that appears to have been taken directly from the 2001 Final EIS on the Pelagics FMP of the Western Pacific Region. This should be noted.

**Response.** In the final version of the MMP's EA, the Final EIS Fishery Management Plan Pelagic Fisheries of the Western Pacific Region is referenced in the Pelagic and Deep Water Habitat discussion in Section 2.2 and it has also been added it to the EA reference section.

**Comment.** The Council also notes that the Myers and Worm (2003) report that is referenced on page 90 of the EA has been refuted by expert fisheries scientists from NOAA, National Marine Fisheries and the University of Hawaii, Pacific Fisheries Research Program.

**Response.** The reference to the Myers and Worm study has been removed in the final MMP.

#### **Chapter 3: Environmental Effects**

**Comment.** The Council notes that the EA describes the black-footed albatross and the Laysan albatross, (two species that nest almost exclusively within the Monument) as being "most affected by bycatch mortality." The Council recommends that the EA should discuss the fact that the Western Pacific Fishery Management Council and NMFS have implemented successful seabird mitigation measures that have reduced seabird bycatch in the Hawai'i based longline fishery by two orders of magnitude. The Council also recommends that the EA note that recent data provides that the Hawaiian longline fishery "interacted with a total of 90 seabirds in 2007 and that 47 of those birds were released alive and that longline fleet observer coverage has never reported interactions with short-tailed albatross."

**Response.** The third sentence of the EA's Section 3.2.3.2 Planning and Administrative has been amended to read "FWS, NMFS, and the Regional Fisheries Management Councils have cooperated to

implement the National Plan of Action to reduce seabird bycatch, which has significantly reduced mortality from the US-based commercial fleet. The agencies are working to extend these efforts to reduce mortality from foreign-based fishing fleets."

**Comment.** The Council is concerned with the following language that was found on page 162 of the EA: "bycatch of endangered and migratory birds and non-target marine species during sport and commercial fishing outside the Monument is a serious problem." Specifically, the Council observes that the EA does not provide information on sports fisheries occurring outside of the monument nor does the EA acknowledge the success of the new regulations that were adopted to reduce seabird bycatch within the Hawai'i based longline fleet. The Council provided similar comments regarding out-of-monument bycatch impacts on non-target species and threatened and endangered species.

**Response.** The statement has been amended. Activities not occurring within the Monument are outside the scope of this document.

**Comment.** The Council recommends that the Environmental Impacts section should contain more specific information regarding aircraft bird strikes that occur on Sand Island at Midway and Tern Island at French Frigate Shoal.

**Response.** Additional information about bird strikes at Midway has been added to the EA.

#### **Chapter 4: Other Required NEPA Analyses**

**Comment.** The Council suggests that the cumulative effects analysis on natural resources discussion is not complete. As an example, the Council states that there is no analysis of the impact of the Monument's management activities and their cumulative impacts to the endangered Hawaiian monk seal populations.

**Response.** 40 CFR Parts 1500-1508 requires that federal agencies conduct an assessment of cumulative impacts resulting from implementation of the Proposed Action. Volume II, Chapter 4: Other NEPA Analyses contains the cumulative impact assessment for the Papahānaumokuākea Marine National Monument Management Plan.

DLNR again wishes to thank your interest and for reviewing and commenting on the Papahānaumokuākea Marine National Monument draft Monument Management Plan, draft Environmental Assessment and the associated documents.

Sincerely,



LAURA H. THIELEN  
Chairperson



"Grant Arnold"  
 <granta@oha.org>  
 07/08/2008 03:12 PM

To: <PMNM\_MMP\_Comments@fws.gov>  
 cc:  
 Subject: OHA comments

00160

PHONE (808) 594-1888

FAX (808) 594-1885



**STATE OF HAWAII**  
**OFFICE OF HAWAIIAN AFFAIRS**  
 711 KAPĪOLANI BOULEVARD, SUITE 500  
 HONOLULU, HAWAII 96813

Aloha,

Attached are the comments from OHA for the Papahānaumokuākea Marine National Monument Draft Monument Management Plan, Midway Atoll National Wildlife Refuge Conceptual Plan, and Environmental Assessment. A hard copy of written comments will follow soon. Thank you for the opportunity to review these documents and we look forward to greater participation in the future.

Thank you,

Grant

Grant Arnold  
 Policy Advocate  
 Native Rights, Land and Culture  
 Office of Hawaiian Affairs  
[granta@oha.org](mailto:granta@oha.org)



Kupunaialefina134968.pdf

HRD08/3496B

July 8, 2008

Monument Management Board  
 Papahānaumokuākea Marine National Monument  
 c/o U.S. Fish and Wildlife Service  
 Box 50167  
 Honolulu, Hawaii 96850

**RE: Papahānaumokuākea Marine National Monument Draft Monument Management Plan, Midway Atoll National Wildlife Refuge Conceptual Plan, and Environmental Assessment.**

Aloha e Monument Management Board,

The Office of Hawaiian Affairs (OHA) is in receipt of the above-mentioned, four-volume document, which was released to the public on April 22, 2008. OHA has reviewed the project and offers the following comments.

OHA is the "principal public agency in this State responsible for the performance, development, and coordination of programs and activities relating to native Hawaiians and Hawaiians."<sup>1</sup> It is our duty to "[a]ssess[] the policies and practices of other agencies impacting on native Hawaiians and Hawaiians, and conduct[] advocacy efforts for native Hawaiians and Hawaiians."<sup>2</sup> As such, we were pleased to see a clear effort in the draft monument management plan to incorporate the Native Hawaiian perspective as well as

<sup>1</sup> Hawaii Revised Statutes (HRS) § 10-3(3).

<sup>2</sup> HRS § 10-3(4).

propose to elaborate the inclusion of this worldview into future plans.<sup>3</sup> OHA also sees that future management of Papahānaumokuākea will include the Hawaiian voice and we ask that OHA have a larger part in this conversation.

The area that this project encompasses is, as you know also called the kūpuna islands, which reflects not only the history that Native Hawaiians have with the area but our relationship with it as well.<sup>4</sup> The draft monument management plan on page two states that this area is the largest fully protected marine area in the world encompassing an area larger than all the U.S. national parks combined and it contains one of the world's most significant ecosystems.

In the State of OHA and the Native Hawaiian Community Remarks on Monday, December 17, 2007 made by Trustee Haunani Apoliona she said:

Our ancestors were experts in relationships with the universe. They knew how to balance man, nature and god. They understood that harmony and balance meant survival and well-being. True to our nature, Native Hawaiians strive to live with deep regard and reverence to this concept, lōkahi, through which we seek to keep these major life forces in balance.

For us, Papahānaumokuākea is an area in balance. It serves as an unfortunate example for what we no longer have in the majority of this state. History reveals a host culture that has lost many of its resources and for us, Papahānaumokuākea is a treasured reflection of what was and what can be. As such, OHA seeks to have a stronger role in the future in the management of Papahānaumokuākea.

OHA sees in the Note to Reviewers in the draft management plan that:

Through this Agreement and as described in the Monument Management Plan, the Co-Trustees will undertake coordinated, integrated management to achieve strong, long-term protection and perpetuation of Northwestern Hawaiian Island (NWHI) ecosystems, Native Hawaiian traditional and customary cultural and religious practices, and heritage resources for current and future generations.

We ask that we be included in a significant way in this coordinated, integrated management of this vital area. For instance, management of the area should reflect a strong Native Hawaiian presence, to ensure that cultural concerns are not eclipsed by science or tourism. Further, the ecosystem approach towards management that is being

<sup>3</sup> For example, the 2006 memorandum of agreement for promoting coordinated management of the Northwestern Hawaiian Islands Marine National Monument that included OHA into the management process.

<sup>4</sup> See, draft management plan, page five.

promoted in this plan resonates well with our world view and traditional knowledge base. It would also be a way to incorporate traditional knowledge into the management plan as mentioned on page 93 of the draft management plan.

Otherwise, OHA asks how specifically the Native Hawaiian perspective will be incorporated into the monument plan. We note that management activities relating to Native Hawaiians are consistently at the bottom of the funding ladder as presented in table 3.1. Including funding for Native Hawaiian input and involvement would be a way to address this need and stated objective, as would further involvement of Hawaiians in the managing and activities of Papahānaumokuākea. OHA also suggests that any future management role be made to be transferable to a subsequent entity on behalf of Hawaiians.

#### Cultural Impact Assessment

In traditional Hawaiian thinking, cultural resources and natural resources are one and the same. There is interconnectivity between these resources from the skies and highest mountain peaks, through the valleys and lava plains, to the shoreline and into the depths of the ocean. Hawaiian genealogical chants link man not only to primary gods and the deified chiefs born into the living world, but also to the stars in the heavens and the plants and animals on earth. It is in this context that Hawaiians view their relationship to their environment and it is the foundation of traditional Hawaiian land use.

The first and second chants of the sacred Kumulipo detail that in the darkness at the beginning of time were born the coral polyp, sea cucumbers, shellfish, and seaweeds, which were then followed by larger marine life. With this in mind, it is important to acknowledge that the reefs and marine life found within Papahānaumokuākea are not merely resources for man, but are the building blocks of life in the physical Hawaiian world.

The kinolau of many traditional Hawaiian akua are found throughout a wahi pana such as Papahānaumokuākea. Furthermore, it is believed the spirits of deceased kūpuna can remain in the living world as 'aumakua who can take the shape of plants, animals, winds, rain, or clouds. Thus, from a traditional Hawaiian perspective, when one views the landscape, he or she is surrounded by the kinolau of both akua and 'aumakua.

Ho'okupu and pule honor akua and 'aumakua and continued access to areas and sites within a wahi pana is a critical component to ensuring the perpetuation of traditional and cultural practices. Through these practices, guidance on how to maintain a balance between man and his natural environment is received. When this guidance is applied, the natural environment is healthy and man thrives.

The guidelines for assessing cultural impacts adopted by the Environmental Council, State of Hawai'i emphasize that the most important element of preparing a cultural impact assessment is consultation with cultural practitioners. Without this consultation with knowledgeable individuals, a true understanding of how Papahānaumokuākea will be affected by any proposed undertaking cannot be achieved.

The Office of Hawaiian Affairs (OHA) acknowledges that consultation within the context of a cultural impact assessment is not an easy task. Traditional knowledge is not shared with strangers via letter or email. In order for meaningful consultation to occur, a relationship between the interviewer and interviewee must be established.

While the cultural impact assessment for Papahānaumokuākea does indicate detailed documentary research, meaningful consultation with knowledgeable cultural practitioners is absent. This consultation will provide a critical connection between the written word and the real life experiences of cultural practitioners who will place the importance of events associated with and resources found within Papahānaumokuākea into the appropriate context.

The archaeological background section of the cultural assessment details that archaeological surveys on Nihoa and Mokumanamana have documented numerous cultural sites on both islands which are listed on the National Register of Historic Places. These cultural sites cannot only be viewed as archaeological resources. Cultural practitioners and knowledgeable individuals will be able to discuss the true importance of these cultural sites to contemporary Hawaiians.

There is also discussion within the cultural impact assessment of recent trips to Papahānaumokuākea by cultural practitioners to honor kūpuna and perpetuate traditional practices. The significance of the efforts of Hui Mālama i Na Kūpuna o Hawai'i Nei to repatriate iwi kūpuna taken from Nihoa and Mokumanamana by archaeologists cannot be understood without the mana'o of those who participated in the repatriation effort. This was not simply an act of returning iwi kūpuna to where they came from, it was the demonstration that the kuleana of caring for iwi kūpuna was understood and that individuals were willing to do everything necessary to fulfill that kuleana.

OHA respectfully requests that the services of an individual with experience in conducting consultation for cultural impact assessments be retained and that consultation with individuals with knowledge of the cultural significance of Papahānaumokuākea occur. There are also archival video interviews which may be a valuable contribution to the cultural impact assessment which should be reviewed to gain a larger understanding of the many cultural aspects of Papahānaumokuākea. This additional work will not only bring the cultural impact assessment within the recommended Environmental Council guidelines, it will provide a greater understanding of potential impacts activities within

Papahānaumokuākea Maine National Monument will have on cultural resources and traditional practices.

### The Environmental Review Process

OHA points out that this isn't a typical environmental review document in that things like TMKs aren't listed along with the typical other elements such as zoning, (despite the fact that zoning is mentioned in the management plan on page 217) approving agency, proposing agency or even a brief synopsis of the proposed action. Usually OHA would expect to see a section describing the anticipated finding or compatibility issues with county plans on land use classes, etc. as in a typical assessment. Some allowances can be made for the unique character of the project area, yet we still have obligations to perform in reviewing this document as an environmental assessment and making sure that it fulfills those obligations.

Another gray area in this document for OHA was the regulatory frameworks that these varied projects try to navigate through. Some mention is made of some laws and regulations while regulations that are clearly needed or factors that are clearly in violation of existing laws are not mentioned. Other disturbing factors are mentioned only briefly and not further examined. OHA is not unique in seeing Papahānaumokuākea as a treasure; however, we do not want to be the voice calling in the wilderness to preserve it as a wilderness area. Thus, we describe below some of the questions and concerns raised by elements of the plan that are unclear, unexplained, or inadequately examined, often with a lack of potential solutions described.

### Contaminants

Studies conducted by the U.S. Fish and Wildlife Service (FWS), Coast Guard, Navy, and the University of Hawai'i have documented contamination in soil, sediment, and biota at French Frigate Shoals, Kure, and Midway which include petroleum and oils, asbestos, lead, DDT pesticide, arsenic, heavy metals, and battery acids.<sup>5</sup> Dissolved iron from these sites also fuels cyanobacteria growth.<sup>6</sup> Direct impacts to black-footed albatrosses, in the form of reduced hatching success, have been linked to high organochlorine levels and elevated levels of mercury impaired immune function in black-footed albatrosses.<sup>7</sup> On Midway, over 500 birds are burrowing in contaminated soil.<sup>8</sup> Some fish and other biota have PCB levels that rival levels found in fish near major PCB manufacturers on the mainland.<sup>9</sup> Unlined landfills remain on some of these islands, and Kurc Atoll and French Frigate Shoals both have point sources of PCBs due to former

<sup>5</sup> Draft management plan, pages 56 and 60.

<sup>6</sup> Draft management plan, page 69.

<sup>7</sup> Ibid.

<sup>8</sup> Draft management plan, page 61.

<sup>9</sup> Environmental Assessment, page 133.



LORAN stations, which qualify as hazardous waste.<sup>10</sup> While some cleanup efforts have been made, elevated levels of contamination remain in island soils, nearshore sediment, biota, and the dump continues to erode into the sea.<sup>11</sup>

OHA appreciates this disclosure, and we realize that these are inherited problems; however, the list of terribles described above does not match the sometimes pristine description in the draft management plan or environmental assessment. Nor do they match the mission and vision of this management plan. It also serves as an embarrassment, and OHA wonders what implications these horrors may have for the World Heritage application. One wouldn't expect a hazardous dump to be tolerated in Yellowstone National Park or Hawai'i Volcanoes National Park (also a World Heritage site), and we shouldn't imagine that these sorts of conditions will be allowed to remain in Papahānaumokuākea either.

Page 60 of the draft management plan notes that the Navy "has returned on several occasions to conduct further remediation" on Midway. Page 59 states that, "While the Coast Guard has mounted cleanup actions at both sites, elevated levels of contaminants remain in island soils, nearshore sediment, and biota." OHA strongly suggests that the two federal agencies coordinate with the other co-trustee (the state of Hawai'i) to encourage those responsible for this pollution to clean it up. In international law this is known as the polluter pays principle, and it makes good sense to apply it in Papahānaumokuākea.

Otherwise, OHA inquires as to the lack of compliance with state and federal environmental laws presented by these sites and by the proposed actions presented in these documents. The no-dig areas described in the Midway Atoll NWR Conceptual Site Plan on page 24 where contaminants were left in place at the surface level are yet another sad example. OHA also notes section 2.2.2 of the environmental assessment which lists some of the federal and state laws regulatory environment as well as section 2.5.1.2 which lists the regulatory environment pertaining to water quality in Papahānaumokuākea.

OHA notes that the Clean Water Act (CWA) is listed, specifically sections 403 and 404. As such, OHA is deeply concerned over the apparent lack of compliance with the CWA. We inquire as to whether a CWA, Section 402 National Pollutant Discharge Elimination System has been authorized. OHA is certain that the leakage of hazardous materials into the nearshore environment would also violate the state of Hawai'i Department of Health state water quality standards, which are mentioned on pages 131 and 132 of the environmental assessment. We remind the managers that much of the

<sup>10</sup> Draft management plan, page 59. Also of note is the 393 milligrams/kilograms reading of PCBs at Kure, which is seven times the definition given to qualify as hazardous.

<sup>11</sup> Ibid.

nearshore waters in Papahānaumokuākea are state waters, and therefore submerged lands, which are also ceded lands.

OHA also inquires as to compliance with the Rivers and Harbors Act, sections 10 and 13 for work or structures in or affecting navigable waters and for the discharge of refuse matter into or affecting navigable waters.

The draft management plan states on page 58 that 57 tons of marine debris accumulates per year in Papahānaumokuākea. This equates to a problem that will be addressed in a reactionary manner. Land based pollution from point and non-point sources can and should be addressed proactively. Therefore, OHA inquires as to the treatment train, remediation and best management practices that are proposed to not mitigate but correct this situation. Long-term biological and chemical monitoring should be established to measure any change in contaminant levels over time and the associated biological response.

We also note that funding for remediation of polluted sites is lacking. Table 3.1 *Total Estimated Cost to Fully Implement Action Plans by Year* does not even have a category for clean up of hazardous and polluted sites. Habitat Management Conservation (HMC) Plan 2 is the only one that tangentially deals with contaminated sites. The plans propose to "investigate and inventory" (HMC-2), "evaluat[e] effects of contamination" (HMC-2.1), "verify integrity of known landfills and dumps and to conduct remediation if necessary" (HMC-2.2), and "locate historic dump sites... and investigate for contamination" (HMC-2.3). However, these documents resonate with a series of deep contaminants listed in various sections that cry for more than monitoring of effects and investigation. For example, the migratory bird action plan states on page 161 that "Minimizing threats to migratory bird populations remains a primary concern." Then, on the same page, it states that contaminants will be "monitored" with no mention of clean up. OHA reminds the managers of Papahānaumokuākea of their mandate to protect, maintain, and restore wildlife habitats.<sup>12</sup> Remediation of known sites must be done in a timely manner, and monitoring for results of clean up should be a priority.

Fingerprinting of oil sources on the international level and tracing marine debris is also proposed; however with an admitted lack of funding and obvious sources of pollution that need attention so readily abundant, OHA inquires as to the wisdom of not addressing those prior to attempting the more exotic methods and sources that threaten Papahānaumokuākea. Also, OHA urges that the managers seek to increase the capacity for species in the area in a variety of ways and we would rather see the ecosystem receive what limited attention there is than see something like two visitor centers being constructed with finite funds. This also matches with the ecosystem-based management style and no net loss of habitat goal recited in these documents.

<sup>12</sup> Draft management plan, page 165, citing the FWS Refuge System laws and policies and also on page 173, citing the Wilderness Act of 1964.

### Ecosystem, Not Jurisdictional, Management

Page ES-2 of the draft management plan states that "The management framework for the Monument includes key elements to move toward an ecosystem approach to management." OHA is pleased by this sentence and urges the coordinated management of this area to consistently bear this mind. OHA also is pleased by the intent to adhere to the National Wildlife Refuge (NWR) system principle of "wildlife comes first."<sup>13</sup> The opening paragraph on page two of the draft management plan begins with:

Proclamation 8031 states that the Secretary of Commerce, through NOAA, has primary responsibility regarding the management of the marine areas of the Monument, in consultation with the Secretary of the Interior. The Secretary of the Interior, through FWS, has sole responsibility for the areas of the Monument that overlay the Midway Atoll National Wildlife Refuge, the Battle of Midway National Memorial, and the Hawaiian Islands National Wildlife Refuge, in consultation with the Secretary of Commerce. Nothing in the Proclamation diminishes or enlarges the jurisdiction of the State of Hawai'i. The State of Hawai'i, through the Department of Land and Natural Resources, has primary responsibility for the Northwestern Hawaiian Islands Marine Refuge and State Seabird Sanctuary at Kure Atoll.

OHA is understanding of this bit of jurisdictional wrangling and appreciates that this confusing picture was painted for us; however, we will hold the co-managers to their stated goal of creating "a comprehensive and coordinated management regime to achieve the vision, mission, and guiding principles of the Monument and to address priority management needs over the next 15 years."<sup>14</sup> OHA understands the vision to be to forever protect the health, diversity, and resources of the area and the mission to be to carry our "seamless" integrated management to protect area ecosystems, Native Hawaiian resources, and heritage resources for all time.<sup>15</sup>

OHA is hopeful that the co-managers of this area will gain valuable experience that can be applied to other remote Pacific Island complexes that sorely need an integrated management regime that focuses more on the resources and less on jurisdiction.

<sup>13</sup> The Midway Atoll NWR Conceptual Site Plan, page 31.

<sup>14</sup> Draft management plan, page 2.

<sup>15</sup> *Ibid.*, page one.

### Habitat Loss

Whaleskate Island is mentioned on page 38 of the draft management plan in connection with Hawaiian monk seals. OHA found the paper *Potential effects of sea level rise on the terrestrial habitats of endangered and endemic megafauna in the Northwestern Hawaiian Islands* and was surprised to learn that it was not long ago the second largest island used by monk seals and from 1985 to 1996 an average of 35% of the atoll's pups were born there. Following the disappearance of this island in the late 1990s, Trig Island became the most common birth site, and pup survival fell dramatically, in large part due to nearshore predation on pups by Galapagos sharks, a species previously not known to take monk seals. Trig Island is expected to shrink an additional 7 to 75%, thereby further reducing habitat and adding pressure to already stressed ecosystems.<sup>16</sup>

Whaleskate Island is not mentioned in the climate change section of the draft management plan (page 62), and yet it serves as a clear example of sea level rise and some of the unexpected consequences that stem from it. Seal level rise is a listed cause of concern for Papahānaumokuākea (page 149), and species have already been shown to be displaced because of it. OHA asks what steps are being taken to prepare for this event in terms of habitat loss as well as encroachment towards building footprints. OHA also reminds the managers that the Midway Atoll conceptual site planning document has a "No net loss of habitat" principle listed.<sup>17</sup>

OHA realizes that the stakes are extraordinarily high in Papahānaumokuākea. Page 150 of the draft management plan states that 90% of all green turtle nesting occurs here. Some animals are already nesting in contaminated areas and displaying elevated levels of contaminants. As preferred habitat shrinks, other areas will have to be made or cleaned. Hopefully the population of these animals will also increase, adding more stress to the need for a zero net loss of habitat in Papahānaumokuākea.

### Proposed Projects

OHA notes that the coordinated field operation plan section 3.6.3 proposes the construction of a number of projects, and the environmental assessment mentions infrastructure repairs.<sup>18</sup> OHA is pleased that the applicants propose to use renewable energy sources and we suggest that construction be done with recycled materials,

<sup>16</sup> *Potential effects of sea level rise on the terrestrial habitats of endangered and endemic megafauna in the Northwestern Hawaiian Islands*, <http://www.int-res.com/articles/esr2006/2/n002p021.pdf>, last visited June 17, 2008.

<sup>17</sup> The Midway Atoll NWR Conceptual Site Plan, page 31.

<sup>18</sup> The Midway Atoll NWR Conceptual Site Plan even mentions rebuilding the wastewater system, page 22.

hopefully even from on site. By utilizing solar and wind energy (utilizing enclosed tower type turbines to prevent wildlife interaction, particularly by birds) as well as bio fuels the applicants are helping Hawai'i to meet our goal of 20% of our electricity being from renewable sources by the year 2020.<sup>19</sup> Further, on January 28, 2008, Assistant Secretary of the Department of Energy and Governor Linda Lingle signed a groundbreaking Memorandum of Understanding (MOU) between the state government and the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy. The MOU estimates that Hawai'i can potentially meet between 60 and 70 percent of its future energy needs from clean, renewable energy sources.

OHA also inquires as to the permitting processes that will be considered in order to comply with federal and state laws for management of Papahānaumokuākea. In a typical environmental assessment, the applicant provides a list of permits required, and we check that list for accuracy and offer suggestions on how best to comply or improve the project. In this case, we see no such list to comply with a host of regulations that several of the described types of management projects mandate. The only indication of compliance OHA has is in the environmental assessment on page 27, which states, "Some of the proposed activities would require additional compliance actions as additional plans are completed, including NEPA, section 7 of ESA, section 106 of NHPA and MMPA."

Therefore, OHA inquires as to whether or not the managers know which "compliance actions" they will trigger by which actions, and if not, when will the plans be completed and in what form (a supplemental environmental assessment, for example) they will be provided. We also ask if any state water quality standards assessments have been made for proposed construction activities that may impact upon state waters, and if an Army Corps of Engineers jurisdictional determination or consultation has been made. Page 56 of the draft management plan, for example, mentions coastal construction which would normally trigger a host of state and federal requirements.

#### Permitting and Access

OHA realizes that the Fish and Wildlife Service (FWS), NOAA and the state of Hawai'i were issuing individual permits for activities within their respective jurisdictions prior to now, and that only the state of Hawai'i had a special category of permit for Native Hawaiians. As such, OHA is pleased that there are permitting considerations made for Native Hawaiians and their constitutionally protected practices. One suggestion is that a reference be given in the draft management plan to the actual permit application for those interested in applying.

<sup>19</sup> See Act 95, Session Laws of Hawai'i, which in 2004 set that new original renewable portfolio standard goal.

Page 44 of the draft management plan states, "Despite the fact that the NWHI were not used and experienced on a daily basis by most Hawaiians, they have always been seen as an integral part of the Hawaiian Archipelago and have been honored as a deeply spiritual location, as evidenced by the many wahi kūpuna, or sacred sites, on Nihoa and Mokumanamana." This is true; however, for those Hawaiians who are able, the first-hand experience of these places can be dramatic. In terms of this management plan, experience equates to access.

For example, essential to the development of seamanship and wayfinding skills is the need to practice and learn through engaging and powerful experience. The proximity of Nihoa and Mokumanamana to the main Hawaiian Islands make them a reasonable practice run for training navigators and crew, and yet there still exist major challenges in finding the northwestern islands without the use of instruments because the islands present such small and isolated targets. Because the islands are uninhabited by humans, they represent a realistic opportunity to use bird and sealife as land clues identical to those used by our ancestral predecessors.<sup>20</sup>

As the draft management plan states on page 47, "Cultural practices like these continue to remind and teach Native Hawaiians of the connections and relationships their ancestors have passed down from generation to generation." Securing ready access to the islands without having to navigate restrictive bureaucratic hurdles eliminates long start up and planning processes that grassroots programs cannot endure. Further, the bureaucratic permitting process may infringe upon Native Hawaiian rights and traditional practices as well as stand in contrast to the management plan's stated mission. Therefore, we urge that access for Native Hawaiians under all types of permitting programs be considered and that the permitting process not be overly burdensome for the applicant, as listed on page 221.

Additionally, this serves as a good example of why Native Hawaiians not only must be consulted with during the drafting of this management plan and various implementing documents, but why we should also have a meaningful management role to better address these types of concerns.

#### Funding

The Note to Reviewers in the draft management plan states that this ambitious plan is set over a 15-year window and is based on an agencies' best estimate of future needs. There is no commitment of funds, or a commitment to request funds, by Federal or State agencies and even the cost estimates given are admittedly sometimes substantially above current budget allocations. OHA is concerned by the high goals that this plan proposes with limited funding and without the commitment of funds.

<sup>20</sup> OHA heard from a number of 'Ohana Wa'a captains, and we are representing their comments and requests as our own in this case.

Additionally, page 155 of the draft management plan states that more staffing will most likely be needed by the agencies to carry out consultation requirements for activities within the monument. OHA inquires as to how these additional staff members will be funded as well.

#### Cruise Ships

OHA notes that in 2005, 2006, and 2007, one cruise ship visited Midway Atoll each year and that now three cruise ships, with 800 passengers each, are proposed in the environmental assessment's preferred alternative and the Midway Atoll NWR Conceptual Site Plan. OHA inquires as to the feasibility and possibility of charging these users to generate revenue. While OHA does see this proposed increase in cruise ship presence as a cause for concern, we also are realistic about the opportunities it can present if carefully controlled, insured and regulated.

#### Vessel Transit

OHA understands that inspections are mandatory for all vessels prior to entering the Monument and that continuous passage is not prohibited.<sup>21</sup> OHA suggests prohibiting the transit of hazardous cargo through Papahānaumokuākea. We also recommend requiring a certificate of financial responsibility and/or insurance for vessels entering the area. A polluter pays principle should be adopted throughout Papahānaumokuākea that extends to any type of harm caused. Another suggestion is to not prohibit transit but to regulate it by designating sea lanes through Papahānaumokuākea.

#### Enforcement

In 2007, the grounded vessel Grendel was found loose inside Kure Atoll after it had ground a 500' path through the reef. This serves as just one example of the isolation of Papahānaumokuākea and the need for enforcement in the area. OHA realizes that the best made action plans are of little use without a way to apply them or make their true force realized. Page 73 of the draft monument management plan states that, "The Coast Guard sends a buoy tender to the NWHI once a year. This mission also serves as a law enforcement patrol. In addition, the Coast Guard may occasionally send other ships to the area as needed." OHA inquires as to the level of enforcement patrols currently underway in Papahānaumokuākea other than this annual visit.

Section 3.4.2 has a desired outcome to "Achieve compliance with all regulations within Papahānaumokuākea Marine National Monument." However, on the same page a

<sup>21</sup> Draft management plan, pages 217 and 195.

contradiction is presented: "Managers and law enforcement personnel must work together to prioritize and initiate appropriate activities that will have the greatest impact." OHA asks if all the regulations will be complied with or just some, and if not all, which ones or when will they be complied with.

OHA suggests the use of penalties for those violating regulations in the area and vessel monitoring systems that cannot be turned off by the applicant. Page 17 of appendix C mentions that Lands within the National Wildlife Refuge System are generally considered strict liability lands and OHA feels that appropriate use of this regime should be applied. We also support the creation of a monument law enforcement working group as noted on page 52 of the environmental assessment.

#### Genetic Materials

Page 9 of the draft management plan states that "In the course of just one 3-week research cruise in the fall of 2006, conducted as part of the global Census of Marine Life project, more than 100 potentially new species were discovered at French Frigate Shoals alone." This raises a concern about potential bioprospecting and the distribution of bioprospecting's benefits. At a minimum, access and benefit sharing for new species and any uses derived from them should have a regional focal point, and Native Hawaiians must always be consulted.

OHA also notes that page 155 of the draft management plan proposes to hybridize local endangered fauna with closely related species in order to save them. OHA has concerns about this proposal on its face. We seriously question the wisdom of hybridizing plant species and wonder, if we can save the hybrid, why we cannot save the original. This, too, begs potential cultural questions about genetically manipulating genealogical relations to Native Hawaiians, and the potential for preserving our siblings in whole, rather than in part.

#### Various Other Questions and Concerns

Briefly, OHA notes that page 63 of the draft management plan states that "Increased carbon dioxide can also influence photosynthetic rates in plants, change plant species composition, lower nutrient levels, and lower weight gain by herbivores." OHA was unaware of any herbivores in Papahānaumokuākea and we ask what they are.

OHA is aware that strict protocols are enforced for any visitors to Papahānaumokuākea to prevent further importation of invasive plants, animals, or insects. We are pleased that this dangerous threat is being approached with due care. However, we were surprised to read on page 68 of the draft management plan that these protocols are not used for Midway Atoll and Tern Island. Midway is certainly the place

where the highest risk for introduction of invasives presents itself, and as such we inquire as to why protocols are not being used there.

OHA notes on page 251 of the draft management plan that business/industry entities are listed as prospective users in Papahānaumokuākea and we inquire as to what/who these may be.

Thank you for the opportunity to comment. If you have further questions, please contact Grant Arnold at (808) 594-0263 or e-mail him at [granta@oha.org](mailto:granta@oha.org).

'O wau iho nō me ka 'oia'i'o,



Clyde W. Nāmu'o  
Administrator

C: Irene Ka'ahanui, Community Resources Coordinator  
Office of Hawaiian Affairs, Moloka'i Office  
P.O. Box 1717  
Kaunakakai, HI 96748

C: Kaliko Santos, Community Resources Coordinator  
Office of Hawaiian Affairs, Kaua'i Office  
3-3100 Kuhio Hwy, Suite C4  
Līhu'e, Hawai'i 96766-1153

C: Thelma Shimaoka, Community Resource Coordinator  
Office of Hawaiian Affairs, Maui Office  
140 Ho'ohana St., Ste. 206  
Kahului, Hawai'i 96732

C: Lukela Ruddle, Community Resources Coordinator  
Office of Hawaiian Affairs, Hilo Office  
162 A Baker Avenue  
Hilo, Hawai'i 96720-4869

C: Ruby McDonald, Community Resources Coordinator  
Office of Hawaiian Affairs, Kona Office  
75-5706 Hanama Place Suite 107  
Kailua-Kona, HI 96740

C: Pearl Ah Ho  
Community Resources Coordinator  
Office of Hawaiian Affairs, Lana'i Office  
P.O. Box 631413 Lana'i City, 96763

C: Office of Environmental Quality Control  
235 S. Beretania St., Suite 702  
Honolulu, Hawai'i 96813

C: Department of the Army  
Regulatory Branch  
U.S. Army Engineer District  
Ft. Shafter, Hawai'i 96858-5440

C: Clean Water Branch  
Environmental Management Division  
State Department of Health  
P.O. Box 3378  
Honolulu, Hawai'i 96801-3378

C: U.S. EPA Region 9  
75 Hawthorne Street  
San Francisco, CA, 94105

LINDA LUNGLE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

November 21, 2008

LAURA H. TRIBLEN  
COMMISSIONER  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION OF WATER RESOURCES MANAGEMENT

RUSSELL V. TZUI  
FIRST DEPUTY

KEN C. KAWAHARA  
DEPUTY DIRECTOR - WATER

ASIATIC RESOURCES  
BOATING AND BEACH RECREATION  
BUREAU OF CONSERVATION  
COMMISSION OF WATER RESOURCES MANAGEMENT  
CONSERVATION AND COASTAL LANDS  
CONSERVATION AND RESOURCES INFORMATION  
ENGINEERING  
FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
KAIKOLA BEACH RESERVE COMMISSION  
LAND  
STATE PARKS

Mr. Clyde Namu'o  
November 21, 2008  
Page 2 of 8

and other issues. OHA will continue to formally consult with the Working Group (see NHCI-1 and 1.1). This provides one of many methods of involvement for Native Hawaiians that are discussed in the plan. Those volunteers in the Working Group have already accepted responsibility for preserving and perpetuating Papahānaumokuākea and Native Hawaiian cultural connections to this place

**Response.** The MMP acknowledges that incorporating Native Hawaiian traditional knowledge is imperative to managing and understanding all of the resources of the Monument; this is recognized throughout the Monument Management Plan. Please see in particular Activity NHCH-3.4 and Strategy NHCI-3, along with its associated activities. Both the Native Hawaiian Cultural and History Action Plan and the Native Hawaiian Community Involvement Action Plan describe comprehensive processes to ensure the involvement of and respect for Native Hawaiians, their communities, and culture.

In response to your comments concerning financial equity, the MMP requires that involved agencies work towards building their capacity and working with communities to identify cultural research and cultural projects that we will fund in the future. The MMP proposed budget has been amended (see Table 3.1), in response to your comments and to reflect what the MMP anticipates rapid increases in spending on Native Hawaiian issues related to the management of the Monument.

#### Cultural Impact Assessment

**Comment.** OHA noted the need to take into account additional sources of information, including available oral histories, in finalizing the MMP's cultural impact assessment. It also noted that the inclusion of this material was needed to bring the assessment into compliance with Environmental Council guidelines.

**Response.** Changes to the cultural impact assessment that are in accord with the OHA's suggestions were made to better satisfy the intent of Chapter 343 of the Hawai'i Revised Statutes and the directions provided by the State Office of Environmental Quality Control. Please note that among the revisions to the cultural impact assessment is the inclusion of the results of several oral interviews, more document and personal research, and analyses of actual potential impacts and possible mitigations.

#### Environmental Review Process

**General Comments.** OHA correctly noted that the draft MMP and EA is not a typical environmental review document. OHA pointed out that the document does not contain a listing of TMKs, a land use/management zoning framework nor does it describe a land use compatibility determination process such as the kind that would find in a county land use planning process. OHA also acknowledged that Papahānaumokuākea management planning is a unique situation that does not lend itself easily to traditional environmental review processes. OHA was also concerned with what it feels may be a failure to reference related laws and regulations that should have been included in the MMP. With these conclusions in mind, OHA provided several comments that pertain to environmental review processes that were discussed in the MMP. Responses to the comments are provided below.

#### Contaminants

**Comment.** OHA provided substantial discussion on the presence of past military related environmental contaminants on several of the islands located within the monument, with particular attention being paid to contamination present on Midway Island. As noted by OHA, there are a number of environmental statutes that require remediation of these sites by parties responsible for the contamination. OHA also recommended that there is a pressing need for cleanup of these contaminated sites in order to maintain the purpose and integrity of the Monument and that these need be treated as a priority in the MMP.

Mr. Clyde Namu'o, Administrator  
Office of Hawaiian Affairs  
711 Kapiolani Blvd, Suite 500  
Honolulu, Hawai'i 96813

Re: Office of Hawaiian Affairs July 8, 2008 Comments on Draft Papahānaumokuākea Marine  
National Monument Management Plan

Dear Mr. Namu'o:

Thank you for providing comments on the Draft Papahānaumokuākea Marine National Monument Management Plan (draft MMP), Environmental Assessment (EA), and associated documents. The draft MMP is the product of an extensive coordinated planning process undertaken by the Monument Management Board (MMB) on behalf of the Co-Trustee agencies: US Fish and Wildlife Service, the National Oceanic and Atmospheric Administration and the State of Hawai'i, Department of Land and Natural Resources. The MMB is comprised of representatives of these three agencies and the Office of Hawaiian Affairs.

The draft EA contained in Volume II evaluates the likely environmental consequences of the activities contained in the Monument Management Plan (MMP). The draft EA was developed in accordance with the National Environmental Policy Act and Hawai'i Revised Statutes (HRS) Chapter 343.

Under Chapter 343 HRS, the Department of Land and Natural Resources (DLNR) is required to respond in writing to comments received from agencies during the course of the draft MMP public review process. This letter is DLNR's response to your agency's comments. All responses to comments were prepared jointly by the members of the MMB and will also be included in Volume 5 of the final MMP and associated documents. The Office of Hawaiian Affairs (OHA) comments were considered in the preparation of the final MMP, EA and associated documents and in many cases, where appropriate, the documents were amended to address your comments as outlined below.

#### Consultation and Engagement with Native Hawaiians and the Formal Establishment of the Native Hawaiian Cultural Working Group

**Comment.** In its letter, OHA appropriately reiterates the need to include the Hawaiian voice and OHA in the future management of the Monument. The MMP will require that managing agencies commit to regular consultation and engagement with Native Hawaiians; and to the formal establishment of the Native Hawaiian Cultural Working Group, which was convened originally as part of the Reserve Advisory Council. OHA now convenes the Working Group, which provides input on permit applications

**Response.** The MMP recognizes that known sites must be remediated in a timely manner, and that monitoring for results of clean up should be a priority. Under the Comprehensive Environmental Response, Compensation and Liability Act, the Responsible Parties (RP) for contamination are required to ensure the contamination is remediated and not released to the environment. The Fish and Wildlife Service has worked with the Environmental Protection Agency, the National Oceanic and Atmospheric Administration, and the RPs to investigate and respond to the hazardous waste issues on both Midway and Tern. The RPs are the US Navy and the US Coast Guard, respectively. Cost to monitor, remove, or otherwise remediate the contamination remains the RPs' financial obligation. The Monument managers will continue to work with the EPA and the RPs to pursue response and remediation where needed.

#### **Ecosystem, Not Jurisdictional Management**

**Comment.** OHA has noted with approval that the goal of the Co-Trustee's primary management objective is to create "a comprehensive and coordinated management regime to achieve the vision, mission, and guiding principles of the Monument and to address priority management needs over the next 15 years."

**Response.** The final MMP reiterates the Co-Trustees commitment to work together to achieve this objective over the course of the next 15 years.

#### **Habitat Loss**

**Comment.** OHA, along with many other draft MMP reviewers, have commented on a pressing need to take impacts of climate change into account in making decisions related to future management of the monument. OHA's comments focused its particular concerns on the possible loss of habitat and related threats to biodiversity resources of the monument. Of particular concern to OHA are impacts that may happen to the monument's endangered species.

**Response.** In developing the MMP's Natural Resources Science Plan (see Activity MCS-2.1), the Monument's science team will focus on developing monitoring efforts to detect the potential impacts of climate change on habitats and species. As noted in Section 1.4, Environmental and Anthropogenic Stressors, climate change has potential short-term and long-term consequences for Monument resources. The MMP calls for using data from existing monitoring and restoration efforts (see Strategy MCS-1, Continue and expand research, characterization, and monitoring of marine ecosystems, numerous activities in the Threatened and Endangered Species Action Plan [3.2.1], and the Habitat Management and Conservation Action Plan [3.2.3]). The MMP also commits the managing agencies to conduct research and monitoring to investigate how climate change is impacting individual species, assemblages, habitats, and ecosystems in the Monument.

#### **Proposed Projects**

**Comment.** OHA has asked what federal or state permitting processes will be used when making decisions related to management of future activities within the Monument.

**Response.** Appendix A of the MMP now describes the permitting processes for activities occurring within the monument. All permits granted by the Co-Trustees must satisfy the findings in Presidential Proclamation 8031, which also make up a component of the Monument's permitting criteria. All permitted activities must also comply with NEPA, the Endangered Species Act, and all other applicable federal and state regulations.

**Comment.** OHA has asked if the MMP will describe those activities occurring in the Monument will constitute a "compliance action" that would trigger additional environmental assessment and public involvement over and above the assessments completed as part of the MMP. Additionally, OHA asks whether any state water quality standards assessments have been made for proposed construction activities and if an Army Corps of Engineers jurisdictional determination or consultation has been made.

**Response.** The MMP describes several strategies and associated activities that the agencies will implement in the Monument over the next 15 years. Volume 2 (environmental assessment) provides a discussion of the potential environmental effects of the Monument Management Plan strategies and activities. Although the Monument Management Plan and the associated environmental assessment describe these activities and their impacts in general terms, they cannot for the most part fully analyze the impacts of every action that the agencies will take or authorize over the next 15 years. Accordingly, each agency action taken in the Monument will be subject to future NEPA analysis on a case-by-case basis. Some of these activities will be eligible for a categorical exclusion, while others will require the preparation of an environmental assessment or environmental impact statement, depending on the significance of the impacts. Volume 2, Section 1.8, includes a description of the categorical exclusions for each of the agencies. Although the Monument Management Plan describes some general planning documents or conceptual site plans for Midway and other infrastructure projects that may include construction, the EA does not fully assess their environmental impacts. Such projects would require separate NEPA and HRS Chapter 343 analyses, including an assessment of compliance with state water quality standards and consultation with the US Army Corps of Engineers as needed.

#### **Permitting and Access**

**Comment.** In its comment letter, OHA explained the importance of continuing to provide for traditional cultural practices of Native Hawaiians within the Monument. In particular, OHA noted that maintaining continued access will continue to provide a means to "remind and teach Native Hawaiians of the connections and relationships their ancestors have passed down from generation to generation." To further this objective, OHA asks that the "restrictive bureaucratic hurdles" typically associated with the permitting of other activities in the Monument be mitigated when the MMB is considering requests for access by Native Hawaiian groups to perform activities that are related to traditional cultural practices.

**Response.** Full support and recognition of the importance of Native Hawaiian cultural access to the Monument is acknowledged and provided for under the Native Hawaiian Practices permit process discussion in the MMP. The title and description of Activity NHCH-2.6 has been modified to more clearly reflect this support and recognition. Further, the MMP acknowledges that understanding and incorporating Native Hawaiian traditional knowledge is imperative to the management and understanding of all of the resources of the Monument, and that this recognition is reflected in several sections throughout the Monument Management Plan. Please see in particular Activity NHCH-3.4 and Strategy NHCI-3, with its associated activities.

With respect to related permitting, please see the Native Hawaiian Practices, Section of 3.4.1, the Permitting Action Plan, which states, "Permit conditions and protocols will continue to be developed by the Co-Trustees and the Office of Hawaiian Affairs through consultation with the Native Hawaiian Cultural Working Group and the Native Hawaiian community. . ." Further, the MMP commits the responsible agencies to continue with regular consultation and engagement with the Native Hawaiian community and the formal establishment of the Native Hawaiian Cultural Working Group (see NHCI-1 and 1.1), which provides one of many methods of involvement for Native Hawaiians.



#### Funding

**Comment.** OHA correctly noted that the 15 year plan provided for by the MMP is an ambitious one that will require future funding that has not yet been secured by the agencies responsible for implementing all of the activities described in the MMP. Of particular concern to OHA was securing funding for staffing requirements that will be needed to carry out the consultation requirements related to activities occurring within the Monument.

**Response.** Under the new management paradigm of the Papahānaumokuākea Marine National Monument, the three Co-Trustee agencies will be working together and pooling resources when possible. The Monument Management Plan includes an agency lead for each of the activities. Each of the other agencies will participate in activities as time, funding, interest, and mandate dictate. It is impossible to predict exactly which staff members will be tapped to work on the varied tasks of the Monument Management Plan. The intent of the Monument Management Plan is to allow for the pooling of the limited agency resources and avoid duplicative efforts. The MMP requires that the Co-Trustee agencies commit themselves to building their capacity and working with communities to identify cultural research and cultural projects for future funding. The budget shown in Table 3.1 indicates that the MMP anticipates rapid increases in spending on Native Hawaiian issues in the future of the Monument.

#### Cruise Ships

**Comment.** OHA, notes that while limited cruise ship visits to Midway may be a cause for concern, these ships could provide for visitor opportunities that could be beneficial to the Monument if carefully controlled, insured and regulated. OHA asks whether it would be feasible or possible to charge for visitation to generate revenue for Monument operations.

**Response.** MMP will require that cruise ship companies pay significant fees when bringing visitors to Midway. The overriding goal of these visits is to provide visitors the opportunity to experience and learn about remote island ecosystems and the Monument's significant wildlife, cultural, and historic resources.

#### Vessel Transit

**Comment.** With regard to the transit of hazardous cargo by ships through the Monument, OHA has suggested three management alternatives to address concerns related to the presence of this type of cargo in the monument: prohibiting the transit of hazardous cargo through the Monument; requiring a certificate of financial responsibility and/or insurance for vessels entering the area; or regulating transport of hazardous materials by designating sea lanes through Monument waters. OHA also suggested that the "polluter pays" principle be adopted that would extend to any type of harm caused.

**Response.** Consideration was given to the threats and relative risks to Monument resources from commercial shipping, including from hazardous cargo in the development of the MMP. Consideration was also given to the protective measures from the International Maritime Organization designating the Monument as a Particularly Sensitive Sea Area. The International Maritime Organization is a specialized agency of the United Nations that addresses navigation safety and protects the environment from commercial shipping activities. Protective measures developed by the United States and adopted by the International Maritime Organization, in association with Particularly Sensitive Sea Area designation, including "Areas To Be Avoided" designations and a ship reporting system have been incorporated into the MMP.

These measures appear on international nautical charts and have multiple uses: they direct ships away from coral reefs, shipwrecks, and other ecologically or culturally sensitive areas in the Monument; they encourage ships to use three transit corridors in between "Areas to Be Avoided" if they must transit through the Monument; and they facilitate a timely response to emergencies.

At this time, these international protective measures, in conjunction with those in Presidential Proclamation 8031 and implementing regulations, appear adequate to address the threats to the Monument from commercial shipping. The measures are consistent with international law, in particular customary international law, as reflected in the 1982 United Nations Convention on the Law of the Sea. Of course, Monument staff would monitor the adequacy of these measures, and, if deemed necessary, will consider additional measures. The MMP has been amended to include appropriate additional language in the Maritime Transportation and Aviation Action Plan (3.3.3) need for action. Additionally, Military vessel and aircraft use were added to the current status and background descriptions.

#### Enforcement

**Comment.** OHA notes that Coast Guard patrol activity within the Monument is limited to one buoy tender mission and that occasional patrols are sent to Monument waters as they are needed. OHA suggests that this level of enforcement activity alone may not be sufficient to ensure future protection of the Monument's resources.

**Response.** In addition to the annual buoy tender patrol, the Coast Guard conducts monthly over-flights of the Monument, and NOAA Office of Law Enforcement monitors VMS daily. Other Coast Guard patrols may be active in the NWHI in conjunction with other missions as opportunities arise or threats dictate. In addition, Co-Trustee chartered flights, vessel traffic, and island-based personnel provide a level of oversight for the Monument through their presence. A new law enforcement officer will also be stationed at Midway.

**Comment.** OHA also asked whether a shortage of enforcement personnel could necessarily lead to selective enforcement of the Monuments regulations. OHA also suggests that penalties be imposed for violation for regulations in the area, and that it supports the creation of a law enforcement working group to deal with enforcement issues.

**Response.** The MMP requires that Co-Trustees work with the Coast Guard and the state and federal law enforcement agencies and that are charged with enforcing the laws and regulations within the Monument to protect the monument and its resources. To further this end, an array of technologies from around the world will be examined and the most effective technologies will be deployed for protection and for detecting anyone intent on harming the Monument. All vessels entering the monument are required by law to have onboard functioning vessel monitoring systems that are functioning and transmit data to NOAA's Office of Law Enforcement. Those not in compliance are subject to fines. The Monument Management Plan, Activity EN-1.1, calls for establishing an enforcement working group.

#### Genetic Materials

**Comment.** OHA is concerned about potential "bioprospecting" activities within the Monument and is also concerned about whether benefits derived from bioprospecting could be equitably distributed within the region.

**Response.** All Monument permits dealing with collecting samples or specimens specifically prohibit the sale of collected organisms. Bioprospecting is defined in the glossary as the "search for new chemicals,

Mr. Clyde Namu'o  
November 21, 2008  
Page 7 of 8

compounds, genes and their products in living things that will have some value to people." It inherently involves identifying biological resources with potential commercial value that may be developed into marketable commodities, such as pharmaceuticals, pesticides, and cosmetics. The special condition applied to these permits states that authorized activities must be used for noncommercial purposes not involving the use or sale of any organisms, by-product, or materials collected within the Monument for obtaining patent or intellectual property rights. Thus, bioprospecting for commercialization would not be permitted. Language was added in Section 3.4.1, Permitting Action Plan, in the Monument Management Plan to clarify this.

**Comment.** OHA also noted that on page 155 of the draft MMP there was a suggestion that the plan was proposing to hybridize locally endangered fauna with closely related species in order to save them.

**Response.** The MMP contains no proposals for hybridization of species to save them in the plan. The recovery action of establishing new colonies of three Nihoa Island endemics (*Amaranthus brownii*, *Schiedea verticillata*, and *Pritchardia remota*) would be evaluated with respect to the risk of any of those species hybridizing with related species on another island. Actions would be taken to prevent any risk of hybridization. The MMP has been amended to provide clarifying language in Activity TES-7.5.

#### Other Concerns

**Comment.** On page 63 of the DMMP, there is discussion of the effect increased carbon dioxide could have on "herbivores" that found within the Monument. OHA asks for a description of the herbivores that could be found within the Monument.

**Response.** In this sentence "herbivore" means any organism that consumes living plants (including limu) or their parts. That would include everything from zooplankton that eat phytoplankton to marine and terrestrial snails, to sea urchins, to algae eating fish, such as the yellow tang (lau-i-pala), to honu (green turtles) in the water and various insects and the Laysan finch and Nihoa finch on land.

**Comment.** OHA also questioned why the certain protocols regarding the introduction of invasive species to the Monument were not being applied on Midway and Tern islands.

**Response.** Protocols for preventing marine alien species are identical for all the sites in the Monument. The Monument Management Plan text did not accurately reflect protocols also being employed at Tern and Midway. The text in Section 1.4 has been modified to state, "To prevent further importation of invasive organisms, mandatory quarantine protocols are enforced for any visitors to the NWHI. At all of the islands and atolls, except Midway and Tern, these include requiring the use of brand new or island-specific gear at each site and treatments, such as cleaning, using insecticide, and freezing, to minimize the transport of potentially invasive species to the islands. Protocols at Midway and Tern Island are modified as necessary to accommodate the greater volumes of material coming in, but all possible procedures are still used to minimize additional introductions at these two sites."

**Comment.** On page 251 of the draft MMP, "business/industry" entities are listed as prospective users of the Monument. OHA has asked for a description of the kind of entity the draft MMP refers to.

**Response.** The language in 3.5.1 Agency Coordination Action Plan that specifically mentions business/industry entities is contained within a section that generally lists broad categories of constituents. At this time, the only business/industry constituents are those businesses that may bring visitors to and from Midway and that are involved in ongoing FWS operations and maintenance at Midway. However,

Mr. Clyde Namu'o  
November 21, 2008  
Page 8 of 8

in the future, there could be other business or industries related to communications and technology that could help the Monument managers bring the Monument to the people.

The DLNR again wishes to thank OHA for reviewing and commenting on the Papahānaumokuākea Marine National Monument draft Monument Management Plan and draft Environmental Assessment.

Sincerely,



LAURA H. THIELEN  
Chairperson

**NGO AND GENERAL PUBLIC COMMENT LETTERS**

**APPENDIX B**

---

---

**TO: U.S. Fish and Wildlife Service  
Papahānaumokuākea Marine National Monument  
Box 50167  
Honolulu, Hawai'i 96850**

**FROM: Dr. Fern P. Duvall II  
PO Box 330940  
Kahului, HI 96733-0940**

**RE: Comments to the draft Papahānaumokuākea Marine National Monument  
Management Plan (DMMP) and associated Environmental Assessment (EA)  
– presented at the Kahului Meeting**

Date: June 12, 2008

I present this tonight as a private citizen, some of these same comments may still come to you additionally through my agency, as I have worked for the State of Hawaii since 1984 as a Wildlife Biologist for the Department of Land and Natural Resources Division of Forestry and Wildlife.

I would like to generally congratulate you on a careful and expansive treatment of the myriad marine and terrestrial issues requiring management in the Papahānaumokuākea Marine National Monument (PMNM) in the DMMP and EA. If this document is truly treated as a functioning action plan, and funded and implemented as such, the Papahānaumokuākea National Monument will be well served and the ecosystem and wildlife resources should endure and prosper.

I have two main concerns. First, despite the size and inclusiveness of the documents (DMMP and EA) I believe still more attention to providing biosecurity, monitoring for biosecurity effectiveness, and planning for alien-species detection and rapid response to alien species incidents, will be necessary to protect the Papahānaumokuākea National Monument and needs to be addressed more explicitly. Second, restoring "ecosystem *function*" needs to be expanded upon and included as one of the foundation ideas for the Monument, this should include setting high priority on introductions and or re-introductions of native flora and fauna extirpated from the islands of the Monument. I provide more detail on these two issues below, the later one first.

**Restoring/approximating Ecosystem "Function" as a main concept for Monument management:**

In Vol. I, section 2.5, page 99, lines 7-11 add "and function" into the existing text as follows (IN CAPITAL LETTERS).

*"Development and implementation of threat reduction*

*protocols and monitoring are needed to protect, preserve, maintain and, where appropriate, restore natural communities, including habitats, populations, native species, and ecological processes, AND FUNCTION as a public trust for current and future generations"*

Reason: Flora, and Fauna Elements that are known to be missing from the islands of the monument, but still found elsewhere in Hawaii should be restored. If exact species restoration is not possible, then functional Hawaiian equivalents must be considered. This would be a basis allowing for, as examples, introduction of *Cenchrus agrimonioides* (Kumanomano) or *Acrocephalus familiaris kingi* (Nihoa Millerbird) to Laysan Island to restore or re-introduce "ecosystem functions" now lost due to extinctions of the Laysan Island Millerbird and Laysan Kumanomano counterparts.

This is to emphasize and underscore the importance of the Action Plans to Address Primary Needs of the Papahānaumokuākea National Monument, the Sections 3.2 and 3.3. On page 153 Section 3.2.1 Activity TES-6.2 proposes translocations for Nihoa Finch, Nihoa Millerbird, and Laysan Finch. This work is very important to fund and begin now, urgently moving birds to all appropriate Monument islands, and even Main Hawaiian Island sites, due to the expected changes in sea level in the near future. Morin and Conant (1998 and 2007) reported on translocation strategy, biosecurity, and restoration needs, for Laysan and all Islands respectively, to the USFWS – these reports need to be incorporated fully into the PMMP, and be adequately funded and executed.

**Biosecurity and Alien Species issues:**

Page 194 and following, Section 3.3.2 **Alien Species Action Plan and Activities AS-1 to AS-10.**

I fully commend the DMMP on the thoroughness of the extremely important and sensitive issues incorporated in alien species treatment. I nevertheless feel that for each activity and alien taxa that appropriate rapid-response planning must be more fully explored, formalized and funded. Active alien species surveillance, with adequate funding to assure necessary equipment and readiness of trained staffing for rapid-response to future new incursions, is paramount to maintaining the integrity and biodiversity of the Monument. To help guarantee success, there needs to be a well out-fitted and equipped Papahānaumokuākea National Monument alien-species rapid-response team, functioning much on the same level with as much sophistication as the Brown Tree Snake Response Team does for the snake, or Oil-Spill Response Workers for oil-spill incidents.

In the section **Activity AS-1.1: Complete an Integrated Alien Species Management plan** it is paramount to have "An Integrated Alien Species Management Plan for the Monument" however, for some invasions a time limit of 2 years to process pesticide use proposals and Section 7 consultations will be too late to begin acting. Provision for Pre-emptive Pesticide Use proposals and Section 7 consultations for 'likely scenarios and circumstances' should be added into the Management Plan needs, and completed, then shelved until actively needed.

Finally, I find it incredible that the more than 700 page State of Hawaii Comprehensive Wildlife Conservation Strategy (2005) was not reviewed or utilized in the DMMP or EA development. It has many items that need to be incorporated and rectified in the DMMP and EA – so many of the same species, and species issues, etc., etc., are specifically identified and treated in the CWCS.

To whom it may concern,

With regards to the caretaking of the monument, please remember that management is nothing without checks and enforcement! Don't let boats discharge harmful waste into the monument. We care about our islands! Preserve them!

Katelin Shugart-Schmidt  
Honolulu, Hawaii

BY AIR MAIL 54  
Post Office  
Royal Mail

00021  
US Fish and Wildlife Service  
Papahānaumokuākea  
Marine National Monument  
Prince Kuhio Federal Building  
300 Ala Moana,  
Room 5-231, Honolulu  
Hawaii, USA

Printed in England © SA 000001 ID: SPV00001S, N001 TEL: 012493 020002

2-35-07-01

RECEIVED  
JUN 1 2008  
012493 020002

00030

June 18, 2008

please make a trip to the the  
Island to Visited & Educate all  
the Kupuna

Mahalo nui,  
Jennad W. K. Reeves  
P.O. Bx 844  
Kailua - Kona, HI 96745  
Ph. 998-7699 cell

June 23, 2008

00047

Submitted by David H. Leopold RN, BSN  
Kauai Monk Seal Conservation Hui  
Volunteer and Educator

Mahalo for the opportunity to comment on the Draft Management Plan for the Papahānaumokuākea Marine Monument.

I feel that the public plays an important role in the management of Hawaii's public trust resources, therefore I support more direct public involvement in decisions about the Monument. Please establish a Monument Advisory Council with the authority to oversee and advise all three Co-Trustees and with the same strict conflict-of-interest requirements that made the original Reserve Advisory Council so successful. Please also include two public seats on the currently closed Monument Management Board.

Hawaii's visionary Northwestern Hawaiian Islands Marine Refuge is an equal partner in the co-management of the Monument, yet is not mentioned in the action plans for the Monument. Please remedy this including specific references to the "do no harm" standard, permit requirements, and enforcement policies of the state refuge.

This draft management plan must do more to empower Native Hawaiian decision-making about this culturally significant region. Native Hawaiian traditional practice and knowledge must be integrated into the management framework on equally footing as ecological and conservation considerations. This includes a commitment to fully fund the participation of Native Hawaiian cultural practitioners in decision-making and requiring permit review by the Native Hawaiian Cultural Working Group.

I also feel strongly that human activity is the great threat - and the greatest hope - for the Monument. That is why I support strictly limiting human activity in the Monument. Please establish a numerical carrying capacity for the region based on the Precautionary Principle and immediately conduct a cumulative assessment of the risks and impacts of human activity in the Monument. Please also implement the spirit and the letter of all federal and state regulations to ensure the utmost protection for the region, including mitigation for all military activities affecting the Monument.

Mahalo for your consideration and effort to improve this management plan.

#### 1. KEEP THE PEOPLE IN THE PROCESS:

Management of the Monument is not open to the public. Currently, all management decisions are made by a Monument Management Board (MMB), which is made up of 7 state and federal agency-representatives. These meetings are not open to the public at all, yet all management decisions - including the granting of permits - are made at these closed meetings.

Because the MMB is making decisions about the future our public trust resources, all of their meetings should be open to the public. Public meetings are one of the best ways to ensure government agencies remain accountable to the public they serve.

**The Co-Trustees should open all Monument Management Board meetings to the public.**

### **The Current Permitting System Is Flawed:**

The only public oversight of permit applications is through the state Board of Land and Natural Resources, which gives the public 6-days' notice of upcoming permit applications. The BLNR appears to only rubberstamp permit applications, refusing to deny, modify, or even condition extremely egregious requests to access the most-delicate state waters.

Despite promises from Co-Trustees that the permitting system would be improved through the management plan, the DMMP does nothing to correct the flawed permitting system. Permits are still approved first at a closed meeting of the MMB and then rubberstamped six days later at hearing by the BLNR.

**The final management plan for the Monument must provide for meaningful public comment on all permits to access the public trust resources of Papahānumoʻokaa.**

### **Citizen's Advisory Council:**

The DMMP fails to establish a citizen-based advisory council for the Monument similar to the current Advisory Council that oversees NOAA's management of the Coral Reef Ecosystem Reserve. The current Reserve Advisory Council (RAC) directed the Monument Co-Trustees in June 2007 to begin the process for establishing a Monument Advisory Council. The Co-Trustees did not do that. Instead the DMMP suggests establishing a "Friends of the Monument" organization and/or a "Monument Alliance" of groups and individuals interested in the Monument. Unfortunately, these groups do not have the regulatory authority or responsibility to oversee and provide advice on the management of the Monument and such as cannot adequately take the place of a citizen-based advisory council.

Active, direct citizen involvement in management decisions is the hallmark of protections of the Northwestern Hawaiian Islands.

**The final management plan for the Monument must include a Citizen's Advisory Council, complete with the authority to oversee and advise all management activities and the same conflict of interest requirements of the current RAC.**

## **2. RESPECT THE REFUGE:**

The State of Hawaii led the way towards the designation of this Monument by establishing the visionary NWHI State Marine Refuge. This Refuge is the largest "do no harm" area in all of Hawaii and it specifically protects Native Hawaiian cultural access rights, prohibits commercial extraction - like fishing - and allows only appropriate scientific research. It enforces these standards through a one-strike rule that bars future permits to any applicant that has violated a past permit.

Although the State of Hawaii is an equal partner in the management of the Monument, as outlined in the Memorandum of Agreement between the three Co-Trustees, the DMMP barely acknowledges the State Refuge in the 22 action plans to manage the Monument. If the State

Refuge is not only fully integrated in the management of the Monument, then it will ultimately become an after-thought of forgotten protections with no funding or administrative support.

**The Management of the Monument must fully implement the permit requirements, penalty structure, and prohibitions against sustenance fishing and waste dumping.**

## **3. PERPETUATE NATIVE HAWAIIAN CULTURE:**

Since the designation of the Monument, the Native Hawaiian community has not been directly involved in the management of the Monument. The Native Hawaiian Cultural Working Group has not yet been convened to participate in the development of the DMMP. Neither the Native Hawaiian Cultural Working Group or the Office of Hawaiian Affairs were consulted about the serious, foreseeable risks of the Navy's proposed ballistic missile tests directly over the sacred island of Nihoa.

The vision statement for the Monument in the DMMP must integrate perpetuation of Hawaiian cultural practice on equal ground as wildlife protection. The significance of the Northwestern Hawaiian Islands to Native Hawaiian cultural practice and history is part of the foundation of the overwhelming public support for protect this immensely important region.

**The final management plan for the Monument must have a vision statement that equally embraces the cultural and ecological significance of the region, such as: "that the health, diversity and resources of the vast NWHI - its unique wildlife and cultural significance - be protected forever."**

## **4. MANAGE FOR CONSERVATION, NOT INCREASED, HARMFUL USE:**

The public continues to overwhelmingly support setting aside Papahānumoʻokaa as a sacred place not to be exploited for any reason. Yet, we see little commitment to that goal in the DMMP, which advocates for increased research activity, increased tourism, construction on several islands, deferment of the U.S. Fish & Wildlife Service's "Wilderness Stewardship" responsibilities, and increased military activity, with no commitment to clean up legacy military contamination sites, conduct a cumulative impact and risk assessment, or establish a numerical carrying capacity.

This is not implementing the strongest possible protections for the Northwestern Hawaiian Islands.

**To manage for conservation, the Co-Trustees must:**

- employ the precautionary principle to first establish a conservative, numerically-based carrying capacity for human activity in the Monument. This will set a protective limit on all human activity in this delicate area, including military exercises, research, and tourism. There must be a cap on the number of people that can enter the Monument, especially the number day-visitors to Midway.

- conduct a comprehensive assessment of the risk and cumulative impact of past and proposed human activity in the Monument. This will require the Co-Trustees to prioritize who is allowed to enter this fragile area and for what reasons. This is especially important for research activities in the NWHI, which should only be allowed if they further a specific management goal and can



demonstrate no harm to any Monument resources. Papahānaumokuākea is not a "natural laboratory," as the DMMP describes it. It is a place of refuge, where no human activity should be allowed unless absolutely necessary.

- fully implement the purpose and spirit of the Proclamation designating the Monument and the regulations establishing the State Refuge by dissuading sustenance fishing by researchers and vessel crew. Sustenance fishing is not allowed in the state waters of the Northwestern Hawaiian Islands and should not be permitted in the federal waters. Yet, right now, federal Co-Trustees grant permission for vessel crew and researchers to fish for their own consumption while in federal waters. There are no apparent checks on this practice: no fishing reports or gear restrictions. In fact, we continue to get reports of "coolers upon coolers" of fish from Northwestern Hawaiian Islands being brought back to Honolulu. This practice is unacceptable and should be stopped.

- must impose mitigations on all proposed military activities possibly affecting the region. Monument regulations require the armed forces to minimize and mitigate activities that could harm Monument resources. Yet, right now, the U.S. Navy is proposing ballistic missile tests with chemical agents over the Northwestern Hawaiian Islands, experiments with hypersonic weapons and vehicles, exercises with high-intensity active sonar, and significant increases in marine debris all near the Monument with absolutely no mitigations.

I sincerely hope that the above concerns will be positively addressed in the final MMP. This fragile area deserves the highest level of protection with as little human presence as possible. The public must not be excluded from the management process.

Mahalo,



David H. Leopold RN, BSN  
Kauai Monk Seal Conservation Hui  
Volunteer and Educator  
monachus@hawaiiintel.net

PO Box 790  
Waimea, HI. 96796-0790  
H: 808-335-8505  
C: 808-651-6309

00065

TO : THE U.S. FISH AND WILDLIFE SERVICE  
300 Ala Moana Blvd.  
Room 5 - 311 , Box 50187  
Honolulu , Hawaii 96850

FROM : MANINI , MEMBER LAHUI , KANAKA  
P.O. BOX 911  
Waimea , HI. 96796

Phone: (808) 338 - 1538

Dated : June 23, 2008

PUBLIC HEARING ON DRAFT PLAN  
at Kauai Beach Resort, for the general Public.

DECLARATION IN LIEU OF AFFIDAVIT SUPPORTING OBJECTION,  
to DRAFT PLAN and reasons stated herein.

1. Wherefore , by the Statutes at Large from the 60th Congress of the United States of America in regards to Proclamations concerning Public lands , dated January 24 1791 to March 19, 1936, listed in the LAW LIBRARY of CONGRESS , Proclamation , 1908 page 2209 approved July 7 , 1898 in pertinent parts .

2. AND WHEREAS , it was further provided in said resolution that the existing laws of the United States relative to Public Lands shall not apply to such lands in the Hawaiian Islands.

3. Therefore, as Mandated by Federal Law , theirs no Public Lands in these islands , and therefore the Public has no jurisdiction or input to the use or sale of these Private Lands that belong under the jurisdiction of the Lahui , Kanaka by instrument of claim in the 200 E.C. migration by their Sovereign POC, AU FUNI of the Lahui Kanaka or Kanaka Nation .

1.

4. The first island, discovered by AU FUNI , sovereign POO, of the Lahui Kanaka in their 200 B.C. migration to moana pakipika. Mokupuni o Necker , the Mysterious Island Shrine, our land marked island Commencing the discovery of the Archipelago of Mokupuni moana pakipika by this instrument reserving the discovery rights of claim in 200 B.C. and inhabited by the first migration of the sovereign POO, KANAKA CHIEF AU FUNI of the LAHUI KANAKA a KANAKA NATION , of this earth.

5. It seemed incredible that the KANAKA GROUP of people could have existed here for a lenth of time , but the evidenced of them and their work is all over the island.

They built terraces , not thoes carved out by nature but seme thirty four large paved platforms or pa hale's , house lots the work of man's hands , nothing like them to be found today in the main islands of the Archipelago of Mokupuni , moana pakipika .

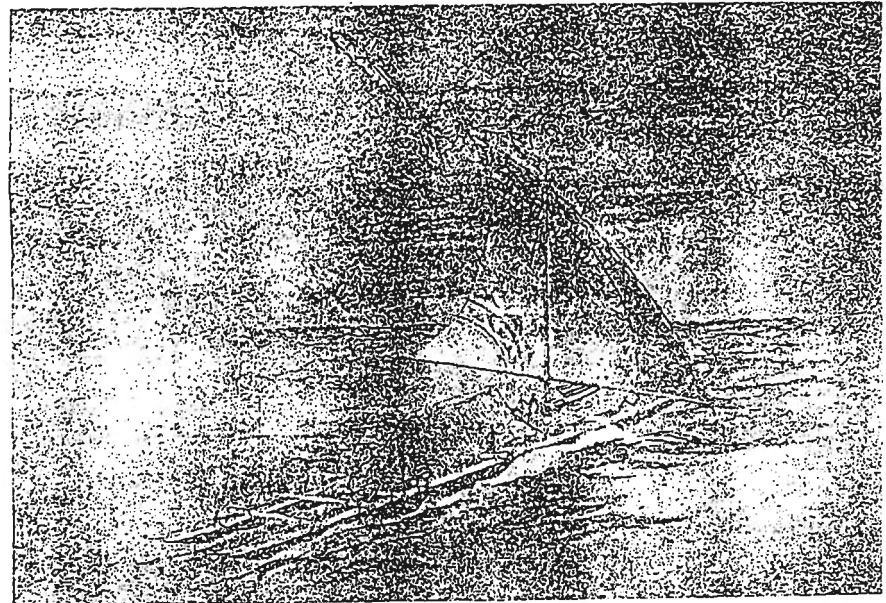
6. They also were the artifacts beautiful bowls laboriously hallowed , stone adzes , sinkers , a stone awl , a hammer stone a grindstone and HUMAN BONES all thoes evidenced of a settlement of KANAKA people , very like the natives of mokupuni o Hawaiki that migrated in 64 B.C. abt. 150 years after the KANAKA MIGRATION that call them selves Hawaiian's after Hawailloa, migrator of the 64 B.C. migration .

7. NECKER ISLAND , was preserved by its inaccessibility and obscuridy a pure sample of the culture which existed in the islands of the Archipelago of Mokupuni in 200 B.C. and still exist .

2.

8. The Olelo of AU FUNI , evidence of survey of the Natural surveyed lands of the Archipelago of Mokupuni abt., 200 B.C. migration from Zarahemla to moana pakipika , AU FUNI his origin as documented in KA BUKE MUA A NEPAI as son of NEPAI , mokuna 6 page 43 vs 6 ( e na mokupuni a e hoolche hoi okou na Lahui Kanaka ) this migration was from South Zarahemla alias South America to the Archipelago of Mokupuni moana pakipika abt 200 B.C. by Canoe .

*Migration period , abt. 200 B.C.*



*Au Puni , Sovereign Poo, Lahui Kanaka Native canoe of the Migration period , abt. 200 B.C. to Archipelago of Mokupuni , Moana Pakipika, by instrument reserving the discovery rights of claim to the lands .*

3.

9. Commencing upon the sea north east at mokupuni o Necker moana pakipika thence south west to mokupuni o Tuvalu to a point 144 degrees longitude by 8 degrees latitude thence south east to mokupuni o Samoa to a point 100 degrees longitude by 15 degrees latitude thence south west to mokupuni o Aotearoa to a point 135 degrees longitude by 50 degrees latitude thence south east to mokupuni o Rapanui to a point 50 degrees longitude by 28 degrees latitude thence north east to mokupuni o Hawaiki to a point 180 degrees longitude by 27 degrees latitude thence south west to the point of Commencement at mokupuni o Necker Comprising an area called the Archipelago of Mokupuni, moana pakipika by this quitclaim instrument reserving the discovery rights of claim in 200 B.C. to the lands and waters within the riparian surveyed boundaries of AU FUNI, Sovereign POO, of the Lahui Kanaka, a migration from Zarahema to the Archipelago of Mokupuni, moana pakipika, containing a covenant of Warranty. ( Surveyed by the Lahui Kanaka in 200 B.C. )

4.

10. WHEREAS, according to this instrument of AU FUNI Sovereign Poo, of the Lahui Kanaka a Deed reserving the discovery rights of claim in 200 B.C. to the lands and waters within the riparian surveyed boundaries of the Archipelago of Mokupuni, Moana pakipika.

According to history, Kamehameha of the Hawaiian Kingdom and it's people did not conquer nor overthrow the Sovereignty of the Lahui Kanaka alias Kanaka Nation of the Archipelago of Mokupuni, Moana Pakipika with AU FUNI as the Sovereign Poo, of which the Hawaiian Kingdom claims to be a portion off.

Therefore, according to international law, conquest is defined by Bouvier's Law Dictionary 1914 edition, as the taking of the sovereignty of a nation by force of arms, exercised by an independent power which reduces the vanquished to a submission of the independent power's empire.

for further insight into understanding what constitutes a conquest, look to the definition of the following words .

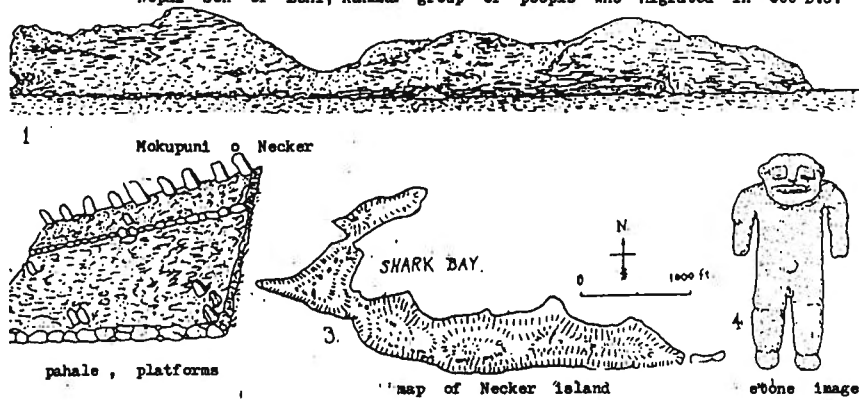
Independent power, the right, ability, or faculty which is not subject to control, restriction, modification or limitation from any given outside source.

In view of the afore mentioned, one could conclude that it takes an unconquered nation to conquer another nation, remember Kamehameha was not a nation, nor did he control and empire.

Furthermore, Kamehameha did not conquer the Sovereign Poo, AU FUNI of the Lahui Kanaka alias Kanaka Nation and it's people, Kamehameha, was merely acting in his own self-interest with no power no authority and no jurisdiction of sovereignty to constitute and overthrow or conquest, therefore any and all properties claimed to be acquired through Kamehameha as his private lands within the Archipelago of Mokupuni, Moana Pakipika is null and void for his claimed estate does not legally exist within the sovereign surveyed boundaries of the Archipelago of Mokupuni Moana Pakipika alias Polynesia since 200 B.C.

5.

11. Mokupuni o Necker our land marked monument boundary used to survey the Archipelago of Mokupuni a mysterious shrine of of the first migration marked by the Lahui Kanaka in 200 B.C. an island marked to last forever with artifacts, 3/4 pa hale's, and Human bones as evidenced of once been inhabited in the first migration of 200 B.C. by AU FUNI . sovereign POC, the Son of Nepai son of Lehi, Kanaka group of people who Migrated in 600 B.C.



The island monument is abt, 1,300 yards long by 200 yards wide and 275 feet above water, it is the summit of a huge, submerged volcanic peak two tiny seeps of water were the onlsource of that life-giving liquid.

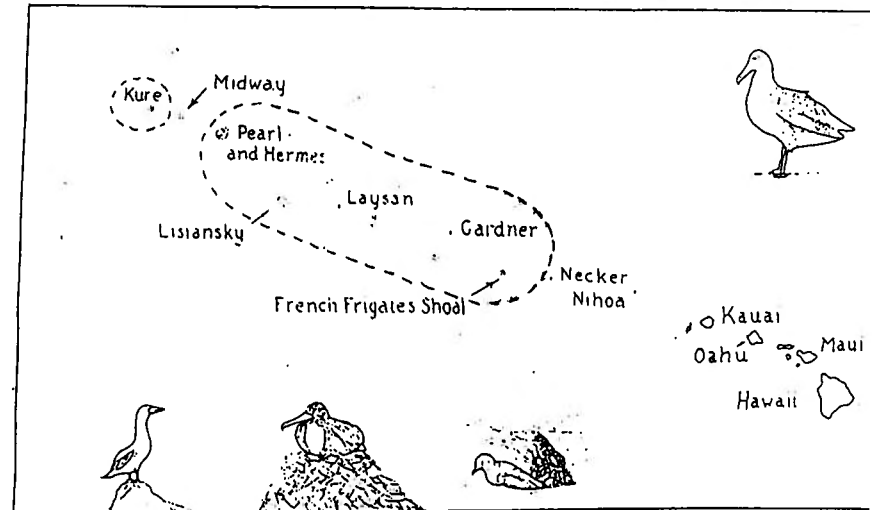
(see: KA BUKE MUA O NEPAI , mokuna (1) , page 21 vs 32 , mokuna 6 vs 6 KA BUKE A MCSIA , mokuna 11 , vs 10 )

MANINI, will be willing to match his DNA with the DNA of the bones on Necker island to prove that we are of the same family unit

6.

12. The monk seal, lives in there own habitat a natural place for the life and growth of an animal, known as French Frigates Shoal of which Laysan island is a portion off, they are many birds and turtles that live with them, a Non-migratory seal

The monk Seal has never been known to live on Necker or Nihoa Islands they love to live in their own Habitat unless someone moves them to another island without a Shoal to live unhappy



The Monachus Seal known as the Monk Seal, by change of name through the U.S. Fish and Game Division: is called the Hawaiian Seal a Seal that has never lived in the Archipelago of Mokupuni alias Polynesian Triangle of the Pacific Ocean .

The U.S. Division of fish and Game, should be keeping Hunters and fisherman away from this marked area the Natural Habitat of the Monk Seal, the Turtles and the Birde that live there

This Book written in 1938 by Spencer Wilkie Tinker, University of Hawaii page 92 - a result of this expedition, a few survived, and thoes survivors have now multiplied sufficiently so that there is no longer any danger of this unusual animal ever becoming extinct .

Today they are well protected from hunters by the United States Government , today means 1938 expedition visted the monk Seal. on Laysan Island at French Frigates Shoal .

7.

13. The Lahui Kanaka Objects to the U. S. Fish and Wildlife Service to be in their jurisdiction , French Frigates Shoal is a long way of, but close to Midway Island where they were planned to be posted., to protect the Monk Seal on Laysan Island . from Hunters and Fisherman also to protect the Birds and the Turtles. this area is about 300 or more miles away from their work living on Oahu Island .

I, JOSEPH MANINI , declare under penalty of law that the foregoing is true and correct .

Dated: Lihue , Kauai, Hawaii June 23, 2008

  
MANINI J. PARTITIONER MEMBER LAHUI KANAKA

US Fish and Wildlife Service  
Papahānaumokuākea Marine National Monument  
P.O. Box 50167  
Honolulu, HI 96850

00083

June 29, 2008

Aloha,

Papahānaumokuākea Marine National Monument is a heartening advance by our country in protecting extensive marine and island ecosystems and resources.

My input on the management plan for Papahānaumokuākea Marine National Monument is that all land and ocean components should be managed for the benefit of native species of sea and bird life as well as other natural resources such as geological formations. As rising ocean levels is reducing land areas of the islands, management should include cooperating with international efforts to reduce global warming.

Non-native problem species (such as rodents, non-native plants) should be slated for removal throughout the archipelago. Great care should be instituted to prevent introduction of non-native organisms, especially to the more pristine islands.


Commercial and military operations, including fishing, tourism and mining, that interfere with the long-term health of the ecosystems and natural resources of the reserve should not be permitted.

Cruise ships should only be permitted in the vicinity of Midway and only with the strictest regulation of discharge of wastes and other activities deleterious to native ecosystems.

Visiting this precious area can be sustained with care. Virtual tours and webcams (with sound) can offer millions the opportunity to learn about, love and support the protection of the archipelago. Physical visits should be limited to Midway where the price tag should include a contribution towards neutralizing the visitors' impacts and carbon footprints.

Careful and (ideally) sustainable ecotourism opportunities can resume at Midway using existing infrastructure, upgraded as needed. To minimize impacts, regulations to prevent introduction of pest species should be in place. All food and other rubbish should be removed by tour operators. Energy (for lighting, etc) should be generated using solar, wind or other non-polluting means. Timing of flights should be coordinated with nesting patterns of birds. All tourism, virtual and physical, should include an extensive educational aspect to build understanding and support for protected places and native species.

Mahalo,



Ruth Levin  
P.O. 1118  
Volcano, HI 96785



Association of Hawaiian Civic Clubs  
P. O. Box 1135  
Honolulu, Hawai'i 96807

**TESTIMONY ON THE DRAFT  
PAPAHANUMOKUAKEA MARINE NATIONAL MONUMENT  
MANAGEMENT PLAN  
July 4, 2008**

U.S. Fish and Wildlife Service  
Papahānumokuākea Marine National Monument  
Box 50167  
Honolulu, Hawai'i 96850  
e-mail: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

The Association of Hawaiian Civic Clubs is a growing national confederation of fifty-three Hawaiian Civic Clubs, located throughout the State of Hawai'i and in the States of Alaska, California, Colorado, Illinois, Nevada, Utah, Virginia and Washington State. It initiates and works to support actions that enhance the civic, economic, educational, health and social welfare of our communities, and in particular, the culture and welfare of the Native Hawaiian community.

At its annual conventions held in 2001 and 2003, the Association passed two resolutions supporting the protection of the Northwestern Hawaiian Islands, which subsequently led to the Northwestern Hawaiian Islands Marine National Monument, renamed the Papahānumokuākea Marine National Monument on March 2, 2007.

Association members have agreed that protection of the Northwestern Hawaiian Islands archipelagoes is in harmony with the cultural purposes set at our founding in 1918, as well as the objectives within our more contemporary organizational documents. As a native people, we are bound to preserve and protect the rich history and cultural heritage of our ancestors.

As a means of expression, the membership convenes annually and a significant portion of business is dedicated to introduction and deliberation on issues of concern to us as Hawaiians. From the deliberations in 2001, and again in 2003, came resolutions to:

"...advocate for a true Pu'uhonua in the Northwest Hawaiian Islands through U.S. Congressional action that permanently and completely prohibits all commercial activities and protects Native Hawaiian cultural, religious and subsistence practices, and allows only appropriate scientific and educational access to the NWHI archipelagoes that would only benefit the cultural and ecological resources..."

Additionally, in 2004 the Association adopted the Paoakalani Declaration, and sections are quoted here to support the Association's concept of a NWHI Pu'uhonua:

"Throughout the Pacific Basin and Ka Pae 'Aina Hawaii, the territories, lands, submerged lands, marine resources and seas of our peoples are being subjected to commercial exploitation. This exploitation is perpetuated by state and national governments, international agencies, private corporations, academic institutions and associated research corporations..."

The lands, submerged land, waters, oceans, airspace, territories, natural resources of Ka Pae 'Aina Hawaii and associated Kanaka Maoli traditional knowledge are, by our inherent birth right, the kuleana and property of Kanaka Maoli and the inheritance of future generation of our peoples. As such, the standards and criteria for consumption, development and utilization of these resources shall be there for Kanaka Maoli to promote our culture through principles of pono, aloha 'aina and malama 'aina."

The Association of Hawaiian Civic Clubs, therefore, holds to the positions taken by its membership to protect and preserve the Northwestern Hawaiian Islands as a true Pu'uhonua. We ask that provisions of the proposed management plan be in concert with this position.

Me kealoha pumehana

/s/ Leimomi Khan  
by e-mail

LEIMOMI KHAN  
Pelekikena



"Ruth Limtiaco"  
 <ruthl@thelimitiaco.com  
 pany.com>

07/07/2008 01:21 PM

To: <PMNM\_MMP\_Comments@fws.gov>  
 cc:  
 Subject: Comments on Papahānaumokuākea

00095

Comments on the Papahānaumokuākea Management Plan are attached and also pasted in below.



**U.S. Fish and Wildlife Service  
 Papahānaumokuākea Marine National Monument  
 Box 50167  
 Honolulu, Hawai'i 96850**

**July 7, 2008**

These comments are respectfully submitted after a review of the Visitor Services Plan portion of the Draft Monument Management Plan for Papahānaumokuākea National Marine Monument.

It is evident that enormous thought and energy went into the preparation of this plan; and I humbly submit my thoughts as a relative newcomer to the contents of the plan. Understanding that I lack the many years of preparation leading to the designation of the monument and the organization of the current visitor program, I am hopeful that some of my thoughts may be of use.

I read the plan as one who has been involved in the promotion of tourism to tiny, fragile island communities in the Pacific for many years. We were the first firm hired to promote the Republic of Palau to the North American market; and did so for over ten years. We also represented the island states of Yap and Kosrae and opened the Outrigger Hotel in the Marshall Islands. This is the perspective I found useful as I read the Visitor Services Plan.

**Pricing:**

I saw first hand what happened in Palau when budget trips proliferated and subverted the efforts to keep the islands a rare, first class experience. Of course, Midway is not in a "budget" category; but it appears that the price of a trip to Midway is calculated based on actual hard costs, rather than on the exclusivity of the experience.

While there is a delicate balance between over-pricing that drives down sales and a reasonable return that sustains steady sales, I believe that the pricing of the Midway trip is likely to lead to an unsustainable market. Section 4.13 on "Fee Programs" emphasizes "reasonable fees." This reflects a "cost-covering" approach as opposed to a managed image approach. Fees should be used not just to offset costs but managed in order 1) to establish a perceived high value for the product and 2) to support other costs, including subsidized travel for educators, cultural practitioners and others.

Pricing must be high enough so that the revenue not only covers costs and allows for a profit but also covers other expenses that are required to keep Midway functioning. There are hidden costs, such as the importation of food and fuel, trail clearing, invasive species removal, and general maintenance that should be borne by visiting tourists. Page 22 of the Visitor Services Plan makes reference to the high cost of maintaining Midway's visitor facilities and indicates that visitors will pay for a portion of these while "FWS will (also) work with its other partners on Midway to seek funding for island infrastructure maintenance and repair." In any resort, all such costs are covered by the visiting tourists.

The element that keeps the price tag high for a Midway trip is the airfare. All other components seem to be extremely low. Daily cost is only \$260, including \$45 for food, which is only \$15 per meal. While the feasibility study conducted by Pandion Systems assessed the Midway fees as "reasonable for the experience offered," I believe that thought should be given to creating a perceived value for the experience that allows a higher price tag—one that will include an amount to be set aside into a fund to subsidize travel for teachers and cultural practitioners.

**Product Development—how to create higher perceived value:**

In order to increase the price for the land-only components of the Midway trip, it is necessary to create a higher perceived value. This might be done by enhancing the product in ways that would allow marketing to a higher end visitor. For example, well-known guest lecturers, such as Dr. Sylvia Earle or Jean Michelle Cousteau, might be invited to join the group for an evening lecture. An eminent scientist or nature photographer, such as Susan Middleton, might be invited. Kayaking trips (mentioned in the plan) led by noted naturalists would be a great addition that would be a low-impact activity.

I would also recommend utilizing a more well-known tour operator. For example, if this were a National Geographic Expeditions trip, it would immediately place this trip in front of a much larger market, most of whom are accustomed to paying top prices for trips with National Geographic experts.

I noted that Oceanic Society does not offer a wide assortment of photos to give the traveler an idea of the type of accommodations, food and airline service they can expect. They also do not offer a single supplement option—which implies singles must "bunk" with a stranger. Also, there is very little idea of what specific activities will be offered during the stay. The general impression is that this company is for the avid eco-traveler who is budget-oriented. Compare their web site to that of National Geographic—or Mountain Travel Sobek—or Linblad Expeditions.



One of the most lucrative markets to tap is scuba diving. It is the North American dive market that continually brings a high-paying, enthusiastic and environmentally aware customer to Micronesia. Getting this activity set up sooner rather than later will offer huge potential. Divers crave the opportunity to visit an “undiscovered” site. The opening of Bikini Atoll recently created a frenzy among divers at top dollars. (A recompression chamber is a requirement; I did not notice this mentioned in the plan when scuba diving was discussed.) One item to consider: Live-aboards—popular in Micronesia—do not contribute to the local economy, while enjoying the plentitude of the reefs. If live-aboards are permitted, it should be at an extremely high fee that mirrors the daily costs of a land-based visitor and contributes to the general maintenance of the island.

Small things might be done to enhance the experience aboard the aircraft (type of food served—promoting the affable pilots; chance to view the cockpit, etc.); and in the guest rooms (gift of The Archipelago, nightly creative turn-down treat, etc.). Ensure that interpretive signage and printed collateral are of the highest quality. Even though these increase your costs, the combination of a number of these enhancements can create a product that can be packaged at a higher rate.

**Positioning:**

After fine-tuning the product, an elite positioning should be executed for Midway. Publicity efforts should be strategic and limited to the top travel publications specializing in exclusive trips—such as Travel & Leisure, Conde Nast Traveler, National Geographic Traveler, and the like. Niche markets such as avid birders, and adventure travel groups comprising university alumni would be excellent targets. Midway should not be marketed as budget travel (which is currently occurring, as the only high-tag item in the trip is the airfare). The goal is to seek a higher-paying traveler whose trip cost will subsidize the trips of those who cannot otherwise afford to see Midway.

**Other Revenue Opportunities:**

Section 4/14 on “Permitting” states that permits for enterprises that wish to offer fee-for-service visitor opportunities, may include “profit-sharing agreements.” I believe this is a good idea; though I would not refer to it as profit-sharing. A “percentage of sales” may be a better term.

Respectfully submitted,

Ruth Limtiaco  
The Limtiaco Company  
928 Nu’uanu Avenue, Suite 400  
Honolulu HI 96817  
808-535-9099

**Ruth Limtiaco**

Chief Executive Officer | The Limtiaco Company  
928 Nu’uanu Ave., Suite 400, Honolulu HI 96817  
www.TheLimtiacoCompany.com

Office: 808.535.9099 ext 101 | fax: 808.535-9091  
E-mail: RuthL@TheLimtiacoCompany.com



Comments to Fish & Wildlife.doc

**Elizabeth Anne Freeman**

July 5, 2008

**Papahānaumokuākea Marine National Monument Draft Management Plan**

**PUBLIC COMMENT:**

Aloha,

Thank you for the opportunity to comment on your Draft Management Plan. I am excited to be able to do so as I have had the pleasure of visiting Midway Atoll twice – once in the 90's when flights had just opened up from Kauai and again in May 2008 with the Oceanic Society. I am not affiliated with any organization. I visited as a member of the public, a resident of Kauai who was interested in the Northern part of the Archipelago. I feel that I am in a unique position to share some thoughts on the Draft Plan.

**Supervised groups vs. coming on your own:**

On my first trip to Midway in the 90's I went simply as a visitor – not with any group. I was moved by the beauty of the Atoll and the vast number of birds. I tagged along with some of the "birders" visiting with an Oceanic Society Expedition but was otherwise on my own. I don't recommend this for your future visitors. I read in your Plan that you are considering allowing some people to come without being part of an organized educational group like OSE. I think this is a bad idea.

The recent trip with Oceanic Society was a million times more rewarding than my first visit. Their naturalist Wayne Sentman, along with FWS Ranger Murray Shoemaker and Biologist John Klavitter did an excellent job of educating and guiding our group of 13 visitors. Our weeklong schedule included fascinating lectures at the FWS Visitor Center and in the field, a visit to Eastern Island, visits to Rusty Bucket, Bulky Dump, snorkeling at the Cargo Pier and the Emergent Reef, a "bolus" dissection, walks around the Harbor and Cross Point as well as visits to WW2 points of interest. On these outings tons of valuable wildlife information, history, culture, goals and visions for the future were shared. Even with this schedule I still had plenty of time to relax and explore on my own. Also, because the group was small there was a chance for interaction with other folks while eating at the Clipper House. I learned a lot from FWS Invasive Species Specialist Pete Leary and I

loved spending a morning helping to pull out Verbesina. In short it was truly a rich and rewarding experience – "day and night" from my first visit. If you want folks to come away and be real advocates for the National Marine Monument have them come with small groups organized and overseen by a naturalist and FWS Ranger.

**Number of visitors allowed: 24-28**

I'd also like to offer a comment on the amount of visitors you allow on island. I read that you are suggesting 50 visitors. From my experience that's too much. Maybe 24-28. For our group of 13 we had the OSE naturalist as well as the FWS Ranger. This is the perfect ratio so that folks don't inadvertently do damage to the wildlife. With only 13 visitors both of our "chaperones" were able to make sure no one was backing up onto a tiny Tern egg over on Easter Island or walking on Petrel burrows, or kicking a coral head when snorkeling. This is the right ratio: two to 13-14. Also when the group is smaller people get a chance to get to know the other visitors. From my first visit to Midway in which there seemed to be dozens of more people eating in the Mess Hall and roaming around, more is not better. Have a smaller group and have them pay a little more to visit. By charging more you could hopefully help to underwrite the costs of those who can't pay like visiting school groups.

If you have a large group of WW2 vets, that's another story but 100 folks from a Cruise Ship is out of the question. I will comment on Cruise Ships separately

**Allowing Cruise Ships: NOT ON YOUR LIFE**

Oceanic Society took great pains to educate us prior to the visit about how fragile the ecosystem is at Midway. Not only were we asked to launder all our clothes, but also wash and scrub our gear, our shoes and even the shoelaces. I was happy to do so. I did not want to bring any invasive species to Midway!

With the mindset of the fragility of the environment at Midway and awareness of the harm that has been done by humans in the past. it was with utter incredulity that I read you are considering allowing Cruise ships – up to 3 a year. This is absolutely and totally out of the question!!! I am being asked to wash my shoelaces and yet you are allowing one of the most polluting vessels in the world to visit Midway. I was in a state of shock. This sends completely the wrong message. Cruise ships are huge polluters...even

if they aren't dumping waste in the Monument, the fact that they do it at all is disgusting. Even on Kauai residents of Nawiliwili Harbor complain bitterly about how their community has been degraded since the arrival of Cruise Ships. The fuel smell alone is noxious.

Please don't show visitors the Bic lighters and toothbrushes and plastic debris in the bolus of an albatross chick and then think its OK to allow a visit by the kind of vessel that is contributing to the immensely vast floating island of plastic and marine debris in the North Pacific Gyre. I am including the page from Wikipedia on the Great Pacific Garbage Patch. One of their sources indicated that 20% of the debris comes from ships at sea and their section on impacts on wildlife notes the impacts to Laysan Albatross, Black Albatross and sea turtles.

Beyond the wastewater and garbage that is dumped from these ships, accidents do happen...your Plan notes that in 1998 the Paradise Queen ran aground at Kure Atoll dumping 11,000 gallons of diesel fuel, and 500 gallons of hydraulic fuel and oils. Human or other type of error could lead to a Cruise ship tragedy at Midway.

The 100 people you would allow to come off the Cruise Ship can easily find their way onto the smaller types of expeditions organized by groups such as the Oceanic Society. I guarantee you that their Midway visit with the smaller group will be a million times more rewarding! Cruise Ships should not be allowed in any way, shape or form in the Papahanoumokuakea Final Monument Management Plan!

## Great Pacific Garbage Patch

From Wikipedia, the free encyclopedia

To comply with Wikipedia's **quality standards**, this article may need to be **rewritten**.

The **North Pacific Gyre** is one of five major oceanic **gyres**

The **Great Pacific Garbage Patch**, also known variously as the **Plastic soup**, the **Eastern Garbage Patch**, or the **Pacific Trash Vortex**, is an area of **marine debris**

in the **North Pacific Gyre** in the central North Pacific Ocean. Size estimates vary from an area equivalent to the state of **Texas** to double that of the continental **United States**.

**Contents** [hide]

- 1 Phenomenon
- 2 Impact on wildlife
- 3 Characteristics
- 4 Sources
- 5 Lost cargo
- 6 References
- 7 Further reading

[edit]

### Phenomenon

The Great Pacific Garbage Patch has been known for over two decades. The center of the North Pacific Gyre is a relatively stationary region of the North Pacific Ocean, an area often referred to as the **horse latitudes**. The circular rotation around it draws waste material in and has led to the accumulation of **flotsam** and other debris. The plastic debris gathers in concentrations of one million pieces of plastic per square mile in some areas. While historically this debris has **biodegraded**, the gyre is now accumulating vast quantities of **plastic** and **marine debris**. Rather than biodegrading, plastic **photodegrades**, disintegrating in the ocean into smaller and smaller pieces. These pieces, still **polymers**, are eventually the size of individual molecules, which are still not easily digested.<sup>[1]</sup> Some plastics photodegrade into other **pollutants**.

The gyre is discussed in Alan Weisman's *The World Without Us* as an example of the near-indestructibility of discarded plastic.

[edit]

### Impact on wildlife

This **Laysan Albatross** chick has been fed plastic by its parents and was unable to eject it, resulting in death by either starvation or choking.

The floating particles also resemble zooplankton, which can lead to them being consumed by jellyfish, thus entering the ocean food chain.[1] In samples taken from the gyre in 2001, the mass of plastic exceeded that of zooplankton (the dominant animal life in the area) by a factor of seven. Many of these long-lasting pieces end up in the stomachs of marine birds and animals,[2] including sea turtles, and Black-footed Albatross.[1] Besides ingestion and entanglement of wildlife, the floating debris absorbs toxins in the water which, when ingested, are mistaken by the animal brain for estradiol, causing hormone disruption in the affected wildlife.[1]

[edit]

## Characteristics

For several years, ocean researcher Charles Moore has been investigating a concentration of floating plastic debris in the North Pacific Gyre. He has reported concentrations of plastics on the order of 3.34 pieces per square meter with a mean mass of 5.1 milligrams per square meter collected using a manta trawl with a rectangular opening of 0.9m x 0.15m at the surface. Trawls at depths of 10m found less than half, consisting primarily of monofilament line fouled with diatoms and other plankton.[3]

Estimates of the size of the patch vary from the size of Texas[4] to twice as large as the continental United States.[5] Researcher Dr. Marcus Eriksen believes the Great Pacific Garbage Patch is two areas of rubbish that are linked. Eriksen says the gyre stretches from about 500 nautical miles off the coast of California, across the Northern Pacific to near the coast of Japan[6].

*The Independent* newspaper stated that Moore estimates there are 100 million tons of flotsam in the North Pacific Gyre.[7]

Much of the plastic is in very small pieces floating under the surface of the water, so capturing a photograph of the patch is not possible. Because the garbage is so small and scattered, clean-up is also incredibly difficult without endangering sea life.[8]

One of the first researchers to study the Pacific gyre was oceanographer W. James Ingraham Jr. He developed the Ocean Surface Current Simulator (**OSCURS**) and predicts that objects trapped in the gyre may remain trapped there for sixteen years or more.[2]

[edit]

## Sources

More has estimated that 80% of the garbage comes from land-based sources, and 20% from ships at sea.[4] He says that currents carry debris from the east coast of Asia to the center of the gyre in a year or less, and debris from the west coast of North America in about five years.[4]

[edit]

## Lost cargo

Occasionally, shifts in the ocean currents release flotsam lost from cargo ships into the currents around the North Pacific Gyre, leading to predictable patterns of garbage washing up on the shores around the outskirts of the gyre. The most famous was the loss of approximately 80,000 Nike sneakers and boots from the ship *Hansa Carrier* in 1990: the currents of the gyre distributed the shoes around the shores of British Columbia, Washington, Oregon, and Hawaii over the following three years. Similar cargo spills have involved 28,800 plastic bathtub toys (yellow ducks, blue turtles, red beavers, and green frogs) in 1992[9] and hockey equipment in 1994. These events have become a major source of data on global-scale ocean currents. Institutions have asked the public to report the landfall locations of these objects, such as the trainers and rubber ducks, that wash up as a method of tracking surface waters' response to the deeper ocean currents.[10][11]

[edit]

## References

- ↑ a b c d Moore, Charles. "Great Pacific Garbage Patch", Santa Barbara News-Press, 2002-10-02.
- ↑ a b Moore, Charles. "Across the Pacific Ocean, plastics, plastics, everywhere", *Natural History Magazine*, November 2003.
- ↑ Moore, Charles; Moore, S. L.; Leecaster, M. K. & Weisberg, S. B. (4), "A Comparison of Plastic and Plankton in the North Pacific Central Gyre", *Marine Pollution Bulletin* **42** (12): 1297-1300, 2001-12-01, doi:10.1016/S0025-326X(01)00114-X
- ↑ a b c "Garbage Mass Is Growing in the Pacific", National Public Radio, 2008-03-28.
- ↑ Berton, Justin (Friday, October 19), "Continent-size toxic stew of plastic trash fouling swath of Pacific Ocean", *San Francisco Chronicle* (San Francisco: Hearst): W-8. Retrieved on 22

October 2007

- ^ La Canna, Xavier (Friday, February 4), "Floating rubbish dump 'bigger than US", *News.com.au* (Australia: news.com.au). Retrieved on 26 February 2008
- ^ The world's rubbish dump: a garbage tip that stretches from Hawaii, *The Independent*, Kathy Marks and Daniel Howden, February 5 2008
- ^ Goldstein, Miriam. "Why there are no pictures of the North Pacific Trash Gyre", *The Oyster's Garter* (blog), 2007-10-23.
- ^ Hohn, Donovan. "Moby-Duck: Or, The Synthetic Wilderness of Childhood", *Harper's Magazine*, January 2007.
- ^ de Bruxelles, Simon. "Plastic duck armada is heading for Britain after 15-year global voyage", *The Times*, 2007-06-28.
- ^ Clerkin, Ben. "Thousands of rubber ducks to land on British shores after 15 year journey", *The Daily Mail*, 2007-06-27.

[edit]

## Further reading

- Oliver J. Dameron, Michael Parke, Mark A. Albins and Russell Brainard (April 2007). "Marine debris accumulation in the Northwestern Hawaiian Islands: An examination of rates and processes", *Marine Pollution Bulletin* 54 (4), 423-433.
- Floating plastic in the Kuroshio Current area, western North Pacific Ocean — Rei Yamashita and Atsushi Tanimura [Marine Pollution Bulletin; volume 54, issue 4, pages 485-488 (2007)]
- Movement and accumulation of floating marine debris simulated by surface currents derived from satellite data — Masahisa Kubota, Katsumi Takayama and Noriyuki Horii [School of Marine Science and Technology, Tokai University (2000)]
- Pelagic plastics and other seaborne persistent synthetic debris — M R Gregory and P G Ryan [Marine Debris: Sources, Impacts, Solutions; pages 49-66 — J M Coe and D B Rogers (1997)]
- A comparison of plastic and plankton in the North Pacific Central Gyre — Charles J Moore, Shelly L Moore, Molly K Leecaster and Stephen B Weisberg
- Density of plastic particles found in zooplankton trawls from coastal waters of California to the North Pacific Central Gyre — Charles J Moore, Gwen L Lattin and Ann F Zellers
- The quantitative distribution and characteristics of neuston plastic in the North Pacific Ocean, 1984-1988 — R H Day, D G Shaw and S E Ignell (1990)
- Donovan Hohn, "Moby-Duck: Or, The Synthetic Wilderness of Childhood," *Harper's Magazine*, January (2007), pp. 39-62.
- Thomas Morton, 'Oh, This is Great, Humans Have Finally Ruined the Ocean', *Vice Magazine*, Vol. 6, No. 2 (2007), pp. 78-81.

[edit]

## External links

- The trash vortex — Greenpeace
- Navigating the Pacific's 'Garbage Patch' — National Public Radio
- New 'battle of Midway' over plastic — BBC News
- Marine Research, Education and Restoration — Algalita Marine Research Foundation
- Humans Have Finally Ruined the Ocean — Vice Magazine
- Diary from the middle of nowhere — BBC News
- Trashed: Across the Pacific Ocean, Plastics, Plastics, Everywhere — Natural History
- Images & video from the North Pacific gyre — WordPress.com
- The plastic killing fields — The Sydney Morning Herald.
- Real time blogging from the North Pacific Gyre — The Beagle Project
- The Largest Garbage Dump on Earth — Literary Escorts Services
- Garbage Island — CNN Headline News — "News to Me"
- Sea of Trash - New York Times Magazine

### Key concepts

Ocean current · Coriolis effect · Ekman transport · Thermohaline circulation · Atmospheric circulation · Boundary currents

Marine debris · Great Pacific Garbage Patch · Commons images

I hope to be able to submit more comments later today. Thanks you for taking the time to read my comments.

Aloha,  
Elizabeth Freeman



Elizabeth  
<Elizabeth@mosnamel  
e.com>

07/08/2008 09:53 PM

To: PMNM\_MMP\_Comments@fws.gov

cc:

Subject: Comments on DRAFT MANAGEMENT PLAN

#### COMMENTS ON PAPA HANAUMOKUAKEA DRAFT MANAGEMENT PLAN

*Post Office Box 298 Kilauea, Hawaii 96754 ~ Phone (808) 828-0014 ~ Fax (808) 828-0015*

Aloha,

I emailed some comments earlier today. I would like to make some additional comments.

- 1) I read almost all of your draft plan and I think you did a really good job.
- 2) Keep using the Clipper House as your restaurant. No need to expand. Just keep the numbers of folks visiting and residing on Midway down. (Don't "expand food services as population increases." Don't increase...don't expand.)
- 3) Either refurbish the theatre or put a screen in the Midway WW2 Museum where folks can gather for a showing of the Battle of Midway documentary. Show it first then take folks to see the historical WW2 sites.
- 4) Good job on the rat eradication. I hope you can do the same with the mice, the lead paint, the verbesina and the ironwoods.
- 5) Terminate all commercial fishing now.
- 6) Don't allow military usage of the Monument.
- 7) Don't provide any other visitor housing other than the Bravo and Charlie barracks.
- 8) Keep the length of visits to one week. If you really want "advocates" and not just mildly curious, it takes a week to really get immersed and educated.
- 9) I liked that you limited beach access to protect the wildlife. Worry about the creatures not the "tourists".
- 10) Pete Leary's bog was great. Hire him to return to keep it up. Great photos. Educational and informational text. He could do a live web cam that streamed to teachers. He's a great resource, don't lose him.
- 11) Your volunteer program is great. Keep it up.
- 12) You mentioned that Laysan ducks were shy...not the ones hanging out by Captain Brooks.
- 13) Don't rent golf carts to people. Only let the FWS or the Naturalist drive anyone that needs a lift around. Even with everyone checking for chicks hiding under the cart for shade, it was still a challenge to get them out. Individual visitors would forget to check. Give people bikes. Everyone loved them. Even the folks in their 70's and 80's were riding them.
- 14) You definitely need to be more sustainable. On the mainland a company named Xanterra handles the management of the National Parks. Their commitment to sustainable practices and their overall plan is awesome. Don't recreate the wheel. Check out their program and collaborate with them.
- 15) On Kauai there is a company named SolSystems which does alternative energy...photo voltaic, sustainable systems, etc. Very well respected. One of the founders did his military service on Midway. He knows the whole island. Contact him for a consultation. His name is Bob Layer. His number is: 808 828-1989 or 808 639-9375. Please check in with Bob. Get him back up there. He can help you greatly in this area. I don't think biodiesel is the answer.

16) I understand that over by the hanger where the plane comes in you're going to expand the WW2 display. Create another area that is dedicated to Hawaiian Culture...the creation myths, their voyaging history, the culture, info on the archeological sites in the Monument, etc. The NWHI are the Kupuna islands...make this come alive for people in words, pictures, song and chant. Have it dedicated and blessed by the Kupuna from each of the Hawaiian islands.

17) As I mentioned in my earlier email - no cruise ships!!! Allowing cruise ships (which everyone knows are polluting the oceans) totally sends the wrong message...it flies in the face of your vision of ecosystem protection ("cultivate an ocean ecosystem stewardship ethic") of the Monument.

18) I recommend 24-30 visitors max not 50. Just charge more to make up the revenue. Midway (and the Golden Gooney) is on peoples "bucket list".

19) The folks from Chugash were super nice and helpful.

20) Don't build any new buildings...just refurbish buildings that are there,

Thanks for the good work you're doing.

Mahalo Nui Loa  
Elizabeth Freeman  
PO Box 298,  
Kilauea, HI 96754



CENTER for BIOLOGICAL DIVERSITY

Because life is good.

Sent via electronic and certified mail

July 8, 2008

Papahānaumokuākea Marine National Monument

Attn: Susan White, FWS Superintendent

Box 50167

Honolulu, HI 96850-5000

E-mail: PMNM\_MMP\_Comments@fws.gov.

**Re: Comments on the Draft Monument Management Plan and Environmental Assessment for the Papahānaumokuākea Marine National Monument**

These comments concerning the Draft Monument Management Plan and Environmental Assessment for the Papahānaumokuākea Marine National Monument are submitted on behalf of the Center for Biological Diversity ("the Center"). The Center is a nonprofit organization dedicated to the conservation of native species and their habitats. The Center's oceans program focuses on the protection of imperiled marine species including the Hawaiian monk seal, sea turtles, and corals.

#### **I. Protection of the Hawaiian Monk Seal**

The Hawaiian monk seal (*Monachus schauinslandi*) is critically imperiled and management of the Monument must provide for the utmost in protection for this species and its habitat. The Hawaiian monk seal is among the most endangered marine mammals in the world (Donohue 2007). Hawaiian monk seals are found throughout the Northwest Hawaiian Islands with six main reproductive sites at Kure Atoll, Midway Islands, Pearl and Hermes Reef, Lisianski Island, Laysan Island, and the French Frigate Shoals (NMFS 2007c).

As noted in the Draft Monument Management Plan, there are about 1,200 monk seals remaining and the population is expected to drop below 1000 animals by 2012. The Northwest Hawaiian Islands have experienced a monk seal decline of about 4.1 percent annually (NMFS 2007a). The population at the French Frigate Shoals is indicative of the entire population because it is the single largest subpopulation, and that subpopulation has declined by approximately 73 percent between 1989 and 2005 (NMFS 2007b). Low juvenile survival is the proximate cause for population declines, with many weaned pups dying before reaching maturity mostly due to starvation (Baker 2006). Survival of pups is extremely low with eight of ten dying before their third year (Parrish and Abernathy 2002). This decline on the Northwest Hawaiian Islands is an ongoing trend and combined with current threats to the species is predicted to continue (Antonelis et al. 2006).

Tucson · Phoenix · San Francisco · San Diego · Los Angeles · Joshua Tree · Silver City · Portland · Washington, DC  
351 California St., Suite. 600 · San Francisco, CA 94104 tel: (415) 436.9682 fax: (415) 436.9683 www.BiologicalDiversity.org



Strategies to support the recovery of the monk seal are vitally important. The strategies selected for the Draft Monument Management Plan are needed for the conservation of the Hawaiian monk seal. It is important that efforts focus on recovery of the monk seal, not merely research that may eventually document the extinction of this important marine mammal. Beyond research, it is essential that the Monument Management Plan take specific steps to conserve and recover the monk seal. Permitted research activities should be focused on efforts to promote the recovery of the species.

Efforts to remove marine debris are important as described in the Management Plan are needed to decrease entanglement of monk seals. While the Management Plan includes the development of a plan to remove and prevent marine debris, the Management Plan should include specific efforts to prevent derelict fishing gear. The Northwest Hawaiian Islands accumulate significant amounts of marine debris because they are situated at the convergence of the North Pacific subtropical gyre. Currents carry plastic materials and derelict fishing gear to the beaches and reefs of the Northwest Hawaiian Islands. Moreover, marine debris poses the biggest entanglement threat in El Niño years when it is more likely to accumulate in the Northwest Hawaiian Islands. These considerations should be taken into account in the Management Plan.

The Center strongly supports activities to conserve Hawaiian monk seal habitat. The Management Plan proposes to evaluate the feasibility of restoring habitat. Much more, however, is needed to ensure beach habitat for monk seal pupping, nursing, molting, and resting under the threat of sea level rise. The Monument should identify areas of the Northwest Hawaiian Islands that are at high enough elevation from foreseeable sea level rise and ensure that those areas remain suitable for monk seal uses. Please see the subsequent section on sea level rise for more information on the impacts of sea level rise in the Northwest Hawaiian Islands and take this into account in the Management Plan. Moreover, recent science shows that monk seals forage at greater depths than previously believed. Hawaiian monk seals use areas between nearshore shallows to 500 meters deep for foraging (NMFS 2007c). The Management Plan should evaluate mechanisms to protect monk seal foraging grounds for successful feeding. Additionally, efforts to ensure that coral reefs remain intact and healthy to protect the islands from erosion and storms will help protect monk seal habitat.

While the primary threat to the Hawaiian monk seal is starvation, this problem of food limitation is not addressed in the Management Plan. The limited food availability may be the cumulative result of various factors. First, former overfishing may have stressed prey sources but now the moratorium on fishing in the Papahānaumokuākea Marine National Monument will help. Additionally, competition for prey with other apex predators such as sharks and jacks may affect foraging success of the monk seals (NMFS 2007c). One of the leading theories for the lack of available prey for the monk seals is that the carrying capacity of the habitat has been decreased due to changes in oceanographic conditions (NMFS 2007b). Climate change and oceanographic conditions may be limiting food for the monk seals (NMFS 2007c). Changes in climate, currents, and upwelling commonly alter productivity and prey availability in the ocean

(NMFS 2007c). The Management Plan should consider efforts for better management of the aquatic habitat of the Hawaiian monk seal and efforts to address climate change impacts.

Finally, the Management Plan includes plans to develop Midway Atoll that should carefully consider the present and future needs of the Hawaiian monk seal. It is vital that the conservation of the Hawaiian monk seal not be disturbed by any activities that will increase human presence and development on Midway Atoll. In the past, monk seals in the Northwest Hawaiian Islands have avoided areas with human presence. The site plan includes the development of infrastructure such as utilities, housing, and boating and airport facilities. It also promotes increased visitors to the Atoll. In light of these proposed developments, the Center urges the Monument to avoid and mitigate the direct and climate change impacts of such projects expanding the facilities and visitation of Midway Atoll.

## II. Management for the Ecological Consequences of Global Warming

The Draft Monument Management Plan acknowledges that the consequences of global warming and ocean acidification could have impacts on the Monument including weather changes, sea level rise, coral bleaching, and oceanic chemical composition change. However, the management framework and action plans do little to address these impacts. It is vital that management of the Monument takes steps to address global warming—an overarching threat to the habitat and native species that make the Northwest Hawaiian Islands a unique and rich environment. The following discussion of the impacts of global warming and ocean acidification on the Monument and its wildlife and habitat should be taken into consideration in the Management Plan.

### A. The best available science and global warming

In its most recent 2007 report, the Intergovernmental Panel on Climate Change (IPCC)<sup>1</sup> expressed in the strongest language possible its finding that global warming is occurring: “Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level” (IPCC 2007: 5). The international scientific consensus of the IPCC is that most of the recent warming observed has been caused by human activities and that it is “very likely” due to increased concentrations in anthropogenic greenhouse gases (IPCC 2007). One of the most troubling recent findings is that the concentration of atmospheric carbon dioxide, the biggest contributor to global warming, has been rapidly increasing throughout the

<sup>1</sup> The IPCC was established by the World Meteorological Organization and the United Nations Environment Programme in 1988. The IPCC’s mission is to assess available scientific and socio-economic information on climate change and its impacts and the options for mitigating climate change and to provide, on request, scientific and technical advice to the Conference of the Parties to the United Nations Framework Convention on Climate Change. Since 1990, the IPCC has produced a series of reports, papers, methodologies, and other products that have become the standard works of reference on climate change. The 2007 *Fourth Assessment Report* is the most current comprehensive IPCC reference and has built and expanded upon the IPCC’s past products.

2000s and is generating stronger-than-expected and sooner-than-predicted climate forcing (Canadell et al. 2007, Raupach et al. 2007).

The global average temperature has risen by approximately  $0.74^{\circ}\text{C} \pm 0.18^{\circ}\text{C}$  ( $1.33^{\circ}\text{F} \pm 0.32^{\circ}\text{F}$ ) during the past 100 years (1906-2005) (Trenberth et al. 2007) in response to rapidly increasing greenhouse gas concentrations. Atmospheric concentration of carbon dioxide has increased by 36% since 1750 to a level that has not been exceeded during the past 650,000 years and likely not during the past 20 million years (Denman et al. 2007). The rate of increase of total atmospheric carbon dioxide concentrations is speeding up as well. Carbon dioxide emissions averaged  $4.1 \pm 0.1 \text{ GtC yr}^{-1}$  during 2000-2005 compared to emissions of  $3.2 \pm 0.1 \text{ GtC yr}^{-1}$  during the 1990s (Denman et al. 2007). Currently, the atmospheric carbon dioxide concentration is 385 ppm and rising at over 2 ppm per year (Shukman 2006, Hansen et al. 2008). The atmospheric concentration of methane, another important greenhouse gas, has increased by about 150% since 1750, continues to increase, and has not been exceeded during the past 650,000 years (Forster et al. 2007). Similarly, the atmospheric concentration of nitrous oxide has increased by about 18% since 1750, continues to increase, and has not been exceeded during at least the last 2000 years (Forster et al. 2007). Based on differing scenarios of future greenhouse gas emissions and the world's leading climate models, the IPCC has projected 1.1 to  $6.4^{\circ}\text{C}$  ( $2^{\circ}$  -  $11.5^{\circ}\text{F}$ ) of additional warming by the end of this century (Solomon et al. 2007). The higher the level of greenhouse gas emissions, the more the world will warm.

As scientific understanding of global warming has advanced, so too has the urgency of the warnings from scientists about the consequences of our greenhouse gas emissions. Scientists are now able to tell us, with a high degree of certainty, that additional warming of more than  $1^{\circ}\text{C}$  ( $1.8^{\circ}\text{F}$ ) above year 2000 levels will constitute "dangerous anthropogenic climate change," with particular reference to sea level rise and species extinction (Hansen et al. 2006, Hansen et al. 2007). This is because warming of greater than  $1^{\circ}\text{C}$  may induce positive climate feedbacks, such as the release of large amounts of methane from thawing arctic permafrost, that will further amplify the warming (Hansen et al. 2006, Hansen et al. 2007). Change of this magnitude is very likely. A recent scientific finding is that the safe upper limit for atmospheric  $\text{CO}_2$  to prevent dangerous anthropogenic climate change is actually 350 ppm (McKibben 2007, Hansen et al. 2008). However, the current  $\text{CO}_2$  concentration is already well past that ceiling at 385 ppm (Hansen et al. 2008).

Studies that have used climate model projections to forecast species extinctions have predicted large species losses. Using a mid-range climate scenario, Thomas et al. (2004) predicted that 15-37% of species are already committed to extinction by 2050. Malcolm et al. (2006) estimated that 11-43% of endemic species in biodiversity hotspots will go extinct by the end of the century under a scenario of doubled carbon dioxide concentrations, which includes an average of 56,000 endemic plants and 3,700 endemic vertebrate species.

In order to avoid truly unacceptable consequences of global warming, we must stop the growth of greenhouse gas emissions, and, in relatively short order, begin reducing them. Achieving the reductions necessary to keep additional global warming between the years 2000-

2100 within  $1^{\circ}\text{C}$  will be extremely challenging, and will require deep reductions in emissions from industrialized nations such as the United States.

## B. Sea level rise

The wildlife and plant populations of the low-lying islands and atolls of the Papahānaumokuākea Marine National Monument are extremely vulnerable to current and predicted sea level rise within this century which will be compounded by increases in storm surges and storm intensity (Bindoff et al. 2007, Mimura et al. 2007). Sea level rise poses a significant threat to the Monument's threatened and endangered species including the Hawaiian monk seal, the green sea turtle, Laysan finch, and seabirds of conservation concern. Management that considers and mitigates the impacts of sea level rise in this century must be better integrated into the Monument action plans.

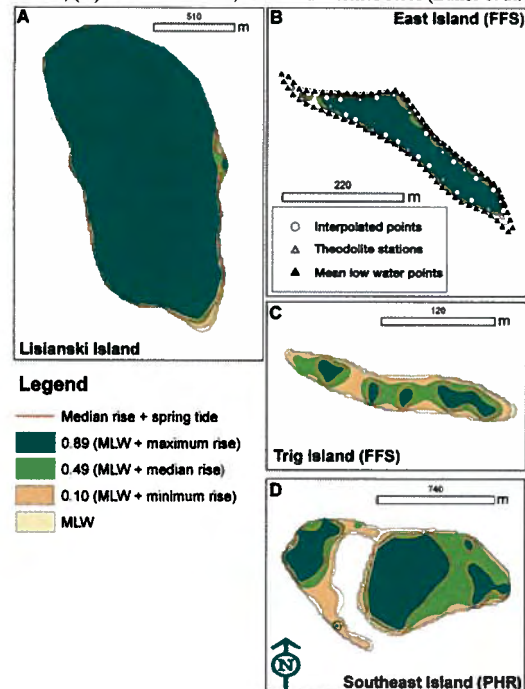
In the Northwest Hawaiian Islands, sea level has already increased by 1.2 to 2.4 mm/yr between 1955 and 2003 (Bindoff et al. 2007: Figure 5.16a), and sea level rise will accelerate in this century (Bindoff et al. 2007). Using conservative estimates of sea level rise predicted for this century, Baker et al. (2006) found that the Northwest Hawaiian Islands will experience significant habitat loss. French Frigate Shoals and Pearl and Hermes Reef are only about 2 meters above sea level, and sea level rise of 48 cm would lead to losses of between 15 and 65 percent of their area (Figure 1) (Baker et al. 2006). With sea level rise of 88 cm, Pearl and Hermes Reef islands would be reduced by 51 to 69 percent, and French Frigate Shoals would lose between 40 and 57 percent of its area with Gin and Trig Islands mostly submerged (Figure 1) (Baker et al. 2006).

The Hawaiian monk seal will undoubtedly be negatively impacted by the elimination of several of its most important breeding sites due to sea level rise—French Frigate Shoals, Pearl and Hermes Reef, and likely Kure Atoll—in the Papahānaumokuākea Marine National Monument in the foreseeable future, in addition to the loss of beach habitat at other important breeding colonies due to sea level rise and increasing storm surge. There has already been a loss of important pupping beaches due to erosion that may reflect rising sea levels (MMC 2007). For example, the terrestrial habitat at French Frigate Shoals, which supports the world's largest Hawaiian monk seal population, has already shrunk, eliminating important pupping and resting islets (NMFS SAR 2007). Continued loss of habitat will undoubtedly further negatively impact the Hawaiian monk seal population.

The predicted loss of low-lying habitat in the Papahānaumokuākea Marine National Monument will also prove problematic for green sea turtles, seabirds, songbirds, migratory shorebirds, and plants. French Frigate Shoals, much of which may be submerged in this century, supports 90% of the Hawaiian Islands green sea turtle nesting population and 19 of 22 of the Monument's nesting seabirds. Pearl and Hermes Atoll, also predicted to lose much of its area to sea level rise, supports an important population of the endangered Laysan Finch and the largest population of Tristram's Storm-petrel in the Northwest Hawaiian Islands which has been recognized as a species of highest conservation concern on a regional (Pacific Islands) scale.

Islands with higher topography such as Lisianski Island, Midway Island, and Laysan Island may be less affected by sea level rise within this century and may provide an important refuge for animals using the terrestrial areas of the Northwest Hawaiian Islands, which should be considered in the management of these islands, especially since species seeking refuge on the high-elevation main Hawaiian Islands may be precluded due to heavy human development and depredation by introduced predators.

Figure 1. Current and projected maps of 4 Northwestern Hawaiian Islands at mean low water (MLW) with minimum (9 cm), median (48 cm) and maximum (88 cm) predicted sea level rise. The median scenario at spring tide is also shown. (A) Lisianski Island; (B) East Island; (B) East Island, French Frigate Shoals, showing the measured and interpolated points along the waterline and berm used to create the Triangular Irregular Network (TIN); (C) Trig Island, French Frigate Shoals; (D) Southeast Island, Pearl and Hermes Reef (Baker et al. 2006).



Comments on the Draft Monument Management Plan and Environmental Assessment for the Papahānaumokuākea Marine National Monument, page 6 of 19

Also of concern, in the North Pacific in this century, storms are expected to increase in intensity, heavier rainfall events leading to flooding will become more frequent, and overall precipitation will increase after mid-century (2070-2099) (Bindoff et al. 2007: Table 16.2). Even on higher elevation islands, breeding habitat will be lost and degraded by erosion from storm surges, more intense storms, and increased precipitation, which will likely have negative effects on terrestrially breeding species. For example, flooding and strong storms have been observed to lower black-footed albatross breeding success, and large waves associated with winter and spring storms cause a disproportionately greater loss in nests for birds nesting along the outer, more exposed sandy beaches of islands (Naughton et al. 2007). Since black-footed albatrosses generally nest in higher densities along these outer sandy beaches (Naughton et al. 2007), they may be especially vulnerable to the impacts of sea level rise and strong storm events.

Finally, one of the most troubling recent scientific findings is that IPCC projections for sea level rise for this century, including the sea level rise scenarios used by Baker et al. (2006), are almost certainly a substantial underestimate. Melting of the Greenland ice sheet has accelerated far beyond what scientists predicted even just a few years ago, with a more than doubling of the mass loss from Greenland due to melting observed in the past decade alone (Rignot and Kangarantnam 2006). The acceleration in the rate of melt is due in part to the creation of rivers of melt water, called “moulins,” that flow down several miles to the base of the ice sheet, where they lubricate the area between the ice sheet and the rock, speeding the movement of the ice towards the ocean. The IPCC projections for this century assume a negligible contribution to sea level rise by 2100 from loss of Greenland and Antarctic ice, but leading experts have stated that that conclusion is no longer plausible due to multiple positive feedback mechanisms including dynamical processes such as the formation of moulins, reduced surface albedo, loss of buttressing ice shelves, and lowered ice surface altitude (Hansen et al. 2006). Paleoclimatic evidence also provides strong evidence that the rate of future melting and related sea-level rise could be faster than previously widely believed (Overpeck et al. 2006).

While it has been commonly assumed that the response time of ice sheets is millennia, this may reflect the time scale of the forcings that cause the changes, rather than the inherent response time of the ice sheets (Hansen et al. 2007). The forcing from continued unabated greenhouse gas emissions in this century could lead to a dynamically changing ice sheet that is out of our control (Hansen et al. 2007). Just 2-3°C (3.6-5.4° F) of warming would likely cause sea level to rise by at least 6 m (18 feet) within a century (Hansen 2006). Temperature changes of 2-3°C (3.6-5.4° F) are well within the range of estimates for this century provided by the IPCC (Solomon et al. 2007). Sea level rise of this magnitude will have significant impacts on the Northwest Hawaiian Islands, inundating beach habitat.

### C. Ocean temperature rise, decreases in productivity, and increases in ENSO frequency

Observed and projected ocean temperature rise and decreases in ocean productivity in the North Pacific, including the waters of the Papahānaumokuākea Marine National Monument, threaten the Monument’s marine species and should be carefully considered and monitored as

Comments on the Draft Monument Management Plan and Environmental Assessment for the Papahānaumokuākea Marine National Monument, page 7 of 19

part of the action plans. Water temperature is an important factor determining habitat ranges and physiological functioning of marine organisms, and even minor changes are seriously disruptive. Global ocean temperatures have increased by 0.31 °C on average in the upper 300 m during the past 60 years (1948-1998) (Levitus et al. 2000), and locally, some ocean regions are experiencing even greater warming (Bindoff et al. 2007). Global ocean temperatures increased by 0.10 °C in the upper 700 m between 1961-2003 (Bindoff et al. 2007) and have even penetrated as deep as 3000 m (Levitus et al. 2005).

Warming waters are devastating for species that are unable to migrate toward cooler waters because of habitat requirements, environmental barriers, or lack of mobility (Scavia et al. 2002). These climatic changes are occurring at an unprecedented rate which also hinders the adaptation of many organisms (Parmesan 2006). Corals are extremely vulnerable to changes in ocean temperature since increased water temperatures results in bleaching and mortality of coral reefs (Hughes et al. 2003). Not only are corals keystone species in reef ecosystems, but coral reefs are extremely important to the habitat of monk seals because they protect the Northwest Hawaiian Islands and provide foraging habitat for the seals. Researchers predict that coupled with ocean acidification, global warming may result in the destruction of most coral reefs by mid-century (Hoegh-Guldberg et al. 2008). Additionally, invasive species may gain an advantage over native species in these warmer conditions (Stachowicz et al. 2002). Warmer waters favor different species of phytoplankton, some of which are associated with “red tides” that shade ocean vegetation, deplete oxygen, and often have toxic properties (Smith et al. 2000).

The warming of surface waters appears to be impacting primary production globally, including the marine waters of the Papahānaumokuākea Marine National Monument. The largest increases in global ocean temperature have occurred in the upper ocean where primary production is concentrated (Behrenfeld et al. 2006). Behrenfeld et al. (2006) detected significant global declines in net primary production between 1997-2005, which they attributed to reduced nutrient enhancement due to ocean surface warming. A second study found that the ocean’s least productive waters expanded in four of the world’s major oceans during 1998-2006 in parallel with rising mean sea surface temperatures and increased vertical stratification in the mid-latitudes (Polovina et al. 2008). In the North Pacific outside the equatorial zone, areas of low productivity water expanded at average annual rates from 2.2%/yr and replaced about 354,000 km<sup>2</sup>/yr of higher surface chlorophyll habitat with low surface chlorophyll water (Polovina et al. 2008). Of concern for marine life of the Papahānaumokuākea Marine National Monument, low productivity waters in the North Pacific expanded to the northeast, reaching portions of the Hawaiian Archipelago (Polovina et al. 2008). Reduced primary productivity may limit food supply for monk seals, seabirds, fish, and other animals.

El Niño Southern Oscillation (ENSO) events can also impact ocean productivity. Although the effects of climate change on the ENSO cycle are difficult to predict, leading climate scientists believe that near-term global warming will lead to an increased likelihood of stronger ENSO events (Hansen et al. 2006). Most climate models yield a tendency towards a more ENSO-like state or no clear change (Collins 2005). Some climate scientists have hypothesized that during the early Pliocene, when the Earth was 3° C (5.4° F) warmer than

today, a permanent ENSO-like condition existed (Hansen et al. 2006). From the observational record, intense ENSO events were more abundant in the later part of the 20<sup>th</sup> century. The 1982-83 and 1997-98 ENSO events were successively labeled the “El Niño of the Century” because the warming in the Eastern Equatorial Pacific was unprecedented in the past 100 years (Hansen et al. 2006). ENSO has been known to have negative impacts for pinnipeds, including mortality and decreased reproductive success, often due to changes in ocean productivity (Baker et al. 2006).

ENSO tends to increase marine debris and entanglement rates in the Northwest Hawaiian Islands for the Hawaiian monk seals (Donohue 2007). Despite efforts to clean up marine debris, monk seal entanglements continue (*Id.*). Between the years 1982 and 2004, two to 25 seals were entangled each year and the mean annual entanglement rate was greater for El Niño years (*Id.*). This is likely because the convergence zone is drawn further southward during ENSO, thus concentrating marine debris in the Northwest Hawaiian Islands (*Id.*).

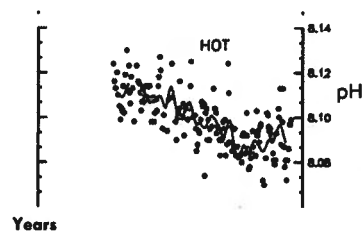
#### D. Ocean acidification

Ocean acidification poses a significant threat to marine species in the Papahānaumokuākea Marine National Monument. The oceans are becoming increasingly acidic due to their uptake of carbon dioxide from the atmosphere. The oceans have thus far absorbed approximately 30% of the excess carbon dioxide emitted since the beginning of the industrial revolution (Feely et al. 2004, WBGU 2006). The world’s oceans, in fact, store about 50 times more carbon dioxide than the atmosphere (WBGU 2006), and most carbon dioxide released into the atmosphere from the use of fossil fuels will eventually be absorbed by the ocean (Caldeira and Wickett 2003). As the ocean absorbs carbon dioxide from the atmosphere it changes the chemistry of the sea water by lowering its pH. The oceans’ uptake of these excess anthropogenic carbon dioxide emissions, therefore, is causing ocean acidification (WBGU 2006).

Surface ocean pH has already dropped by about 0.1 units on the pH scale, from 8.16 in 1800 to 8.05 today -- a rise in acidity of about thirty percent (Orr et al. 2005). The pH of the ocean is currently changing rapidly at a rate 100 times anything seen in hundreds of millennia, and may drop by another 0.3 or 0.4 (100 – 150% increase in the concentration of H<sup>+</sup> ions) by the end of this century (Orr et al. 2005, Meehl et al. 2007). If carbon dioxide emissions continue unabated, resulting changes in ocean acidity could exceed anything experienced in the past 300 million years (Caldeira and Wickett 2003). Even if carbon dioxide emissions stopped immediately, the ocean would continue to absorb the excess carbon dioxide in the atmosphere, resulting in further acidification until the planet’s carbon budget returned to equilibrium.

Evidence of ocean acidification in or near the waters of the Papahānaumokuākea Marine National Monument comes from several studies. The Hawaii Ocean Time-Series has collected numeric data that demonstrates increasing ocean acidification. The data shows that from 1990 to the present that Hawaii’s ocean acidification has tracked the atmospheric carbon dioxide and resulted in a decline in pH from approximately 8.12 to approximately 8.08 units (Figure 2) (Bindoff et al. 2007).

Figure 2. Changes in surface pH from Hawaii Ocean Time-Series (Dore et al., 2003). Values were calculated from DIC and alkalinity. (Bindoff et al. 2007).



Furthermore, hydrographic surveys have found that the ocean's absorption of anthropogenic CO<sub>2</sub> emissions is leading to the shoaling of the aragonite and calcite saturation horizons, making it more difficult for calcifying species to build their shells. In the North Pacific, the aragonite and calcite saturation depths are already among the shallowest in the global ocean (Feely et al. 2004: Figure 2). In the North Pacific, the uptake of anthropogenic CO<sub>2</sub> has caused aragonite saturation depths to migrate upwards by 50-100 m since pre-industrial times, with current upward migration occurring at a rate of 1-2 meters per year, while calcite saturation depths have moved upwards by 40-100 m since pre-industrial times (Feely et al. 2004, Fabry et al. 2008, Feely et al. 2008). On a transect in the Pacific Ocean that bisected the Papahānaumokuākea Marine National Monument, Feeley et al. (2004: Figure 3b) found that the aragonite saturation horizon is shallow and is shoaling compared to the pre-industrial aragonite saturation horizon.

Ocean acidification from unabated anthropogenic carbon dioxide emissions poses a profound threat to marine ecosystems of the Papahānaumokuākea Marine National Monument because it affects the physiology of numerous marine organisms, causing detrimental impacts that may ripple up the food chain. Changes that have been observed in laboratory experiments include impacts to the productivity of algae, photosynthesis of phytoplankton, metabolic rates of zooplankton and fish, oxygen supply of squid, reproduction of clams, nitrification by microorganisms, and the uptake of metals (WBGU 2006, Fabry et al. 2008). Perhaps most importantly, increasing ocean acidity reduces the availability of carbonate ions needed by marine life to build shells and skeletons (Orr et al. 2005).

Phytoplankton, corals, coralline macroalgae, urchins, seastars, clams, oysters, crustaceans and many other organisms rely on calcium carbonate in the ocean to build skeletons (WBGU 2006). Normally, ocean waters are saturated with carbonate ions that marine organisms use to build skeletons (WBGU 2006). However, the acidification of the oceans shifts the water

chemistry to favor bicarbonate, thus reducing the availability of carbonate to marine organisms (WBGU 2006). Acidic waters also dissolve existing protective carbonate skeletons and shells (Orr et al. 2005). Already the ocean surface layer has lost 10% of its carbonate compared to preindustrial levels (WBGU 2006). Continuing carbon dioxide emissions could result in a decrease in calcification rates by up to 60% by the end of this century (Ruttimann 2006). The average response of corals to a doubling in pCO<sub>2</sub> is a 30% decline in calcification (Kleypas et al. 2006). The combined stresses of warmer temperatures, rising sea levels, and ocean acidification are likely to produce major changes to coral reefs in the decades to come (Royal Society 2005).

Even marine animals that do not calcify are threatened by carbon dioxide increases in their habitat. Changes in the ocean's carbon dioxide concentration result in accumulation of carbon dioxide in the tissues and fluids of fish and other marine animals, called hypercapnia, and increased acidity in the body fluids, called acidosis. These impacts can cause a variety of problems for marine animals including difficulty with acid-base regulation, calcification, growth, respiration, energy turnover, and mode of metabolism (Pörtner et al. 2004). Squid, for example, show a very high sensitivity to pH because of their energy intensive manner of swimming (Royal Society 2005). Because of their energy demand, even under a moderate 0.15 pH change squid have reduced capacity to carry oxygen and higher carbon dioxide pressures are likely to be lethal (Pörtner et al. 2004).

Levels of ocean acidification predicted within the foreseeable future will likely impact both the habitat and prey of Hawaiian monk seals. Monk seals depend on coral reef habitat for foraging and corals are faced with decreased calcification due to ocean acidification. Additionally, prey of the monk seals ranging from squid to crustaceans may be adversely impacted by declining ocean pH further limiting the food available to monk seals.

## E. Comments on Action Plans in relation to global warming

### i. Threatened and Endangered Species Action Plan

In order to protect and recover threatened and endangered species, important habitat variables should be monitored in conjunction with the monitoring of population parameters in order to permit an assessment of the habitat factors influencing population processes. Particularly because climate change will have population-level effects and impact the recovery of threatened and endangered species, climatic variables including surface temperature, surface ocean productivity, sea level, storm surge levels, and precipitation should be monitored. Data for many climatic variables can be obtained from satellite sources.

### ii. Migratory Birds Action Plan

In regard to the Migratory Birds Action Plan, as part of MB-3.1, standardized monitoring plans must be carefully designed and implemented so that the data collected permit statistical analyses that can detect changes in population size and key demographic parameters over time, such as reproductive success and survival. As part of MB-3.2, the monitoring of changes in

habitat quality through monitoring bird reproductive performance and diet must be accompanied by the monitoring a suite of habitat variables including climatic variables, since climate change will impact the Monument's bird species.

### III. Mitigation of Contaminants

As part of the Habitat Management and Conservation Plan, the proposed actions should better address the population-level impact of lead-based paint on albatross populations nesting on Midway Island and prioritize the clean-up of all buildings with lead-based paint in order to eliminate this threat. The Draft Management Plan does not adequately acknowledge that ingestion of lead-based paint from buildings on Midway Island leads high mortality of Laysan albatross chicks by causing droopwing (Finkelstein et al. 2003). An estimated 10,000 chicks per year may be exposed to lethal lead levels, which is a significant portion of the population (Finkelstein 2006). Given the importance of Midway in supporting the largest breeding populations of Laysan and Black-footed albatross, sources of lead-contaminated paint should be comprehensively eliminated to prevent lethal or sub-lethal effects on albatross.

### IV. Mitigation of Threats from Military Exercises

While Presidential Proclamation 8031 exempts lawful activities and exercises of the Armed Forces from obtaining a permit for access to the Monument, the Monument Management Plan should take steps to avoid and mitigate the impacts of military activities in the Monument. Notably, only lawful activities of the Armed Forces are exempted from obtaining permits. Therefore, military activities and exercises must still comply with environmental statutes such as the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), and the National Environmental Policy Act (NEPA). The Management Plan should provide oversight of military activities to ensure compliance with these environmental laws that are intended to protect the natural resources of the Monument.

Section 7 of the ESA requires that federal agencies consult with the appropriate wildlife services agencies to ensure that proposed actions do not jeopardize threatened or endangered species or adversely modify their critical habitat. 16 U.S.C. § 1536(a)(2). When a proposed action may affect a protected species, consultation must occur and be completed *before* the federal action may take place. *Pacific Rivers*, 30 F.3d at 1056; *Thomas v. Peterson*, 753 F.2d 754, 764-65 (9th Cir. 1985). Although procedural, consultation is the backbone of the ESA. As the Ninth Circuit recognized, “[o]nly by requiring substantial compliance with the act’s procedures can we effectuate” congressional intent to protect species. *Sierra Club v. Marsh*, 816 F.2d at 1384 (9th Cir. 1987). Therefore, under the ESA any military actions that may affect listed species or critical habitat must engage in consultation prior to taking such action. For example, activities that could impact threatened and endangered species such as Hawaiian monk seals and their critical habitat will require consultation under the Endangered Species Act. The Management Plan should include steps to ensure that military activities that will impact the Monument’s resources are in compliance with applicable environmental laws.

Additionally, the MMPA protects marine mammals is through the implementation of a “moratorium on the taking” of marine mammals. 16 U.S.C. § 1371(a). Under the MMPA, the term “take” is broadly defined to mean “to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal.” Id. §1362(13); 50 C.F.R. § 18.3 (FWS definition of “take”). Under certain exceptions the MMPA requires specific authorization for activities that will “take” marine mammals. Id. § 1371(a)(5)(D). Approved activities must conform with the incidental take provisions, including the “small numbers” and “negligible impact” standards, of the MMPA. See, e.g., *NRDC v. Evans*, 279 F. Supp. 2d 1129, 1141 (N.D. Cal. 2003). In addition, NMFS or FWS must prescribe the methods and means of effecting the “least practicable adverse impact” on species and stock and their habitat. *Id.*

NEPA requires that each agency disclose relevant environmental information to the public and demonstrate that the agency took a “hard look” at the consequences of the proposed decision, and alternatives that might be pursued with less environmental harm, before making its decision. See *Lands Council v. Powell*, 395 F. 3d 1019, 1028 (9th Cir. 2005). First, the agency may prepare an Environmental Assessment. The purpose of an EA is to assist the agency in determining whether the project may significantly affect the environment. 42 U.S.C. §4332(2)(C); 40C.F.R. §1508.9. If the action may significantly affect the environment, NEPA requires federal agencies to prepare a full Environmental Impact Statement. 42 U.S.C. § 4332(2)(C); see also 40 C.F.R. § 1501.4. An agency must prepare an EIS “if ‘substantial questions are raised as to whether a project...may cause significant degradation of some human environmental factor.’” *Center for Biological Diversity v. NHTSA*, Slip Opinion at 14914 (9<sup>th</sup> Cir. 2007) (quoting *Idaho Sporting Cong. v. Thomas*, 13 F.3d 1146, 1149 (9<sup>th</sup> Cir. 1998)).

Whether there is a significant effect requires the consideration of “context” and “intensity.” *Center for Biological Diversity*, Slip Opinion at 14914; 40 C.F.R. § 1508.27. Many factors should be considered under intensity, including effects on threatened or endangered species, unique geographic characteristics, cumulative impacts, controversial effects, uncertain or unique risks, loss of cultural resources. 40 C.F.R. § 1508.27. An action may be significant if any one of these factors is met. *Center for Biological Diversity*, Slip Opinion at 14915; *Ocean Advocates v. U.S. Army Corps of Eng’rs*, 361 F.3d 1108, 1125 (9th Cir. 2004); *Anderson v. Evans*, 350 F.3d 815, 835 (9th Cir. 2003) (presence of one or more factors can necessitate preparation of a full EIS). Thus, military activities planned in the vicinity of the Papahānaumokuākea Marine National Monument are likely to have impacts on imperiled species and this protected geographic area necessitating the preparation of an EIS.

Additionally, the Management Plan should address how it can minimize the impacts and mitigate impacts to the Monument’s wildlife and habitat of military activities and exercises. The Proclamation requires that “activities and exercises of the Armed Forces shall be carried out in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on monument resources and qualities.” The U.S. military is required to minimize and mitigate the harms of its activities. The Management Plan should address how oversight and mitigation is going to proceed.

## V. Transparency for Monument Decision-making and Permits

There is an obligation to ensure that the public is informed and able to participate in decision-making about the management of the Monument. Throughout the Management Plan there is a commitment to keep the public informed of activities affecting the Monument. It is important that there is meaningful public participation with adequate notice and opportunity for comment. At present, management decisions, including permit processing, are decided by a board. Board meetings should be open and accountable to the public and board members should be guided by strict conflict of interest standards. Additionally, permit applications should be announced in the Federal Register and the public given an opportunity to comment prior to any authorizations. To ensure the protection of the Monument's sensitive wildlife and habitat, it is vitally important that the permit process be subject to public and environmental review.

Most sincerely,



Miyoko Sakashita  
Ocean Program Attorney  
415-436-9682 ext. 308 • miyoko@biologicaldiversity.org



Shaye Wolf, Ph.D.  
Climate Program Biologist  
415-436-9682 ext. 301 • swolf@biologicaldiversity.org

Enc: References Cited and Attached

### Literature Cited

- Antonelis, G. A., J. D. Baker, T. C. Johanos, R. C. Braun, and A. L. Harting. 2006. Hawaiian monk seal (*Monachus schauinslandi*): Status and conservation issues. *Atoll Research Bulletin* 543:75-101.
- Baker, J. D. 2006. The Hawaiian Monk Seal: Abundance Estimation, Patterns in Survival, and Habitat Issues. Unpublished PhD Thesis. University of Aberdeen, UK. 182 pp.
- Baker, J. D., C. L. Littnan, and D. W. Johnston. 2006. Potential effects of sea level rise on the terrestrial habitats of endangered and endemic megafauna in the Northwestern Hawaiian Islands. *Endangered Species Research* 4:1-10.

Comments on the Draft Monument Management Plan and Environmental Assessment for the Papahānaumokuākea Marine National Monument, page 14 of 19

- Behrenfeld, M. J., R. T. O'Malley, D. A. Siegel, C. R. McClain, J. L. Sarmiento, G. C. Feldman, A. J. Milligan, P. G. Falkowski, R. M. Letelier, and E. S. Boss. 2006. Climate-driven trends in contemporary ocean productivity. *Nature* 444:752-755.
- Bindoff, N. L., J. Willebrand, V. Artale, A. Cazenave, J. Gregory, S. Gulev, K. Hanawa, C. Le Quéré, S. Levitus, Y. Nojiri, C. K. Shum, L. D. Talley, and A. Unnikrishnan. 2007. 2007: Observations: Oceanic Climate Change and Sea Level. *in* S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K. B. Averyt, M. Tignor, and H. L. Miller, editors. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
- Caldeira, K., and M. E. Wickett. 2003. Anthropogenic carbon and ocean pH. *Nature* 425:365.
- Canadell, J. G., C. Le Quéré, M. R. Raupach, C. B. Field, E. T. Buitenhuis, P. Ciais, T. J. Conway, N. P. Gillett, J. T. Houghton, and G. Marland. 2007. Contributions to accelerating atmospheric CO<sub>2</sub> growth from economic activity, carbon intensity, and efficiency of natural sinks. *Proceedings of the National Academy of Sciences of the United States of America* 104:18866-18870.
- Collins, M. 2005. El Niño- or La Niña-like climate change? *Climate Dynamics* 24:89-104.
- Denman, K. L., G. Brasseur, A. Chidthaisong, P. Ciais, P. M. Cox, R. E. Dickinson, D. Hauglustaine, C. Heinze, E. Holland, D. Jacob, U. Lohmann, S. Ramachandran, P. L. da Silva Dias, S. C. Wofsy, and X. Zhang. 2007. 2007: Couplings Between Changes in the Climate System and Biogeochemistry. *in* S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K. B. Averyt, M. Tignor, and H. L. Miller, editors. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, United Kingdom, and New York, NY, USA.
- Donohue, M. J. 2007. Remote sensing reveals links among the endangered Hawaiian monk seal, marine debris, and El Niño. *Marine Mammal Science* 23:468-473.
- Fabry, V. J., B. A. Seibel, R. A. Feely, and J. C. Orr. 2008. Impacts of ocean acidification on marine fauna and ecosystem processes. *ICES Journal of Marine Sciences* 65:414-432.
- Feely, R. A., C. L. Sabine, J. M. Hernandez-Ayon, D. Ianson, and B. Hales. 2008. Evidence for upwelling of corrosive "acidified" water onto the continental shelf. *Science* 320:1490-1492.
- Feely, R. A., C. L. Sabine, K. Lee, W. Berelson, J. Kleypas, V. J. Fabry, and F. J. Millero. 2004. Impact of anthropogenic CO<sub>2</sub> on the CaCO<sub>3</sub> system in the oceans. *Science* 305:362-366.
- Finkelstein, M. E. 2006. Midway Atoll National Wildlife Refuge Lead Poisoning of Laysan Albatross Chicks: 2006 Summary Report. University of California, Santa Cruz, CA.
- Finkelstein, M. E., R. H. Gwiazda, and D. R. Smith. 2003. Lead poisoning of seabirds: environmental risks from leaded paint at a decommissioned military base. *Environmental Science & Technology* 37:3256-3260.
- Forster, P., V. Ramaswamy, P. Artaxo, T. Berntsen, R. Betts, D. W. Fahey, J. Haywood, J. Lean, D. C. Lowe, G. Myhre, J. Nganga, R. Prinn, G. Raga, M. Schulz, and R. Van Dorland. 2007. Changes in Atmospheric Constituents in Radiative Forcing. *in* S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K. B. Averyt, M. Tignor, and H. L. Miller, editors. *Climate Change 2007: The Physical Science Basis: Contribution of Working*

Comments on the Draft Monument Management Plan and Environmental Assessment for the Papahānaumokuākea Marine National Monument, page 15 of 19



- Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, United Kingdom, and New York, NY, USA.
- Hansen, J. 2006. Expert report submitted to the United States District Court, District of Vermont in regard to Case No. 2:05-CV-302 and 2:05-CV-304, Green Mountain Chrysler-Plymouth-Dodge-Jeep et al. v. Thomas W. Torti, Secretary of Vermont Agency of Natural Resources, et al.
- Hansen, J., M. Sato, P. Kharecha, D. Beerling, V. Masson-Delmotte, M. Pagani, M. Raymo, D. L. Royer, and J. C. Zachos. 2008. Target atmospheric CO<sub>2</sub>: Where should humanity aim? Available at <http://www.columbia.edu/~jeh/>.
- Hansen, J., M. Sato, R. Ruedy, P. Kharecha, A. Lacis, R. Miller, L. Nazarenko, K. Lo, G. A. Schmidt, G. Russell, I. Aleinov, S. Bauer, E. Baum, B. Cairns, V. Canuto, M. Chandler, Y. Cheng, A. Cohen, A. Del Genio, G. Faluvegi, E. Fleming, A. Friend, T. Hall, C. Jackman, J. Jonas, M. Kelley, N. Y. Kiang, D. Koch, G. Labow, J. Lerner, S. Menon, T. Novakov, V. Oinas, J. Perlwitz, J. Perlwitz, D. Rind, A. Romanou, R. Schmunk, D. Shindell, P. Stone, S. Sun, D. Streets, N. Tausnev, D. Thresher, N. Unger, M. Yao, and S. Zhang. 2007. Dangerous human-made interference with climate: a GISS modelE study. *Atmospheric Chemistry and Physics* 7:2287-2312.
- Hansen, J., M. Sato, R. Ruedy, K. Lo, D. W. Lea, and M. Medina-Elizade. 2006. Global temperature change. *Proceedings of the National Academy of Sciences of the United States of America* 103:14288-14293.
- Hoegh-Guldberg, O., P. J. Mumby, A. J. Hooten, R. S. Steneck, P. Greenfield, E. Gomez, C. D. Harvell, P. F. Sale, A. J. Edwards, K. Caldeira, N. Knowlton, C. M. Eakin, R. Iglesias-Prieto, N. Muthiga, R. H. Bradbury, A. Dubi, and M. E. Hatzioi. 2008. Coral reefs under rapid climate change and ocean acidification. *Science* 318:1737-1742.
- Hughes, T. P., A. H. Baird, D. R. Bellwood, M. Card, S. R. Connolly, C. Folke, R. Grosberg, O. Hoegh-Guldberg, J. B. C. Jackson, J. Kleypas, J. M. Lough, P. Marshall, M. Nystrom, S. R. Palumbi, J. M. Pandolfi, B. Rosen, and J. Roughgarden. 2003. Climate change, human impacts, and the resilience of coral reefs. *Science* 301:929-933.
- IPCC. 2007. 2007: Summary for Policymakers. in S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K. B. Averyt, M. Tignor, and H. L. Miller, editors. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, United Kingdom, and New York, NY, USA.
- Kleypas, J. A., R. A. Feely, V. J. Fabry, C. Langdon, C. L. Sabine, and L. L. Robbins. 2006. Impacts of ocean acidification on coral reefs and other marine calcifiers: A guide to future research. Report of a workshop held 18–20 April 2005, St. Petersburg, FL, sponsored by NSF, NOAA, and the U.S. Geological Survey, 88 pp.
- Levitus, S., J. Antonov, and T. Boyer. 2005. Warming of the world ocean, 1955-2003. *Geophysical Research Letters* 32, L02604, doi:10.1029/2004GL021592.
- Levitus, S., J. I. Antonov, T. P. Boyer, and C. Stephens. 2000. Warming of the world ocean. *Science* 287:2225-2229.
- Malcolm, J. R., C. R. Liu, R. P. Neilson, L. Hansen, and L. Hannah. 2006. Global warming and extinctions of endemic species from biodiversity hotspots. *Conservation Biology* 20:538-548.
- Meehl, G. A., T. F. Stocker, W. D. Collins, P. Friedlingstein, A. T. Gaye, J. M. Gregory, A. Kitoh, R. Knutti, J. M. Murphy, A. Noda, S. C. B. Raper, I. G. Watterson, A. J. Weaver, and Z.-C. Zhao. 2007. 2007: Global Climate Projections. in S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K. B. Averyt, M. Tignor, and G. H. Miller, editors. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge University Press, Cambridge, UK, and New York, NY, USA.
- Mimura, N., L. Nurse, R. F. McLean, J. Agard, L. Briguglio, P. Lefale, R. Payet, and G. Sem. 2007. 2007: Small islands. Pages 687-716 in M. L. Parry, O. F. Canziani, J. P. Palutikof, P. J. van der Linden, and C. E. Hanson, editors. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, UK.
- Naughton, M. B., M. D. Romano, and T. S. Zimmerman. 2007. A Conservation Action Plan for Black-footed Albatross (*Phoebastria nigripes*) and Laysan Albatross (*P. immutabilis*), Ver. 1.0.
- NMFS. 2007a. 2007 Hawaiian Monk Seal Population Assessment.
- NMFS. 2007b. Hawaiian Monk Seal Stock Assessment Report (SAR).
- NMFS. 2007c. Recovery Plan for the Hawaiian Monk Seal (*Monachus schauinslandi*). Second Revision. National Marine Fisheries Service, Silver Springs, MD. 165 pp.
- Orr, J. C., V. J. Fabry, O. Aumont, L. Bopp, S. C. Doney, R. A. Feely, A. Gnanadesikan, N. Gruber, A. Ishida, F. Joos, R. M. Key, K. Lindsay, E. Maier-Reimer, R. Matear, P. Monfray, A. Mouchet, R. G. Najjar, G. K. Plattner, K. B. Rodgers, C. L. Sabine, J. L. Sarmiento, R. Schlitzer, R. D. Slater, I. J. Totterdell, M. F. Weirig, Y. Yamanaka, and A. Yool. 2005. Anthropogenic ocean acidification over the twenty-first century and its impact on calcifying organisms. *Nature* 437:681-686.
- Overpeck, J. T., B. L. Otto-Bliesner, G. H. Miller, D. R. Muhs, R. B. Alley, and J. T. Kiehl. 2006. Paleoclimatic evidence for future ice-sheet instability and rapid sea-level rise. *Science* 311:1747-1750.
- Parnesan, C. 2006. Ecological and evolutionary responses to recent climate change. *Annual Review of Ecology and Systematics* 37:637-669.
- Parrish, F. A., and K. Abernathy. 2002. Movements of monk seals relative to ecological depth zones in the lower Northwestern Hawaiian Islands. Paper for Marine Mammal Commission Workshop on the Management of Monk Seals on Beaches in the Main Hawaiian Islands. Oct. 29-30, 2002.
- Polovina, J. J., E. A. Howell, and M. Abecassis. 2008. Ocean's least productive waters are expanding. *Geophysical Research Letters* 35, L03618, doi:10.1029/2007GL031745.
- Pörtner, H. O., M. Langenbuch, and A. Reipschläger. 2004. Biological impact of elevated ocean CO<sub>2</sub> concentrations: Lessons from animal physiology and earth history. *Journal of Oceanography* 60:705-718.

- Raupach, M. R., G. Marland, P. Ciais, C. Le Quéré, J. G. Canadell, G. Klepper, and C. B. Field. 2007. Global and regional drivers of accelerating CO<sub>2</sub> emissions. *Proceedings of the National Academy of Sciences of the United States of America* 104:10288-10293.
- Rignot, E., and P. Kangaratnam. 2006. Changes in the velocity structure of the Greenland Ice Sheet. *Science* 311:986-990.
- Royal Society. 2005. Ocean acidification due to increasing atmospheric carbon dioxide. Policy document 12/05. Available at [www.royalsoc.ac.uk](http://www.royalsoc.ac.uk). The Royal Society, London, UK.
- Ruttimann, J. 2006. Oceanography: Sick seas. *Nature* 442:978-980.
- Scavia, D., J. C. Field, D. F. Boesch, R. W. Buddemeier, V. Burkett, D. R. Cayan, M. Fogarty, M. A. Harwell, R. W. Howarth, C. Mason, D. J. Reed, T. C. Royer, A. H. Sallenger, and J. G. Titus. 2002. Climate change impacts on US coastal and marine ecosystems. *Estuaries* 25:149-164.
- Shukman, D. 2006. Sharp rise in CO<sub>2</sub> levels recorded. *in*. BBC News. Available at <http://news.bbc.co.uk/1/hi/sci/tech/4803460.stm>; Published March 14, 2006.
- Smith, C. R., M. C. Austen, G. Boucher, C. Heip, P. A. Hutchings, G. M. King, I. Koike, P. J. D. Lambshead, and P. Snelgrove. 2000. Global change and biodiversity linkages across the sediment-water interface. *Bioscience* 50:1108-1120.
- Solomon, S., D. Qin, M. Manning, R. B. Alley, T. Bentsen, N. L. Bindoff, Z. Chen, A. Chidthaisong, J. M. Gregory, G. C. Hegerl, M. Heimann, B. Hewitson, B. J. Hoskins, F. Joos, J. Jouzel, V. Kattsov, U. Lohmann, T. Matsuno, M. Molina, N. Nicholls, J. Overpeck, G. Raga, V. Ramaswamy, J. Ren, M. Rusticucci, R. Somerville, T. F. Stocker, P. Whetton, R. A. Wood, and D. Wratt. 2007. 2007: Technical Summary. *in* S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K. B. Averyt, M. Tignor, and H. L. Miller, editors. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, United Kingdom, and New York, NY, USA.
- Stachowicz, J. J., J. R. Terwin, R. B. Whitlatch, and R. W. Osman. 2002. Linking climate change and biological invasions: Ocean warming facilitates nonindigenous species invasions. *Proceedings of the National Academy of Sciences of the United States of America* 99:15497-15500.
- Thomas, C. D. C., A., R. E. Green, M. Bakkenes, L. J. Beaumont, Y. C. Collingham, B. F. N. Erasmus, M. Ferreira de Siqueira, A. Grainger, L. Hannah, L. Hughes, B. Huntley, A. S. van Jaarsveld, G. F. Midgley, L. Miles, M. A. Ortega-Huerta, A. T. Peterson, O. L. Phillips, and S. E. Williams. 2004. Extinction risk from climate change. *Nature* 427:145-148.
- Trenberth, K. E., P. D. Jones, P. Ambenje, R. Bogariu, D. Easterling, A. Klein Tank, D. Parker, F. Rahimzadeh, J. A. Renwick, M. Rusticucci, B. Soden, and P. Zhai. 2007. 2007: Observations: Surface and Atmospheric Climate Change. *in* S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K. B. Averyt, M. Tignor, and H. L. Miller, editors. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, United Kingdom, and New York, NY, USA.

- WBGU. 2006. *The Future of Oceans – Warming Up, Rising High, Turning Sour*. German Advisory Council on Global Climate Change, Special Report, March 2006, Available at [www.wbgu.de](http://www.wbgu.de).



## THE PACIFIC AMERICAN FOUNDATION

### BOARD OF DIRECTORS

Irwin K. Cockett, Jr, Chairman  
 Michael W. Beasley, Esq.  
 Secretary  
 Kenneth F. Brown  
 Chair, Emeritus  
 David EK Cooper  
 Lawrence Kamahele  
 Hamilton I. McCubbin Ph.D.  
 Heather K. Minton  
 Hon. Vicente C. Pangelinan  
 Alvin H. Pauole  
 Reidar Smith

### ADMINISTRATION

Herb Lee Jr.  
 Executive Director  
 Louis F. Perez III  
 Chief Financial Officer  
 Michael W. Beasley  
 General Counsel  
 Heather K. Minton  
 Director, NAPALI  
 Megan Vertido  
 PAF Web Master

### BRANCH OFFICERS

Vernon Miranda  
 VP, San Diego, CA.  
 John Kaulukukui  
 VP, Los Angeles, CA.  
 Kau'i Peralto  
 VP, Northern CA.  
 Julian Kau  
 VP, Utah  
 Reidar Smith  
 VP, Washington

### ADVISORY COUNCIL

Hon. Neil Abercrombie  
 Michael A. Boyd  
 Walter A. Dods, Jr.  
 Hon. Eni Faleomavaega  
 Hon. H. James Saxton  
 Carlos Taitano  
 Sister Bernice Tom

July 8, 2008

U.S. Fish & Wildlife Service  
 Papahānaumokuākea Marine National Monument  
 Box 50167  
 Honolulu, Hawaii 96850

Dear Co-Trustees:

### RE: Comments to the Draft Monument Management Plan

The Pacific American Foundation (PAF) has been committed to improving the lives of Pacific Americans since 1993 through five major pathways including: culture based education curriculum, mentoring and leadership training, teacher training, research, career development and parental involvement in education.

The Pacific American Foundation (PAF) was certified in 1998 by the IRS as a permanent nonprofit organization. PAF has also been recognized by the former and current Governors of the State of Hawai'i as a "nonprofit organization that serves the interest of Native Hawaiians for the purpose of planning, conducting, or administering programs (or parts of programs) for the benefit of Native Hawaiians. Currently PAF's programs include over 90 % native Hawaiians statewide.

Through PAF's pathways, we have been able to focus on environmental preservation, cultural leadership development, culture and place-based education strategies, conservation and the development of a broad network of Hawaiian and Pacific Island leaders.

The development of culture and place based curricula has opened the door for students and communities to re-discover the "community classroom" for learning. Places like Midway, Kure, French Frigate Shoals and many of the other Northwest Hawaiian Islands are prime community classrooms in which to motivate and empower our students, future leaders and communities to learn.

PAF's intention is to provide opportunities for the people of Hawaii and the Pacific, young and old, to experience the language, practices and values of Native Hawaiian culture. Cultural preservation and good stewardship is critical to Hawaiian identity and must be transmitted to the future generations. Additionally, we firmly believe that appreciation for one culture nourishes an appreciation for other cultures.

Programs that can help with teaching and reinforcing the correct values will go a long way in preparing our youth to become successful in all aspects of life.

Papahānaumokuākea, like the main Hawaiian Islands, are one of the greatest community classrooms on the planet. The monument represents an outstanding opportunity to cultivate students through an educational experience that is unmatched in the world. The connection to the host Hawaiian culture through both management and education strategies need to be at the forefront in this management plan.

Culture-based education and leadership models already exist that can and need to be incorporated into both a short and long-term management plan. It will be a critical investment and hopefully a model for others on the planet to follow.

The Census 2000 was the first national census taken that was able to aggregate data on Native Hawaiians and Pacific Islanders. The results showed that Native Hawaiians and Pacific Islanders are underrepresented in nearly all areas of business, professional and scientific areas of employment. This needs to change. While not everyone will have an opportunity to live or work within the monument boundaries, innovative culture based education strategies have increased student achievement and a motivation to learn and dream.

Management of the monument needs to sustain and integrate these strategies so that future natural resource managers, marine scientist, cultural preservationist and conservationist can pursue their dreams to give back to their own home communities through the inspiration of experiencing Papahānaumokuākea first hand.

In conclusion, I would like to see more opportunities created for Native Hawaiians and Pacific Islanders to be involved in education programs, internships, research, employment and stewardship of the monument long-term. Our Foundation is ready, willing and able to partner with managers that have been entrusted with this responsibility to help integrate successful models and create new ones as needed.

If there are any further questions, please contact us at 263-0081 or [herblee@thepaf.org](mailto:herblee@thepaf.org).

Sincerely,

Herb Lee, Jr.  
 Executive Director  
 Pacific American Foundation

629 Kailua Road, Kailua, Hawaii 96734 (808) 263-0081 Fax (808) 263-0082  
 Alexandria, VA \* Seattle, WA \* San Diego, CA \* Sandy, UT \* Hagatna, Guam  
 Website: [www.thepaf.org](http://www.thepaf.org) Email: [herblee@thepaf.org](mailto:herblee@thepaf.org)



UNIVERSITY  
of HAWAII  
MĀNOA

Water Resources Research Center  
Environmental Center

July 8, 2008  
Page 2

July 08, 2008  
RG: 0145

Ms. Susan White  
Box 50167  
Honolulu, HI 96850  
E-mail: PMNM\_MMP\_@fws.gov

Dear Ms. White:

Draft Monument Management Plan  
Papahānaumokuākea Marine National Monument  
Northwestern Hawaiian Islands

Papahānaumokuākea Marine National Monument (Monument) in the Northwestern Hawaiian Islands comprises one of the largest protected areas in the world. The Monument, a vast, remote, and largely uninhabited marine region, encompasses an area of approximately 139,793 square miles (362,061 square kilometers) of Pacific Ocean in the northwestern extent of the Hawaiian Archipelago. On June 15, 2006, President George W. Bush issued Presidential Proclamation 8031 establishing the Northwestern Hawaiian Islands Marine National Monument under the authority of the Antiquities Act of 1906 (16 U.S.C. 431). The Monument includes a number of preexisting Federal conservation areas: the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, managed by the Department of Commerce through the National Oceanographic and Atmospheric Administration (NOAA); and Midway Atoll National Wildlife Refuge, Hawaiian Islands National Wildlife Refuge, and Battle of Midway National Memorial, managed by the Department of the Interior through the United States Fish and Wildlife Service (FWS). These areas remain in place within the Monument, subject to their applicable laws and regulations in addition to the provisions of the Proclamation.

The Northwestern Hawaiian Islands also include State of Hawai'i lands and waters, managed by the State through the Department of Land and Natural Resources as the Northwestern Hawaiian Islands Marine Refuge and the State Seabird Sanctuary at Kure Atoll. These areas also remain in place and are subject to their applicable laws and regulations.

This Monument Management Plan (Plan) describes a comprehensive and coordinated management regime to achieve the vision, mission, and guiding principles of the Monument and to address priority management needs over the next 15 years. The Plan is organized into three main sections; introduction, management framework, and action plans that address specific issues related to priority management needs.

This review was conducted with the assistance of Ryan Riddle, Environmental Center.

**General Comments**

The plan is ambitious and comprehensive. It consists of six priority areas and twenty-two action plans and if implemented will cost on average \$ 23 million dollars a year if funding is appropriated by Congress. What will happen if the plan is not fully funded?

We also note that many parts of the plan call for the completion of sub plans or reports within a relatively short time frame. The Natural Resources Science Plan will be completed within 1 year (p.111), research needs will be identified within 1 year (p. 120), a Cultural Resources Program plan within 18 months (p. 123), an update of the Midway Atoll Historic Preservation Plan with 12 months (p. 131), a status report on potential environmental hazards within 1 year (p. 139) and several others within 18 to 24 months. This is a lot of work to be done in a short time. Is there sufficient staff to undertake these important tasks in the time allotted? If the work is to be done by consultants, are there sufficient resources to evaluate their work?

In addition to our general comments, we also have several specific comments.

**Climate Change (pp. 61-62)**

The estimated range of sea level rise due to ice sheet melt and thermal expansion is 0.6 to 1.9 feet (on page 62). Why then do you use a rise of 1.6 feet to illustrate the predicted loss of land due to sea level rise?

**Cruise Ships (p. 73)**

The DMMP mentions that two cruise ships visited Midway in 2004, and one cruise ship visited the site in the years 2005, 2006, and 2007. Are the number of cruise ships officially regulated, or have they been in the past? How and to what degree does the Monument financially benefit from these visits? Will the rising price of oil have an impact on the number of cruise ships that visit the Monument? How many cruise ships are estimated to visit the Monument each year?

**Institutional Arrangement for Management (pp. 81-82)**

It is unclear from the description of the institutional arrangement for management how decisions will be made by the Senior Executive Board (SEB). Will they make decisions by consensus, by majority vote or by some other method? Who calls meetings of the SEB and who chairs them? We are also curious as to how the Monument Management Board (MMB) will function. Who chairs this group and how will they operate? How will the SEB, the MMB and the interagency coordinating committee interact with each other and with the staff? With so many layers of management it seems likely that problems will occur.

2500 Dole Street, Krauss Annex 19 Honolulu, Hawai'i 96822  
Telephone: (808) 956-7361 Fax: (808) 956-3980  
An Equal Opportunity/Affirmative Action Institution

**Action Plans to Address Priority Management Needs (pp. 101-104)**

The total estimated cost of implementing the DMMP over 15 years (\$355,218,480) is a substantial sum. While the following sections give a timeframe during which Monument managers hope to commence or complete an activity, they do not clearly prioritize activities. Under a reduced budget, what activities would be deemed a priority and what activities would be put on hold?

**Activity MCS-2.3 (p. 113)**

We like the monitoring proposed in this section. We believe long term monitoring will be the key to keeping the NWHI in its near pristine condition. We would like to see this type of monitoring done in the main Hawaiian Islands where fishing pressures and pollution have heavily impacted habitat.

**Table 3.1.1: Summary of Strategies..... Science (p. 115)**

In the table on page 115 we note that the lead agency for Activity MCS-1.1: *Continue to characterize types and spatial distribution of shallow-water marine habitats*, is NOAA. Shouldn't the Department of Land and Natural Resources be the lead agency for shallow water studies? Near shore waters are the jurisdiction of the state and they should be the lead agency on monitoring that takes place in state waters.

**Table 3.1.2: Summary of Strategies..... and History (pp. 126-127)**

On the second page of the table, Activity NHCH-5.1: *Integrate Native Hawaiian values and cultural information into general outreach and education programs*, the lead agency listed is NOAA. Shouldn't the lead agency be the Office of Hawaiian Affairs which would have a better understanding of Hawaiian Culture and how it may be interpreted through outreach and educational programs? At the very least, some local entity should be the lead in carrying out this activity not a federal agency.

**Activity TES-2.5: Prevent Human Interactions with Cetaceans (p. 150)**

In the discussion of human/cetacean interaction, the DMMP states "The controls will aim to prevent disturbance to cetaceans resting in Monument lagoons or nearshore areas and prevent geological research using sound levels known to be dangerous to marine mammals." How will you prevent or discourage sonar use? How widely has it been used in the area in the past for geological or military purposes?

**Strategy HMC-10: Fulfill Wilderness Stewardship Responsibilities in the Monument within 5 Years (pp.173-174)**

The DMMP states that a wilderness review is underway for the area. How would a wilderness designation impact the Monument and operations within the Monument?

**Monument Permit Types (p. 220)**

We were disappointed that the plan says so little about the military's use of the area within the boundaries of the Monument. We note that military use is exempt from having to obtain a permit for use of the area within the Monument. Does this exemption stem from the executive order or is there some other mandate that exempts military use? Military vessels can cause as much or more damage than cruise and fishing vessels, why are they not subject to the same guidelines? Does the exemption apply to only use of the water areas of the Monument by military vessels or will the military be able to conduct landings on dry land?

**Strategy EN-1: Increase law enforcement..... plan (p. 233)**

How many enforcement officers will be necessary to police the entire area?

**Activity EN-2.4: Increase available platforms to support law enforcement (p. 235)**

Will the rising price of oil make it more difficult to put additional ships and planes on patrol to prevent violations of the Monument rules? The rising cost of fuel is an issue that may have a detrimental impact on enforcement. Without enforcement however, violations are sure to happen.

**Midway Atoll Visitor Services Action Plan (pp. 237-241)**

The plan never mentions the number of visitors that might visit Midway Atoll on any given day. Is there a ceiling on the number of people who can come to Midway Atoll from cruise ships? Is there a possibility that there may be more than one cruise ship anchored off of Midway wishing to land passengers? In this case can there be more 1,000 visitors on Midway at one time? Can this many people be safely accommodated?

**Strategy VS-1: Implement the Midway Atoll Visitor Services Plan, Providing Visitor Opportunities for up to 50 Overnight Guests at any one Time (p. 239)**

Do the overnight college groups mentioned in Activity OEL-1.8 count as part of the 50?

**Activity VS-1.2: Provide Visitors with Opportunities to Learn About and Appreciate the Monument's Cultural and Historic Resources (p. 239)**

On occasions when cruise ship passengers are visiting Sand Island for the day, how will they be managed? Will these 800+ visitors be required to stay in groups led by Monument personnel? Will they be allowed to explore the island on their own?

Thank you for the opportunity to review this Draft Plan.

Sincerely,



Peter Rappa  
Environmental Review Coordinator

cc: OEQC  
James Moncur, WRRRC  
Ryan Riddle

00165

July 7, 2008

U.S. Fish and Wildlife Service  
Papahānaumokuākea Marine National Monument  
PO Box 50167  
Honolulu, Hawaii 96850

Dear Sirs:

Thank you for the opportunity to comment on the Papahānaumokuākea Draft Marine National Monument Management Plan and Environmental Assessment. The Co-Trustees deserve congratulations for this thoughtful and comprehensive accomplishment.

I have been involved in the management of the NWHI, either directly or indirectly, for nearly 30 years. I share your passion for this place and remain committed to its protection in perpetuity.

Overall, I believe the course you have charted is sound. Here, in no particular order, are my thoughts and suggestions:

- (1) I applaud your commitment to "seamless integrated management" between the Co-Trustees, but I remain skeptical about your ability to pull it off. The Management Plan makes confusing references to the "primary" responsibilities of each Trustee and states that "each agency retains their spheres of jurisdiction, responsibility and expertise." Yet, the Plan does not explain, in real world terms, how that will be accomplished. Also, the Plan does not explain the function and scope of responsibility for each of the various boards and committees.
- (2) I would like to see greater emphasis placed on the issue of potential groundings by vessels passing through or near to the archipelago. The fear of a major oil spill kept me up at night when stationed at Midway, but it is the prospect of a spill at a more remote location in the archipelago that carries with it the greatest risk to fish and wildlife.
- (3) The \$355 million budget is daunting. Yet, it is even more troubling to find that there is no clear assessment of priorities among the many projects that are listed. Also, the "assignment" of funding responsibilities is problematic. For example, does it make sense to task the FWS with responsibility for funding the many infrastructure improvements at Midway or Tern island when all the Trustees are so dependent logistically on the operational condition of these facilities?

- (5) The Management Plan has generated some controversy regarding the proposed expansion of visitor activities at Midway. I think the proposal for gradual expansion and periodic reassessment is sound. Regrettably, the cost of the trip, the seasonal operation and the necessary limits on visitation will exclude many interested people from enjoying this wonderful place. This will be mitigated, at least in part, by the proposed off site educational opportunities.
- (6) It's not clear from the narrative how the assignment of "lead" was determined for some of the management activities. For example, why was NOAA assigned the lead for the unified permit application process, the emergency response activity and the science action plans? It seems to me that leadership for these activities should be shared.
- (7) It's not clear if/how the joint permit system will work. More specifically, how will differences of opinion between the Co-Trustees be resolved? Will the final decision take into consideration "spheres of jurisdiction, responsibility and expertise?"

Thanks you again for the opportunity to comment.

Aloha,



Robert Shallenberger, Ph.D.



**Surfrider  
Foundation.**

**KONA-HAWAII CHAPTER**

July 4, 2008

To: U.S. Fish and Wildlife Service  
Papahānaumokuākea Marine National Monument  
Box 50167  
Honolulu, Hawai'i 96850

From: R.H. Bennett Ph.D. Chairman 

Re: Comments on the Draft Management Plan Papahānaumokuākea Marine National Monument

In recognition of the world wide uniqueness of the NW Hawaiian Islands the Bush administration chose to designate the area as national monument. At least that is the rationale provided by the media. Those of us who dedicate our lives to conservation and adhere to the Hawaiian belief in pono, righteousness, we are deeply concerned that processes are being created to subvert the true purposes of a National Monument.

The NW Islands are so unique and so fragile that even the slightest human activity has demonstrable consequences. To keep this area as a true wilderness with no continual human activity allowed will be the only assurance that the region will thrive in its own natural order.

It has long been our concern that the area would be used as a military training, research and development area. Now that it has National Monument (NM) status the regulations can be used to effectively hide military uses from public view and scrutiny. We urge the USFWS to prohibit any and all military use of the region. There is more than ample open ocean to meet the national security needs of the military. Any conditioned use will not have sufficient public oversight to assure the military will do what they say they will do. Their record in this regard is incredibly Machiavellian, as manifest by their sanction of torture. Simply stated they cannot be trusted. There may be good meaning officers who will state honesty that rules and procedures will be respected, yet an order from command can collapse that honesty in an instant.

All decision making about this NM must be made in the open will full public involvement. The current planning and permitting process under the BLNR must be open and transparent and managed to give the public adequate time to be noticed and respond. The six day notice period is intended to limit real public input.

A citizen's advisory council with voting rights and authorities is truly shared governance of the NM. Interest groups with no authorities are not effective and only serve to cloud the issue of true citizen involvement.

For those allowed activities in the NM a carefully regulated permit process and policing and enforcement procedure must be well articulated in the DMMP. Penalties for permit violations must be harsh and serve to deter those who may see small fines as just the cost of doing business. The one strike rule has merit and should be part of the fine structure.

The Hawaiian culture very effectively and sustainably managed all the islands for thousands of years. The final management plan for the Monument must have a vision statement that equally embraces the cultural and ecological significance of the region, such as: "that the health, diversity and resources of the vast

P.O. BOX 895 Honaunau, Hawaii 96726 808.328.9605

00166



NWHI - its unique wildlife and cultural significance - be protected forever." Hawaiian cultural practitioners must be part of the management authorities of the NM.

For any permitted human activity in the NM a precautionary principle of "leave no trace" must be employed. Everything that gets carried in gets carried out as is the practice now in many protected areas within the national park system.

All fish and wildlife should be protected and no collection of species for consumption to matter how small allowed. Taking of species for future personal consumption or sale should be prohibited and substantial penalties incurred.

In summary the wilderness character of the region must be respected and protected. In this very remote area any conditioned uses are largely unenforceable and abuses will continue to occur.

We trust you will take our concerns beyond the letter of the law and support what is right, *Malama Pono!*

Draft Monument Management Plan  
Papahānaumokuākea Marine National Monument  
Northwestern Hawaiian Islands  
United States Fish and Wildlife Service  
300 Ala Moana Blvd. Rm. 5-231  
Honolulu, Hawaii 96830

00168

Comments:

My name is Marilyn Pollock. My address is P.O. Box 312, Hanalei, HI 96714. I am writing testimony against approval of a new 15-year plan for the Northwestern Hawaiian Islands because I believe it will be detrimental to the fragile and unique 1,200 square mile marine reserve. In reading the report I came up with several questions. The points I'm making with questions I ask you to consider.

1. What will happen when a growing population living on Midway (as well as the other neighboring atolls) finds that fresh water has been pumped out too rapidly, has not been replaced by rain, the result being saltwater intrusion?
2. What will happen when fresh water levels drop due to climate alteration?
3. What will happen when alien species and rat and mice populations infest the atolls, killing nesting birds, hatching turtles, plant root systems that act as cover and nesting structure for birds? Fire ants are a prime example of a noxious alien species introduced into Hawaii?
4. What will happen if pesticides used for rat and mice eradication are not properly disposed of and end up in the freshwater system or in the landfills?
5. What will happen when increased demands of tourism (the cash crop) up the count of daily arrivals causing increased on the natural life of the atolls? Tourism never decreases, only increases.
6. How will tourists take to any inspection for possible alien species introduction? Will the barges, sea planes, cruise ships be fumigated?
7. In World War II, 10,000 Navy personnel lived on Midway. The following wars stepped up operations. The Navy at present is asking for thousands more missile interception practices, SONAR and "early warning" ability. Midway as a military base will follow particularly since it will be reconstructed into an expensive municipality if your 15-year plan is approved. Are we in reality seeing your plan as an increase in war activity in the Pacific Rim?
8. Typhoons have been reported at 65 mph on Midway. Climate change is resulting in increased "unusual" weather patterns. How will you be providing for natural disasters?

These are a few of the unanswered questions and concerns not available in the slick and expensive research results (4 volumes, 2,000 + pages) done by Jones & Jones of Seattle, Washington at the taxpayers' expense.

**Conclusion:**

Midway Atoll supports an abundant and diverse wildlife fauna, including migratory sea birds, endangered Hawaiian monk seals, threatened green sea turtles, spinner dolphins, and a complex community of coral reef fishes and invertebrates. The impact of tourism, the chance for irresponsible and unethical collecting, man-made changes to the environment are so wide spread that they impact this location directly and indirectly on a global scale. What good is scientific data if the organism disappears? Scientific data cannot resurrect an extinct species. The tipping point for the world's oceans and atolls, coral reefs, mammals, fish, plants, and birds is not, not in the future. Please drop this "new" 15-year plan. You owe that much to future generations and to the oceans best life forms.

Thank you for hearing my testimony and considering my views.

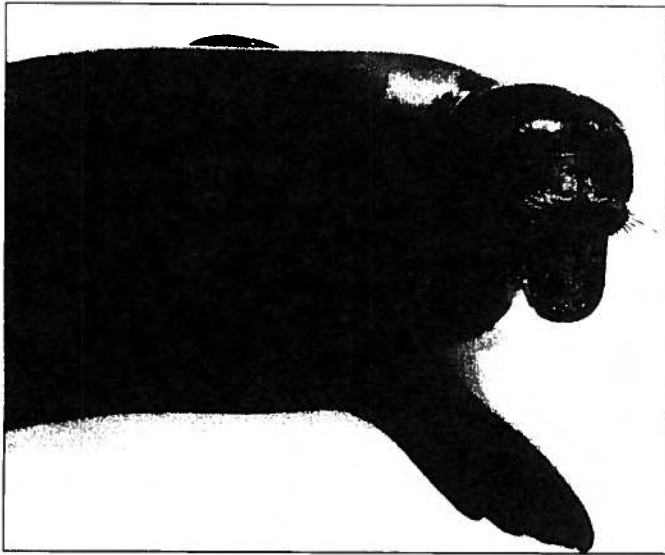
*Martin Larkin*  
PO Box 312  
Hanalei, HI 96714  
1-809-826-9251

**Photos from:**

Archipelago: *David Liittschwager & Susan Middleton*. Northwestern Hawaiian Islands



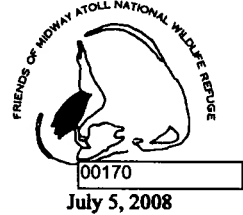
1. "Shed Bird" albatross chick. Shown with contents in his intestines; bottle caps, bic lighters, aerosol pumptop, broken clothespins and hundreds of plastic bits.



2. Hawaiian monk seal from an ancient lineage of seals. Seals are endangered. The mother seal requires quiet and a safe place to whelp her pup.

**FRIENDS OF MIDWAY ATOLL  
NATIONAL WILDLIFE REFUGE**

**1030 N. W. 176TH AVENUE  
BEAVERTON, OR 97006**



**OFFICERS**

**DARLENE MOEGERLE**  
RICHMOND, IN  
*PRESIDENT*

**ELLEN CASHMAN**  
NORTH ANDOVER, MA  
*VICE PRESIDENT*

**ROBERT C. FIELDS**  
BEAVERTON, OR  
*SECRETARY*

**CINDY WADDINGTON**  
HONOLULU, HI  
*TREASURER*

**DIRECTORS**

**CHRISTY FINLAYSON**  
ORONO, ME

**MOLLY KRIVAL**  
SANIBEL, FL

**MICHAEL LOGAN**  
MARIETTA, GA

**AVERY LOY**  
VANCOUVER, WA

**BETH SWEENEY**  
QUEENSBURY, NY

Dear Managers of the Papahānaumokuākea Marine National Monument,

Please accept this testimony on behalf of the Friends of Midway Atoll National Wildlife Refuge. The mission of the Friends of Midway Atoll National Wildlife Refuge (FOMA) is to support the refuge staff in their efforts to preserve, protect and restore the biological diversity and historical resources of Midway Atoll while providing opportunity for wildlife-dependent recreation, education and scientific research. We recognize and appreciate the effort put into drafting the management plan, and take a special interest in Volume IV, the Midway Atoll NWR Conceptual Site Plan.

The prospect of having the entire Northwest Hawaiian Islands under federal protection is an incredibly significant stride forward for preservation of the ecological integrity and biological diversity of the marine and terrestrial environments. We believe that through federal protection and continued management, the monument has the potential to provide refuge for a number of endangered and threatened species, as well as species which are critical to a healthy ecosystem. We strongly recommend ongoing habitat and ecological restoration projects which will ensure the perpetuation of the broad diversity of floral and faunal species, many of which are endemic to the monument.

The Friends of Midway Atoll National Wildlife Refuge also recognizes the cultural and historic significance of the monument. Because it is widely recognized that prior to European contact the indigenous Hawaiian population made forays into this area, we support any collaborative effort which promotes a better understanding between the Hawaiian community and the

E-MAIL: [FRIENDSOFMIDWAY@AOL.COM](mailto:FRIENDSOFMIDWAY@AOL.COM)  
WEBSITE: [WWW.FRIENDSOFMIDWAY.ORG](http://WWW.FRIENDSOFMIDWAY.ORG)

**Papahānaumokuākea Marine National Monument.**

The monument's historical record since 1778 contains a rich assortment of maritime and military activities. We strongly encourage ongoing efforts to locate, identify and interpret the maritime history of the monument, so long as these efforts do not adversely impact the ecological integrity of the numerous sensitive areas within the monument. The June 1942 American victory at the Battle of Midway is recognized as the turning point during the Second World War. We believe it is vitally important to preserve and interpret the remaining historic sites dating to this era, and to encourage a better understanding of the way that this particular battle shaped the course of American history.

Finally, we believe that continued discourse with the public on the future of the monument is vital to its success. While we recognize that the monument staff can draw upon a number of conceptual paradigms which will encourage public input and dialogue, we feel strongly that the creation of a Friends group, with its membership open to interested and concerned citizens, represents the most effective and democratic model available.

Through the creation of a Friend-style organization for the Papahānaumokuākea Marine National Monument a wide array of constituencies can be represented, including native Hawaiians, former military personnel, birders, photographers, scientists and concerned citizens from across the nation. While the Friends of Midway Atoll National Wildlife Refuge will always be a distinct entity, we encourage the creation of a Friend-like organization for the monument. We believe such an organization would have a broad scope, mandate and membership.

We of the Friends of Midway Atoll NWR, look forward to our continued close working relationship with and support of all three monument managing entities,

Thank you for giving us the opportunity to provide this testimony.

Sincerely,



Darlene Moegerle, President  
Friends of Midway Atoll National Wildlife Refuge, Inc.

TO: PMNM\_MMP\_Comments@fws.gov  
FROM: Barbara S. Mayer  
41-1019 Nenu St.  
Waimanalo, HI 96795  
808.259.8342  
bamayer@gmail.com  
DATE: Wednesday, July 2, 2008  
RE: comments on the Papahānaumokuākea MNM Draft Management Plan  
(herein after called "the Plan")

As a professional educator and curriculum writer, I would like to comment on the education components within the Plan, specifically education efforts aimed at children.

I suggest that the Monument's education efforts toward children could be accomplished using three methods, based on origin of effort and kind of child receiving the effort:

- Method #1 = on-site education efforts which would occur on Midway Atoll NWR and would be designed to reach children who are visiting the "window" of the Monument
- Method #2 = off-site education efforts designed to reach clusters of children, for example those in classrooms or Scout groups, where an adult teacher or leader would be present to interpret lessons/activities written about the Monument
- Method #3 = off-site education efforts designed primarily to reach individual children directly

Method #1 seems to be addressed primarily in "VS" sections...

...such as Volume 1, Action Plan 3.4 Managing Human Uses, especially 3.4.3 Midway Atoll Visitor Services Action Plan. However, there does not appear to be much detail or specific mention of interpretation geared to children specifically. This education effort needs to be fleshed out. Just one example would be to develop a "Junior Refuge Manger" program, such like the one at J.N. "Ding" Darling NWR. A similar program exists within the National Park Service where a "Junior Ranger" program is found at each park, monument, seashore, etc. (e.g., <http://www.nps.gov/braca/for/kids/beajuniorranger.htm>)

Method #2 seems to be addressed primarily in the "OEL" sections...

...such as Volume I, Action Plan 3.5.4 Ocean Ecosystems Literacy Action Plan. Considerable thought has gone into this Action Plan for reaching children primarily in classrooms. There are a number of lessons and activities that are tied to educational standards and benchmarks; some are currently available on the Internet (for example, <http://www.hawaiiatolls.org/research/NWHIED2005/resources/MarineDebrisModule.php>), while others are under development. However, I feel there is an unnecessary limiting statement in Appendix C, p. 26 (Strategy 6.1): "Working with the Navigating Change Educational Partnership, implement a week long standards-based teacher workshop on Midway in 2009 developed and conducted by the teacher focus groups in 2008." There's a similar statement on p. 27, 2<sup>nd</sup> paragraph: "The 2009 teacher workshop and beyond will be conducted mainly by the

*focus group teachers with the Navigating Change Educational Partnership providing support.*  
These statements are much too limiting to be adopted as policy; they leave out too many talented individual educators. Additionally, as inspirational as the “Navigating Change” curriculum is, educational effort for the Monument could benefit from a broader, more inclusive search for curricular materials.

Method #3 should be addressed in “CBO” sections...

...but doesn't appear to be. For example, Volume I, Action Plan 3.5.2 Constituency Building and Outreach Action Plan, “CBO,” is the logical place to outline an education effort that would reach individual children. If the idea is to “bring the Monument to the people,” then in order to reach the largest audience possible, CBO needs to clarify that “constituents” include future adults. The 12-year-old child today is just 6 short years away from becoming a voting adult. Appendix C, p. 28, Strategy 8.2 suggests an avenue for this type of education outreach when it talks about initiating “a distance learning program from Midway Atoll to bring the Monument to classrooms across the Nation...” Such distance learning must go beyond classrooms to reach individual children. It should include interactive websites like Virgin Islands National Park's online snorkel trip, [http://www.nps.gov/viis/forkids/online\\_snorkel\\_trips.htm](http://www.nps.gov/viis/forkids/online_snorkel_trips.htm).

As time goes on and environmental pressures & political concerns grow, public support for the Monument will be only as strong as the Monument's education success.

U.S. Fish and Wildlife Service  
Papahānaumokuākea Marine National Monument  
Box 50167  
Honolulu, Hawai'i 96850

RE: Papahānaumokuākea

Dear Colleagues,

I write to express my strongest support for the Papahānaumokuākea Marine National Monument and to urge you to maximize present and future opportunities for research and conservation of this unique resource. While first and foremost a resource of the people of Hawai'i, Papahānaumokuākea has no parallel on earth as a geological and biological feature, and thus should also be considered a resource of humankind.

In protecting this irreplaceable resource we must be careful that we do not protect it so well as to prevent ourselves from gathering essential data for the monitoring the Monument's health. If we stop collecting data in the Monument we are likely to miss developing problems and issues. Ongoing data collection and analysis is the key to understanding the system, conserving it effectively, and see problems on the horizon before they strike. While the Monument is protected from direct human impacts such as pollution and fishing, it is vulnerable to the impacts of climate change, broadly mixed pollution, invasive species and other threats.

The Monument also offers an ideal opportunity to compare pristine and degraded ecosystems, when contrasted with the Main Hawaiian Islands. The Archipelago offers us opportunities to learn how to more effectively manage and conserve living resources that can be found nowhere else on earth. If we do not take advantage of these opportunities we will be losing out in the long run as the world's population increases and its resources continue to be degraded. Manipulative experiments can be conducted to compare the Monument and Main Hawaiian Islands with negligible impact to the Monument, and a great benefit to conservation in the Archipelago as a whole.

Sharks are apex predators that are vital to the ecosystem, and are still found in healthy populations in Papahānaumokuākea, one of their last holdouts in the world. We can learn a great deal about shark biology and conservation by studying them in this pristine environment, both to preserve them in Papahānaumokuākea as well as to bring them back to health in the rest of the world (Activity MCS-1.2).

Furthermore, the apex position of sharks offers a variety of other opportunities such as research into bioaccumulation of toxins from WWII pollution as well as modern sources such as ship groundings. In particular, deep water species are likely to be long-lived and have the most acute bioaccumulations (Activity MCS-1.4).

Shark predation on monk seals is a critical issue (Strategy TES-1), so further studies of shark movement, behavior, distribution and feeding are necessary. Recently developed technologies, allow us to monitor free-ranging sharks and seals to better understand this interaction.

The great white shark visits the Hawaiian Archipelago much more frequently than most people realize (Weng et al. 2007). The use of Hawaiian water by this ultimate apex predator has serious consequences

Michael S. Spalding

00176

for potential prey species such as monk seals, turtles, and other shark species. Further research into the biology and interactions of white sharks in Hawaiian waters are urgently needed.

Pelagic fishes are critical members of the ecosystem, and the connectivity of these commercially and ecologically important species between the Monument, the Main Hawaiian Islands, and the wider Pacific Ocean is a critical conservation and biological issue. Tracking studies of pelagic fishes in the Monument are essential to understand these processes, and manage pelagic fishes in the Monument.

In summary, I urge you to support and encourage scientific research within the Monument, including tracking studies and manipulative experiments. This approach will prevent us from operating in the dark and allow us to see potential threats before they overtake us.

Sincerely,

Kevin Weng

Dr. Kevin Weng, SOEST Young Investigator/Assistant Researcher  
University of Hawaii at Manoa, 1000 Pope Road, Honolulu HI 96822  
Office 808 956 6346 Fax 309 423 4204 kevin.weng@hawaii.edu  
<http://www.soest.hawaii.edu/oceanography/faculty/kweng/>

Weng K, Boustany A, Pyle P, Anderson S, Brown A, Block B (2007a)  
Migration and Habitat of White Sharks (*Carcharodon carcharias*) in the  
Eastern Pacific Ocean. *Marine Biology* 152:877-894

July 10, 2008

U.S. Fish and Wildlife Service  
Papahānaumokuākea Marine National Monument  
P. O. Box 50167  
Honolulu, Hawaii 96850

Re: Comments on Draft Management Plan for  
Papahānaumokuākea Marine National Monument

To Whom It May Concern:

The management plan is very comprehensive and well thought out. I have four comments on the draft plan:

1. Permits to visit the monument for cultural and educational purposes should be encouraged and supported. In reviewing permits for cultural and other purposes, the permits should not be reviewed on the basis of the race of the applicants but rather on the merits of the permit. Native Hawaiians and non-native Hawaiians can both appreciate and experience the Northwest Hawaiian Islands.
2. The mission statement does not read clearly. This is an important statement and can be improved.

Carry out seamless integrated management to achieve strong, long-term protection and perpetuation of NWHI ecosystems. Native Hawaiian traditional and customary cultural and religious practices, and heritage resources for current and future generations.

I would suggest leaving the word "native" out of the mission statement as it may be interpreted to perpetuate culture and religious practices only for those of Hawaiian ethnicity. I think the intent is for management of the monument to not be interpreted racially in any way.

3. My suggestion is to allow access to the monument to a larger range of applicants that are now considered. If access to the monument is kept so restrictive that no one can go there then what is the purpose of preserving it, if it cannot be appreciated. Approved groups should have a blanket permit that would be streamlined if they are already qualified and have been approved in the past.
4. Gray water is a problem for approved boats to dispose of costing lots of fuel and wasted time to take it outside the monument. The damage from dumping gray

75B North Church Street | Walluku, Maui, HI 96793 | (808) 242-5788 | Fax (808) 242 6912

Michael S. Spalding

water into the ocean in the monument will not have any detrimental effect on the ecosystem but does have a financial burden on the permittees. Discharging gray water 3 miles off shore should be an adequate safe guard to the environment.

Thank you for considering these comments.

Cordially yours,



Michael S. Spalding

cc: Senator Daniel Inouye  
Governor Linda Lingle  
Reserve Council Rep. Timothy E. Johns  
BLNR Member Jerry Edlao

Testimony  
Regarding Protection of the Northwestern HAWAIIAN Islands -  
Papahānaumokuākea

Keomailani Von Gogh  
P.O Box 5864  
Hilo, HI 96720  
1- 808- 345- 8032  
July 22, 2008

Aloha,

I want to thank you for taking comments on this draft management plan for this most important and fragile place - Papahānaumokuākea. I attended the presentation of this draft plan in Hilo Hawaii on June 19, 2008. I received a hard copy and the DVD version of this plan.

First and foremost, I would like to say that it is of the utmost importance that Papahānaumokuākea and its inhabitants (birds, Monk Seals, fish, flora, fauna, etc.) on and around The NWHI receive the **MAXIMUM PROTECTIONS**. In reading this document I see a lot of focus on making The NWHI accessible to researchers, tourists, scientists, contractors, military, etc. I do not see resource protection as the "primary purpose" as the language would indicate.

On Jan 22, 2004, the citizen based Reserve Advisory Council approved some goals and objectives that should be reinstated into this management plan. These goals and objectives were developed over years in a transparent, public, and aboveboard process. It is curious that these have been taken out. The public needs to be the major part of this process. I do not feel confident that The Secretaries of Commerce (United States military), Governor of The State of Hawaii (tourism, University of Hawaii research groups), and OHA (States interests- not Hawaiians) as trustees will put resource protection as the main priority or "primary purpose" in managing the NWHI. It is unreasonable to have us believe given their track records that these stakeholders would put protection before profit.

Therefore, my proposal is that **NO** research should be conducted in or around the NWHI for the next 10 years unless it will benefit the protection and restoration of these islands. After 10 years researchers can go in and do their tests on the status of restoration efforts only when approved by the citizen based advisory council. **ABSOLUTELY NO MILITARY** exercises of any kind in or around these waters **EVER**. No tourism should be planned for at least 10 years, or until restoration is complete and then in only a very limited way. **ABSOLUTELY NO BIOPROSPECTING EVER**. No large commercial fishing enterprises for 5-10 years. Small commercial and sustenance fishermen should be able to continue provided they do not deplete the resources.

75B North Church Street Wailuku, Maui, HI 96793 (808) 242-5788 Fax (808) 242-6912



The Native Hawaiians managed these main Hawaiian Islands and the NWHI for millennia. There is no word for extinction in Hawaiian. The Native resource management system is called the KAPU system. The Hawaiian Monk Seal is now on the verge of extinction and according to this management plan military training is allowed around their habitat? This is the kind of contradictory claims that demonstrate protection and conservation is not the "primary purpose" of the management plan as presented. I concur with the statement by The Reserve Advisory Committee that requires "biological, cultural, and historic resource protection and integrity" to be favored "when there is lack of information regarding the potential impacts of any activity". The precautionary principal is a legally accepted and reasonable resource management methodology. This is what a management plan concerned with protection and preservation should include.

I have not been informed of an EIS being prepared or 106 process being started. I am requesting to be notified when these processes start.

Mahalo for your time,

Keomailani Von Gogh  
July 22, 2008  
Sent by e-mail to PMNM\_MMP\_Comments@FWS.gov

Public Comment on Draft Monument Management Plan-  
Papahānaumokuākea National Monument

Emily M. Yam  
2917 E. 6th Street  
Long Beach, CA 90814  
703-819-1331

Summary

I am writing to support the proposed management plan for the Papahānumokuākea National Monument. The Northwestern Hawaiian Islands (NWHI) are an important marine area because of the rich scientific, cultural, and educational opportunities afforded by this unique ecosystem. Having participated in research there and having since become an educator at a very large public aquarium, I am writing to support the proposed educational outreach and public education activities. Additionally, I believe that the scope of the proposed outreach activities should include participation not only in the Main Hawaiian Islands, but also on the mainland United States. Educating the general public about an ecosystem such as NWHI, with unique deep- and shallow water habitats, a long geologic history, and cultural significance, will help Americans respect and understand the responsibility they have to be stewards to the ocean.

My Background

\* I have a bachelor's degree in biology and a master's degree in teaching from the University of Virginia. I am also licensed to teach biology. I worked in oceanography for two field seasons in the Antarctic before my experience in the NWHI.

\* I was a volunteer participant on a research cruise to the NWHI funded by NOAA's Office of Ocean Exploration in August of 2003. While on the cruise, I managed data and helped to process samples for Dr. Amy Baco-Taylor. I also participated in three dives on the Pisces V submersible on seamounts in the NWHI.

\* I was employed at the Hawaii Undersea Research Laboratory (HURL) at the University of Hawaii- Manoa from December 2003 until August 2004, when I started graduate school. While at HURL, I analyzed data collected on the aforementioned cruise to the NWHI. My project was to identify deepwater invertebrate communities and underlying geology of NWHI seamounts.

\* I received a master's degree in marine science at the Virginia Institute of Marine Science, where I studied microbial ecology associated with marine snow particles.

\* I am currently employed as an education specialist at the Aquarium of the Pacific, a large, public, non-profit aquarium located in Long Beach, CA. I have expressed here my own personal opinions as a professional, informal educator; I am not speaking on behalf of the Aquarium of the Pacific.

Comment

Protecting and studying the NWHI gives us the opportunity to learn more about an important, essential habitat in the central Pacific. I would like to comment specifically on Strategy MCS-3, whereby research and monitoring activities will be communicated to the public.

As an educator with experience in academic science, I strongly believe that current science is really only as good as the ability to effectively communicate data. Educating the public at large is essential for fostering respect for the environment, initiating discussion, and mobilizing the public to make good decisions everyday at home and ultimately when they vote. My experience thus far makes me believe that many people here in the United States are not even aware of the existence of the NWHI - certainly an

unfortunate circumstance, given its ecological and cultural value. Teaching the public about the NWHI provides an excellent opportunity to raise ocean literacy by using an example that is not only protected and supported by our federal government, but also an important resource for our country.

Concerning Activity MCS-3.3 and 3.4

During the 2003 cruise, I wrote many of the dispatches from sea, which were posted on our cruise website. Since then, of course, technology has enabled these exploration cruises to be followed by learners all over the world. I also visited Mokupapapa Discovery Center while on the Big Island and thought it was interesting and a nice representation of the work done on NWHI. These outreach materials are certainly invaluable, since they make the science come alive for people who can now see images nearly real time, observe real progress in science, and experience the discovery for themselves. I support these activities whole-heartedly, having seen the products from many sides, as participant/ teacher, and learner. However, now that I live and work on the mainland, I see the need for an even broader reach for these activities. Here in California, we have many different marine environments- but in order for our public to fully understand the ocean and our individual and community impacts on the ocean, we have to consider the various ecosystems to which we are connected. Because the Monument is an area that is still being explored, it has the power to capture public attention and get people interested in the science going on there. I work with many kids who have this idea that we are "done" exploring our planet, when that of course is not the case at all. I try to combat that when I teach public programs and school programs; when I teach a program about the deep sea, I often talk about what it's like to ride in a submarine and to collect coral samples that are totally new species. I talk about my experiences in research and the kids connect to it because they see it as an opportunity for themselves. They do not realize that there are worlds of discovery that are right here, in the Pacific Ocean, the very same ocean down the road from their houses. I hope that future outreach and education activities on the Monument reach the public on the islands as well as those living here on the mainland.

\*\*\*\*\*  
Emily M. Yam  
em@alumni.virginia.edu  
antarcticem@yahoo.com  
\*\*\*\*\*



Public Comment NWHI Mgmt Plan.doc

#### Public Comment on Draft Monument Management Plan- Papahānaumokuākea National Monument

Emily M. Yam  
2917 E. 6<sup>th</sup> Street  
Long Beach, CA 90814  
703-819-1331

#### Summary

I am writing to support the proposed management plan for the Papahānumokuākea National Monument. The Northwestern Hawaiian Islands (NWHI) are an important marine area because of the rich scientific, cultural, and educational opportunities afforded by this unique ecosystem. Having participated in research there and having since become an educator at a very large public aquarium, *I am writing to support the proposed educational outreach and public education activities. Additionally, I believe that the scope of the proposed outreach activities should include participation not only in the Main Hawaiian Islands, but also on the mainland United States.* Educating the general public about an ecosystem such as NWHI, with unique deep- and shallow water habitats, a long geologic history, and cultural significance, will help Americans respect and understand the responsibility they have to be stewards to the ocean.

#### My Background

- I have a bachelor's degree in biology and a master's degree in teaching from the University of Virginia. I am also licensed to teach biology. I worked in oceanography for two field seasons in the Antarctic before my experience in the NWHI.
- I was a volunteer participant on a research cruise to the NWHI funded by NOAA's Office of Ocean Exploration in August of 2003. While on the cruise, I managed data and helped to process samples for Dr. Amy Baco-Taylor. I also participated in three dives on the Pisces V submersible on seamounts in the NWHI.
- I was employed at the Hawaii Undersea Research Laboratory (HURL) at the University of Hawaii- Manoa from December 2003 until August 2004, when I started graduate school. While at HURL, I analyzed data collected on the aforementioned cruise to the NWHI. My project was to identify deepwater invertebrate communities and underlying geology of NWHI seamounts.
- I received a master's degree in marine science at the Virginia Institute of Marine Science, where I studied microbial ecology associated with marine snow particles.
- I am currently employed as an education specialist at the Aquarium of the Pacific, a large, public, non-profit aquarium located in Long Beach, CA. I have expressed here my own personal opinions as a professional, informal educator; I am *not* speaking on behalf of the Aquarium of the Pacific.

#### Comment

Protecting and studying the NWHI gives us the opportunity to learn more about an important, essential habitat in the central Pacific. I would like to comment specifically on Strategy MCS-3, whereby research and monitoring activities will be communicated to the public. As an educator with experience in academic science, I strongly believe that current science is really only as good as the ability to effectively communicate data. Educating the

public at large is essential for fostering respect for the environment, initiating discussion, and mobilizing the public to make good decisions everyday at home and ultimately when they vote. My experience thus far makes me believe that many people here in the United States are not even aware of the existence of the NWHI – certainly an unfortunate circumstance, given its ecological and cultural value. *Teaching the public about the NWHI provides an excellent opportunity to raise ocean literacy by using an example that is not only protected and supported by our federal government, but also an important resource for our country.*

#### **Concerning Activity MCS-3.3 and 3.4**

During the 2003 cruise, I wrote many of the dispatches from sea, which were posted on our cruise website. Since then, of course, technology has enabled these exploration cruises to be followed by learners all over the world. I also visited Mokupapapa Discovery Center while on the Big Island and thought it was interesting and a nice representation of the work done on NWHI. These outreach materials are certainly invaluable, since they make the science come alive for people who can now see images nearly real time, observe real progress in science, and experience the discovery for themselves.

I support these activities whole-heartedly, having seen the products from many sides, as participant/ teacher, and learner. However, now that I live and work on the mainland, I see the need for an even broader reach for these activities. Here in California, we have many different marine environments- but in order for our public to fully understand the ocean and our individual and community impacts on the ocean, we have to consider the various ecosystems to which we are connected.

Because the Monument is an area that is still being explored, it has the power to capture public attention and get people interested in the science going on there. I work with many kids who have this idea that we are “done” exploring our planet, when that of course is not the case at all. I try to combat that when I teach public programs and school programs; when I teach a program about the deep sea, I often talk about what it’s like to ride in a submarine and to collect coral samples that are totally new species. I talk about my experiences in research and the kids connect to it because they see it as an opportunity for themselves. They do not realize that there are worlds of discovery that are right here, in the Pacific Ocean, the very same ocean down the road from their houses. I hope that future outreach and education activities on the Monument reach the public on the islands as well as those living here on the mainland.



## Marine Conservation Biology

Lance Morgan, Ph.D., VP Science  
23, 2008

July

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd. Room 5-231  
Honolulu, Hawaii

Submitted electronically to [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

MCBI appreciates the opportunity to comment on the Papahānaumokuākea Marine National Monument Draft Monument Management Plan and hereby submit our written comments. We welcome this first effort to manage the area using ecosystem-based and integrated management, and hope that the following comments will be used to strengthen the plan and ensure fulfillment of the Monument’s purposes of conserving wildlife, protecting and restoring the NWHI ecosystem, and preserving cultural resources.

### **Plan Fails to Set Clear Priorities for Conservation**

Overall, we feel that the Plan outlines a number of key efforts to ensure effective protection and restoration of the Monument and its unique natural and cultural heritage. Unfortunately, not all of the Action Plans are likely to be funded and implemented to the degree necessary. Therefore, clear priorities need to be stated. The Draft Plan states that its goal is to “ensur[e] the coordinated management” of the Monument’s resources and to “address priority management needs over the next 15 years.”<sup>1</sup> The Plan is structured to identify and address priority management needs,<sup>2</sup> yet there is very little effective prioritization for the short, medium, and long term. The Draft Plan acknowledges that “all funding for current and possible future Monument activities is subject to the budgeting and appropriations processes of the Federal and State governments,”<sup>3</sup> but no attempt is made to prioritize where available money will be directed or which actions will take a back seat at different levels of potential funding.

The Plan makes no attempt to prioritize between or within action plans. Therefore, the Ocean Ecosystems Literacy Action Plan and the Threatened and Endangered Species Action Plan are apparently on equal footing. What happens when the Monument does not receive requested funding? The Draft Plan provides no guidance or process for determining whether to fund efforts to ensure the survival of the unique and important Hawaiian monk seal by

<sup>1</sup> Draft Plan, 2 at Ins 12, 36-7.

<sup>2</sup> Draft Plan, 3 at Ins 16-17.

<sup>3</sup> Draft Plan, 101 at Ins 27-8.

[lance@mcbi.org](http://lance@mcbi.org) • (707) 938-3214 • [www.mcbi.org](http://www.mcbi.org)  
14301 Arnold Drive, Suite 25 • Glen Ellen CA 95442 USA



conserving critical habitat or to fund programs that will create curricula to increase ocean ecosystems literacy within 3 years.<sup>4</sup> It is unfortunately foreseeable that, without any guidance from the Management Plan, slim budgets will be directed at clear-cut, short-term, less expensive projects such as oceans literacy rather than as-yet not fully defined, long-term projects to identify and try to conserve shrinking habitats critical to the monk seals' survival. MCBI supports the need for environmental literacy programs, but we worry that unless the Final Management Plan identifies clear priorities for action, activities that are fundamental to the Monument's protection purpose will be pushed aside in favor of more easily attainable actions.

Below, we provide comments on most of the individual Action Plans. The detailed comments, however, should in no way disregard the overriding comment that certain action plans, such as the Threatened and Endangered Species Action Plan, should take priority over others, and that activities such as conservation of seal habitat should take priority over outreach and education activities. The Vision and Mission identified in the Draft Plan must remain the priority; Monument goals should be prioritized to reflect this priority.<sup>5</sup> Again, we are not downplaying the importance of outreach and education, but if funding and staffing shortages necessitate implementation of only some of the activities and/or action plans, the Management Plan must provide real and concrete guidance on what the priorities will be. One possible way of prioritizing would be by restructuring or reordering the Action Plans to reflect the Monument's purposes of preservation and restoration.

In order to identify priorities that will most directly address the primary purpose of the Monument, the Management Plan should identify activities necessary to protect the unique wildlife of the NWHI and cultural resources, including threat reduction, and recovery and stabilization, followed-only as financing allows-by outreach and education. MCBI proposes that, in order to protect the Monument's resources, priorities include:

- Hawaiian monk seal conservation and protection, based on recommendations in the 2007 Recovery Plan;
- Conservation for other threatened and endangered species (e.g., albatross, Laysan duck, and sea turtles), based on recommendations in appropriate Recovery Plans;
- A program for managing research in the Monument to reduce duplicative invasive research, and the use of research-guided management actions to ensure that research projects are prioritized based on their usefulness in achieving resource protection in the Monument;

<sup>4</sup> Draft Plan, 149, Activity TES-1.3; 269, Activity OEL-1.1.

<sup>5</sup> Draft Plan, 96, Table 2.1.



- Sustainable power sources and increases to vessel efficiency and cleanliness should be prioritized in the substantial investments made to the Monument's infrastructure;<sup>6</sup> and
- Increased inter-agency agreements on requests and allocations for funding to ensure optimal inter-agency funding and coordination.

### Funding – Section 3.0

As the Draft Plan states, "roughly one-quarter of [the estimated implementation costs over the next 15 years] ... would be allocated to one time infrastructure development activities designed to replace or enhance supporting infrastructure at existing field stations, rehabilitation of historic buildings at Midway, and increase transportation and enforcement assets Monument wide."<sup>7</sup> The Final Plan *must* include prioritization of these funding targets, with a focus on protection rather than outreach and opening of the Monument to increased visitor interactions. After all, visitor interest in the area will drop if the area's wildlife decline and the ecosystem suffers. If full funding is not allocated, it is not acceptable for infrastructure development to take priority over actions that would more directly protect and restore NWHI species and habitats.

While we recognize that the Presidential Proclamation establishing the Monument provides a mechanism for tourism on Midway, the Proclamation and Draft Plan Vision and Mission are also very clear that *protection* is the primary purpose and all activities should be pursued only as they are consistent with this primary purpose. Prioritizing redevelopment of Midway, as the Draft Plan seems to do by allocating such a substantial portion of the proposed budget to infrastructure development, is not consistent with protection. On the other hand, we recognize that a certain amount of infrastructure is needed to support ecosystem protection and restoration as well as tourism. What the Plan fails to do is discriminate between urgent management facilities that are absolutely necessary for protection and restoration (e.g., a care facility for monk seals), and more discretionary future needs.

### Marine Conservation Science Action Plan – Section 3.1.1

Overall, the plan is comprehensive in its scope of activities, but fails to state what scientific research is necessary or critical to establish ecosystem-based management and fulfill the conservation mandate of the Proclamation. We look forward to the forthcoming Science Plan to help fill in many of the Draft Plan's missing details and identify clear management priorities. We expect that the Science Plan, when developed, will include priorities for research consistent with the following:

<sup>6</sup> Draft Plan, 293 at CFO-1.3.

<sup>7</sup> Draft Plan, 101 at Ins 15-19.



1. Science necessary to effectively implement ecosystem-based management to achieve the Monument's protection purpose, i.e., research to help managers track and respond to the health and function of the Monument's ecosystems and its key species and habitats, and
2. Identification of management priorities and a discussion of how research acting on these priorities will help address ecosystem-based management.

The Draft Plan identifies a budget that gives more to interpretation and science than to conservation and resource protection. Again, protection is the vision, mission, and purpose of the Monument. Therefore, it is only appropriate that funding for conservation be increased, especially in support of the critically endangered Hawaiian monk seal and other threatened or endangered species and the threats to them. Research that is outside the scope of ecosystem-based management or that does not directly address Monument natural resources should be allowed based on whether such research is non-invasive, and only as funding, staffing, and logistical support resources allow after conservation actions are addressed.

In order to establish ecosystem-based management to effectively protect Monument resources, we suggest that the following should be prioritized or considered:

- Conduct a competent ecological history of the region to assess effects from anthropogenic influences and establish appropriate baselines for management.
- Characterize the ecology of the entire area, including deep water and offshore habitats, to ensure a complete accounting of Monument resources.
- Establish a monitoring program of indicator species and environmental data to track changes in the ecosystem and to help trigger management and protection activities.
- Freely and openly allow data access to all co-Trustees; access for the public should be defined and implemented and should be as open as possible. A strategy for promptly processing relevant information should be developed to inform managers of deteriorating or changing conditions.
- Partner with other researchers to look at connections to other regions and initiatives at different spatial scales, for example:
  - Tracking of albatross leaving the Monument for other parts of the Pacific,
  - Tracking of monk seals and green turtles moving throughout the Hawaiian archipelago, and
  - Tracking marine debris entering the Monument from locations throughout the Pacific.
- Establish *a priori* priorities for active management versus monitoring in the event of budget shortfalls. Evaluate the appropriate intervals for monitoring natural resources to maximize management efforts and ongoing funding.
- Given the looming and potentially significant impacts of climate change, including a rise in sea-level, and increasing acidification and warming of ocean waters, the marine conservation science plan must address the significance and impacts of these changes and to the NWHI ecosystem and efforts to mitigate them.

lance@mcabi.org • (707) 938-3214 • www.mcabi.org  
14301 Arnold Drive, Suite 25 • Glen Ellen CA 95442 USA



- Create a regularly-scheduled research workshop to facilitate discussions between researchers and managers regarding research that applies to management goals, as well as ways to use research time and effort more effectively. The workshop should be used to collaboratively develop research priorities and identify how to best leverage opportunities to access the region.
- Adopt a scientific code of conduct for researchers and their transportation and support staff. As part of this, researchers' informal agreement not to engage in sustenance fishing in the Monument should be formalized.

### Native Hawaiian Culture and History Action Plan – Section 3.1.2

MCBI concurs with the Draft Plan that Native Hawaiian history in the NWHI is of highest priority. We agree that the Native Hawaiian archeological sites and artifacts on Necker and Mokumanana are highly significant, should be preserved, and need the highest quality care. These sites are important to developing a deeper public understanding of Native Hawaiian history. We look forward to the completion of the Cultural Resources Program Plan, and expect it to fill in the details for management of these landmarks, and allow for historic research and education that will help to preserve these sites.

The Native Hawaiian Community is a diverse community with regional and philosophical differences. Given this, it is important for the Native Hawaiian Working Group to have open public meetings and reach out to rural Native Hawaiians and those who reside on the mainland. It is also imperative that the Native Hawaiian Working Group reach out to Native Hawaiian leaders who have not been following the development of the NWHI Monument. Finally, the Native Hawaiian Working Group should cooperate and coordinate with archeologists and other social and natural scientists in the preservation of history in the NWHI.

### Threatened and Endangered Species Action Plan – Section 3.2.1

#### *Hawaiian Monk Seal – Strategy TES-1*

The recovery of the Hawaiian monk seal should be clearly highlighted as a top priority of the Monument Management Plan. Indeed, the Hawaiian monk seal is the last hope of the entire genus. We applaud that the monk seal activities are based on the Recovery Plan. As discussed in Strategy TES-1, the Recovery Plan identifies eight critical actions "required to address current and potential threats to the monk seal."<sup>8</sup> However, the five activities mentioned in the Draft Plan only seem to relate to three of the eight key actions identified by the Recovery Plan. It is unclear why these five activities were chosen or whether they are the

<sup>8</sup> Draft Plan, 148, Ins 10-12.

lance@mcabi.org • (707) 938-3214 • www.mcabi.org  
14301 Arnold Drive, Suite 25 • Glen Ellen CA 95442 USA





most appropriate priorities or efficient uses of funding and staffing. Furthermore, there is no discussion of exactly what types of intervention and care activities need to be conducted on various islands year-round. The Midway Action Plan mentions the need for a monk seal care facility, but the Threatened and Endangered Species Action Plan fails to discuss the need for this facility or how it will be used. MCBI believes a major flaw in the monk seal strategy identified in the Draft Plan is a lack of field staff during the fall and winter months. A more year-round presence dedicated to seal protection and recovery would be on-hand to conduct life-saving interventions and observations.

The Draft Plan lacks detailed discussion of how the different involved agencies will work together in requesting appropriations, in spending allocated funds, and in identifying management and research projects to pursue. We expect to see some of this discussed in the Science Plan. We also caution against a strong focus on research *per se* as opposed to active restoration efforts. Some research is warranted, but the first priority should be to save individual seals and ensure they reach breeding age. A significant flaw in past efforts to save the monk seal has been the inadequate coordination and cooperation between and among federal and state agencies. The newly arrived NOS/NMSP cannot just delegate seal recovery to NMFS; NOS has as much responsibility to ensure the seal's survival as does NMFS. The co-managers need to come to consensus on an approach, who will request what funding, what research will be done, and what year-round care given. The research workshop recommended above would be useful in fostering input for some of this decision-making. This workshop need not be an effort to reinvent the wheel of the Recovery Plan. We argue that the Recovery Plan must be fully implemented in the Monument.

Given the critical status of the monk seal and the role that the monk seals play in the Northwestern Hawaiian Islands ecosystem, we feel that monk seals should be identified as an indicator species and that their recovery should be one of the Monument's highest priorities. As we have stated previously, we applaud the outreach and education programs discussed in Activity TES-1.5, but feel that they should not be a priority over other conservation activities. Additionally, outreach and education programs should focus on reducing seal-human interactions and securing resting beaches in the Main Hawaiian Islands, rather than general awareness-raising of the monk seals' critical status.

Monk seals are a useful overarching Monument priority given that their conservation intersects with so many other species and issues involving the Monument. Monk seals are a useful indicator species given their connection to marine debris, alien species, human encroachment and interactions, and elements of the ecosystem including sharks, bottomfish, lobsters, and beaches. Good cross-cutting research and activities should include assessments of



both sharks and seals off the same atolls, collection and analysis of location and species of sustenance fishing take in relation to monk seal feeding grounds, recovery of lobsters as important components of seal diets, and recovery of marine debris. The protection and management of habitats, including foraging areas and travel routes (proposed in TES3.3 as an activity to protect sea turtles), would be beneficial for the seals. While conservation of the monk seals has thus far taken a back seat and been stymied by inter-agency disagreements, the Monument provides the means to get on-track with protection of this critically endangered species by solidifying working relationships, funding, and research while taking a hands-on approach to actively stabilize the monk seal population and bring it back from the brink.

Specific recommendations for the Monument with regard to monk seals are:

1. Expedite and streamline permits for monk seal work within the Monument, including important actions such as captive care, shark deterrence and removal, and removal of marine debris from seal resting areas and colonies.
2. Prioritize research of direct relevance to monk seals in the Monument:
  - a. Shark behavior and predation
  - b. Interactions and behavior of uluas with monk seals
  - c. Shark and/or ulua deterrence and removal
  - d. Lobster recovery
3. Provide assistance and logistical support to scientists and veterinarians needing to access the Monument for monk seal work, temporary holding of seals, and transporting of seals.
4. Accord high priority to seals and personnel needing to attend to seals on ships and flights to and from the Monument.
5. Clarify lead agencies for funding requests.
6. Highlight the monk seal in educational and outreach materials developed for the Monument.

#### *Green Sea Turtles – Strategy TES-3*

The activities identified for green sea turtles, particularly TES-3.3, seem sound and beneficial for this one species. Although other sea turtles are rare in the Monument, it is unclear why no other sea turtle species are included. Additionally, the Monument provides the opportunity to attempt to further understand the high incidence of fibropapillomas in some Hawaiian sea turtle populations, and ways to counteract expected rise in this deadly disease as climate change accelerates. The Monument, as a place of less human interaction than the Main Hawaiian Islands, provides a wonderful opportunity for research and action, yet the Draft Plan does not even mention the topic. Some analysis of the threat of sea level rise should be part of



the research plan, given that most (90%) of Hawaii's sea turtles nest in the NWHI, and many of these beaches will be threatened by higher sea levels.

There is also no mention of how the Draft Plan's strategies and activities relate to the recommendations of sea turtle Recovery Plans. Recovery Plans are also absent from discussions of other threatened and endangered species. In order to ensure that activities prioritized by the Management Plan are the most relevant to conservation of threatened and endangered species, inter-agency cooperation and coordination with Recovery Plans must be assured.

### **Migratory Birds Action Plan – Section 3.2.2**

Activity MB-3.1 is the type of research we have recommended in several places – research that uses key locations and species as indicators of greater ecosystem health and needs. The inter-agency cooperation on identifying these indicator species, and the use of the Regional Seabird Conservation Plan, an already completed assessment of needed actions, are exemplar and should be used in other sections of the Management Plan.

### **Habitat Management and Conservation Action Plan – Section 3.2.3**

The "active management"<sup>9</sup> discussed in the introduction for this plan is precisely the type of management we applaud in the Monument. It is important that the Monument pursue active management, as appropriate, rather than just observed and researched, in order to achieve eternal protection of the NWHI ecosystem. At the same time we are concerned that some of the active management discussed in this plan is more hands-on and invasive than necessary. Management should avoid invasive research that is not closely associated with management priorities. When research is identified in the Management Plan, it would be beneficial to also identify how management actions will be influenced by the research priorities. As always, the focus should be on protection, not on research for research's sake. Research in the Monument must have tangible benefits to NWHI ecosystem that the Monument was established to protect.

While the activities discussed in Strategy HMC-8 for control of ironweed are necessary, there is no activity identified to replace this invasive with appropriate native species. In order to maintain appropriate habitat and prevent erosion, reintroduction of natives should go hand-in-hand with removal of invasive species.

<sup>9</sup> Draft Plan, 165 at In 40.



### **Marine Debris Action Plan – Section 3.3.1**

MCBI applauds efforts to remove and reduce additional debris from entering the Monument, especially in areas where the debris may negatively impact marine life (especially monk seals, sea turtles, and seabirds). Actions to determine the type and source of this debris are important, but of second tier importance. MCBI believes that greater awareness of marine debris is an issue that will require more resources than the Monument has available. Instead, we encourage active collaboration and partnering to address this issue at the national and global scales. The Monument could be helpful in developing bounty programs to encourage removal of marine debris and possible identification of the sources of discarded fishing gear and other forms of debris.

### **Permitting Action Plan – Section 3.4.1**

The Permitting Action Plan appropriately discusses a methodology for ensuring a unified and expedited review process for all permits. What is lacking in this discussion are activities to identify consequences for permit violations. Without sufficient penalties, permits are useful only for data collection, not restrictions on use of Monument resources. The General Counsel of all co-Trustees and the Coast Guard must be involved to ensure that regulations and permits contain all necessary language to apply discouraging penalties.

### **Research Permits**

We hope that the Draft Science Plan will consider a system to assign values to proposed research. The permit application should require applicants to identify how the research will assist management needs and/or marine management. All proposed research permits should be open for a public comment period. Additionally, proposed permits should be scored by managers according to how well the research will meet management needs and how invasive the will be. Managers should use these scores when deciding which permits to authorize; the scoring mechanism would provide a transparent process to ensure that research is conducted in accordance with and to support Monument management priorities.

### **Sustenance Fishing Permits**

Pursuant to the Monument regulations, the Secretaries of Interior and Commerce should develop "systematic reporting requirements."<sup>10</sup> An accurate assessment of impacts of sustenance fishing cannot be conducted without inclusion of the location of catch in reporting requirements. Only with information on catch location can any impacts on localized populations, monk seals, etc. be assessed. Having said that, MCBI feels that no sustenance fishing should be allowed in the Monument. Bottomfishing was determined to be incompatible

<sup>10</sup> 71 Fed. Reg. 51139-40 (August 29, 2006).





with protection of the NWHI ecosystem, and the Presidential Proclamation therefore phased out commercial catch. While US Fish and Wildlife recommends a seemingly tight limit on the numbers and types of fish allowed to be taken by sustenance fishing around Midway, there are no similar limits for the rest of the Monument. It is inconsistent to phase out commercial fishing and yet allow unrestrained numbers of fish be taken for sustenance fishing from much of the Monument with fewer reporting restrictions than commercial fishing is subject to.

### NEPA Analysis of Permits

When NEPA analysis is conducted for all permitted activities, such analysis should be done on a cumulative basis. The most unique quality of the Monument is the minimal level of current human impacts. All NEPA analyses must therefore be done cumulatively in order to truly determine the proposed activity's impact. Additionally, all analyses must weigh how the activity is consistent with protection of the NWHI ecosystem and cultural resources, and must err on the side of caution, as required by the Presidential Proclamation.

### Enforcement Action Plan – Section 3.4.2

The Enforcement Action Plan appropriately emphasizes that inter-agency cooperation is necessary. We also applaud mention of "the potential use of other technological capabilities."<sup>11</sup> We note two activities that should be tightened up in this Plan:

- Activity EN-1.2 – There is mention of discussions to formalize Coast Guard Support, but no mention of a timetable or the urgency of the creation of this support, as opposed to the mere discussion. The Plan should state when adequate enforcement will be in place and what it will look like.
- Activity EN-1.5 – Specific goals for the amount of increased enforcement capacity required at Midway should be set. Additionally, visitor activities at Midway should be delayed until sufficient enforcement capacity is available. As a "major access point into the Monument,"<sup>12</sup> it would be irresponsible to allow interactions to increase without *simultaneously* increasing enforcement capacity.
- As discussed in the Permitting Action Plan, clear and consistent penalties for permit violations must be enacted into regulation with approval of appropriate Offices of General Counsel and the Coast Guard. There could be significant impacts to the Monument's resources if permits are issued without an effective means of assessing penalties, including the immediate and permanent revocation of the permit.

<sup>11</sup> Draft Plan, 232 at Ins 14-15.

<sup>12</sup> Draft Plan, 234 at In 4.



### Midway Atoll Visitor Services Action Plan – Section 3.4.3

MCBI supports a visitor program to Midway, as long as the conditions of the program are sufficient to ensure that conservation of the NWHI ecosystem, its unique flora and fauna, and other resource protections, remain the top priority and are achieved within the context of the program. Activity VS-1.3 would establish monitoring of the visitor program, but the results of this monitoring are not mentioned in Strategy VS-2, which would assess the overall success and needs of the program. Because protection is the goal of the Monument, the biennial assessment of the visitor program must explicitly consider and defer to monitoring results and resource needs, not just to finances and visitor satisfaction.

It is not clear why wildlife dependent and independent activities are given different review timeframes. On the surface, it would seem that wildlife dependent activities should have the shorter of the two timeframes.

Visitor impact should be mitigated by restricting locations for visitor interactions. For example, steps should be taken to minimize visitor impact to fragile coral reefs by controlling entry/exit locations. MCBI feels that, given the draw of the Monument, monthly and yearly limits should be placed on the total number of short-duration prearranged visits discussed in Strategy VS-1. Education of visitors should include ways that Monument restrictions are relevant to other areas. For example, this will be a prime opportunity to educate visitors about interactions with wildlife, ways to prevent damage to coral reefs while snorkeling and diving, and the impact of marine debris throughout the Pacific.

Most importantly, given funding and staffing restrictions, the visitor program should not take priority over necessary research and management activities to protect the NWHI ecosystem and cultural resources with the Monument. While there will certainly be an allure to spending time and money on the visitor program (as seen in proposed budget of the Draft Plan), it can never be forgotten that protection is the purpose of this Monument. In that vein, and as mentioned above, MCBI applauds Activity CFO-1.3, which would develop renewable energy and waste reduction systems in development plans.

### Agency Coordination Action Plan – Section 3.5.1

We applaud the initiatives to facilitate inter-agency cooperation and establish a process to learn from mistakes and amend agreements. The Draft Plan allows agreements discussed in Activity AC-2.1 to specify "crosscutting budget initiatives."<sup>13</sup> Instead of allowing such initiatives, the Management Plan should require formalization of inter-agency budget requests

<sup>13</sup> Draft Plan, 247 at Ins 20-21.



and expenditures. Given the crucial role of funding to the success of the Plan and protection of the NWHI ecosystem and cultural resources, a mere discussion is insufficient. On a similar note, Activity AC-2.2 should contain deadlines for development of needed interagency agreements, grants, and memoranda of agreement. The sooner these arrangements are developed, the more smoothly, efficiently, and successfully the Monument will be run.

#### **Constituency Building and Outreach Action Plan – Section 3.5.2**

MCBI is disappointed that the successful model of the Reserve Advisory Council is not being followed and that the Draft Plan proposed a Monument Alliance instead of a Monument Advisory Council (MAC). The RAC is a body familiar to the public and all co-Trustees. This successful model should therefore be the model for constituency building and outreach. The MAC should be as transparent as is feasible and should consist of 13-15 members, including science, Native Hawaiian, conservation, education and outreach, ecotourism (Midway), and a citizen at large. The Monument is a unique entity and deserves a unique level of transparency, and opportunity for coordination and public input. The wheel does not need to be reinvented; the Reserve Advisory Council model has been useful and successful at incorporating public input, and should be the model used in creating a body for constituency building and outreach.

#### **Ocean Ecosystems Literacy Action Plan – Section 3.5.4**

MCBI's overall comment regarding this Action Plan is that the funding for this plan discussed in Table 3.1 seems too high, relative to funding for conservation activities. The proposed budget for Action Plans 3.5.2 (Constituency Building and Outreach) and 3.5.4 (Ocean Ecosystems Literacy) is more than \$2 million per year for the first five years, which is far more than the \$1.3-2 million per year proposed for Habitat Management and Conservation (3.2.3) or the \$1.6-2.2 million per year proposed for reducing the threat from marine debris (3.3.1). This is, again, where overall Monument priorities need to be clearly articulated in the Management Plan. Given likely funding shortfalls, the priority should be the active management and protection activities described in Plans 3.2.3 and 3.3.1 rather than some of the literacy activities.

#### **Information Management Action Plan – Section 3.6.2**

MCBI applauds and looks forward to implementation of the various data management and access technologies discussed in this Action Plan. We encourage the public release of as much data as possible, operating on the principle of open rather than closed government. Information management will be useful both to researchers and the public. While there is substantial attention paid to incorporating old data into the information management programs, there is no mention of incorporating new data and research. There needs to be a plan to keep the system up-to-date, and to ensure that everyone given a research permit must turn

lance@mcbi.org • (707) 938-3214 • www.mcbi.org  
14301 Arnold Drive, Suite 25 • Glen Ellen CA 95442 USA



over their data, along with any requests for keeping the data from public disclosure, to the permit grantor, who will then forward it to the appropriate database holder. Only if these procedures are identified will the information management program be successful and useful in the future.

#### **Coordinated Field Operations Action Plan – Section 3.6.3**

MCBI is concerned that there is too much emphasis on infrastructure development and redevelopment throughout the Monument. As part of this concern, we note that an inordinate percentage of funding is for infrastructure, as opposed to protection activities. At the same time, we recognize that some of the infrastructure is aging and needs repairs and upgrades to improve efficiency, reduce waste, and prevent damage to the NWHI ecosystem and cultural resources of the Monument. As in the rest of the plan, prioritization is required. Given likely funding shortfalls, which of these infrastructure projects will be prioritized? We argue that those projects that are most beneficial to research and management, or that prevent damage to wildlife, habitat and Monument cultural resources, should be prioritized over development that facilitate tourism. While we do not oppose tourism in the Monument, it should not come at the expense of management activities and research needed to protect Monument cultural resources and the unique biodiversity of this island archipelago.

We hope that the improved infrastructure will allow for more of a year-round presence and research in the Monument. Research has typically only been conducted during a few months of the year due to difficult weather conditions and limited resources. Our understanding of monk seals and the northwest Hawaiian island ecosystem would be greatly enhanced by more off-season research and monitoring. Additionally, as emergencies arise, e.g., with injured monk seals, there should be more opportunities for rescue and assistance efforts.

*In all things, conserving Monument wildlife, habitats and cultural resources must come first.*

We appreciate the opportunity to comment on the Draft Management Plan, applaud many of the initiatives, and look forward to needed prioritization both in the Final Management Plan and in the Draft Science Plan.

Sincerely,

lance@mcbi.org • (707) 938-3214 • www.mcbi.org  
14301 Arnold Drive, Suite 25 • Glen Ellen CA 95442 USA



National Headquarters  
1130 17th Street, N.W. | Washington, D.C. 20036-4604 | tel 202.682.9400 | fax 202.682.1331  
[www.defenders.org](http://www.defenders.org)

July 23, 2008

U.S. Fish and Wildlife Service  
Papahānaumokuākea Marine National Monument  
Box 50167  
Honolulu, Hawai'i 96850

Sent via electronic mail to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

**RE: Comments on Draft Management Plan for Papahānaumokuākea Marine National Monument**

To Whom It May Concern:

Defenders of Wildlife (Defenders) appreciates the opportunity to comment on the Papahānaumokuākea Marine National Monument, Hawai'i; Draft Monument Management Plan ("DMMP").<sup>1</sup> Defenders is a non-profit, public interest institution with over 1 million members and supporters nationwide. Defenders has a longstanding interest in marine wildlife conservation and the conservation of federally protected lands, including in Hawai'i. See e.g., [http://www.defenders.org/programs\\_and\\_policy/global\\_warming/refuges\\_and\\_global\\_warming/case\\_studies/hawaiian\\_islands\\_national\\_wildlife\\_refuge.php](http://www.defenders.org/programs_and_policy/global_warming/refuges_and_global_warming/case_studies/hawaiian_islands_national_wildlife_refuge.php) (A page from Defenders' website highlighting the threat climate change poses to endangered Hawaiian Monk Seals, seabirds, and coral reefs on the Hawaii Islands National Wildlife Refuge, a part of the Marine National Monument). Defenders lauds the designation of the monument and the great opportunities it offers for conservation of the Northwestern Hawaiian Island (NWHI) ecosystems' endemic and unique flora and fauna. Overall the DMMP contains many sound management plans and goals. However, Defenders wishes to emphasize the importance of addressing the profound effect climate change poses for the NWHI ecosystems.

As all partners in management of the monument are well aware, climate change now poses the largest threat to the health of biological life on the NWHI and around the world. While the DMMP makes brief mentions of climate change and impacts throughout the document, Defenders believes certain climate change impacts deserve considerably more attention due to their importance for the Monument system. By bringing these issues to the forefront of consideration, the Monument will be in a better position to adaptively manage and minimize the impacts of climate change on wildlife and vegetation, in order to maintain its status as one of the most important biologically diverse areas in the world.

<sup>1</sup> Papahānaumokuākea Marine National Monument Draft Monument Management Plan (DMMP), Volume I, April 2008, U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration, and Hawai'i Department of Land and Natural Resources



National Headquarters  
1130 17th Street, N.W. | Washington, D.C. 20036-4604 | tel 202.682.9400 | fax 202.682.1331  
[www.defenders.org](http://www.defenders.org)

#### 1.4 Environmental and Anthropogenic Stressors

Defenders commends the DMMP for listing the major threats that climate change poses to the NWHI—weather changes, coral bleaching, sea level rise, and oceanic chemical composition change, or ocean acidification.<sup>2</sup> These concerns outline the general problems that the Monument may face in the mere future, but the rest of the DMMP does not refer back to these specific threats, or outline ways to monitor and manage them. As a result, Defenders urges the Service to incorporate throughout the DMMP concrete management plans and actions to deal with these threats.

Defenders would like to stress in particular the severe impacts climate-change induced coral bleaching will have on the entire NWHI ecosystem. As mentioned in the DMMP, coral bleaching is predicted to occur if ocean temperatures significantly fluctuate due to climate change. Hawai'i exhibits a high level of endemism, and certain rare species of coral may be more vulnerable to this threat than others. Another compounding factor is that if massive coral bleaching does occur, not only will this result in the loss of diverse reef ecosystems, but the geologic structure of the reefs that protect the coastline will no longer provide a barrier to increased beach erosion.<sup>3</sup> The DMMP must fully explore and address possibilities to mitigate this significant threat to the monument's ecological health and sustainability.

#### 3.1 Understanding and Interpreting the NWHI

In the introductory section for "3.0 Action Plans to address Priority Management Needs" in the DMMP, the plan lays out four major desired outcomes for management of the Monument over the next 15 years:

- **Marine Conservation Science:** Increase understanding of the distributions, abundances, and functional linkages of organisms and their habitats...
- **Native Hawaiian Culture and History:** Increase understanding and appreciation of Native Hawaiian histories and cultural practices related to Papahānaumokuākea Marine National Monument...
- **Historic Resources:** Identify, document, preserve, protect, stabilize...historic resources associated with Midway Atoll...
- **Maritime Heritage:** Identify, interpret, and protect maritime heritage resources...<sup>4</sup>

There is no explicit goal listed here to gauge and respond to the impacts of climate change on the Monument during this timeframe, during which the cumulative impacts of climate

<sup>2</sup> DMMP, op.cit., Vol. I, pg. 61

<sup>3</sup> Carpenter, K et al. "One-Third of Reef-Building Corals Face Elevated Extinction Risk From Climate Change and Local Impacts." Science, 2008.

<sup>4</sup> DMMP, op.cit., Vol. I, pg. 105-106.



National Headquarters  
1130 17th Street, N.W. | Washington, D.C. 20036-4604 | tel 202.682.9400 | fax 202.682.1331  
www.defenders.org

change are likely to be felt in a variety of ways. This omission is extremely problematic, and it is imperative for the Monument to make mitigation of the effects of climate change a priority management need. Defenders strongly recommends that the plan incorporate a fifth major desired outcome to the list:

- **Informed Responses to Climate Change:** Increase understanding of the impacts of climate change on Monument ecosystems, and formulate adaptive management responses towards conservation of resources, wildlife and habitat.

### 3.1.1 Marine Conservation Science Action Plan

Defenders agrees with and endorses the Ocean Conservancy's separately filed comments on the DMMP that while research is an important tool for fostering a greater understanding of ecosystems and wildlife, research should be performed in a manner that minimizes human impacts and does not sacrifice greater conservation of resources, habitat, and wildlife on the NWHI. Defenders would also like to stress the importance of conducting research that will purposefully improve the long term conservation of the islands and their resources, primarily by researching how climate change affects terrestrial and aquatic wildlife and impacts abiotic factors of their habitat including sea-level rise, erosion, ocean acidification, increased intensity and frequency of storms, and increased water and air temperatures.

Of the three strategies listed under this goal there is only a brief mention of researching climate change impacts. Monitoring the changes that global warming is already bringing and will continue to bring to the NWHI is imperative to effectively respond to shifting management needs in and around the Monument, and also to build our greater scientific knowledge base on the effects of climate change. As a result, Defenders recommends adding climate-change-specific research as a separate strategy, or incorporating specific recommendations for monitoring impacts of climate change throughout the three existing categories.

### 3.2.1 Threatened and Endangered Species Action Plan

Defenders again endorses the Ocean Conservancy's comments with regard to the DMMP's treatment of management for Hawaiian monk seal habitat, cetacean populations, and nesting sea turtles. Defenders reiterates the importance of monitoring the impacts that climate change will have on threatened and endangered species, most importantly, loss of habitat to sea-level rise and beach erosion, changes in location and range of species, increased frequency and strength of storms, and changes in water and air temperatures.

In terms of sea-turtle conservation, Defenders urges the DMMP to address the potentially devastating impacts increased temperatures will pose to nesting sea turtles, whose sex is determined by the ambient temperature during incubation. Ambient air temperatures as well



National Headquarters  
1130 17th Street, N.W. | Washington, D.C. 20036-4604 | tel 202.682.9400 | fax 202.682.1331  
www.defenders.org

as the temperature of the sand will directly affect the sex of sea turtle hatchlings, potentially eliminating male sea turtles from clutches, and therefore putting the already endangered species in even greater danger of extinction.<sup>5</sup>

### Support for Ocean Conservancy's Recommendation to add 3.3.5 Climate Change Action Plan

As noted in Ocean Conservancy's comments, the DMMP contains 22 Action Plans with six themes, but noticeably lacks a climate change action plan. While the Monument cannot stop the phenomenon of climate change itself, by responding to other threats to wildlife in a timely and effective manner, the Monument can greatly improve the resiliency of organisms on the islands in the hopes of preventing extinctions that could occur due to climate change. Defenders therefore wholeheartedly supports Ocean Conservancy's recommendation to create an action plan that specifically deals with climate change and the improvement of wildlife resiliency.

### Conclusion

Understanding climate-related changes and other modern threats to wildlife and habitats in the NWHI in real-time will be essential to adaptively managing and conserving the wildlife resources that make the monument so unique and precious. We hope these comments have been helpful in the development of the DMMP, and we thank you for reviewing our comments.

Sincerely,

*Aviva Horrow*

Aviva Horrow  
Conservation Law Coordinator

<sup>5</sup> Weishampel, J., Bagley, D., Ehrhart, L. "Earlier nesting by loggerhead sea turtles following sea surface warming." Global Change Biology, 2004.



1300 19th Street NW  
8th Floor  
Washington DC 20036



202.429.5609 Telephone  
202.872.0619 Facsimile  
www.oceanconservancy.org

Delivered by electronic mail to:  
[PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

23 July 2008

U.S. Fish and Wildlife Service  
Papahānaumokuākea Marine National Monument  
Box 50167  
Honolulu, Hawai'i 96850

**RE: Comments on the Papahānaumokuākea Marine National Monument Draft Management Plan**

To Whom It May Concern:

Ocean Conservancy (OC) would like to thank you for the opportunity to submit comments in response to the "Papahānaumokuākea Marine National Monument, Hawai'i; Draft Monument Management Plan" (DMMP). Ocean Conservancy has a long history of actively supporting the protection of the Northwestern Hawaiian Islands and the creation of the Northwestern Hawaiian Islands Marine National Monument,<sup>1</sup> and we continue to maintain a strong interest in its effective implementation and ongoing management. We believe the DMMP includes many good ideas and plans, but that it needs to be strengthened to live up to the promise of the Monument. We offer the following comments and recommendations on how to increase the effectiveness of the DMMP to ensure the long-term protection of the Monuments and its many irreplaceable natural resources..

#### SUMMARY OF COMMENTS

In summary, Ocean Conservancy offers the following key recommendations for improving the DMMP (details contained within this comment letter):

- Prohibit sustenance fishing throughout the Monument.
- Clearly and unambiguously identify 'Goal 1' – "Protect, preserve, maintain, and where appropriate restore the natural biological communities and their associated biodiversity,

<sup>1</sup> Proclamation 8031 established June 15, 2006

Ocean Conservancy  
July 23, 2008  
Page 2 of 35

habitats, populations, native species, and ecological processes" – as the primary and preeminent purpose of the Monument.

- Establish an independent stakeholder advisory body.
- Ensure a transparent and public permitting and decision-making process.
- Require that all permitted activities do not cause significant harm to the Monument.
- Require that permitted research activities provide an over-riding net benefit to the Monument and serve to improve management of the Monument.
- Develop mitigation strategies for both the prevention and removal of marine debris and ensure the quantity of marine debris being removed exceeds current maintenance levels.
- Adopt and apply the requirement to "restore lost or degraded elements of biological integrity, diversity, and environmental health at all landscape scales" throughout the entire Monument.
- Develop a Climate Change Action Plan that includes research plans and management strategies for enhancing the resilience of Monument ecosystems and species.
- Substantively improve research and monitoring of Hawaiian monk seals and the links between their decline and various environmental factors.
- Identify and characterize humpback whale calving areas in the NWHI, and put in place the management measures necessary to ensure their complete protection.
- Adopt a zero-tolerance approach to protecting the Monument from alien species including more stringent protocols for all visitors and vessels entering Midway.
- Develop a comprehensive vessel reporting system for all vessels entering or transiting the Monument.
- Adopt optimum and maximum daytime visitation rates at Midway based on the atoll's carrying capacity.
- Take an active role in monitoring and managing activities undertaken by the military.

## 2.0 MANAGEMENT FRAMEWORK

### 2.2 Policy Framework

Management of the Papahānaumokuākea Marine National Monument (PMNM) is inherently complex because the Monument includes areas and management authorities that are under the jurisdiction of multiple federal agencies as well as the State of Hawai'i. Under the June 15, 2006 Presidential Proclamation,<sup>3</sup> each agency retains its preexisting jurisdiction and authority. The Proclamation, Monument Regulations and Draft Monument Management Plan<sup>3</sup> all call for coordinated management of monument resources. A December 8, 2006 Memorandum of Agreement (MOA) between the Co-Trustees: the State of Hawai'i, the Department of the Interior and the Department of Commerce establishes "functional relationships to effectively coordinate management actions in this area among the Co-Trustees."<sup>4</sup> Specifically, the MOA calls for a

<sup>2</sup> Ibid.

<sup>3</sup> Papahānaumokuākea Marine National Monument Draft Monument Management Plan (DMMP), Volume I-IV, April 2008, U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration, and Hawai'i Department of Land and Natural Resources

<sup>4</sup> DMMP, op. cit., Vol. III, Appendix H Memorandum of Agreement, pg. H-4.

Senior Executive Board (SEB) made up of high level agency representatives and a Monument Management Board (MMB) charged with day to day management of the monument.<sup>5</sup>

Given the complexity of this management arrangement, and the widely acknowledged difficulties associated with the co-management of the Monument, it is particularly important that the Co-Trustees establish a clear and transparent decision-making process that allows the public to easily determine who is responsible for what and how to participate effectively in Monument management decisions. Ocean Conservancy urges the Co-Trustees to ensure transparent decision-making by providing access to all significant documents for public review and comment and by having meetings of the SEB and MMB be open to the public with ample opportunities for public comment.

The MOA lays out an internal method of handling management disagreements that may arise between the Co-Trustees:

*"If the members of the MMB disagree on an issue of Monument resource management, they shall present their differences to each other in writing, and they shall discuss them. The MMB should be the first body to attempt resolution of any disagreement. If the MMB fails to resolve their differences within 30 days after identification of the disagreement, or immediately upon determination that the MMB has reached an impasse, the matter shall be elevated to the SEB for resolution."<sup>6</sup>*

However, the MOA does not provide guidance for determining how to resolve such differences of opinion if the Co-Trustees do not agree at the SEB level. Given the likelihood of differences of opinion amongst agency staff, Ocean Conservancy recommends that the Co-Trustees identify and agree in advance to a process for handling disputes that cannot be quickly resolved by the SEB. Specifically, we are concerned that potential disagreements not result in delays or inaction on important management issues pending resolution of any disputes. We recommend that disagreements amongst the Co-Trustees be resolved in a manner that favors the more protective management option under consideration. We further recommend that the DMMP specifically identify a fair and effective method of addressing differences of opinion between the Co-Trustees in a timely manner. For example, in many instances, a simple majority vote of the three Co-Trustees might be sufficient. More significant disagreements could potentially be resolved by the Council on Environmental Quality. We advise that specific mechanisms for effectively resolving disputes be spelled out clearly in the DMMP and agreed to by the Co-Trustees.

Strong and consistent public support was critical to the creation of the Monument. As noted in the DMMP, over 100 meetings were held and more than 50,000 public comments received related to the draft sanctuary management plan that contributed to the DMMP.<sup>7</sup> Ongoing public involvement is important to the long-term success of the Monument and we urge the Co-Trustees to encourage a robust level of active public engagement in Monument management. Ocean Conservancy is concerned that neither the DMMP nor the MOA between the Co-Trustees

<sup>5</sup> DMMP, op. cit., Vol. I, pg. 81-82.

<sup>6</sup> MOA VI, Dispute Resolution. DMMP, Appendix H pg. H-10.

<sup>7</sup> DMMP, op. cit., Vol. I, pg. 83.

explicitly discusses an overall process for public input to the SEB or MMB. Again, we believe that an open public process is important to ensure accountability and transparency and that the public should have an opportunity to participate in decision-making by reviewing and commenting on the full range of Monument management actions and decisions.

We are particularly concerned that the DMMP does not appear to contain an adequate opportunity for meaningful public input during the permit application process. Under the "Monument Permit Application Unified Public Notification Policy" (adopted February 1, 2008); all permit applications must be posted on an agency website for a minimum 30 day public viewing period.<sup>8</sup> The "Unified Public Notification Policy" also notes which permits (Special Ocean Use, regulatory and environmental reviews, and state permits) require opportunity for public comment. Given the fact that all permits are already open to public review, we believe it would not present an undue administrative burden on the Co-Trustees to also ensure that all permits are open to public comment. This simple action would ensure that public input is meaningful. We strongly recommend that all Monument permits be available for public comment for a period of no less than ten working days.

Ocean Conservancy urges the Co-Trustees to establish an independent stakeholder advisory body that will provide advice to the Co-Trustees on all aspects of Monument management. Members should be drawn from a cross-section of the public and stakeholder groups, including scientists, conservationists, and the Native Hawaiian community. It is critical that the make-up of any advisory body be balanced in its membership and includes only representatives committed to the stated vision, mission and goals of the Monument. Any stakeholder advisory body should have meaningful opportunity to review important resource protection issues affecting Monument resources, should hold regular meetings, and should operate under a formal charter and protocols. All activities, processes and meetings of this body should be open to the public. As well, the process for appointment to the body should be fair, equitable, and transparent. Any such body should also be subject to standard economic conflict of interest requirements.

In place of the existing Reserve Advisory Council, the DMMP proposes creation of a Monument "Alliance" made up of "established groups and individuals who are directly interested in the Monument and the conservation of its resources"<sup>9</sup> as well as a "Friends of the Monument" organization as mechanisms for establishing "community support groups" for the Monument. However, the statutory authority and legal responsibilities of a "Monument Alliance" are unclear. We recognize that there may be various models of stakeholder advisory bodies that can be effective but urge consideration of transitioning the existing Reserve Advisory Council (RAC) into a Monument Advisory Council with similar membership and operating principles. We believe that the RAC has proven to be an effective and balanced voice for stakeholder input over the past several years and could continue to play that role in the future. We recognize that jurisdictional issues may complicate the ability of the Co-Trustees to establish one stakeholder group that advises all three co-trustee agencies but urge that every effort be made to pursue this

<sup>8</sup> DMMP, op. cit., Vol. III, Appendix A, pg. A-1.

<sup>9</sup> DMMP, op. cit., Vol. I, pg. 257.

structure. Establishment of one stakeholder body would greatly facilitate public input on the Monument and increase transparency.

#### 2.4 Monument Management Policy Framework: The Vision, Mission, Guiding Principles and Goals

In general, Ocean Conservancy supports the vision, mission, guiding principles and goals of the DMMP.<sup>10</sup> We support inclusion of a precautionary approach as one of the Monument's guiding principles: "Err on the side of resource protection when there is uncertainty in available information on the impacts of an activity."<sup>11</sup> However, we believe this is a weaker commitment to conservation and protection than the inclusion of the precautionary principle, as was recommended by the Reserve Advisory Council.<sup>12</sup>

We strongly recommend clarifying that Goal 1 ("Protect, preserve, maintain, and where appropriate restore the natural biological communities and their associated biodiversity, habitats, populations, native species, and ecological processes.") is the primary and preeminent goal of the Monument and, in the event of a conflict between Goals, this primary goal takes precedent. For example, if supporting research activities under Goal 2 or offering visitor opportunities under Goal 8 were found to be inconsistent with conservation, these activities should not occur. Furthermore, the existing mission statement appears to place protection of ecological values, native cultural values and historical values on co-equal footing. We believe that protection of ecological resources should be unambiguously recognized as the highest priority of the Monument and this goal would take precedence in the event conflicts arise.

We are also concerned that some of the key concepts developed by the Reserve Advisory Council and included in the draft Sanctuary Goals and Objectives appear to be missing from the DMMP.

Specifically we support:

- restoring language requiring maintaining the "natural character" of the NWHI as part of the Monument mission;
- including language pertaining to the "public trust" nature of the NWHI;
- restoring the core principle requirement that officials "authorize only uses consistent with the primary purpose of resource protection;"
- making clear that all research permits must demonstrate that permitted activities are "necessary for effective management of the region;"
- restoring the requirement that permits shall be authorized "only if such uses do not threaten the natural character or biological integrity of any ecosystem of the region."

Because the Monument vision, mission, guiding principles and goals provide the basic framework for all management activities, it is particularly important that this section of the

<sup>10</sup> DMMP, op. cit., Vol. I, pg. 96.

<sup>11</sup> Loc. cit.

<sup>12</sup> Reserve Advisory Council recommendations, approved January 22, 2004

DMMP respect the years of hard work of the Reserve Advisory Council with regards to these overview issues.

#### 3.0 ACTION PLANS TO ADDRESS PRIORITY MANAGEMENT NEEDS

##### 3.1.1 Marine Conservation Science Action Plan

Ocean Conservancy is concerned that the "Desired Outcome" stated at the beginning of this section fails to capture all of the research outcomes that are required for effective Monument management. The statement should reflect all five of the thematic areas in the Hawaiian Archipelago Marine Ecosystem Research Plan (HAMER Plan) and repeated here in this section.<sup>13</sup> As currently written it fails to cover the critical need to research and understand human impacts, among other elements.

Under "Strategies to Achieve the Desired Outcome", Strategies MCS-1, 2 and 3<sup>14</sup> are not linked to the basic requirement that all research serve to improve management of the Monument. We suggest that these strategies should read something like [emphasis on added language]:

- MCS-1: Continue and expand that research, characterization and monitoring of marine ecosystems for the life of the plan that will advance and improve management of the Monument.
- MCS-2: Assess and prioritize research and monitoring activities over the life of the plan with respect to the contribution it will make to improving management of the Monument.
- MCS-3: Communicate results of research and monitoring over the life of the plan and how that research and monitoring has been or will be used to improve Monument management.

Ocean Conservancy strongly believes that the Monument should not be used as a private laboratory for scientists to pursue basic research. As noted throughout this comment letter, research activities result in threats and impacts to Monument resources. The Monument should only be subject to research impacts if there is a clear and over-riding benefit to the Monument. This principle is clearly identified in the Draft Management Plan under "Monument Goals"<sup>15</sup>:

"Goal 2: Support, promote, and coordinate research, ecosystem characterization, and monitoring that increases understanding of the NWHI and improves management decision making." [emphasis added]

The principle is also committed to under "Strategy MCS-2"<sup>16</sup>:

<sup>13</sup> DMMP, op. cit., Vol. I, pg. 108, lines 26-31.

<sup>14</sup> DMMP, op. cit., Vol. I, pg. 109, lines 23-26.

<sup>15</sup> DMMP, op. cit., Vol. I, pg. 96.

<sup>16</sup> DMMP, op. cit., Vol. I, pg. 111, lines 11-16.



*“A management-driven Natural Resources Science Plan will be developed and assessed on a regular basis to ensure that marine and terrestrial research and monitoring conducted in the NWHI is appropriate, relevant, and necessary to ensure effective management, improve management decision making, and advance ecosystem science.”*  
[emphasis added]

Ocean Conservancy typically supports the use of marine protected areas for research that will advance our understanding of marine ecosystems and human impacts because it may lead to better conservation and management. However, in this case, because of the unique and special nature of the Monument we believe that it should be spared as many human impacts as possible, specifically those that are not consistent with the need for science-based conservation and management decisions.

Under Strategy MCS-2 it is stated that:

*“Consistency with HAMER and links to similar research in the main Hawaiian Islands will be maintained so that science conducted in this portion of the archipelago can be used across the archipelago.”*

We recognize that research conducted in the Main Hawaiian Islands (MHI) may be applicable to the PMNM, and vice versa. However, care must be taken before research in the PMNM is undertaken because of a connection to research in the MHI. If there is a clear connection between the ecosystems in the two areas then research, if appropriate (see below), in both would be justified. Otherwise, research should be allowed in the Monument on a very limited basis and only for the expressed purpose of investigating the possibility of a connection. If none is found within a prescribed timeframe then the research should be suspended.

In addition, not all research would be appropriate under this argument. Considerable fisheries research takes place in the MHI, but with the closure of the bottomfish fishery in 2011 there will not be any commercial or recreational fisheries in the NWHI. Therefore, it will not be acceptable to allow fisheries research in the NWHI simply because research is taking place in the MHI and there may be a biological connection. For example, it has long been claimed by the National Marine Fisheries Service and the Western Pacific Fisheries Management Council that bottomfish stocks are connected throughout the archipelago.<sup>17</sup> However, there is no peer-reviewed science to support this assumption and the one peer-reviewed study that is available that addresses the issue actually suggests the opposite.<sup>18</sup> Thus, there is no justification for

<sup>17</sup> Kobayashi, D. 1998. Inferred patterns of Hawaiian bottomfish larval transport using a combination of advection-diffusion models and high resolution bottom topography. Report to the Western Pacific Regional Fishery Management Council, Honolulu, HI.: WPRFMC. 1998. Magnuson-Stevens Act Definitions and Required Provisions. Amendment 6 to the Bottomfish and Seamount Groundfish Fishery Management Plan, Amendment 8 to the Pelagic Fishery Management Plan, Amendment 10 to the Crustaceans Fishery Management Plan, Amendment 4 to the Precious Corals Fishery Management Plan. Western Pacific Regional Fishery Management Council, Honolulu, HI.

<sup>18</sup> Heinemann, D, H Gillcian and L Morgan. 2005. Bottomfish Fishing in the Northwestern Hawaiian Islands. Is it Ecologically Sustainable? The Ocean Conservancy and Marine Conservation Biology Institute, Washington, DC. 40pp.

conducting bottomfish research, which would damage Monument resources, to ostensibly contribute to understanding MHI bottomfish stocks. The same argument applies to lobsters, reef fish, and precious corals. More importantly, because there will not be any commercial fisheries in NWHI, such research would not have any application to the management of PMNM resources. The exception might be for those species that are or hopefully will be undergoing recovery from decades of commercial fishery, if there is compelling, scientific evidence of a MHI-NWHI connection, which is not the case at this time. Species or populations that are in need of rebuilding include:

- Spiny and slipper lobsters (*Panulirus marginatus* and *Scyllarides squammosus*) that were overfished to the point of collapse but have not recovered since the fishery was closed in 2000.<sup>19</sup>
- Bottomfish species which have been fished down varying amounts, but in some cases the depletion may be in excess of 50%.<sup>20</sup>
- Black-lipped pearl oysters, which were severely depleted early in the 20<sup>th</sup> Century and have only recently begun to show signs of recovery.

Under Strategy MCS-2.<sup>21</sup> there is no mention of climate change. There can be little doubt that, in time, ocean warming, sea-level rise, stronger storms, altered ocean hydrodynamics and/or acidification will have profound effects on the PMNM. Therefore, it is imperative that research plans and activities be focused on understanding how climate change will affect Monument ecosystems and how management can enhance the resilience of those ecosystems.

Under “*Research on human impacts*”<sup>22</sup> there is no mention of past human impacts, such as those discussed above. We recommend that the DMMP should address the restoration of the NWHI ecosystem to a completely functional, intact and resilient system, which will require management that will bring about the recovery of resources that were depleted by past resource extraction and research to support that activity. This is a distinctly different justification from supporting exploitation and management of those resources in the MHI.

### **3.1.2 Native Hawaiian Culture & History Action Plan & 3.1.3 Historic Resources Action Plan**

The DMMP includes Action Plans that call for collecting information about the historic and cultural significance of place and daily life, in general, from interviews with military personnel (Strategy HR-5 and HR-6.1) and the Native Hawaiian community and other cultural experts (Activity NHCH-3.4). In addition to documenting culturally important practices, the Co-Trustees should also ensure that information about the marine environment and any information that might provide clues about the status of natural resources are included and inquired about in these interviews. Characterization of the ecological setting and environment of the NWHI is

<sup>19</sup> Martell, S., C. Walters, and G. DiNardo. 2006. Stock Assessment of Northwestern Hawaiian Island Lobsters. University of British Columbia, Fisheries Centre and NMFS Pacific Islands Fisheries Science Center. 57pp.

<sup>20</sup> Heinemann et al. 2005, loc. cit.

<sup>21</sup> DMMP, op. cit., Vol. 1, pg. 111, line 25.

<sup>22</sup> DMMP, op. cit., Vol. 1, pg. 112, line 4.

intricately related to cultural practices, and would provide valuable information about the status and health of the natural environment in the past.

### 3.2.1. Threatened and Endangered Species Action Plan

*Strategy TES-1: Support Activities that advance recovery of the Hawaiian monk seal for the life of the plan*

Ocean Conservancy has a long history of concern and engagement regarding the conservation, viability and recovery of the Hawaiian monk seal. Hawaiian monk seal numbers have been declining and continue to decline. Actions to address major threats identified in the Hawaiian Monk Seal Recovery Plan that are applicable to the monk seal population in the Monument include:<sup>23</sup>

- investigate food limitations and take actions to increase female juvenile survival,
- prevent entanglements of seals in marine debris,
- reduce shark predation on seals,
- reduce exposure to and spread of infectious disease,
- continue population monitoring and research,
- reduce impacts from grounded vessels,
- reduce the impact of human interactions, and
- conserve monk seal habitat.

However, only three of the eight are included as key action items for advancement by the MMB (entanglement in marine debris, conserve monk seal habitat, and reduce the likelihood and impact of human interactions). Two other distinct but separate actions are also identified: support and facilitate emergency response, and support education and outreach on monk seals. While the DMMP has identified only these five specific actions the MMB will pursue in support of monk seal recovery efforts, it should be clear that the MMB will facilitate and support the continuation of all actions identified in the Hawaiian Monk Seal Recovery Plan as necessary for monk seal survival and recovery.

One of the key indicators of success of the Monument in enhancing recovery activities for Hawaiian monk seals would be an increase in pupping and juvenile survival rates. Monk seal pupping beach counts have been conducted, with varying frequency, since the late 1950s and constitute one of the longest known pinniped data sets. In 2008 not all of these beach count sites were surveyed by NMFS Protected Species Division because of budget constraints (NMFS, pers. comm.). If these beach counts are not completed in 2009 and in the very worst case, 2010, we will lose valuable information – as the population is projected to dip below 1,000 seals in the next five years. We urge the Co-Trustees to include these beach counts as one of the indices they plan to monitor within the Monument management plan.

<sup>23</sup> National Marine Fisheries Service. 2007. Recovery Plan for the Hawaiian Monk Seal (*Monachus schauinslandi*): Revision. National Marine Fisheries Service, Silver Spring, MD. 165 pp.

Starvation is the most critical threat to the survival of juvenile monk seals. The starvation of pups and the low survival rates in juveniles in the Northwestern Hawaiian Islands point to the possibility that food resources may be inadequate.<sup>24</sup> Ongoing fatty acid and critter-cam research has verified that bottomfish are important components of Hawaiian monk seal diets, and lobsters may also be important prey in the diets of Hawaiian monk seals. Open assessment of the factors affecting the decline in monk seals has not been possible because of NOAA's refusal to publish the results of the fatty-acid diet study. We strongly urge in the DMMP of a commitment by the management agencies to make all research fully and openly available to outside researchers and the public. The lobster fishery was closed in 2000 because it was judged by the court to be a threat to Hawaiian monk seals. The President's wish that there be a phase out of all commercial fishing in the Monument by 2011 should ease overfishing of primary prey sources of monk seals. We urge the Co-Trustees along with NMFS to continue research and monitoring of:

- the links between Hawaiian monk seals and their potential prey in the Hawaiian Islands,
- the potential relationships between the status and health of those prey populations and population trends in the Hawaiian monk seals, and
- the effect of the phase-out of both the bottomfish fishery and the lobster fishery on that relationship.

Ocean Conservancy strongly recommends the Monument to work towards coordinated field efforts for research on or pertaining to monk seals. This organized effort will ensure that research, restoration, and monitoring activities will keep disturbances to monk seals to a minimum.

Hawaiian monk seals have one of the highest documented entanglement rates of any pinniped species, and marine debris and derelict fishing gear are chronic forms of pollution affecting the NWHI. Despite international law prohibiting the intentional discard of debris from ships at sea from the International Convention for the Prevention of Pollution from Ships (MARPOL), and the adoption of the MARPOL Annex V in 1989,<sup>25</sup> the number of monk seals found entangled in marine debris has not changed nor has there been a reduction in the accumulation rates of marine debris on the NWHI<sup>26</sup>. Activity TES-1.1 (*Support marine debris removal activities to promote recovery*) should be expanded to increase levels of marine debris currently being removed beyond maintenance level operations led by NOAA, to achieve the goal of reducing serious injury and mortalities due to entanglement.

We strongly support the inclusion of Activity TES-1.2 (*Support and facilitate emergency response for monk seals*) within the action plan, as this activity will help accelerate the coordination and effectiveness of emergency response activities among the Co-Trustees thereby supplementing current protocols and efforts.

<sup>24</sup> Ibid.

<sup>25</sup> Annex V of MARPOL is the amendment intended to reduce solid waste pollution from ships, in part by prohibiting ocean dumping of plastics.

<sup>26</sup> Henderson, J. R. 2001. A Pre- and Post-MARPOL Annex V Summary of Hawaiian monk seal entanglements and marine debris accumulation in the Northwestern Hawaiian Islands, 1982-1998. Marine Pollution Bulletin 42:584-589.

Activity TES-1.3: *Conserve Hawaiian monk seal habitat*

The potential loss of important breeding substrate for Hawaiian monk seals (and sea turtles) due to sea level rise may be a serious threat in the very near future,<sup>27</sup> and is of great concern. It is possible that with a 3.6 degree Fahrenheit (2 degrees C) increase in ocean temperature, sea level could rise by 18 feet (6m) during this century, compared to the Intergovernmental Panel on Climate Change (IPCC) prediction of up to 23 inches (59cm).<sup>28</sup> Current projected impacts of sea level rise on monk seals use the conservative estimates of the IPCC which do not account for multiple feedback loops for melting icefields<sup>29</sup>. It is imperative that the MMB identify the decision-making process for evaluating the feasibility of restoration sooner rather than later, as many of the impacts of a warming planet are being experienced sooner than scientists have expected. As locations where to rebuild essential habitat for monk seal pupping beaches or sea turtle nesting beaches are considered, we urge you to include an evaluation of environmental impacts, particularly on the nearshore environment – as this is also considered important habitat for foraging

Activity TES-1.4: *Reduce the likelihood and impact of human interactions on monk seals*

We recommend that you publish, in cooperation with NMFS, best practices for viewing and coexisting with monk seals and to make these available and required reading for both transient and resident visitors to the NWHI. These guidelines should be included with permits and be included within Appendix I (Operational Protocols and Best Management Practices). In addition to the guidelines, the consequences of disturbing these endangered species should also be outlined, and the visitors and residents informed of potential action they may face if any of these guidelines are not adhered to.

We also strongly recommend that the DMMP incorporate measures to protect monk seals that haul out on Midway and to enact measures that minimize disturbance when seals haul out, such as closing and limiting access to public beaches (i.e., north beach). Furthermore we strongly recommend that public access to the walking trail adjacent to west beach require monument staff accompaniment. Lastly, we recommend that any restoration or construction that involves major disruptive noise or activity be conducted outside the important pupping period. While FWS may have had the capacity of having 100 island residents and 100 transient visitors, this goal was never reached, so traffic and human visitation has been relatively low since the 90s. Because of this low level of activity, it is imperative that the species most affected by increased human activity (e.g., monk seals and sea turtles) are monitored for changes in behavior, movement, and population status. If populations respond negatively, there should be protocol for identifying and limiting the most disturbing activities.

Strategy TES-2: *Determine the status of Cetacean populations and verify and manage potential threats over the life of the plan*

<sup>27</sup> Baker J.D., C.L. Littman, and D.W. Johnston. 2006. Potential effects of sea level rise on the terrestrial habitats of endangered and endemic megafauna in the Northwestern Hawaiian Islands, *Endangered Species Research*, Volume 4:1-10.

<sup>28</sup> Hansen, J., M. Sato, R. Ruedy, K. Lo, D.W. Lea, and M. Medina-Elizade. 2006. Global temperature change. *Proceedings of the National Academy of Sciences of the United States of America* 103:14288-14293.

<sup>29</sup> Baker loc. cit.

Activity TES-2.1: *Census cetacean populations*

Ocean Conservancy also encourages the Monument to specifically include within this activity a process to identify and document humpback whale calving areas in the NWHI. Humpback whales (*Megaptera novaeangliae*) have been recently observed calving and engaging in breeding activities.<sup>30</sup> Johnston et al. (2007) predicted humpback whale wintering habitat based on previous published characterizations using bathymetry and SST, shallower than 200m and warmer than 21.1 degrees Celsius. They determined that of the approximately 21,900 km<sup>2</sup> area of potential wintering habitat in the Hawaiian Archipelago, two thirds of this area fell within the NWHI. These predictions were verified during a field survey, where over the course of 15 days, they observed 3 groups with small calves and animals exhibiting breeding behaviors. Regular surveys for humpback whales in the NWHI have not been conducted, and should be included in future studies. In addition to determining the population status of humpback whale populations, another important reason for documenting these breeding areas is because one of the predictions of global climate change is species ranges and activities moving poleward.<sup>31</sup>

Activity TES-2.5: *Prevent human interactions with cetaceans*

We recommend that the DMMP, in consultation with NMFS Protected Species Division, include best practices to be included with permit information for all vessel traffic travel within the NWHI, including military activities.

Activity TES-3.2: *Protect and manage nesting habitat (turtles)*

The effects of global climate change and potential mitigation action in anticipation of future scenarios will be similar to those described for monk seals in TES-1.3. As stated in the DMMP, the sex of an incubating sea turtle egg is dependent on nesting temperature; however, an increase in bias occurs with a change as little as one degree Celsius and extreme levels of mortality with a change of three degrees Celsius.<sup>32</sup> Increased sea level rise will not only contribute to loss of habitat, as described earlier, but may also increase and amplify the effects of erosion with large tides and storms, placing entire clutches at risk of being washed away. Some of these effects from increased storm activity could be experienced before the predicted increase in sea level occurs and may require action sooner than anticipated. Other climatic factors that could affect sea turtles include changes in ocean currents that are used for migration and loss of coral reefs that sustain important feeding habitat. Actions to address these considerations need to be included in the Action Plan, as this plan encompasses a time frame within 15 years – a time period during which we will very likely experience some of the described effects of global climate change on sea turtles.

### 3.2.3 Habitat Management and Conservation Action Plan

Ocean Conservancy strongly supports the stated “*Desired Outcome*” for the Habitat Management and Conservation Action Plan,

<sup>30</sup> Johnston et al. 2007. Identification of humpback whale *Megaptera novaeangliae* wintering habitat in the Northwestern Hawaiian Islands using spatial habitat modeling, *Endangered Species Research*, Vol. 3: 249-257.

<sup>31</sup> Parmesan, C. 2006. Ecological and evolutionary responses to recent climate change. *Annual Review of Ecology, Evolution, and Systematics* 37: 637-669.

<sup>32</sup> Hawkes, L.A., A.C. Broderick, M.H. Godfrey, and B.J. Godley. 2007. Investigating the potential impacts of climate change on a marine turtle population. *Global Change Biology* 13:1-10.

*“Protect and maintain all the native ecosystems and biological diversity of Papahānaumokuākea Marine National Monument.”*

The Co-Trustees have done an excellent job of framing this outcome broadly and consistently with Presidential Proclamation #8031 and the Monument’s Vision and Mission. However, we recommend that this desired outcome be modified to include restoration where appropriate, restated as an outcome, and finalized to read as follows:

*“All of the Papahānaumokuākea Marine National Monument’s native ecosystems and biological diversity are strongly-protected, maintained, and where appropriate and necessary, restored to a fully natural, un-impacted, and highly-resilient condition.”*

The “Current Status and Background & Need for Action” sections of the DMMP are also quite strong, correctly recognizing the “requirements for ecosystem-based management”, “protection of ecosystem structure and function”, and “ensuring the biological integrity, diversity, and environmental health of the Monument”. Although strong, these sections and the Strategies and Activity sections that follow seem somewhat limited and more focused on Fish and Wildlife Service and National Wildlife Refuge responsibilities and terrestrial habitats and ecosystems, than on the marine areas within the Monument. The Action Plan could be strengthened with an expanded and more detailed and equivalent marine focus. For example, the Monument’s Trustees and Managers should adopt and apply the requirement to “restore lost or degraded elements of biological integrity, diversity, and environmental health at all landscape scales” throughout the entire Monument, including to its marine habitats and ecosystems.

The “Strategies to Achieve the Desired Outcome” are reasonably strong as well, but would benefit generally from some additional development and expansion, including a greater emphasis on marine components and areas. In particular, the strategies should more fully address past and present fishing impacts and restoration opportunities related to them. For example, HMC-1 should include analyses of historical reef fish, lobster and crustacean, and bottomfish fishery impacts (in addition to the black-lipped pearl oyster example cited) to shallow-water reef populations, communities, and habitats/ecosystems; complete cessation of these fisheries; and a plan for ecosystem monitoring and restoration. These activities should also be examined with our recommendation to examine and monitor the impact of fishing bottomfish and lobster in TES-1 and their relationship with the monk seal decline.

The depletion, due at least in part to fishing, and the desired restoration of lobsters and other crustaceans, in particular, probably warrants development of its own strategy. At the very least, this should be addressed in one or more of the existing strategies.

There should also be included a strategy similar to HMC-1, but focused on deeper reefs, shoals, pinnacles and seamounts that emphasizes fishing impacts, their complete elimination, and subsequent monitoring and restoration of depleted species, habitats, and ecosystems.

In addition, we recommend inclusion of a strategy in this section to evaluate and better understand; mitigate and adapt; and plan for global climate change impacts, especially to coastal

and shallow-water habitats and ecosystems. Global climate change (GCC) is the greatest long-term threat to the oceans health and the coastal and near-shore habitats and ecosystems of the NWHI are especially vulnerable to GCC impacts.

Finally, we recommend expansion of Strategy HMC-10 to include a Wilderness Review of the entire Monument, rather than limited strictly to the two existing National Wildlife Refuges.

### 3.3.1 Marine Debris Action Plan

As noted in the DMMP, marine debris poses a chronic and significant threat to the PMNM and specifically to marine wildlife including the endangered Hawaiian monk seal and threatened sea turtles.<sup>33</sup> Ocean Conservancy is uniquely aware of the challenges posed by programs to reduce and clean up marine debris. For over two decades, Ocean Conservancy has mobilized volunteers on a global level to help remove trash and debris from coastlines and waterways through the International Coastal Cleanup. To date, 6 million volunteers from around the world have removed over 100 million pounds of marine debris from our ocean, and waterways.<sup>34</sup> Each year, the International Coastal Clean Up attracts more volunteer participants and covers more territory. And each year, it collects more trash. As recognized in the DMMP, Ocean Conservancy—along with the National Marine Fisheries Service, the U.S. Coast Guard, the U.S. Fish and Wildlife Service, and other organizations—has also assisted with the removal of over 100 tons of derelict fishing gear and other marine debris from the NWHI since 1998. We understand how formidable the goal of eliminating marine debris from the NWHI is, and strongly support the Monument’s desired outcome of eliminating marine debris, including derelict fishing gear, from the NWHI.

Ocean Conservancy supports Strategies MD-1, MD-2, and MD-3 directed at removing marine debris, cataloging the sources of debris and developing outreach efforts to reduce debris at its source. Regarding MD-1: *Remove and prevent marine debris throughout the life of the plan*, we agree that marine debris must be viewed as a chronic problem and not one that will be “solved” in the near term. Based on our experience with this issue, we believe it is important that the Co-Trustees plan (and budget for) ongoing annual debris removal activities in the PMNM. Given it is unlikely that removal will be able to target all debris, we encourage continued prioritization of debris removal in areas and of debris types most likely to pose serious threats to marine wildlife. We also recommend that marine debris activities clearly delineate between removal and prevention of marine debris. Both represent significant yet separate efforts, and require different strategies to be effective. We also recommend that the Co-Trustees emphasize an active role in broadening education and outreach efforts to mitigate and prevent all possible sources of marine debris and derelict fishing gear, including domestic as well as foreign sources.

We strongly support MD-1.5: *Work with the fishery management councils to address marine debris preventing with U.S. fishing fleets* and are particularly supportive of accountability requirements. We urge the Co-Trustees to pursue such efforts on an international basis recognizing that debris and lost fishing gear do not heed jurisdictional boundaries.

<sup>33</sup> DMMP, loc. cit., Vol. 1, pg. 182.

<sup>34</sup> Ocean Conservancy. 2008. International Coastal Cleanup Report 2007. Start a sea change. 44pp.

Regarding Activity MD-3.1: *Work with partners to continue to develop and implement an outreach strategy for marine debris*, we believe that the NWHI provides an opportunity to demonstrate to the public the pervasive and critical impact of marine debris on ocean ecosystems. While the issue of marine debris and the need for better management of plastics and other disposable items has gained significant worldwide attention over the past few years, the Monument provides a concrete example of the specific and dire threats posed by debris. For example, learning that over the past 20 years, more than 200 monk seals have been observed entangled in fishing gear or other trash is likely to make a bigger impression on members of the public than simply learning that the ocean is polluted with garbage.

### 3.3.2 Alien Species Action Plan

In a recent survey of 25 scientific experts on the NWHI, alien species were identified as one of the top three threats to the NWHI.<sup>35</sup> In spite of the remoteness of the NWHI, eleven different alien marine invertebrate, fish and algal species have already been documented in Monument waters. With visitation to the Monument expected to increase, the risk of additional introductions is extremely high. Alien species infestations can permanently alter the Monument's ecosystem and, once introduced, these species are often impossible to eradicate completely. Prevention is therefore critical. Ocean Conservancy supports the regulatory prohibition on the release or introduction of alien species into the Monument and implementation of best management practices such as mandatory hull inspections designed to avoid introductions. However, given the seriousness of the risk, it is critical that the alien species action plan is effective, enforceable and strictly enforced. It is not sufficient to rely on management measures (like ballast exchange protocols and best management practices) that may or may not actually be followed in practice. What is needed is essentially a zero tolerance approach to alien species with strict enforcement of all measures designed to avoid introductions.

Under Activity AS-1.1: *Complete an Integrated Alien Species Management Plan*, the DMMP requires development of a plan that, "will incorporate individual Co-Trustee guidelines, as appropriate, for the most effective and collaborative efforts possible. Memoranda of agreement will be developed as necessary to adopt and implement agency guidelines..."<sup>36</sup> Ocean Conservancy urges that the Integrated Alien Species Management Plan adopt the strictest guidelines of the three Co-Trustees and follow the precautionary approach when implementing these guidelines for all visits to the NWHI. Coordination of this effort is critical. The Monument should operate under one consistent set of best management practices to reduce confusion and increase likelihood of compliance. We recognize that best management practices may appropriately vary from island to island but urge that one set of rules be in place that governs the entire Monument rather than overlapping and possibly contradictory regulations. Activity AS-1.2: *Develop best management practices to prevent, control, and eradicate alien species*<sup>37</sup> identifies that

<sup>35</sup> Selkoe, K.A., B.A. Halpern, and R.J. Toonen 2008. Evaluating anthropogenic threats to the Northwestern Hawaiian Islands. Aquatic Conservation: Marine and Freshwater Ecosystems

<sup>36</sup> DMMP, loc. cit., Vol. I, pg. 194.

<sup>37</sup> DMMP, loc. cit., Vol. I, pg. 194.

*"One concern the plan will address is the need to prevent the spread of alien species within the NWHI, especially from Midway Atoll."*

Since Midway Atoll is the most frequently visited area of the Monument, it is also the area most likely to serve as a gateway to introduction of alien species. Ocean Conservancy is concerned that although the Alien Species Best Management Practices are detailed and extensive as they apply to inter-island visits and activities at the more remote islands. They appear much weaker for Midway, where risk of introduction is highest. We urge implementation of more stringent protocols for all visitors and vessels entering Midway to avoid introductions at Midway that then may spread to other islands. Specifically, we recommend appropriate quarantines, freezing, or other treatment of luggage for employees, contractors, researchers, and visitors and that all aquatic gear for visitors is subject to the similar treatment of research gear in Appendix 1.<sup>38</sup> One simple way to reduce risks associated with aquatic gear would be to prohibit use of personal gear and require use of gear that remains on Midway.

The DMMP states that

*"In addition, aircraft landing within the Monument are subject to inspection, as are all visitors and their luggage."*<sup>39</sup>

Ocean Conservancy urges adoption of a mandatory inspection policy. Given the predicted increase in visitors to Midway it is important that the Monument adopt an effective method of addressing the threats presented by a large number of transient visitors. We recommend development and adoption and strict enforcement of a comprehensive set of best management practices that cover all potential vectors of introduction including aircraft, luggage, shoes, clothing, equipment and vessels large and small, including cruise ships.

According to the DMMP, the development of the Integrated Alien Species Management Plan (Activity AS-1.1) will be led by FWS and the best management practices (Activity AS-1.2) will be led by FWS and NOAA (Table 3.3.2). Given the critical importance of these plans, Ocean Conservancy recommends that they be developed by the MMB in consultation with both terrestrial and marine experts.

Ocean Conservancy urges revision of Activity AS-3.2: *Continue to require hull inspection and cleaning of all vessels, SCUBA gear, marine construction material, and instruments deployed in the Monument (NOAA)* to include the term "enforce" (similar to the language relating to prevention of invasive terrestrial species at Activity AS-3.1). The DMMP notes:

*"The probability of a successful eradication of an alien species in the marine environment is low. Therefore, all efforts will be made to prevent all alien species from entering NWHI ecosystems."*<sup>40</sup>

<sup>38</sup> DMMP, loc. cit., Vol. III, Appendix I, pg. 1-3.

<sup>39</sup> DMMP, loc. cit., Vol. I, pg. 192.

<sup>40</sup> Ibid.

In the marine ecosystem the best defense and in many cases, the only defense against alien species infestation will be prevention. Because of this, we need to ensure the strictest enforcement of all best management measures.

Although the DMMP<sup>41</sup> and best management practices require permittees to undergo vessel inspections to ensure hulls are not fouled prior to entry into the Monument, it is not clear who is authorized to conduct such inspections or whether there is any enforcement of this provision via on-site inspections within the Monument. Ocean Conservancy urges inclusion of a requirement that hull inspections be performed by a qualified inspector to prevent individuals who may not be competent to perform such inspections merely signing off on the paperwork without a rigorous inspection. We further recommend that all vessels also undergo an official inspection upon arrival at Midway and that permittees be subject to a fee to cover the costs of these inspections and subject to strict penalties if they are, in fact, found to have entered the Monument with fouled hulls. Only by actually inspecting hulls within the Monument can the Co-Trustees ensure compliance with this critical method of avoiding alien species introductions.

The DMMP should also include a fuller and more detailed description of all inspection requirements. Currently the permitting Appendix (A), includes a box with a date of inspection, but does not include an area for the inspector's name. The document states that inspections must be done prior to departure and for more details to call the permit coordinator.<sup>42</sup> We urge that this section be revised to include detailed information on the development of inspection protocol for vessels, water equipment, and equipment brought to the Monument by residents. Additionally, there should be a full discussion about the consequences of not following protocols and penalties— that is, fines, federal and state incarceration.

### 3.3.3 Maritime Transportation and Aviation Plan

We appreciate that the Maritime Transportation and Aviation Action Plan acknowledges that both maritime transportation and aviation bring with them risks to Monument resources.<sup>43</sup> However, Ocean Conservancy urges revision of the DMMP to more specifically discuss the fact that any future increase in access to and use of the Monument related to activities described in the Plan, will necessarily result in increased airplane traffic and increased risks associated with transportation. Discussion of maritime transportation and aviation uses of the NWHI associated with military activities such as RIMPAC should be included in the “*Current Status and Background*” section at Page 205 and should be addressed under all appropriate Strategies and Activities in this action plan.

Maritime transportation in particular presents what is likely the greatest threat of catastrophic damage to the NWHI via an oil spill or major vessel grounding. Given the potential for extreme damage from such an incident, the DMMP should identify all available measures to reduce the risk of such an event. Fundamental to the task of reducing risks associated with maritime

<sup>41</sup> Ibid.  
<sup>42</sup> DMMP, loc. cit., Vol. III, Appendix A pg. A-24.  
<sup>43</sup> DMMP, loc. cit., Vol. I pg 205.

transportation is a basic understanding of how many ships are in the Monument, where they are and what they are doing. The DMMP recognizes the need for better information to assess (and then reduce) hazards associated with transportation activities under Activity MTA-2.1 *Conduct studies on potential aircraft and vessel hazards and impacts*<sup>44</sup> and identifies specific studies that might be conducted such as noise and light impacts and a discharge study. Although we support pursuit of specific hazard studies, we believe there is a fundamental need for development of a comprehensive vessel reporting system for all vessels entering or transiting the Monument.

Under Activity MTA-1.1 *Coordinate implementation of domestic and international shipping designations with appropriate entities*, the DMMP discusses the April 2, 2008 designation of the NWHI as a Particularly Sensitive Habitat Area (PSSA) by the International Maritime Organization. Ocean Conservancy strongly supports this designation and we were particularly pleased to see that this designation included expansion and amendment of six existing “*Areas to be Avoided*” and establishment of a ship reporting system for vessels transiting the Monument. The DMMP notes that a: “*ship reporting system is mandatory for ships entering or departing a U.S. port of place and recommendatory for other ships.*”<sup>45</sup>

The DMMP also includes discussion of a Vessel Monitoring System in the Enforcement Action Plan: Activity EN-2.2 *Operate a Vessel Monitoring System for all permitted vessels* and Activity EN-2.3 *Integrate additional automated monitoring systems and ship reporting systems for all vessels transiting the Monument*. However, it is not clear from the current DMMP text whether such systems are currently capable of tracking all vessels within Monument water and if not, how vessel traffic that does not come under the existing VMS or PSSA requirements will be tracked.

A recent baseline study, Franklin (2008), documented the magnitude and spatial distribution of vessel traffic patterns in the NWHI for the first time. Noting that the NWHI has not had access to an automatic identification system (AIS) or radar array to facilitate the tracking and identification of vessel traffic and provide information on past or present vessel activity, Franklin concludes:

*“Future efforts to monitor vessel traffic in the PMNM would benefit greatly from the delivery of near-realtime or realtime information from a suite of technologies such as satellite imagery, high frequency surface radar, or remote AIS receivers.”*<sup>46</sup>

Such technology is available and is currently utilized in other areas of the U.S. For example, in the San Francisco Bay area, the public can track all commercial vessels in real time via a public website.<sup>47</sup> We urge revision of the Maritime Transportation and Aviation, Emergency Response and Enforcement Action Plans to explicitly require implementation of a comprehensive system

<sup>44</sup> Ibid., at 208.  
<sup>45</sup> Ibid., at 207.  
<sup>46</sup> Franklin, E. 2008. An assessment of vessel traffic patterns in the Northwestern Hawaiian Islands between 1994 and 2004. Marine Pollution Bulletin 56:136–162.  
<sup>47</sup> [www.sfoating.com](http://www.sfoating.com) (last accessed 23 July 2008)

for tracking all vessels within NWHI waters and to include discussion of any existing “holes” in such comprehensive coverage and how they can be filled.

We also encourage identification of priority areas for consideration under Activity MTA-2.2: *Develop protocols and practices as needed and integrate with existing protocols for safe aircraft and vessel operations.*<sup>48</sup> Specifically, we suggest examination of humpback whale calving areas and suggest development of a protocol for vessel speeds for areas that might have nursing or mating whales present.

Under Activity MTA-2.3: *Improve existing pre-access information for inclusion on the Monument website and in permit application materials*, we suggest that emergency response information be included on the list of information provided to all permit applicants. Such information might include materials outlining what to do in the event of an emergency as well as emergency response training for permittees and information on what kinds of supplies or materials permittees should have on board to respond to an emergency situation.

Given the unavoidable risks associated with maritime and aviation transportation in the Monument, the DMMP should attempt to minimize the expansion of transportation activities by ensuring the greatest possible efficiencies in all Monument transportation. Specifically, we urge inclusion of a new strategy under this action plan: “*Strategy MTA 3: Coordinate maritime transportation and aviation activities to reduce overall transportation impact.*” Activities under this strategy could include scheduling flights to ensure planes are full, making sure maritime traffic either transits through the Monument as quickly and safely as possible, or conducts multiple tasks while in Monument waters to reduce the need for repeat trips, and so forth.

### 3.3.4 Emergency Response and Natural Resource Damage Assessment Action Plan

Given the extreme sensitivity of Monument resources and the difficulty in logistics of emergency response, prevention of large scale events like vessel groundings and oil spills is absolutely critical. As use of the Monument is expected to increase in coming years, it is important that disaster avoidance remain a top priority. The DMMP notes that response to oil, fuel or chemical spills or vessels groundings would come under an existing Area Contingency Plan and therefore is not addressed directly in the DMMP. We encourage direct reference to the Area Contingency Plan, incorporation of the Plan by reference and inclusion in the DMMP of a brief summary of the Area Contingency Plan as it applies to the NWHI. At a minimum the DMMP should include a citation to the website that contains information regarding the Area Contingency Plan.

We encourage revision of Activities ERDA-1.2, 1.3, 2.3, and 3.1 to include discussion of necessary emergency response equipment as appropriate. Currently these activities appear to focus on planning and training. We also suggest cross referencing from this Action Plan to the Maritime Transportation and Aviation Action Plan, specifically to Activity MTA-2.3 *Improve existing pre-access information for inclusion on the Monument website and in permit application material*. As noted above, we suggest that emergency response information be included on list

<sup>48</sup> DMMP, loc. cit., Vol. 1, pg. 208.

of information provided to all permit applicants. Such information might include materials outlining what to do in the event of an emergency as well emergency response training for permittees and what information on what kinds of supplies or materials permittees should have on board to respond to an emergency situation.

### 3.3.5 Climate Change Action Plan – Recommendation for inclusion

The MMP will contain 22 Action Plans arrayed within six themes, but conspicuously missing is a climate change action plan. Climate change will almost certainly be the most important human impact on the Monument in coming decades, yet the document only makes brief mention of this issue. Some scientists are predicting that unless greenhouse gases are cut significantly, and soon, that shallow-water coral reefs could be lost this century through the combined impacts of warming, acidification, sea-level rise and increased storm intensities. These threats are clearly recognized and described in detail in the DMMP.<sup>49</sup> The Monument cannot do anything to affect the cause of climate change, but it can do a great deal to adapt to climate change and to enhance the capacity of Monument resources and ecosystems to adapt to climate change. Around the world ecologists have argued that the ability of coral reefs and other ecosystems to withstand the impacts of climate change will depend on their condition. Healthy, intact, biodiverse, functioning coral reefs will be far more resilient to climate change than reefs that:

- have lost biodiversity,
- have been damaged by human activities,
- have depleted fish populations, and/or
- suffer poor water quality and pollution.

A wide variety of human impacts act to reduce resiliency and therefore make reefs more susceptible to climate change. Thus, to enhance the capacity of coral reefs to withstand and absorb the impacts of climate change they must be maximally resilient. In most places, this requires removing or minimizing anthropogenic stresses in order to give the reefs a chance to recover fully resilient. In the Northwestern Hawaiian Islands, it requires preserving the largely intact ecosystem and maintaining its resilience by prohibiting any potentially damaging stresses, managing to restore ecosystem components that have been depleted by exploitation (pearl oysters, lobsters and bottomfish), and minimizing known anthropogenic stresses (e.g., debris). However, there is no evidence in the DMMP of the actions necessary to manage to restore and maintain ecosystem resilience. The only mention of resilience is a one-sentence call for research on resilience.<sup>50</sup> Ocean Conservancy urges the Co-Trustees to develop a Climate Change Action Plan to deal with these issues. Actions to address these issues need to be included in a Climate Change Action Plan, as the DMMP encompasses a time frame within 15 years – a time period during which we will very likely experience some of the described effects of global climate change.

#### 3.4.1 Permitting Action Plan

Ocean Conservancy applauds the development of the “Monument Permit Application Unified Public Notification Policy” as an important first step in improving coordination and public

<sup>49</sup> DMMP, loc. cit., Vol. 1, pg. 61, line 16 to pg. 63, line 39.

<sup>50</sup> DMMP, loc. cit., Vol. 1, pg. 111, lines 27-29.



accessibility of the Monument permitting process and we are generally supportive of the Strategies and Activities listed under the Permitting Action Plan. However, we urge the Co-Trustees to ensure that the process for permit application, evaluation and granting be as thorough, rigorous, science-based, and transparent as possible and subject to public review and comment.

- Permit applicants should be provided with clear and thorough rules and guidelines for the development of applications that are fully compatible with the goals, objectives and regulations of the Monument.
- Applicants must demonstrate that any and all proposed activities will not cause significant harm to the Monument (see comment regarding use of the precautionary principle above).
- The evaluation and assessment of all proposed activities and applications must be based on the best available scientific information and knowledge. In the absence of sufficient scientific information and understanding to assess the potential impacts of proposed activities those activities should not be permitted.
- The evaluation and assessment of all permit applications must be subject to independent, formal public review and comment.
- All stages and aspects of the process must be completely open to the public and all interested stakeholders.
- The process must include the opportunity for comment by all interested parties and the evaluation of permits must take such comment into account in the process of coming to a decision regarding the granting of a permit.

Specifically, we strongly suggest revision of Activity P-1.4 *Engage outside experts in review of permit applications* to make clear that the Co-Trustees will establish a standing technical advisory committee to provide independent permit review of all permit requests rather than simply pursuing expert review on an ad hoc basis.

#### ***Sustenance Fishing***

Ocean Conservancy believes that sustenance fishing should **not** be a permitted activity within the Monument. The activity is not consistent with the vision and goals for the Monument and the Nation's view of the NWHI as a unique and pristine environment that should be protected against human exploitation and impacts to every extent possible. All other forms of fishing, except subsistence fishing by Native Hawaiians, is or will be prohibited within the Monument. All fishing is prohibited within the Hawaiian Islands National Wildlife Refuge and the Northwestern Hawaiian Islands Marine Refuge and State Seabird Sanctuary at Kure Atoll. The ongoing permitting of sustenance fishing appears to raise what is essentially recreational fishing by researchers and other permittees to the same level of importance as that fishing of cultural and ceremonial importance to Native Hawaiians – subsistence fishing. Ocean Conservancy believes it is fundamentally inappropriate to allow fishing within the Monument whose purpose is solely to provide the luxury of fresh fish to Monument residents, researchers and visitors. Many Ocean Conservancy staff have spent months at sea or on remote islands conducting research, and we fully understand the high amenity value of being able to have fresh fish. However, that is simply not sufficient justification to allow what amounts to a sanctioned recreational fishery within the

Monument. Even limited recreational fisheries have been demonstrated to have appreciably depleted fish stocks in MPAs elsewhere in the world.<sup>51</sup>

We recognize that the Proclamation states:

*“The Secretaries may permit sustenance fishing outside of any Special Preservation Area as a term of condition of any permit issued under this proclamation.”*

However, nothing in the Proclamation language requires the Secretaries to allow such fishing. We urge the Co-Trustees to reject the permitting of sustenance fishing for all permits types. In the Proclamation sustenance fishing is defined as fishing for bottomfish or pelagic fish. Recent research has shown that Endangered Hawaiian monk seals consume bottomfish, which means that humans would potentially be removing fish from the ecosystem that monk seals rely on. This potential conflict is recognized in the draft FWS Appropriateness Finding and Compatibility Determination for Midway Island Appendix D of the DMMP, however it does not appear to be applied to the Monument as a whole.

Aside from a very brief mention in the Permitting Action Plan,<sup>52</sup> the DMMP only provides detailed guidance and proposed regulations on sustenance fishing within Appendix D with respect to the Midway Atoll Special Management Area (SMA) (Compatibility Determinations). However, all of these regulations appear to be limited to the Midway Atoll SMA since they come under Appendix D and address FWS compatibility criteria. Given the lack of discussion of sustenance fishing in Ecological Reserve areas (outside of Midway Atoll SMA) we assume sustenance fishing would not be allowed under the DMMP since the Proclamation requires consideration of impacts of sustenance fishing and reporting (see above) and no such discussion is included in the DMMP for any area except for Midway Atoll SMA. The DMMP must be specific about exactly where any fishing would be allowed if its potential impact is to be accurately assessed.

With respect to Midway Island, the FWS “*Finding of Appropriateness of a Refuge Use*” determined that:

*“Sustenance Fishing would not contribute to the public’s understanding and appreciation of the Refuge’s natural or cultural resources and would not be beneficial to the Refuge’s natural or cultural resources. However, following the Refuge conditions for*

<sup>51</sup> e.g., Denny, C.M., and R.C. Babcock. 2004. Do partial marine reserves protect reef fish assemblages? *Biological Conservation* 116:119-129.; Denny, C.M., T.J. Willis, and R.C. Babcock. 2003. Effects of poor Knights Islands Marine Reserve on demersal fish populations. DOC Science Internal Series 142. Department of Conservation, Wellington, New Zealand.; Eggleston, D.B., and C.P. Dahlgren. 2001. Distribution and abundance of Caribbean spiny lobsters in the Key West National Wildlife Refuge: relationship to habitat features and impact of an intensive recreational fishery. *Marine Freshwater Research* 52:1567-1576.; Shears, N.T., R.V. Grace, N.R. Usmar, V. Kerr, and R.C. Babcock. 2006. Long-term trends in lobster populations in a partially protected vs. no-take Marine park. *Biological Conservation* 132:222-231.; William, I. et al. 2006. Effects of rotational closure on coral reef fishes in Waikiki-Diamond Head Fishery Management Area, Oahu, Hawai'i. *Marine Ecology Progress Series* 310:139-149.

<sup>52</sup> *Ibid.*, at 220.

*compatibility will establish that sustenance fishing will also not materially detract from these resources or the public's understanding and appreciation of them."*

In the absence of any *apparent* impact the FWS made a finding that sustenance fishing is appropriate for a variety of reasons.<sup>53</sup> Ocean Conservancy has a number of concerns about this finding and the proposed regulations based on it.

It states in the Proclamation, with respect to the permitting of sustenance fishing in the Midway Refuge, that:

*"Sustenance fishing must be conducted in a manner compatible with this proclamation, including considering the extent to which the conduct of the activity may diminish monument resources, qualities, and ecological integrity, as well as any indirect, secondary, or cumulative effects of the activity and the duration of such effects."*

The Finding has not demonstrated scientifically that sustenance fishing will not "*diminish monument resources ...*", and therefore is incorrect.

The FWS proposes certain restrictions on sustenance fishing at Midway designed to reduce the impacts of sustenance fishing (e.g., no reef fish because of ciguatera, no bottomfish because of the monk seal link, fishing gear and method restrictions, limit on total take), but they have not demonstrated that impacts would be avoided beyond making a number of unsupported assumptions and claims. The claim is made that: "*The use would not measurably harm ... populations of fish ...*", but the term '*harm*' is not defined nor is the scientific method described by which this determination was reached.

- *Pelagic fishes only:* It is suggested in the Finding that because pelagic fish move widely, and the proposed catch (300 fish or 7 tons per year) is only a tiny fraction of the total catch for the Archipelago, that the impact would be minimal. This relies on an implicit assumption that the pelagic fishes around the Archipelago form single populations. The fact that the National Marine Fishery Service routinely assumes a "unit stock" for a management area with little evidence does not make it correct. If any of these species move much less, or, even worse, are resident around Midway, then the fishing pressure could be much higher than the average elsewhere in the Archipelago because it is concentrated in a very small area. There is evidence that such concentrated recreational fishing around Midway depleted ulua in the past.<sup>54</sup> Regardless, determining whether the take is minimal by fisheries management standards (proportion of biomass taken) is not sufficient to determine if there would be an impact on the ecosystem.

There is a suggestion in the DMMP that because at least one species of pelagic fish (skipjack) is highly fecund and fast growing that the proposed sustenance fishing would

<sup>53</sup> DMMP, loc. cit., Vol. III, Appendix D, page 112.

<sup>54</sup> DAR. 2002. Evaluation of the status of the recreational fishery for ulua in Hawai'i, and recommendations for future management, Division of Aquatic Resources Technical Report 20-02.; Wilcox, B.A. 2004. Fishing in the Northwestern Hawaiian Islands, University of Hawai'i, 17pp.

have no impact. This is an odd fact to base the argument on, given that the data presented on past catch do not include any skipjack. Instead, most of the tuna are yellowfin and/or bigeye, both of which are slower growing and less fecund. The latest report on the status of stocks from NMFS lists bigeye tuna in Pacific as experiencing overfishing, and indicates that it may be approaching an overfished condition.<sup>55</sup> It is unclear to Ocean Conservancy what justification could be offered to allow researchers and government employees to take even a relatively small amount of bigeye tuna from the Monument when the stock is experiencing overfishing and is at risk of being overfished.

A more important question is: what are the effects of the take on ecological integrity. Large fish are especially important to reproductive capacity,<sup>56</sup> and have an important influence on ecosystems as predators.<sup>57</sup> Fishing is well known to select for the largest individuals. Thus, it is possible that sustenance fishing would remove some of the most important individual fish from the pelagic environment around Midway, with unknown consequences to the ecosystem. It is especially distressing to imagine that spawning age bigeye tuna could be removed when the stock is at risk of being overfished. It is not sufficient to claim that the effect would be minimal without research to support that claim. Not only is there no research, but there are no data on the sizes of fish taken. While biomass estimates are provided based on the number of fish taken in the past, they are based on what appears to be a guess at an average size per fish of 50 pounds.

- *Fishing gear and methods:* The gear and methods proposed would help ensure that other species are not caught, but they do not go far enough. Additional requirements should include banning the use of wire line, down-riggers, planers or heavy weights, and prohibiting fishing at night or during the dawn and dusk periods. While "muscling" the fish in may help to lessen depredation by sharks, no data are offered to suggest how successful this technique might be. We assume that the Co-Trustees are not interested in supporting a "shark-feeding activity" in the Monument.
- *Total take:* How was the total take limit of 300 fish (nearly 7 tons) determined? Was a stock assessment model used, although as argued above that would be inappropriate? Was there an ecological assessment made of what the impact on the local ecosystem would be from removing 300 large fish per year? Was an assessment made of what removing seven tons of predator biomass would do to the dynamics of the fish community and the functioning of the ecosystem? Was it determined what this would do to prey populations that might be controlled by predation pressure? Was it determined what removing that much of the pelagic community would do to the reef communities through linkages between the two communities? Was it determined what this might do to

<sup>55</sup> Ref to 2007 status of stocks reports; <http://www.nmfs.noaa.gov/sfa/statusoffisheries/SOSmain.htm> (Last accessed 23 July 2008)

<sup>56</sup> e.g., Berkeley, S.A., C. Chapman, and S.M. Sogard. 2004. Maternal age as a determinant of larval growth and survival in a marine fish, *Sebastes melanops*. Ecology 85:1258-1264.; Bernardo, J. 1996. Maternal effects in animal ecology. American Zoologist 36:83-105.

<sup>57</sup> DeMartini, E.E. and A.M. Friedlander. 2006. Predation, endemism, and related processes structuring shallow-water reef fish assemblages of the Northwestern Hawaiian Islands. Atoll Research Bulletin 543:237-256.

competitive interactions within the predator community? Was it determined what removing seven tons of spawning biomass would do the reproductive output of these fishes, especially bigeye tuna? The fact that it is seen to be necessary to limit the number of fish caught suggests that FWS and Co-Trustees recognize that the activity could cause harm. Would harm occur if 1000 fish were taken? 500? 100? How do we know that a take of 300 fish per year is below the threshold above which harm would occur? Does this number depend on environmental factors that vary from year to year? We see no evidence that these and other pertinent questions about the impact of sustenance fishing at Midway were addressed or answered in any rigorous, scientific manner. Until such an approach is undertaken we cannot support the FWS's Finding of "no harm".

One of the reasons provided in the FWS Finding of "no harm" was that sustenance fishing:

*"would enhance the quality of life for monument employees and other permittees, many of whom are stationed at this remote location or on a vessel for extended periods of time, by providing fresh food at substantial savings to the Government."*

We agree that it would improve the quality of life for Monument employees who are subject to all the difficulties and hardships of living and working in a remote location for long periods of time. However, we do not agree that Monument resources should be risked to provide government employees and university researchers with what is essentially a luxury – fresh fish for two days once every two weeks. For a few thousand dollars, high quality frozen fish could be supplied to staff or fresh fish could easily be brought in on flights from the MHI.

Finally, we find the proposed plans to monitor and control this activity to be inadequate. While the types of data to be collected are sufficient (date, species, weight, length, location, accidental catch, interactions), we find that insufficient attention has been paid to the manner in which the data will be collected and how those data will be used. We recommend that:

- the data should be collected by trained personnel to insure that species determinations are correct, and lengths/weights are properly measured, for example:
- for the proposed monitoring to be effective, at least one person on Midway and on each research vessel would need to be designated and trained to collect the data, and fishing undertaken only when that person can be present to collect the data;
- the data should be assessed on a quarterly basis, rather than annually, to forestall any problems that might arise with too many fish being taken, the wrong species being taken or excessive numbers of interactions occurring.

Given the fundamental inconsistencies between allowing sustenance fishing and the Monument's mission as well as the specific problems identified with the sustenance fishing program as outlined above, Ocean Conservancy urges that sustenance fishing not be allowed within the PMNM.

### 3.4.2 Enforcement Action Plan

Adequate enforcement is a critical component of ongoing Monument management. The DMMP notes that the size and remoteness of the NWHI complicates effective enforcement. Given the inherent challenges to patrolling a large, remote and ecologically sensitive area, it is especially important that the Co-Trustees and partner enforcement agencies like the Coast Guard coordinate activities and share resources and information. Therefore, Ocean Conservancy strongly supports development of interagency agreements as described in Activity EN-1.2.

Regarding Activity EN-1.: *Increase law enforcement capacity on Midway Atoll within 2 years*, we urge that appropriate enforcement staffing be seen not as a one time event but as a task requiring ongoing reassessment. For example, law enforcement presence on Midway should be scaled to the island's level of use so that as visitor, researcher and staff numbers increase over time there is a commensurate increase in law enforcement capacity. Furthermore, when the daily limit of visitors is exceeded, it will be difficult for a single enforcement officer to ensure that passenger and crew of an 800-passenger vessel are all in compliance. We recommend that the Co-Trustees require cruise ship companies to cover the costs for an additional enforcement officer to accompany the vessel from the Main Hawaiian Islands when traveling to Midway.

As noted above, we strongly support Activity EN-2.2: *Operate a Vessel Monitoring System for all permitted vessels* and Activity EN-2.3: *Integrate additional automated monitoring systems and ship reporting systems for all vessels transiting the Monument*. We agree that automated monitoring systems are critical to law enforcement in an area as large as NWHI. We urge that a fully functioning system covering all vessels that transit or visit the Monument be up and running as quickly as possible. Such a system would simultaneously serve multiple Monument needs: threat assessment, prevention of disasters, emergency response, and law enforcement. Since Monument management is based on the fundamental premise of prohibition of entry (other than for transit) without authorization, it is critical for managers to be able to tell who is in the Monument, where they are and what they are doing.

We also urge addition of a new enforcement strategy directed at development of administrative penalties including penalty schedules and summary settlement tables. Based on our experience with the National Marine Sanctuary Program, simplified administrative penalties is a critical piece of an effective enforcement program. NOAA General Counsel for Enforcement and Litigation (GCEL) has authority to produce "penalty schedules" and "summary settlement tables" to aid them in prosecuting violations of statutes and regulations. Penalty schedules establish "suggested penalty ranges" for first, second, and third violations of specific regulations. Summary settlement tables establish "fixed fine amounts" for small misdemeanors and allow officers in the field to issue tickets on the spot, similar to a traffic ticket process. Respondents can either pay the ticket or request a hearing before a U.S. Coast Guard Administrative Law Judge. In the absence of a summary settlement, GCEL issues a Notice of Violation and Assessment (NOVA) which is a procedurally lengthy process designed for larger, more complex cases. GCEL attorneys can use the penalty schedules to determine penalty amounts for a NOVA. The majority of Sanctuary violations are not complex and do not require NOVAs, which respondents frequently do not receive for months or years after violations occur. This is wholly ineffective and inefficient for small violations.

Summary settlements are likely to be appropriate to a majority of Monument infractions in order to:

- achieve an immediate credible deterrent to future violations,
- avoid a backlog of mounting NOVAs,
- clear minor case action efficiently, and
- address a variety of responsible parties from individuals to companies.

For example, GCEL has completed a revised national penalty schedule<sup>58</sup> for the National Marine Sanctuary Program (NMSP), but has not yet completed a national summary settlement table. The national penalty schedule provides suggested NOVA penalty ranges for prohibition categories that cross all sanctuaries and for site-specific prohibitions that pertain only to individual sanctuaries.

Summary settlement tables are needed that provide a low-level immediate fine option for practically every prohibited activity in the Monument. The table must thus be comprehensive and carry fine amounts that have adequate deterrent effect. We also encourage the DMMP to include language noting that any permittee found to be in serious violation of permit conditions or to have violated Monument regulations will have their permit revoked and be ineligible for future permits.

### 3.4.3 Midway Atoll Visitor Services Action Plan & Appendix C – Draft visitor services plan

Ocean Conservancy generally supports the premise of allowing Midway Atoll to serve as a “window” on the NWHI to allow visitors to enjoy and appreciate the value of the Monument while protecting the majority of the more remote and ecologically sensitive areas of the Monument from impacts associated with access. However, we believe that great care must be taken to ensure that increased visitation and access at Midway does not threaten Monument resources. We submitted written comments on the Draft Interim Visitor Services Plan in February 2007 and we repeat many of the concerns raised in that letter below. We believe that the action plan and draft visitor services plan would benefit from more specificity and offer the following suggestions.

Regarding Strategy VS-1: *Implement the Midway Visitor Services Plan, providing visitors opportunities for up to 50 overnight guests at any one time*, Ocean Conservancy strongly supports adoption of a total limit on the number of overnight visitors and staff, volunteers and contractors. As noted in the DMMP, the appropriate level of visitors to Midway is limited by the infrastructure available to sustain them, the ability to provide a quality visitor experience, and the need to limit impacts to wildlife. We note that the DMMP actually proposes an increase in the total number of individuals allowed to spend the night at Midway from 130 in the interim plan to 150.

The DMMP notes:

<sup>58</sup> section VIII at <http://www.gc.noaa.gov/enforce-office3.html> (Last accessed 23 July 2008)

*“The 50-visitor limit may be exceeded for short duration (less than a day) prearranged visits by ocean vessels or aircraft. In these cases, visitor activities are closely supervised and primarily consist of guided tours or participation in commemorative events.”<sup>59</sup>*

We urge adoption of both optimum and maximum daytime visitation rates based on a thorough assessment of the atoll’s physical capacity and ability to tolerate impact. In the absence of data, a tentative and adaptable estimation should be made and updated over time. Not only terrestrial communities (with impacts on wildlife), but nearshore marine communities (coral and fish) should be taken into account when assessing the visitor capacity of the atoll.

The DMMP recognizes that one of the ways that the overnight visitor limit might be exceeded would be day-visitors by cruise ship. Cruise ship passenger size would be a maximum of 800 visitors. According to the DMMP they would:

*“...offload their passengers in groups of up to 100 in the ships’ tenders...passengers disembark and are divided into groups for a 2-hour walking tour...each group is accompanied by tour guides from the ship to ensure the passengers remain on the clearly marked guided tour route.”<sup>60</sup>*

The interim management plan stated that cruise ship guests would be moving around in groups of 50 (twice the size of non-cruise ship groups allowed in the interim plan). We are concerned that such large groups would be difficult to supervise and encourage maintaining group size for all visitors at 25 people. In the past, 90 people were allowed to disembark at one time with no more than 400 passengers on land at once. Currently, however, the number allowed on land (during cruise ship visits) at one time has not been clearly stated in the draft plan. The DMMP should clearly state how many people will be permitted on land at any one time.

The DMMP notes that cruise ship visitors will be briefed before visitors arrive at Midway:

*“For cruise ships, briefings are either given on board the ship prior to arrival or, if no FWS-approved guides are on board, via written materials developed by the cruise ship company in coordination with FWS and Monument Co-Trustees. Since all cruise ship visitors are guided in small groups from one site to another along existing roads, these methods of orientation suffice.”<sup>61</sup>*

Ocean Conservancy appreciates efforts to educate visitors in advance but we strongly caution against relying in any way on such briefings. Cruise ship visitors enjoying their vacations are very unlikely to pay serious attention to such briefings and materials and must be adequately supervised at all times to ensure strict compliance with Monument regulations and protocols. We believe that requiring small group size (not more than 25 people) and authorized guides is

<sup>59</sup> DMMP, loc. cit., Vol. III, Appendix C, pg. 16.

<sup>60</sup> Ibid., at 21.

<sup>61</sup> Ibid., at 22.

the only way to both provide access to cruise ship visitors and ensure adequate protection of Monument resources.

Overnight limits at Midway might also be exceeded if additional visitors arrive by aircraft. The DMMP notes that currently,

*“The limit of no more than 50 overnight visitors to Midway at any one time reflects the limited capacity of our means of transportation and island infrastructure. Our Fiscal Year 2008 aircraft charter company operates a Gulfstream G-1 aircraft with 19 seats and a weight capacity of 3,200 pounds. Therefore it is likely that no more than 15 seats will be available on any flight.”*

However, one of the stated goals of the plan is: *Strategy 1.3 By December 2008, seek larger capacity aircraft to service Midway Atoll on a regular basis.*<sup>62</sup> This is clarified further in the DMMP: *“Our goal would be to be able to transport 25-30 visitors to and from Midway per flight.”*<sup>63</sup> Conceivably, Midway could therefore host 100 residents, 50 overnight guests, 100 cruise ship visitors and up to 30 visitors arriving (and departing same day) by plane for a total of 280 people. Again, we believe that optimal and maximum visitation numbers should be included in the document.

Ocean Conservancy strongly supports Activity VS-1.3: *Continuously monitor the impacts of visitors and other users on wildlife and historic resources to ensure their protection.* We urge inclusion of the visitor impact monitoring methodology referred to in the Draft Visitors Services Plan in the DMMP.<sup>64</sup> Monitoring visitor impact is very important, particularly because while FWS allowed up to 100 overnight visitors from 1996 to 2002, concessions never reached the maximal number.<sup>65</sup> Additionally, only once in 2004 did the number of cruise ships visiting Midway in a calendar year total three; in each of the years 2005-2007, only one cruise ship visited Midway, and in 2008 zero cruise ships visited Midway.<sup>66</sup> It will be important for the Co-Trustees to quickly determine and establish a baseline of current conditions of natural and historic resources from which to measure future impacts, and, if necessary, to change the number of permittees granted access to Midway, based on ecological carrying capacities.

Monitoring population and behavioral characteristics of Threatened and Endangered species should also be given preference, and activity adjusted accordingly. As, after the Navy transferred Midway jurisdiction to FWS, from 1995 to 2000 the mean number of seals counted on the beach steadily increased, in the reduction of human disturbance. The population doubled on Midway, and for the first time seals were giving birth on Sand Island.<sup>67</sup> It is imperative to keep disturbances to a minimum because the monk seal population in the NWHI is declining, and other stresses should be minimized to ensure resiliency in the population.

<sup>62</sup> DMMP, loc. cit., Vol. I, pg. 19.

<sup>63</sup> Ibid., at 20.

<sup>64</sup> DMMP, loc. cit., Vol. III, Appendix C, pg. 17.

<sup>65</sup> NMFS. 2007. loc. cit.

<sup>66</sup> DMMP, loc. cit., Vol. IV, pg. 24

<sup>67</sup> NMFS. 2007. loc. cit.

On page 16 of Appendix C in the second paragraph of section 3.2 *Visitor Capacity and Scheduling*, in the sentence discussing visitors by sailboat that starts:

*“Although visitors arriving by sailboat will not require rooms, they will still be counted toward the total number of visitors...”*

We recommend that you insert the word “overnight” to read: “the total number of **overnight** visitors...” [emphasis added] Adding the word “overnight” provides clarification that these visitors will be included with and counted towards the 50-visitor limit instead of those that might occasionally exceed this limit.

#### *Conceptual Site Plan – Midway Atoll*

Ocean Conservancy believes that the capacity of Midway Atoll to accommodate (any) visitors and to tolerate their impact without the loss of ecological integrity or resilience is an important consideration. Therefore, we can not support and strongly oppose implementation of Alternative C – since one of the “cons” identified is:

*“greater increases in visitor volumes may impact some resources and may exceed Midway’s carrying capacity.”*<sup>68</sup>

We believe that exceeding the maximum capacity would not be compatible with the purposes of the refuge and the mission of the National Wildlife Refuge System and the Monument declaration.

We are supportive of some of the improvements in the preferred alternative, B, in particular the Monk Seal Captive Care Facility and a quarantine facility, which, we believe should be given priority in the development process. However, we question the need to construct and erect a new dock at the seaplane/boat ramp and the need to add three new finger docks. The construction of additional docks would provide for and enable excessive boat traffic and are not justified in the Conceptual Site Plan. Construction of dock and piers could also disturb nearshore marine communities that are sensitive to small changes in water quality, which would be caused by the proposed in-water construction. We question the need for the additional finger piers – that would provide more docking for small and mid-sized boats, while yet still maintaining the tug pier and current finger pier. We recommend instead considering converting the sea plane facility into a landing/dock area. This alternative would concentrate development (and associated impacts) in one area, the west, instead of developing in the north, northeast and northwest portions of the inner harbor.

Page 15 of the Midway Atoll Conceptual Site Plan states that:

*“Midway is a predator-dominated marine ecosystem, an anomaly among marine ecosystems...”*

<sup>68</sup> DMMP, Ibid., at 42.

We recommend phrasing it as “Midway is **one of the few remaining** predator-dominated marine ecosystems...” [emphasis added]

### 3.5.1 Agency Coordination Action Plan

Ocean Conservancy supports the stated desired outcome of this plan to:

*“Successfully collaborate with government partners to achieve publicly supported, coordinated, coordinated **successful/effective** management in Papahānaumokuākea Marine National Monument.”* [emphasis added]

We recommend adding the additional adjectives “successful” and/or “effective” as modifiers for “management” to further strengthen this plan. The Action Plan itself is somewhat limited and unclear and would benefit from some additional detail and development, especially given inherent challenge of multiple agencies working together. As we stated in the above section on “Management Framework”, one important means to address challenges of working together would be to identify and develop a fair and effective method of addressing differences of opinion between the Co-Trustees in a timely manner.

Furthermore, we recommend the following improvement to Strategy AC-3:

*“Promoting international, national, and local agency **and non-governmental** collaborations to increase capacity building and foster networks that will improve management effectiveness “* [emphasis added]

In addition to governmental agencies, there are many stakeholder, non-governmental groups working towards and addressing the goals of this strategy across the Pacific. Ocean Conservancy would like to see the Monument actively engaged in such initiatives. The Co-Trustees currently are members of the Hawai‘i Conservation Alliance and work with many stakeholder groups, and thus are already engaged in collaborations with stakeholders that could be expanded. One such effort currently underway involves the International Union for Conservation of Nature (IUCN), Ocean Conservancy, and Stanford University’s Center for Ocean Solutions. Dubbed the “Pacific Ocean Initiative”, this effort will join together business leaders, non-governmental organizations (NGOs), and governments of all levels (cities, states/provinces, and nations) around the Pacific to tackle the major threats to our ocean health in a coordinated and cooperative plan of action — comparable to the International Climate Action Partnership — that builds upon and coordinates existing state and federal programs in the U.S. and their analogs in other Pacific countries. The Co-Trustees should actively participate in this important effort.

*Activity AC-3.1: Enhance communication and cooperation with the Department of Defense (DOD) and the U.S. Navy Pacific Fleet*

This is an important activity for the Monument to implement well with potentially large benefits for Monument resources. Ocean Conservancy is concerned that this Activity is currently

somewhat sparse and unclear. Given the tremendous importance of this Activity, it would benefit from some further fleshing out, greater specificity, and inclusion of a purpose. The current language specifies

*“Minimizing military activities within the Monument”,*

as one of the potential areas for cooperation, but it should also include the related and even more important issue of

*“Minimizing the impact of military activities within and outside of the Monument on the resources of the Monument”.*

Furthermore, the Co-Trustees do have a role in ensuring that military activities are consistent with the Proclamation which states:<sup>69</sup>

*“All activities and exercises of the Armed Forces shall be carried out in a manner that avoids, to the extent practicable and consistent with operational requirements, adverse impacts on monument resources and qualities.”*

If Military training operations could potentially affect Monument resources and ecological integrity, the Co-Trustees should be actively engaged with DOD to ensure that Monument resources are protected, as mandated by the Proclamation. The NWHI falls within the Hawaii Range Complex of a proposed Department of Defense Navy gaming area.<sup>70</sup> DOD proposes to conduct missile testing that will produce marine debris that could potentially harm seabirds, monk seals, and sea turtles. The DMMP action plan on marine debris (3.3.1) specifically seeks the desired outcome to:

*“reduce the adverse effects of marine debris to Papahānaumokuākea Marine National Monument resources and reduce the amount of debris entering the North Pacific Ocean.”*

The production of additional debris by DOD is in therefore directly in conflict with a desired outcome of the DMMP. Furthermore, the use of high-intensity active sonar and permission to “take” marine mammals is also in direct conflict with the desired outcomes of Strategy 3.2.1 (Threatened and Endangered Species Action Plan) to:

*“Protect marine mammals and aid in the recovery of threatened and endangered plants and animals...”*

Given the potential for military activities to significantly affect Monument resources and conflict with the stated goals of the DMMP, Ocean Conservancy urges the Co-Trustees to take an active role in monitoring and managing activities proposed by the military within the Monument and to

<sup>69</sup> Presidential Proclamation 8031 – Establishment of the Northwestern Hawaiian Islands Marine National Monument

<sup>70</sup> <http://www.govsupport.us/navynepahawaii/hawaii/ccis.aspx> (Last accessed 03 July 2008)

ensure that activities will not have adverse effects on Monument resources and ecological integrity.

Another area of potential cooperation that should be included in this Action Plan is

***“Improving access to and facilitating use of DOD mapping and other materials”***

Such mapping would be useful to the Monument Trustees and Managers, as detailed in recent Department of Commerce Inspector General’s Report on the Office of National Marine Sanctuaries.

Ocean Conservancy strongly supported the bid for World Heritage Site status for the Monument and will continue to advocate for Activity AC-3.3: *Support the bid for World Heritage Site status*. There are few places in the United States or the World that have the combined environmental and cultural significance to the planet that is found within the Papahānaumokuākea Marine National Monument. It is only appropriate that this areas be recognized internationally for the unique world resource that it is.

**3.6.2 Information Management Action Plan**

Ocean Conservancy encourages the Co-Trustees to facilitate public access to data and information about the Monument. For example, all permittees could be required to make data available in standard format on a publically accessible website as a condition of their permit.

**3.6.3 Coordinated Field Operations Action Plan**

Ocean Conservancy strongly supports Activity CFO-2.3: *Assess threats that field activities pose to Monument resources*. This activity is very important to ensuring the NWHI ecosystems retain ecological integrity, remain resilient, and are not adversely impacted by research and field activities. We believe that this action plan should be made a priority, and developed and implemented before additional or proposed research, construction, or restoration occurs. However, before any impacts may be assessed, a baseline assessment of current and recent conditions is required with which to compare future activities and their impacts. The baseline assessment should include recent activity and the status of resources relative to this human activity. Furthermore, permitted activities should not be monitored for threat assessment solely on activity reports prepared by the permittee. An independent source should also be certifying and verifying the accurateness of these reports. This action plan should address all of these concerns.

Strategy CFO-3: *Maintain an enhance housing and field camp capacity using short-, medium-, and long-term approaches across the life of the plan*

As we stated earlier, global climate change is one of the greatest threats our ocean ecosystems face today, with a variety of stresses impacting resources at varying scales. One of the greatest impacts that the NWHI will be dealing with this century, in addition to the natural erosion processes of atolls, will be increased sea level rise. Any infrastructure planning and engineering

needs to consider these impacts, particularly since the estimates widely accepted by the IPPC are most likely underestimates. Local experts are already examining these issues in the Main Hawaiian Islands, and may be able to assist the Co-Trustees with addressing this issue.<sup>71</sup>

Strategy CFO-6: *Within 5 years improve the small boat operational capacity to enable quick, reliable access to the region in support of management and continue to enhance the program throughout the life of the plan.*

This strategy states that:

*“improved access to the islands and atolls of the NWHI has been identified as a top priority”*

The Co-Trustees must ensure that the “precautionary principle” is applied to all Monument activities including improving access and facilities. Monument resources should not be placed at-risk or endangered by activities that build operational capacity. Strategy CF-6 should ensure that any future development will not endanger Monument resources and diminish ecological integrity. And, if Activity CFO-2.3 determines that threats associated with any activity proposed in this action plan might have a negative impact on resources, they should not be permitted. Furthermore any activity proposed in this activity should undergo full environmental review and incorporate appropriate mitigation measures.

<sup>71</sup> Department of Land and Natural Resources. 2007. Hawaii Coastal Erosion Management Plan (COEMAP), Land Division, Coastal Lands Program, DLNR. 90pp.



## CONCLUSION

Ocean Conservancy recognizes the significant effort that has gone into development of the DMMP and we support many of the strategies and activities included in the Plan. Our recommendations are designed to help ensure the strongest possible protection of the Papahānaumokuākea Marine National Monument.

Thank you for consideration of our view. Please feel free to contact us if we can provide further information or answer any questions.

Sincerely,



Dennis Heinemann, PhD  
VP, Ocean Climate Change

Kaitilin Gaffney  
Pacific Ecosystem Protection Program  
Director



July 23, 2008

Sent via email: PMNM\_MMP\_Comments@fws.gov

Attn: Susan White, FWS Superintendent  
U.S. Fish and Wildlife Service  
Papahānaumokuākea Marine National Monument  
Box 50167  
Honolulu, Hawai'i 96850

Re: Comments on the Draft Monument Management Plan (MMP) and associated environmental assessment (EA) for the Papahānaumokuākea Marine National Monument

Dear Ms. White:

Friends of the Earth (FoE)<sup>1</sup> appreciates this opportunity to submit comments regarding the Draft Monument Management Plan (Plan) and associated environmental assessment (EA) for the Papahānaumokuākea Marine National Monument (Monument). In sum, we support any efforts to evaluate and reduce vessel pollution in the Monument. Specifically, we commend the U.S. Fish and Wildlife Service (FWS), the National Oceanic and Atmospheric Administration (NOAA), and the State of Hawai'i for including in the Plan new field activities designed to study vessel hazards and impacts, based on priority threats identified in a comprehensive threat assessment performed by the Monument Management Board (MTA-2.1). FoE particularly supports studies pertaining to the environmental effects of wastewater discharges from vessels – as referenced on page 208 of the Plan – on Monument values and characteristics.<sup>2</sup> These studies should be conducted in a timely fashion, with an eye to ascertaining the extent to which vessel wastewater discharge prohibitions are in order. FoE has supported wastewater discharge prohibitions for the California marine sanctuaries and continues to advocate this environmentally sensible policy for all types of marine areas afforded special government protection. Furthermore, FoE urges the initiation of studies concerning vessel air emissions in the Monument, especially in conjunction with vessel speed reduction analyses, to mitigate air emissions, whale strikes, and underwater noise pollution.

<sup>1</sup> Friends of the Earth is a public interest, not-for-profit advocacy organization, whose mission is to defend the environment and champion a just and healthy world. Friends of the Earth maintains its headquarters in Washington, D.C., and is the U.S. voice of the world's largest network of environmental groups with affiliates in 70 countries.

<sup>2</sup> "An estimated 50 vessels pass through the U.S. Exclusive Economic Zone surrounding the NWHI each day." MMP, Vol. 1, pg 205.

Thank you for the opportunity to provide these comments. If you have any questions, please feel free to contact me at (415) 544-0790, ext. 21.

Sincerely,



John Kaltenstein  
Clean Vessels Campaign Manager  
Friends of the Earth  
311 California St., Suite 510  
San Francisco, CA 94104

July 22, 2008

Earth Corps International  
46-240 Ahui Nani Place  
Kaneohe, HI 96744

Ms. Wilhelm, Ms. White, and Ms. Clark  
Trustees of the Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231; Box 50167  
Honolulu, HI 96850  
Re: Comments of Earth Corps International

RECEIVED

USFWS-HAWAIIAN/PACIFIC MWRC  
HONOLULU, HAWAII

00808

Starting with the first sentence (1) and often reiterated throughout the entire Draft Management Plan, and, with strict limits, by the Proclamation 8031 (2), the mandate is that the entire Monument is a "fully protected marine conservation area", warranting the "highest levels of protection possible" (3). This constitutes a No Take Policy within the Monument, consistent with the interpretation and enforcement of such designation in National Monuments, Refuges and Sanctuaries elsewhere and with the Marine Life Protection Act, and with law and policy of the State of Hawaii. "Thou Shalt Not Kill" or even remove any nonliving resources, is the acknowledged mandate, and the precautionary principal requires implementation of all measures necessary to preclude any potential take. This is very strong, even extreme law, but given Papahānaumokuākea's irreplaceable biological treasure, cultural heritage and strategic importance to our very survival, a No Take Policy is not extreme, or even just prudent, it is fundamental to the motivation for the creation of the Monument, and consistent with the Native Hawaiian call for a pu'uhonua, a place of refuge for the indigenous species of Papahānaumokuākea.

Therefore, it is quite dismaying to find that No Take Policy is disregarded by large sections throughout the Plan, resulting in numerous, predictable, avoidable and significant adverse environmental impacts unassessed by the "Environmental Assessment", and numerous other substantial and predictable impacts being overlooked entirely. It makes no attempt to catalog these adverse impacts of Management Plan opening up the Monument to broad reaching human activities, as required by NEPA to constitute an Environmental Impact Statement, nor does it include the NEPA required avoidance and/or mitigation measures for resultant adverse impacts.

Prudent application of No Take Policy would seek an immediate halt to all activities now causing great injury and environmental insult, obviously killing protected life (4). First, there must be an immediate halt to fishing and other authorized take of biota and resources within the Monument. Second, remediation of past injury (5) and restoration of habitat and populations to nominal levels must be the focus and priority. Instead of CPR: Conservation, Protection and Restoration of an exploited archipelago, we find the title and stated goals of the Management Plan to be the "Wise Use" of the natural resources of the Monument. Cautious exploitation is the Management Plan, whereas we believe the Proclamation Mandate is for restoration and permanent protection.

It logically follows that to permit consumptive use of Monument resources before a Plan has been adopted only serves to guarantee the Plan will be obsolete by the time it has finally been approved. Planners have found (6) and mainland experience has shown (7) that a moratorium on Permits for all activities must be in place until the planks in an approved plan have been adopted. This is the only way to assure that the Plan will be in effect and de facto implemented at the time it is approved. The current Permit Process is obviously out of control and worsening because, contrary to Proclamation 8031, it's out of public sight and lacks any effective enforcement mechanism. Cavalier disregard of Permit Conditions and protocols may have already resulted in the introduction of alien pathogens and invasive species.

-1-

Enforcement is nonexistent despite availability of effective measures such as satellite surveillance, relying by default on self reporting and whistle blowing by research colleagues. Permitted programs to kill predators rather than protect (monk seal) pups evidence a policy driven by pragmatism and politics rather than “full protection of all marine life”. A fragmented process opaque to public view and participation can only lead to further deterioration of a faulty process. A full moratorium is necessary to regain control and implement No Take Policy.

The Monument is CLOSED to all but Monument staff until a Compatibility Determination has been made finding consistency with an Adapted Plan. Draft doesn't count (8). The best prevention of ship groundings is the enforcement of the ban on all ships without a Permit or without an acknowledged Mayday distress call for assistance. Satellite surveillance can disclose unauthorized entry and should initiate immediate Coast Guard response, expulsion, and prosecution. A call for the preparation of an oil spill contingency Plan is not the equivalent of having the resources in place for the execution of an emergency clean up. Permission to enter Monument waters must not issue until a Plan is both prepared and implemented.

There was enthusiastic and widespread public participation and informed comment during the preparation of the former Draft Plan lead by an effective Reserve Advisory Council composed of representatives of all of the stakeholders generated solid support, as the public “bought in” to the evolving Plan. Withdrawal of the Department of Commerce to draft a substantially different new plan behind closed doors, for two years absent any public or agency input or oversight, and the virtual disbanding of RAC, turned public support to suspicion and guaranteed that the new Management plan would be greeted by a solid phalanx of critics (9). By spurning all advice, this tactic repels all help, especially now, when help is crucial to acceptance. Restoration of the Reserve Advisory Council, with provision for meaningful input into all aspects of Monument planning, permitting, activities and regulation, and maximum transparency of all Monument activities, is essential to regaining credibility, political support and future funding.

The Proclamation mandates and the Management Plan recognizes the need for transparency and public involvement in planning process and rule making, and yet NOAA suspended RAC oversight and public scrutiny while drafting this Plan, and has no plan for reactivation of RAC or a Monument Advisory Council.

Specific Recommendations, by priority:

#### Section 3.1 (New) Remediation and Restoration Plan

- 1 Immediately stop existing ongoing exploitation of the marine fishery by buying out existing leases. The first priority for the \$1.3 Billion in Monument funds earmarked by Senator Inouye must be the buyout of commercial fishing leases currently legally exploiting the resource in violation of No Take Policy and the Proclamation 8031. A permanent moratorium on commercial and sport fishing is required by No Take Policy and consistency requirements of the groundfish moratorium, and is not inconsistent with Native Hawaiian rights and practices.

-2-

- 2 Immediately intervene to stop Military use of Monument waters and air space for exercises and practices such as the current Rim Pac exercises threatening marine life with high level sonar and risking exposure to toxicants and military debris. Military usage of Monument can and should be limited to very limited usage of Midway Atoll.

- 3 Remediation of toxic wastes, removal of relic structures and mostly military artifacts, especially from Kure and Midway Atolls and French Frigate Shoals, must be completed in conformance with BRAC protocols and consistent with RECRA and Superfund requirements, with a final Record Of Decision published for the completion of remediation of the uncharacterized, unregulated toxic dump sites prior to the Compatibility Determination required for Management Plan approval. Consideration of any of the consumptive uses contemplated in the Midway Atoll Conceptual Plan, should be withdrawn as inconsistent with No Take Policy. The Monument now stands in violation of the Clean Water Act, especially for the toxic plumes emanating from the toxic dump sites and being taken up by surrounding biota. Remediation should bring these violations into CWA compliance so that an NPDES Permit may issue and a Compatibility Determination can be made.

- 4 Removal of non indigenous terrestrial flora & fauna including ironwood, habitat restoration and reintroduction of endemic biota should be planned and proceed immediately following remediation.

When the remediation and restoration has been completed, and the former terrestrial and marine ecosystems restored, a new plan for the Protection, Conservation and non consumptive use of Midway Atoll can be written, this time with public comment and RAC oversight and preventive measures to preclude further introduction of invasive exotic species. All cruise ships should be excluded from Monument waters until pending regulations intended to prevent unlawful discharge of wastes have been shown to be effective, and have been incorporated into the Plan and Permit system. All military artifacts deemed of historic value should be “curated” (removed from Monument islands and waters).

#### Sec 3. (2) (new) Establishing a Baseline: BACI (Before-After-Control Monitoring)

Before embarking on the proposed Action Plans, it is customary to have a Baseline in place with accurate quantification of taxa present, taken by non consumptive methodology (e.g. Plankton as taxa indicator) and non invasive instrumentation to provide real time monitoring of populational change in order to provide reliable oversight and appropriate management, and a control site close to, but outside the Monument, selected, to evaluate the impacts of policy and operations, and provide early warning of external insult. (Sec 3.6.)

#### Section 3.2 Conserving Wildlife and Habitats

- 1 Protections must be in place before Conservation measures can be implemented. Endangered Species Act requires that a Recovery Team be appointed to prepare a Recovery Plan for each species listed as endangered. These plans should be merged, and their conflicts resolved before incorporation into the Action Plans.
- 2 Conservation measures must be in place before Management Plan Permits can be issued.

-3-

### Section 3.3 Reducing Threats to the Ecosystem

.1 Marine Debris Action Plan does not propose interdiction programs and such regulation as lies within Trustees authority to prevent overboard discharge of debris, especially from military and cruise ships. Satellite surveillance of non point debris rack lines from the Pacific Gyre could guide debris collection before entering Monument waters (10). Plans to collect and burn plastic flotsam include no measures to prevent formation or scrubbing and sequestering of the dioxins produced by combustion. Alternative disposal methods such as Contained Aquatic Disposal are not evaluated.

.2 Alien Species are most often introduced in ballast discharge or by tourists to Midway in Vol. IV. Disinfection protocols must be in place before any ships should be allowed entry to Monument waters.

.3 Maritime Transportation and Aviation lacks a specific accident intervention plan, or oil spill remediation plan.

### Section 3.4 Managing Human Activities

No Take Policy constitutes a Prime Directive to Trustees, management and staff to manage human activities to prevent adverse impacts on indigenous populations, to achieve maximum sustainable populations of endemic life forms, to restore, enhance and protect sustaining habitats, and to erase existing and prevent future human footprints. While this leaves a wide latitude for non invasive observational activities and research endeavors, it also imposes heavy responsibilities on Monument Trustees and management to strictly regulate human activities to assure compliance with the Directive.

### Section 3.5 Coordinating Conservation and Management Activities

### Section 3.6 Achieving Effective Monument Operations

#### Notes and Comments:

- 1) Volume I, page 1, et seq
- 2) F6, 1-10
- 3) F6
- 4) Proclamation 8031, as of June 15, 2006, appropriated and withdrew all forms of entry to the Monument waters, abolishing existing fishing leases (F3, top). Permission to kill sharks and other protected marine life are in direct violation of the Proclamation.
- 5) Toxic dump sites (unregulated landfills) often uncharacterized and leaking, contaminating adjacent lands and waters, must be a top priority. BRAC procedures may not be sufficient to protect indigenous biota.
- 6) California Planning Association Conference at UC Santa Barbara in 1968 found most urban general plans were obsolete and planning options had been co-opted by the time the Plan was adopted, leading to the recommendation that moratoria must be placed on building permits until land use regulations were in place.

-4-

- 7) Based on the CPA guidelines, the California Coastal Act and the (San Francisco) Bay Conservation and Development Act were approved imposing moratoriums on coastal development and bay tideland fill until action plans to implement conservation measures were in place. The clear successes of CCA and BCDC in achieving their goals have lead to wide emulation.
- 8) The Draft Management Plan does not become effective until the conflicts have been resolved, the Action Plans actually be in place, and the Compatibility Determination has been made. Until then the Monument should be closed to entry, as proclaimed by Proclamation 8031.
- 9) Based upon the enthusiastic, universally positive and thoughtful suggestions made at the well attended first round of public hearings on a Draft Monument Plan, whereas the new Draft Plan has drawn very sparse attendance and universally critical comments, it is clear that the public buys into and supports plans and policy where they have played an effective role in formulation, but rejects as "not made here" plans and policy formulated in private with little to no transparency. In order to regain credibility, and political and financial support, it is imperative that the RAC be reconstituted and reconvened to consider the comments and criticisms of this new Plan, to offer consensus amendments, and for RAC suggestions to be seriously considered.
- 10) We suggest that consultation with Algalita Marine Research Foundation would help produce a plan to keep marine debris from entering Monument waters [www.algalita.org](http://www.algalita.org).

Earth Corps International and our Hawaiian hui in particular are greatly appreciative of the hard work of the Trustees, your staff, and of NOAA in particular, for their hard work in producing this impressive Draft Monument Plan. Mahalo nui loa. We look forward to your responses to the suggestions, both oral and written, of the many citizens and groups who took time to comment. These islands and their waters are our heritage of inestimable value and a priceless legacy to our great grandchildren and future of the entire world. We must not fail to act with great restraint to avoid all possible harm, yet with strong clear resolve to use all resources at our command to protect and defend this irreplaceable archipelago. We pledge our support and to working with you and all stakeholders in ensuring the very best of all possible outcomes.

Papahāūmokuākea needs no defense, only defenders (Edward Abbey).

Very truly yours,



Don May, Chair  
Hawaiian Hui  
Earth Corps

-5-

**A Conservation Ethic  
is that which aims to pass  
on to future generations  
the best part of the  
nonhuman world.**

**To know this world is to gain  
a proprietary attachment to it.**

**To know it well  
is to love and take  
responsibility for it.**

**-E. O. Wilson**

UNIVERSITY OF CALIFORNIA, SANTA CRUZ

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • SAN FRANCISCO



SANTA BARRBARA • SANTA CRUZ

DEPARTMENT OF ECOLOGY & EVOLUTIONARY BIOLOGY  
DIVISION OF NATURAL SCIENCE  
CENTER FOR OCEAN HEALTH, LONG MARINE LABORATORY  
100 SHAFFER RD.  
SANTA CRUZ, CALIFORNIA 95060

July 23, 2008

U.S. Fish and Wildlife Service  
Papahānaumokuākea Marine National Monument  
Box 50167  
Honolulu, Hawai'i 96850

I would like to provide comments on the Papahānaumokuākea Marine National Monument Draft Management Plan. I am currently a Postdoctoral Fellow at the University of California Santa Cruz and have worked with black-footed and Laysan albatrosses over the last 9 years. My work has focused in part on the sources and effects of contaminant exposure in black-footed albatrosses as well as the impact of lead poisoning to Laysan albatross chicks on Midway Atoll [1-5].

I am concerned that the Draft Management Plan does not provide enough detail as to how and when lead contamination will be removed from Midway Atoll. My past work has demonstrated that Laysan albatross chicks nesting near buildings on Midway Atoll are lethally exposed to lead from ingestion of lead-based paint [6]. Furthermore, my current research on the impacts of lead poisoning to Laysan albatross chicks (manuscript in preparation) demonstrates that lead poisoning is indeed having a measurable detrimental effect on the Midway Laysan albatross population. Although the exact number of lead poisoned Laysan albatross chicks per year is unknown, recent surveys (2006) have estimated that up to 10,000 chicks are at risk for lead poisoning each year.

Based on my work over the past 9 years on the lead poisoning of Laysan albatross on Midway Atoll, here is a summary of my recommendations for this very serious concern to both wildlife and human health:

Currently ~95 structures exist on Sand Island with exterior and interior lead-based paint. Approximately two-thirds of these buildings are unused and/or abandoned. Because many of these buildings contain asbestos in addition to lead-based paint, the proper removal of these buildings is paramount to the safety of human and wildlife health on the island. As the deterioration of these buildings continues, the hazards they represent will increase in terms of structural integrity (e.g., falling plaster) and increased dispersal of lead-based paint chips and asbestos materials. The oldest buildings on Sand Island, the cable company buildings constructed in 1904 [7], are extremely deteriorated; surveys in 2001, 2004 and 2006 reported the highest numbers of drooping chicks around these structures. Neglecting to properly remove and dispose of the unused and abandoned buildings on Sand Island will result in lead-poisoned Laysan albatross chicks for decades and possibly centuries to come.

Midway Atoll NWR is subject to extreme weathering processes and proper containment of deteriorating lead-based paint should be conducted expeditiously in accordance with the U.S. Department of Housing and Urban Development Guidelines for the Evaluation and Control of Lead-based Paint Hazards in Housing (1997).

Extreme caution should be used when removing lead-based paint from buildings in order to prevent additional incidental exposure to chicks; past researchers observed that routine maintenance of a building on Midway without proper containment of paint chips resulted in large numbers of drooping chicks. The removal of building structures that contain lead-based paint from Sand Island is the most permanent solution for the problem, and is advised to minimize future lead poisoning. Any buildings with lead-based paint that left on the island should be abated and encapsulated by certified contractors and it is imperative that funds are allocated to maintain the encapsulation of these buildings on a regular basis.

Failure to comprehensively remediate the lead-based paint problem will result in continued poisoning of Laysan albatross chicks, a globally listed species. Furthermore, the lead concentrations measured from paint samples on Sand Island, Midway Atoll pose a possible human health risk: Under the Toxic Substances Control Act (TSCA), paint, dust, and soil are sources of lead that constitute lead-based paint hazards if exposure to them "would result" in adverse human health effects.

Please let me know if you have any questions or would like additional information on any of the topics I discussed above.

Sincerely,



Myra Finkelstein  
David H Smith Postdoctoral Fellow  
Ecology and Evolutionary Biology Department  
308 Earth and Marine Sciences Bldg.  
University of California  
Santa Cruz, CA 95064  
Phone: 831-459-3902  
Fax: 831-459-5353  
Email: myraf@ucsc.edu

Cited literature:

1. Finkelstein, M., et al., *Albatross species demonstrate regional differences in North Pacific marine contamination*. Ecological Applications, 2006. 16(2): p. 678-686.
2. Finkelstein, M.E., et al., *Contaminant-associated alteration of immune function in black-footed albatross (Phoebastria nigripes), a North Pacific predator*. Environmental Toxicology and Chemistry, 2007. 26(9): p. 1896-1903.
3. Sileo, L. and S.I. Fefer, *Paint chip poisoning of Laysan albatross at Midway Atoll [Pacific Ocean]*. Journal of Wildlife Diseases, 1987. 23(3): p. 432-437.
4. Sileo, L., P.R. Sievert, and M.D. Samuel, *Causes of mortality of albatross chicks at Midway Atoll*. Journal of Wildlife Diseases, 1990. 26(3): p. 329-338.
5. Work, T.M. and M.R. Smith, *Lead exposure in Laysan albatross adults and chicks in Hawaii: Prevalence, risk factors, and biochemical effects*. Archives of Environmental Contamination and Toxicology, 1996. 31(1): p. 115-119.
6. Finkelstein, M.E., R.H. Gwiazda, and D.R. Smith, *Lead poisoning of seabirds: Environmental risks from leaded paint at a decommissioned military base*. Environmental Science & Technology, 2003. 37(15): p. 3256-3260.
7. Odgen Environmental and Energy Services Co., I., *Base Realignment and Closure Cleanup Plan for Naval Air Facility (NAF) Midway Island*. 1997, Pacific Division, Naval Facilities Engineering Command Pearl Harbor, Hawaii: Honolulu.

PHONE (808) 594-1888



FAX (808) 594-1865

STATE OF HAWAII  
OFFICE OF HAWAIIAN AFFAIRS  
711 KAPI'OLANI BOULEVARD, SUITE 500  
HONOLULU, HAWAII 96813

For the Papahānaumokuākea Native Hawaiian Cultural Working Group

July 23, 2008

Monument Management Board  
Papahānaumokuākea Marine National Monument  
c/o U.S. Fish and Wildlife Service  
Box 50167  
Honolulu, HI 06850

RE: **Papahānaumokuākea Marine National Monument Draft Monument Management Plan, Midway Atoll National Wildlife Refuge Conceptual Plan, and Environmental Assessment**

Aloha e Monument Management Board,

The Papahānaumokuākea Native Hawaiian Cultural Working Group (CWG), which is facilitated by the Office of Hawaiian Affairs (OHA), has reviewed the four-volume Draft Monument Management Plan (DMMP), which was released to the public on April 22, 2008. Although we are using OHA's mailing address for ease of process, the Cultural Working Group wishes to assure the Monument Management Board that the following comments are separate from OHA's, and we expect a response directly to us, in care of OHA.

**3.5.3 Native Hawaiian Community Involvement Action Plan**

In "Desired Outcome," lines 3 - 9, the DMMP states that the Native Hawaiian community should be engaged in "active and meaningful involvement in Papahānaumokuākea Marine National Monument Management." We urge that this means Native Hawaiians should have an equal partnership in managing the Monument. Native Hawaiians have a unique political status and relationship

with the State of Hawai'i, the United States, and the world. They should have equal footing with all the other management entities in the Monument.

Native Hawaiian Cultural Working Group  
July 23, 2008  
Page 2

Thus, there should be four co-Trustees instead of three. As an interim measure, until a Native Hawaiian government is established, OHA should be the fourth co-Trustee and hold the spot for the future Native Hawaiian government representative.

Under "Current Status and Background," lines 11 - 29, the DMMP lists a history of management consultation with Native Hawaiians, particularly via the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve Advisory Council (RAC), which had included three voting seats for Native Hawaiians. The RAC also had a Native Hawaiian Cultural Working Group, which is the origin of our current CWG, although it is no longer officially linked to the RAC.

While we appreciate that this CWG still meets about Monument management issues, we do not think that OHA should bear all the costs for Native Hawaiians to meet. The federal agencies that assist in managing the Monument should also help pay for these meetings.

Also, Monument management should set up its own Advisory Board, similar to the RAC, but for the whole Monument, not just the Reserve. The Antiquities Act, under which the Monument was established, should be amended, or an exemption should be made to allow for an Advisory Council for Papahānaumokuākea.

Strategy NHCI-1: Regularly involve the Native Hawaiian community for the life of the plan. This Strategy mentions that OHA will obtain advice and guidance from the Cultural Working Group "on all Monument actions affecting Native Hawaiians and cultural resources in the Monument." The Cultural Working Group urges that we should have the status to be consulted prior to any major decisions being made on the Management Plan, and not just be apprised of issues that the MMB considers to be Native Hawaiian or cultural issues. For example, our members have valuable knowledge about a myriad of relevant subjects that could be helpful to the MMB, including

baseline data on species in the region. We remind the MMB that it is important that the culture not be eclipsed by Western science.

Activity NHCI-1.1: Formalize, expand, and convene the Native Hawaiian Cultural Working Group. We also request a seat at the management table to represent the Native Hawaiian community's interest. To be at this level, the CWG will require funding to pay for staff to conduct permit reviews, analyze cultural and environmental impacts, provide cultural monitoring, and other necessary functions. This co-management also would allow for the CWG to convene on Neighbor Islands to gather input from Hawaiians on their home islands who may not feel comfortable sharing their ideas in a more sterile, agency setting. Furthermore, the CWG suggests that the MMB seek youth who have an interest in carrying forward this kuleana and integrate them into the CWG so that they will continue to gather and help transmit the knowledge of older members.

Activity NHCI-1.3: Establish an annual cultural resources exchange. These cultural resource exchanges should include reports on research and cultural resources that have been and will be rediscovered in such places as Bishop Museum and the University of Hawai'i. It should  
Native Hawaiian Cultural Working Group  
July 23, 2008  
Page 3

not be limited to what has been learned by recent accesses, but should broadly incorporate all on-going research on Papahānaumokuākea to keep all of us up to date on current information and allow for the potential return of presently curated cultural resources.

Strategy NHCI-3: Identify and integrate Native Hawaiian traditional ecological knowledge and management concepts into Monument management annually for the life of the plan. Although we agree with the intent of this strategy, we do not see how it can be fully implemented given the present funding, permitting strategy and management methods. One way to assure that cultural research has equal standing to Western scientific research is to assure that it has equal funding. The Monument cannot serve the purpose of cultural enrichment and perpetuation if very few to no Hawaiians ever get to see or use the resources for cultural purposes.



To ensure the success of this strategy, the MMB must increase the number of visits by Native Hawaiians to Papahānaumokuākea, particularly those who have cultural and lineal connections via their ancestors' regular access from Kauaʻi and Niʻihau. We must identify and restore access to Native Hawaiian families that can demonstrate traditional and customary practices in this region. This used to be in the Management Plan, but was left out of this draft. Please return the original language, which included a better Native Hawaiian definition. (We suggest that it would best be reinserted either as part of Activity NHCH-2.6., or as a new Activity after NHCH-2.6.)

In prior years, traditional practitioners were on research or educational trips to perpetuate cultural and traditional knowledge. Main Hawaiian Island practitioners would visit the NWHI, utilizing traditional and customary practices, engage in resource observation for consumption, and give information from the results of those visits to Kauaʻi and Niʻihau. These demonstrations were successful in teaching and perpetuating navigation and other traditional knowledge. Community-based management models work; they allow practitioners to take information to their communities, and not just leave that information with managers on Oʻahu.

Native Hawaiians with experience in natural resource management in the main Hawaiian Islands who are allowed access to Papahānaumokuākea may be more likely to rediscover Hawaiian knowledge through experience, provided that their traditional, day-to-day, sustained observations are not limited, as they are by current permitting guidelines. For example, as the islands and atolls become submerged because of global warming, we will have to keep track of changes in environmental conditions to keep up with those changes. Animals who rely on existing emergent lands will need new resting and nesting grounds, and managers will need Native Hawaiians to consider the cultural contributions of those animals and how best to potentially relocate them. Native Hawaiians who are experienced and respected must advocate for these animals, monitor resources and make observations on changing environmental conditions.

In 1936, several Native Hawaiian students were selected to live in the NWHI and were trained to help monitor natural resources. They were able to utilize both Western and traditional  
Native Hawaiian Cultural Working Group  
July 23, 2008  
Page 4

natural resources monitoring and management skills. Such a program should be reinstated by the Monument.

### 3.1.2 Native Hawaiian Culture and History Action Plan

Strategy NHCH-1: Identify and prioritize scientific and Native Hawaiian cultural research needs within 18 months. The Native Hawaiian science behind this strategy is missing. How Native Hawaiians saw things and valued the contributions of every entity is missing from the Management Plan in general. Hawaiians were observing their surroundings and making decisions based on those observations long before Western scientists even knew about the area. Only now are those scientists making observations, and their baseline will be skewed if the knowledge of our ancestors is not included. Cultural research must include natural science components, and those environmental observations must be given the same weight as Western science research; there must be an even balance between Western science and traditional knowledge. Just because there are not archaeological sites involved does not mean that there is no cultural significance. The entire Management Plan is too dismissive of Hawaiian observations and research. Thus, cultural research should be included in the science research plan so that there is a constant partnership and potential for cross-education and training of cultural and scientific experts. That same balanced opportunity for cross-education and training should be offered to Native Hawaiian youth.

Activity NHCH-1.1: Identify research needs that can be accomplished through anthropological, archaeological, historical, and Hawaiian cultural methods. One research need includes the ability to access cultural resources currently curated at various institutions, including Bishop Museum and the University of Hawaiʻi. These resources need to be properly archived, maintained, accounted for, and kept in Hawaiʻi. Researchers need to be able to access and study these resources to assure that the limited resources of Papahānaumokuākea are respected and that any future requests for research do not need to include taking unnecessary, additional samples from the islands and atolls.

Activity NHCH-1.2: Develop cultural research priorities alongside associated management challenges and opportunities. Who will do this prioritization? The CWG should assist the MMB in this determining these priorities.

One priority should be further study into the history of Nihoa and Mokumanamana's previous inhabitants and of the human-made structures on those islands. We should not presume any particular origin - be it Hawaiian, Tahitian or Marquesan, for example - without adequate, thorough study of remaining cultural features.

Activity NHCH-2.1: Continue to compile information and conduct new cultural and historical research about the NWHI. This database of information should include scientific information that supports traditional and cultural knowledge.

Native Hawaiian Cultural Working Group  
July 23, 2008  
Page 5

Activity NHCH-2.4: Convene a Native Hawaiian nomenclature working group. This should be a sub-committee of the CWG. Processes should be created to establish membership, contact agencies and organizations currently making both maps and discoveries of geologic features and biological species, follow proper naming protocols for new and previously known features and species, and ensure that the Native Hawaiian names are given appropriate authority and recognition through the correct avenues.

Activity NHCH-2.5: Incorporate cultural resources information into the Monument Information Management System. Because much of this information includes our intellectual property, we need to control access to that information. People who want access to it must show a valid purpose to be allowed access. By the same token, OHA should make the information on its Wahi Pana Database available to the CWG. However, it is unclear from the current writing who has access, and when, to the information within "a security layer for the protection of proprietary cultural information." We need some kind of cultural copyright.

Activity NHCH-2.6: Support Native Hawaiian cultural accesses to assure cultural research needs are met. We would like some clarity on the meaning behind "consistent access to Mokumanamana" and "regular access for Polynesian voyaging canoes," so that those accesses are expanded instead of limited, but never at the detriment to Native Hawaiians.

Further, until more archaeological and cultural research has been done, religious practices should not be limited to "Hawaiian religious practices." Requests should be evaluated on a case-by-case basis, because the traditional religious practices of the place may have been Tahitian or Marquesan, or at least have had other Polynesian origins. Nonetheless, because preferential treatment and funding for access to Papahānaumokuākea is often given to Western scientific research and not to Hawaiian observation, Hawaiians need to be given preference and priority for funds and, therefore, access. This should be part of the scientific and cultural research process.

Please note that this may be the best location for re-insertion of an originally drafted activity that included the importance of allotting appropriate accesses for people with genealogical ties to the islands (see p. 3, above).

This section should also clarify that Native Hawaiians can gather resources from the Monument during accesses for cultural purposes. For example, we should be able to take feathers from dead birds or fallen feathers for kahili restoration, among other things.

Activity NHCH-4.2: Develop and implement specific preservation plans, as appropriate, to protect cultural sites and collections at Nihoa and Mokumanamana. This activity should be re-titled "...specific preservation and use plans," because Native Hawaiians need to be able to access these places. Just knowing that such places exist is not enough for the living Hawaiian culture.

Native Hawaiian Cultural Working Group  
July 23, 2008  
Page 6

### 3.4.1 Permitting Action Plan

In the "Monument Permit Types" section of this Action Plan, a subsection on "Special Ocean Use" permits alerts us to a need for a better definition in existing regulations. The definition of a "commercial passenger vessel" needs to be clarified. We suggest looking to U.S. Coast Guard regulations for consistency.

Furthermore, the CWG requests a site visit opportunity on a permitted scientific vessel before it accesses the Monument.

Activity P-1.4: Engage outside experts in review of permit applications. We suggest that a formal review board process of qualified reviewers be established for permits. Cultural and lineal descendants should have a place in all processes, especially in the permit review process and for providing cultural advice on all matters.

The CWG can assist the MMB in reviewing applications for permits for cultural and religious accesses, in particular, to help maintain the integrity of Native Hawaiian religious and customary practices. It is very important that any proposed activity benefit the place, and that the applicant not have any restrictions on their commitment to the proposal. For instance, the applicant must be able to demonstrate adequate training and research prior to access, and they must be able to assure that their commitment to the project will continue long past the activity itself.

We urge that the MMB should have a right to restrict approval of an application based on an applicant's past actions. In particular, the MMB should reserve the right to reject a permit if an applicant has previously violated requirements of other, related permits. The MMB should also consider obtaining the ability to penalize applicants who have violated permits and legal requirements; fines should be imposed. In the meantime, the individual management agencies should develop their own disciplinary plan for violations within their respective jurisdictions.

Activity P-2.3: Analyze permit data for patterns of compliance. Compliance should be reviewed quarterly instead of every 2 years, and a public reporting process for this review is needed. There needs to be a strategy for transparency that would include reporting to the public on the permitting process.

Activity P-3.2: Develop and implement a Native Hawaiian cultural education program for permit applicants. This should be a required program, instead of an optional one; change the wording from "Those interested in applying for a Monument permit may complete the educational program before submitting their application for review" to "must or shall complete." (emphasis added) This program would have to be completed to allow for the application to be downloaded. Perhaps a personally created password would be earned such that renewal applicants would not have to take the program again and again. However, as at

Hanauma Bay, the password should expire after a certain amount of time to assure that the applicant keeps the

Native Hawaiian Cultural Working Group  
July 23, 2008  
Page 7

knowledge at the forefront of his or her mind. An exemption would have to be created for legitimate Native Hawaiian practitioners.

Activity P-3.5: Regularly update the public on proposed and permitted activities. Permit summaries and applications should be posted with enough time to allow for a public review of at least 45 days.

#### **Appendix A: Cultural Impact Assessment**

Members of the CWG note that it was difficult to engage in the consultation process during the development of the Draft Cultural Impact Assessment (CIA). There should have been person-to-person consultation and interviews, as well as group consultations as with the CWG. There needs to be time built into the drafting of a CIA - especially for such a culturally significant place - that would allow for interviews that tell the stories and are the Hawaiian knowledge of the place. Without those oral histories, there can be no real assessment. Such is the case here; the Draft CIA is merely a series of quotations of the Draft Management Plan without any assessment of impacts. We urge that the research and drafting of this important document be subcontracted so that it can be done well and in a timely fashion. We also agree to assist the subcontractor, who we have heard to be Kehaulani Souza, in her work.

Content components should include, among other things, contacts and informants, and Native Hawaiian methods of managing natural and cultural resources. The latter should incorporate why Hawaiians feel disenfranchised about managing their own resources. The author should conduct interviews with kūpuna, makua, lineal descendants and others with strong connections to the place. There should be extensive historic information, such as old maps; identification of traditional Hawaiian activities; physical and spiritual aspects of Papahānaumokuākea; and review of what Bishop Museum and the University of Hawai'i, for example, have in their collections. References should be made to the State Constitution's protections of cultural and

traditional rights, the Apology Bill, the recent Hawai'i State Supreme Court ruling referencing ceded lands and the Apology Bill, and PASH rights. Cultural interviews should be incorporated into the project, with the permission of the interviewees, and review of previously collected oral histories should also occur so that kūpuna do not have to be disturbed again and again.

Several meetings of genealogical descendants have occurred, and those notes should be secured both for this project and for perpetual archiving. These meetings include one that was held at the Honolulu International Airport meeting rooms, primary workshops for the establishment of the proposed Sanctuary, and interviews done by and for the Polynesian Voyaging Society, and by Kepa Maly.

In the actual assessment, the author should note that culture is determined by access to the resources and active knowledge of those resources. The assessment should also include how federal and state laws and regulations impact upon the culture, as do past and present military

Native Hawaiian Cultural Working Group  
July 23, 2008  
Page 8

and management activities, the current permitting process, and the vast array of pollutants and dump sites remaining within Papahānaumokuākea.

#### **Other Concerns with the Draft Monument Management Plan**

##### Military:

- Surface danger zones need to be moved away from the islands, so that any potential debris will not rain down on or in any way negatively affect the emergent and submerged portions of the Monument.
- Military actions include other potential impacts, such as air, water and land pollution via chemical and other emissions.
- There should be a clean-up plan in place by the military for portions of the Monument previously impacted by the military.
- If the various managing agencies intend to use federal acts to control the military's actions and impacts,

those acts and their controlling language (and applicability to the military) should be clarified in the Plan. We are concerned, based on various statements in the press, that the military is also exempted from such laws as the Endangered Species Act, the National Environmental Policy Act, the Migratory Bird Treaty Act and the Marine Mammal Protection Act.

##### Weaker Protections

- The protections afforded to a Monument seem to be less than those afforded to a Sanctuary, which concerns us.
- All protective language that was in earlier drafts of the Plan should be reinserted, including language describing the Precautionary Principle.
- The intent of the Proclamation, if it is more protective than comes across in the current Draft Management Plan, needs to be upfront in any response document to the public and in the Final Management Plan.

Thank you for the opportunity to comment. If you have any further questions or concerns, please contact us via Heidi Guth by phone at (808) 594-1962 or by e-mail at [heidig@oha.org](mailto:heidig@oha.org).

ʻŌ wau iho nō me ka ʻōiaʻiʻō,

The Papahānaumokuākea Marine National Monument Native Hawaiian Cultural Working Group

**NORTHWESTERN HAWAIIAN ISLANDS  
CORAL REEF ECOSYSTEM RESERVE ADVISORY COUNCIL**

July 22, 2008

Aulani Wilhelm  
NOAA  
6600 Kalanianaʻole Hwy, Suite 300  
Honolulu, HI 96825

Susan White  
U.S. Fish & Wildlife Service  
300 Ala Moana Blvd., Room 5-231  
Honolulu, HI 96850

Athlene Clark  
Hawai'i Department of Land & Natural Resources  
1151 Punchbowl St. Room 130  
Honolulu, HI 96813

Dear Aulani, Susan, and Athlene,  
At our June 25-26, 2008 meeting, the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve Advisory Council (RAC) discussed the Papahānaumokuākea Marine National Monument Draft Monument Management Plan and in particular, the Constituency Building and Outreach Action Plan Activity CBO-3.5: "Establish and support a Papahānaumokuākea Marine National Monument Alliance to engage a broad range of constituents, who will provide recommendations and information on specific management issues on a regular basis."

The RAC found CBO-3.5 as it is presently outlined extraordinarily vague and undefined, with no hint as to how the Monument Management Board (MMB) will identify and reach this "broad range of constituents", how their opinions will be solicited, or how their "recommendations and information" will be reviewed, considered and what credence it will be given. Basically the draft plan asks the public to trust that the MMB will ultimately put together some stakeholder group structure and give it a purpose, role and support that will insure expert and representative public input into the management of the Monument.

In an attempt to put some flesh on CBO-3.5, the RAC discussed some of the various advisory council and community support group models in existence, including the National Marine Sanctuary Advisory Council (SAC) model and the Fish & Wildlife Services' Friends-of-the-Refuge model.

The RAC is concerned that an Alliance based on the "Friends" model could end up being dominated by the larger, wealthier NGOs who can afford to travel to and attend meetings, and lobby for their particular interests as well as for funds for the Monument. However, the RAC does like the fact that the "Friends" groups often has an office within the FWS's office and its

representatives can and do communicate regularly with the FWS staff. Ultimately the RAC concluded that the advantages of an Advisory Council (AC) model outweigh those of the Friends model. The advantages include the following:

- An AC ensures that a broad range of stakeholders are represented since they are selected specifically to represent particular interest groups.
- An AC ensures the participation of stakeholders who are not independently wealthy by providing travel support when needed, which is absolutely essential in an island state.
- If AC members are appointed for a multiple-year tenure they will be more familiar with the issues, develop institutional memories and not need to be brought up to speed from scratch at every meeting. This is likely to result in stakeholder input that is more informed and therefore more valuable, and will also save staff time.
- AC members have to listen to briefings, respond to questions that involve their expertise, and document the basis for their decisions and recommendations.
- The AC model ensures the production of consensus advice hashed out in a public venue.
- AC's provide more powerful, reliable stakeholder recommendations than those from individuals and individual organizations.
- ACs are a common model in the U.S. and used globally with every issue group.

Therefore, the RAC recommends that Constituency Building and Outreach Action Plan Activity CBO-3.5 be amended as follows.

**Council:** After considering input from the Secretary of Commerce, the Secretary of the Interior, and the Governor of the State of Hawaii, the Monument Management Board (MMB) shall establish a thirteen-member Monument Advisory Council (Council) pursuant to Proclamation 8031 of June 15, 2006 and section 315 of the National Marine Sanctuaries Act (16 U.S.C. 1445a) as amended, to provide citizen input, recommendations and assistance regarding the protection and management of the Papahānaumokuākea Marine National Monument. The Federal Advisory Committee Act (5 App. U.S.C.) shall not apply to the Council.

**Functions:** The Council shall:

(A) review reports, plans, and permitted activities pursuant to the purposes, policies, and management requirements of the Monument, other pertinent laws, and international conventions;

(B) recommend to the Secretaries, the Governor, and to other agency officials such steps as it considers necessary or desirable for the protection, conservation, and management of the natural, cultural and historical resources of the Monument; and

(C) in cooperation with the National Oceanic and Atmospheric Administration (NOAA), the U.S. Fish & Wildlife Service (FWS), and the State of Hawaii, recommend such measures as it considers necessary or desirable to further the purposes and policies of Presidential Proclamation 8031, Executive Orders 13178 and 13196, the National Marine Sanctuaries Act, the National Wildlife Refuge System Administration Act as amended by the National Wildlife Refuge System Improvement Act, the State of Hawaii rules establishing the Northwestern

Hawaiian Islands Marine Refuge, and all other applicable laws and regulations, including provisions for the protection and exercise of the traditional cultural practices of Native Hawaiians.

**Voting Members:** The Council shall include thirteen voting members:

(A) Three Native Hawaiian representatives, including one Native Hawaiian elder with experience or knowledge regarding Native Hawaiian subsistence, cultural, and religious practices in the Northwestern Hawaiian Islands.

(B) Three representatives from the science community with experience specific to the Northwestern Hawaiian Islands and with expertise in at least one of the following areas:

(i) Marine mammal science.

(ii) Coral reef ecology.

(iii) Native flora and fauna of the Hawaiian Archipelago.

(iv) Oceanography

(v) Any other scientific discipline the Secretaries and the Governor determine to be appropriate,

(C) Three representatives from nongovernmental wildlife, marine life, environmental, or conservation organizations with a demonstrated interest in conservation and protection of Monument resources,

(D) Two education and outreach representatives,

(E) One representative from the ecotourism industry, and

(F) One citizen-at-large

No employee of the Departments of Commerce, Interior, or the State of Hawaii shall be eligible to fill a voting seat on the Council. However, a person working under a government-supported grant or contract involving no more than 19 hours of work per week may be eligible.

The RAC recommends that 13 alternates that meet the above qualifications also be appointed. The alternates shall represent constituents in their particular area of expertise, but not any particular Council member. Co-trustees and other agency representatives may participate in Council meetings as ex-officio members, but shall not vote as they have other avenues for input into the management process. The Council as a whole shall meet at least three times a year, with any additional work done between meetings by Council subcommittees. The Council shall elect a Chair, Vice Chair, and Secretary to serve as the Executive Committee of the Council and to act

in its behalf as needed. The RAC recommends that the Co-Trustees request Congress to exempt the Council from the Federal Advisory Committee Act.

**Compensation and Expenses:** The voting members of the Council shall be reimbursed for actual expenses incurred in the performance of their duties, including travel expenses and per diem in lieu of subsistence.

**Staffing, Assistance and Communication:** The MMB shall provide administrative support for the Council, convene meetings of the Council and its subcommittees, and make available to the Council such staff, information, administrative services, office space, or assistance that they determine are reasonably required to enable the Council to carry out its functions and communicate effectively.

The MMB shall keep Council members informed of Monument activities and operations during and between Council meetings, including research plans and results, permits, reports and assessments, and other matters and shall solicit Council input on and help with such matters. The RAC believes that the Council could be particularly helpful in reviewing cumulative impact assessments, annual reports on permitted activities, and conducting evaluations, including the 5-7 year management review plans. A Council representative should be invited to attend meetings of the MMB. The RAC believes the Council can serve as an informed and influential voice at meetings of the State of Hawaii Board of Land & Natural Resources.

**Public Participation and Procedural Matters:** The RAC recommends that the following guidelines be adopted with respect to the conduct of business meetings of the Council:

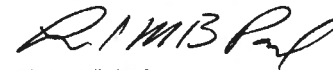
(A) Each Council meeting should be open to the public, and interested persons should be permitted to present oral or written statements on items on the agenda at designated and appropriate times.

(B) Emergency meetings may be held at the call of the chairman of the Council or presiding officer. The Council may establish subcommittees to facilitate its work.

(C) Minutes of each meeting of the Council should be kept and contain a summary of the attendees and matters discussed.

We urge the Co-Trustees to give this recommendation full and serious consideration. We believe it will help further the long-term vision, mission, management principles and goals of the Papahānaumokuākea Marine National Monument.

Sincerely,



Linda M. B. Paul  
RAC Vice Chair

**NORTHWESTERN HAWAIIAN ISLANDS  
CORAL REEF ECOSYSTEM RESERVE ADVISORY COUNCIL**

July 22, 2008

Ms. T 'Aulani Wilhelm  
Superintendent  
Papahānaumokuākea Marine National Monument  
6600 Kalaniana'ole Highway, Suite 300  
Honolulu, HI 96825

Dear Ms. Wilhelm:

Thank you for the opportunity to comment on the Draft Management Plan for the Papahānaumokuākea Marine National Monument (Monument). On May 6, 2008 the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve Advisory Council (RAC) received a briefing on the Draft Monument Management Plan (DMMP). The RAC then deliberated on the DMMP in subcommittees and working groups, and developed the following comments at our meeting on June 25-26, 2008. Provided herein are our comments.

We are pleased to see that the DMMP incorporates many of the RAC's previous recommendations that were included in the Draft Sanctuary Management Plan, which was put together as part of the Designation of a Northwestern Hawaiian Islands National Marine Sanctuary. For example, the DMMP is issue-based and focused on resource management needs, not administrative functions. The DMMP also reflects the Reserve Operations Plan and incorporates the not-yet-completed strategies and activities in the draft management plan. In addition, we find that the DMMP incorporates input from the Native Hawaiian community by expanding one action plan into two and adding supporting language and activities throughout the plan. The DMMP also emphasizes the need to address threats such as marine debris and alien species and expands very limited information on how to deal with alien species into a specific Alien Species action plan.

We are appreciative of NOAA's efforts to include prior RAC recommendations during interagency deliberations, specifically on the following items: citizen involvement and participation in Monument management, continuous involvement of the Native Hawaiian community in Monument activities, inclusion of Native Hawaiian values and traditional knowledge in the approach to management and prioritization of research activities in the Monument. We ask that NOAA once again carry these and other recommendations forward.

Please note that appended to this letter is a spread sheet containing RAC- approved comments regarding specific sections of Volume 1 of the DMMP as well as recommendations regarding specific language changes that the RAC recommends be made to Volume 1 and general RAC concerns about the DMMP.

The RAC would like to highlight, however, the following recommendations with regard to Volume 1 of the DMMP:

**2.4 Monument Management Policy Framework: The Vision, Mission, Guiding Principles, and Goals for Managing Papahānaumokuākea Marine National Monument**

The Monument vision, mission, and guiding principles establish the overarching policy direction and guidance for Monument management (figure 2.2 and table 2.1). The Monument vision is to maintain and protect the health and diversity of the NWHI native ecosystems and cultural resources in perpetuity. The Monument mission is to promote coordinated and integrated management in order to achieve the long-term protection of NWHI natural resources and ecosystems and the perpetuation of Native Hawaiian practices and heritage resources. The guiding principles provide that the Monument shall be managed in a manner that is consistent with its Vision and Mission, recognizing that the resources of the NWHI are administered by the Co-Trustees for present and future generations as a public trust; affirm that the NWHI and its wildlife are important, unique, and often irreplaceable; honor the significance of the region for Native Hawaiians; honor the historic importance of the region; incorporate best practices, scientific principles, traditional knowledge, and an adaptive management approach; err on the side of resource protection when there is uncertainty in available information on the impacts of an activity; enhance vicarious public appreciation of the unique character and environment of the NWHI; authorize only uses consistent with Presidential Proclamation 8031, public trust resource protection, and applicable executive orders and laws; coordinate and consult with federal, state, and local governments, Native Hawaiians, relevant organizations, and the public; and carry out effective outreach, monitoring, and enforcement to promote compliance with all applicable laws, regulations, and permits. The nine Monument goals outline how the guiding principles will be implemented.

Table 2.1 Monument Vision, Mission, Guiding Principles, and Goals

**Mission**

Carry out seamless integrated management to restore natural biological communities and achieve strong, long-term protection and perpetuation of NWHI native ecosystems, Native Hawaiian traditional and customary cultural and religious practices, and heritage resources for current and future generations.

**Guiding Principles**

The Monument shall be managed in a manner that –

- Is consistent with the Vision and Mission;
- Recognizes that the resources of the NWHI are administered by the Co-Trustees for present and future generations as a public trust;
- Affirms that the NWHI and its wildlife are important, unique, and often irreplaceable;
- Honors the significance of the region for Native Hawaiians;
- Honors the historic importance of the region;
- Incorporates the precautionary principle, best practices, scientific principles, traditional knowledge, and an adaptive management approach;
- Errs on the side of resource protection when there is uncertainty in available information on the impacts of an activity;
- Enhances public appreciation of the unique character and environment of the NWHI by establishing programs that bring the place to the people, rather than the people to the place;
- Authorizes only uses consistent with Presidential Proclamation 8031, public trust resource protection, and applicable laws;



- Coordinates and consults with federal, state, and local governments, Native Hawaiians, relevant organizations, and the public; and
- Carries out effective outreach, monitoring, and enforcement to promote compliance with all applicable laws, regulations, and permits.

#### Monument Goals

Goal 1: Protect, preserve, maintain, and where appropriate restore the physical environment and the natural biological communities and their associated biodiversity, habitats, populations, native species, and ecological processes as public trust resources.

Goal 2: Support, promote, and coordinate research, ecosystem characterization, and monitoring that increases understanding of the NWHI, improves management decision-making, and is consistent with conservation and protection.

Goal 3: Manage human activities to maintain ecosystem integrity and prevent negative impacts by allowing only those activities that do not threaten the natural character or biological integrity of any NWHI ecosystem and are consistent with long-term protection.

Goal 4: Provide for cooperative conservation including community involvement and stakeholder input that achieves affective Monument operations and ecosystem-based management.

Goal 5: Enhance public understanding, appreciation, and support for protection of the natural, cultural, and historic resources.

Goal 6: Support Native Hawaiian practices consistent with long-term conservation and protection.

Goal 7: Identify, interpret, and protect Monument historic and cultural resources.

Goal 8: Offer visitor opportunities at Midway Atoll to discover and appreciate the wildlife and beauty of the NWHI, enhance conservation, and honor its important human history.

Goal 9: Limit extractive activities to those necessary for management and Native Hawaiian cultural practices.

**3.5.2 Constituency Building and Outreach Action Plan, Activity CBO-3.5:** “Establish and support a Papahānaumokuākea Marine National Monument Alliance to engage a broad range of constituents, who [sic] will provide recommendations and information on specific management issues on a regular basis.” (DMMP p. 256)

The RAC finds the current CBO-3.5 extraordinarily vague and undefined, with no hint as to how the Monument Management Board (MMB) will identify and reach this “broad range of constituents”, how their opinions will be solicited, or how their “recommendations and information” will be reviewed and considered and what credence it will be given. Basically the draft plan asks the public to trust that the MMB will ultimately put together some stakeholder group structure and give it a purpose, role and support that will insure expert and representative public input into the management of the Monument.

In an attempt to put some flesh on CBO-3.5, the RAC discussed some of the various advisory council and community support group models in existence, including the National Marine Sanctuary Advisory Council (SAC) model and the Fish & Wildlife Services’ Friends-of-the-Refuge model.

The RAC is concerned that an Alliance based on the “Friends” model could end up being dominated by the larger, wealthier NGOs who can afford to travel to and attend meetings, and lobby for their particular interests as well as for funds for the Monument. However, the RAC does like the fact that the “Friends” groups often have an office within the FWS’s office and its representatives can and do communicate regularly with the FWS staff. Ultimately the RAC concluded that the advantages of an Advisory Council (AC) model outweigh those of the Friends model. The advantages include the following:

- An AC ensures that a broad range of stakeholders are represented since they are selected specifically to represent particular interest groups.
- An AC ensures the participation of stakeholders who are not independently wealthy by providing travel support when needed, which is absolutely essential in an island state.
- If AC members are appointed for a multiple year tenure they will be more familiar with the issues, develop institutional memories and not need to be brought up to speed from scratch at every meeting. This is likely to result in stakeholder input that is more informed and therefore more valuable, and will also save staff time.
- AC members have to listen to briefings, respond to questions that involve their expertise, and document the basis for their decisions and recommendations.
- The AC model ensures the production of consensus advice hashed out in a public venue.
- AC’s provide more powerful, reliable stakeholder recommendations than those from individuals and individual organizations.
- ACs is a common model in the U.S. and used globally with every issue group.

Therefore, the RAC recommends that Constituency Building and Outreach Action Plan Activity CBO-3.5 be amended as follows.

**Council:** After considering input from the Secretary of Commerce, the Secretary of the Interior, and the Governor of the State of Hawaii, the Monument Management Board (MMB) shall establish a thirteen-member Monument Advisory Council (Council) pursuant to Proclamation 8031 of June 15, 2006 and section 315 of the National Marine Sanctuaries Act (16 U.S.C. 1445a) as amended, to provide citizen input, recommendations and assistance regarding the protection and management of the Papahānaumokuākea Marine National Monument. The Federal Advisory Committee Act (5 App. U.S.C.) shall not apply to the Council.

**Functions:** The Council shall:

(A) review reports, plans, and permitted activities pursuant to the purposes, policies, and management requirements of the Monument, other pertinent laws, and international conventions;

(B) recommend to the Secretaries, the Governor, and to other agency officials such steps as it considers necessary or desirable for the protection, conservation, and management of the natural, cultural and historical resources of the Monument; and

(C) in cooperation with the National Oceanic and Atmospheric Administration (NOAA), the U.S. Fish & Wildlife Service (FWS), and the State of Hawaii, recommend such measures as it considers necessary or desirable to further the purposes and policies of Presidential Proclamation 8031, Executive Orders 13178 and 13196, the National Marine Sanctuaries Act, the National Wildlife Refuge System Administration Act as amended by the National Wildlife Refuge System Improvement Act, the State of Hawaii rules establishing the Northwestern Hawaiian Islands Marine Refuge, and all other applicable laws and regulations, including provisions for the protection and exercise of the traditional cultural practices of Native Hawaiians.

**Voting Members:** The Council shall include thirteen voting members:

(A) Three Native Hawaiian representatives, including one Native Hawaiian elder with experience or knowledge regarding Native Hawaiian subsistence, cultural, and religious practices in the Northwestern Hawaiian Islands.

(B) Three representatives from the science community with experience specific to the Northwestern Hawaiian Islands and with expertise in at least one of the following areas:

(i) Marine mammal science.

(ii) Coral reef ecology.

(iii) Native flora and fauna of the Hawaiian Archipelago.

(iv) Oceanography

(v) Any other scientific discipline the Secretaries and the Governor determine to be appropriate,

(C) Three representatives from nongovernmental wildlife, marine life, environmental, or conservation organizations with a demonstrated interest in conservation and protection of Monument resources,

(D) Two education and outreach representatives,

(E) One representative from the ecotourism industry, and

(F) One citizen-at-large

No employee of the Departments of Commerce, Interior, or the State of Hawaii shall be eligible to fill a voting seat on the Council. However, a person working under a government-supported grant or contract involving no more than 19 hours of work per week may be eligible.

Thirteen alternates that meet the above qualifications shall also be appointed. The alternates shall represent constituents in their particular area of expertise, but not any particular Council member. Co-trustees and other agency representatives may participate in Council meetings as ex-officio members, but shall not vote as they have other avenues for input into the management process. The Council as a whole shall meet at least three times a year, with any additional work done between meetings by Council subcommittees. The Council shall elect a Chair, Vice Chair, and Secretary to serve as the Executive Committee of the Council and to act in its behalf as needed.

**Compensation and Expenses:** The voting members of the Council shall be reimbursed for actual expenses incurred in the performance of their duties, including travel expenses and per diem in lieu of subsistence.

**Staffing, Assistance and Communication:** The MMB shall provide administrative support for the Council, convene meetings of the Council and its subcommittees, and make available to the Council such staff, information, administrative services, office space, or assistance that they determine are reasonably required to enable the Council to carry out its functions and communicate effectively.

The MMB shall keep Council members informed of Monument activities and operations during and between Council meetings, including research plans and results, permits, reports and assessments, and other matters and shall solicit Council input on and help with such matters. The RAC believes that the Council could be particularly helpful in reviewing cumulative impact assessments, annual reports on permitted activities, and conducting evaluations, including the 5-7 year management review plans. A Council representative should be invited to attend meetings of the MMB. The RAC believes the Council can serve as an informed and influential voice at meetings of the State of Hawaii Board of Land & Natural Resources.

**Public Participation and Procedural Matters:** The RAC recommends that the following guidelines be adopted with respect to the conduct of business meetings of the Council:

(A) Each Council meeting should be open to the public, and interested persons should be permitted to present oral or written statements on items on the agenda at designated and appropriate times.

(B) Emergency meetings may be held at the call of the chairman of the Council or presiding officer. The Council may establish subcommittees to facilitate its work.

(C) Minutes of each meeting of the Council should be kept and contain a summary of the attendees and matters discussed.

### 3.1 Understanding and Interpreting the NWHI and 3.2 Conserving Wildlife and Habitats

The RAC Research Subcommittee deliberated long and hard on these two sections, keeping in mind that the RAC has consistently over the years recommended that any and all research in the NWHI should be focused exclusively on whether such research is essential to management. Keeping this in mind and to consolidate the action plans that involve scientific research into one section, the RAC recommends that these two sections be reorganized as follows:

#### 3.1 Conserving Wildlife and Habitats

- **Threatened and Endangered Species Action Plan**
- **Migratory Birds Action Plan**
- **Habitat Management and Conservation Action Plan**
- **Research and Monitoring Action Plan**

### 3.2 Conserving Cultural and Historic Resources

- **Native Hawaiian Culture and History Action Plan**
- **Historic Resources Action Plan**
- **Maritime Heritage Action Plan**

**Conserving Wildlife and Habitats Action Plans:** The highest priority management-critical research activities are those that: 1) support recovery of threatened, endangered, and rare species, 2) habitat conservation, and 3) reduction of threats to monument resources. These priority-ranked research activities should provide the basis for permitting and funding.

With regard to the highest recovery priorities in the NWHI, we believe that the actions requiring attention most urgently are (1) developing a captive care program to improve Hawaiian monk seal juvenile survival, (2) reducing shark predation on pups and juveniles at French Frigate Shoals, and (3) preventing entanglement in marine debris.

The RAC agrees that research, including characterization and monitoring, are important to record baselines and monitor ecosystem changes in the face of global issues of climate change, ocean acidification and sea level rise. We would like to see stronger language on the aforementioned activities included in the DMMP, while ensuring that scientific pursuits yield specific management benefit and will be incorporated into cumulative impact assessments, carrying-capacity estimates, and limits placed on human access.

We would also like the term “natural laboratory” to be removed, and replacement language added to describe how the Northwestern Hawaiian Islands can serve as a global “control” site to better understand the global issues described previously.

In addition to the Proclamation findings and permitting criteria, the Research and Monitoring Action Plan must prioritize research and provide criteria managers will use on a regular basis in funding and prioritizing research activities in the Monument.

**Native Hawaiian Culture and History Action Plan and Native Hawaiian Community Involvement Action Plan:** The RAC notes that the RAC Native Hawaiian Cultural Working Group has been actively engaged in the formation of the Reserve Operations Plan, the Draft Sanctuary Management Plan, and the DMMP, and as a result, there are two Action Plans and numerous activities throughout the DMMP that acknowledge the cultural significance of Papahānaumokuākea, and ask for additional Native Hawaiian community involvement. However, we have the following recommendations:

We continue to support stronger engagement of the Native Hawaiian community in Monument management activities. We firmly believe that it is important to integrate traditional Native Hawaiian knowledge and practice in the effective management and stewardship of Monument resources. The RAC recommends that until a Native Hawaiian co-trustee is added, the interim

7

OHA representative should continue to convene meetings of the Native Hawaiian Cultural Working Group and forward its recommendations to the MMB.

With regard to Native Hawaiian community involvement and access, we recommend stronger support for cultural research activities undertaken by Native Hawaiian cultural scholars and practitioners, purposeful access, and the ability to collect both marine and terrestrial resources within Monument boundaries for cultural purposes and to perpetuate cultural practices.

### Reducing Threats to Marine Resources:

**Marine Debris Action Plan:** Although several initiatives are being undertaken worldwide, mostly at the national level, to prevent, reduce and/or remove marine debris of all types, but most importantly derelict fishing gear, we recommend continued and enhanced cooperation and sharing of information at all levels to prevent and remove such debris. It is critical to the survival of the highly endangered Hawaiian monk seal.

**Marine Debris Action Plan Activity MD-2.X:** The RAC recommends that MMB support the NMFS Pacific Islands Fisheries Science Center in the continued development of an inventory or reference collection of net types and other gear that can be used to assist identification of debris collected from the Northwestern Hawaiian Islands and its source. Efforts to prevent and reduce the influx of marine debris into the marine environment at its source, as well continuing the efforts to remove it from the Monument as it accumulates should be the highest priorities.

**Alien Species Action Plan:** As you will note in the attached tables, the RAC did not make many recommendations regarding this Action Plan, mainly because we find it to be a very good plan. The introduction, both accidental and intentional, of terrestrial and aquatic alien species into the Monument is probably the single greatest threat to the native wildlife and native ecosystems of the NWHI. We urge the MMB to remain vigilant to this threat. In particular, we recommend that NOAA take immediate steps to require any fishing vessel still allowed to fish in the area to have its hull thoroughly and completely cleaned before entering Monument waters. Fines for private vessels entering the Monument with their hulls still fouled should be set at very high levels so as to act as a real deterrent.

**Military presence in the Monument:** We understand that Proclamation 8031 says, “The prohibitions required by this proclamation shall not apply to activities and exercises of the Armed Forces (including those carried out by the United States Coast Guard) that are consistent with applicable laws.” We would like the MMB to work with the Navy and the Department of Defense to develop Best Management Practices and mitigation strategies to minimize impacts of military exercises in the region.

We request that the military provide the MMB with quarterly/semi annual reports on all activities and impacts occurring in the Monument.

We request that, through the White House Council on Environmental Quality (CEQ), appropriate military officials are contacted regarding their obligations to the current White House Administration, including providing reports on military activities occurring in the Monument.

8

We ask that the military do its part in restoring and remediating areas in the Northwestern Hawaiian Islands that were previously used for military activities (e.g. Tern Island, Midway Atoll and Kure Atoll).

We ask that a Memorandum of Agreement be written between the Co-Trustees and the Department of Defense/Navy regarding coordination on marine debris removal and restoration and remediation of areas previously used for military activities.

We also request that the use of sonar and any live fire during military exercises be moved away from the Monument.

#### **Managing Human Uses**

**Permitting Action Plan:** Consistent with its recommendations for the Reserve Operations Plan and the draft NWHI National Marine Sanctuary Management Plan, the RAC recommends that in order to prevent negative human impacts to this very rare, fragile, and unique resource the MMB limit access to only those activities consistent with Presidential Proclamation 8031 and the implementing regulations of the Monument. All permitted activities must be designed to enhance understanding of Monument resources for the express purpose of improving resource management decision-making. Permits should be for non-commercial purposes, deemed appropriate and necessary, consistent with management-critical needs and benefit the NWHI. Research permits, for example, should be written so that the research to be conducted is required to serve management-critical research priorities.

The RAC recommends that the unified Monument application form provide sufficient detail from applicants to meet all applicable state and federal laws and regulations, including EO's, in addition to the specific requirements of the Monument Proclamation and to permit the MMB to make an informed decision as to whether the proposed activities will comply not only with all legal requirements but also with the mission, management principles, and goals of the Monument. We also recommend that a conflict of interest policy be adopted for both applicants and reviewers.

We recommend that the MMB track and monitor all permitted activities. We also request that the RAC/MAC be allowed to review permits and research activities periodically for trends, patterns, and management effectiveness. Summary reports should contain, *inter alia*, basic data on the nature, location, and level of permitted activities and the potential and observed impacts of activities.

**Enforcement Action Plan:** The RAC regards the implementation of a threat-based detection and monitoring program to be a high priority and recommends that it be implemented in one year instead of two years from the date the management plan is adopted by the Co-Trustees. The RAC considers it very important that the MMB conduct ongoing and comprehensive threat assessments and the MMB should be immediately informed of all alleged violations. Penalties for violations should be clear and set at meaningful levels so as to act as a real deterrent.

**Midway Atoll Visitor Services Action Plan:** The RAC firmly believes that to protect the very fragile resources of the NWHI the public should be encouraged to learn about it from a distance. While we recognize that Proclamation 8031 allows a limited amount of ecotourism to take place on Midway Atoll we recommend that henceforth no cruise ships or private vessels be permitted to visit Midway Atoll; the threat of transporting additional alien species via hull encrustations and ballast

water is just too great. We also recommend that no more than 50 visitors should be permitted to stay overnight at any one time.

**Education and Outreach:** In addition to our above recommendations regarding establishing a Monument Advisory Committee the RAC strongly believes that enhancement of public appreciation of the unique character and environment of the NWHI should as much as possible be accomplished by establishing programs that bring the place to the people, rather than the people to the place;

**Budget and Funding:** We recognize that the budget in the DMMP is challenging to draft for a fifteen year management plan involving multiple government agencies, however we would like to make a few recommendations:

The budget in the DMMP should not fund simply a "laundry list" of activities and management needs. Monument managers should utilize management-critical criteria when prioritizing all management activities in the Monument and the budget must follow management priorities. In addition funding prioritization of action plan strategies and activities should be conducted in an open and public process.

**General Comments:** On the whole the RAC did not have time to adequately discuss many of the proposed DMMP activities and the issues. Please note that the attached tables contain many useful comments from individual RAC members that should be seriously considered even though the RAC did not vote to approve them. We especially regret that the RAC did not have enough time to review Volume II Environmental Assessment and we are concerned that this assessment will be used to justify future activities in the Monument that may need additional environmental review before going forward. It is unfortunate that the RAC was not convened and consulted earlier when the draft management plan was being prepared; we believe our input would have been valuable. For example it would have allowed us to urge you to reorder the research priorities at a much earlier date.

We do recognize that ten public meetings on the DMMP have been conducted and both oral and written public testimony has been solicited and received, and we know the Co-Trustees will give this testimony careful consideration as well. We also hope that the final DMMP will promote timely and effective coordination among the action agencies and consulting agencies.

We hope NOAA and the other co-trustees will give these recommendations and those included in the attached tables full and serious consideration because we believe they will help further the primary purpose of the Coral Reef Ecosystem Reserve and yield the strongest possible protections of the Papahānaumokuākea Marine National Monument.

Sincerely,



Linda M. Paul  
RAC Vice Chair  
RAC Meeting June 25 & 26, 2008  
Discussion on Draft Monument Management Plan RAC Comments  
Final, approved and voted on.

# HISTORIC HAWAII FOUNDATION

July 23, 2008

Papahānaumokuākea Marine National Monument  
U.S. Fish & Wildlife Service  
Box 50167  
Honolulu, HI 96850

## RE: Comment on Draft Monument Management Plan, Draft Environmental Assessment and Midway Atoll NWR Conceptual Site Plan

### To Whom It May Concern:

On behalf of Historic Hawai'i Foundation, thank you for the opportunity to comment on the Papahānaumokuākea Marine National Monument draft Monument Management Plan, Draft Environmental Assessment and the Midway Atoll NWR Conceptual Site Plan.

### Interests of Historic Hawai'i Foundation

Historic Hawai'i Foundation (HHF) is a membership-based, 501(c)(3) organization whose mission is to preserve and encourage the preservation of historic buildings, objects, communities and sites related to the history of Hawai'i and to keep alive and intact for the enrichment of present and future generations the inherent beauty of the Hawaiian Islands and its unique historic role in the development of the Pacific Basin.

### Volume I Draft Monument Management Plan

#### General Comments

Overall, Historic Hawai'i Foundation supports the intent and concepts of the draft management plan. The joint management between the State of Hawai'i, NOAA and FWS, as well as the joint implementing regulations, is ground breaking. The commitment to permanent protection of the inherent qualities of this unique environment is crucial, as is follow-through on those commitments. Historic Hawai'i Foundation supports the purpose of the Monument to achieve strong, long-term protection and perpetuation of ecosystems, traditional and customary cultural practices, and historic and cultural resources.

HHF recommends that the Management Plan make an explicit commitment to the precautionary principle, in which historic, cultural and natural resource protection and integrity be favored when not enough information is known about potential effects of particular undertakings. The approach of "do no harm" in the face of uncertainty will help to protect the resources for which the monument is created.

Where the management plan calls for additional plans or research, including a preservation plan for the monument generally and an updated preservation plan for Midway Atoll, meaningful public



680 Iwilei Road, Suite 090 / Honolulu, Hawai'i 96817 / Tel (808) 523-2900 / Fax (808) 523-0800  
Email preservation@historichawaii.org / Web www.historichawaii.org

input and participation is necessary. Historic Hawai'i Foundation would like to be a consulting party in the preservation planning, as well for specific undertakings that may affect historic resources.

### Cultural and Historic Resources

#### Section 1.3 Status and Condition of Cultural and Historic Resources

This section summarizes the history of activities and events that took place within the monument boundaries from the first Polynesian contact through World War II. It sets the framework for understanding the historic and cultural significance of the area and sets the context for decision-making.

However, the physical resources are not identified or evaluated for either Native Hawaiian or post-contact resources. The section lacks an inventory of the known resources or an assessment of their condition, level of significance or level of historic integrity. The title of the section indicates that the intent is to quantify the number, type, location, and condition of the resources, but the narrative does not match the section title. A summary statement about the historic properties on Midway is included (page 53), but lacks detail. Volume III Appendices: Supporting Documents and References neglects to include the Midway Atoll NWR Historic Preservation Plan (1999) or National Register nominations.

Where the historic structures and sites are known, they should be listed in inventory format, with site identification number, name, location, historic significance, status and condition. Recommendations for treatment type may be included where known, or may be deferred to a more specific preservation study or plan.

#### Section 3.1.3 Historic Resources Action Plan

HHF supports the Action Plan recommendations:

1. To update the Historic Preservation Plan for Midway Atoll and its implementing Programmatic Agreement;
2. To survey, identify and evaluate historic resources on the other atolls and islands in the Monument.

HHF recommends that the Strategies to achieve the desired outcomes be revised to address several issues:

1. Strategy HR-1: HHF concurs with the recommendation to update the Midway Atoll Historic Preservation Plan and would like to be included as a consulting party and/or special interest group.
2. Activity HR-1.1: HHF concurs with the need to reconcile gaps and conflicts between various planning documents. However, it should not be presumed that only the preservation plan will be adjusted; the visitor service plan may also need to be revised to create a seamless management strategy.
3. Strategy HR-5: Identification of additional historic resources in other parts of the Monument should be addressed sooner than the proposed 15 year timeframe. In addition to the strategy to inventory historic resources, the action plan should also include development of a Monument historic preservation plan for the resources, including a timeframe and responsibilities for conducting surveys, documentation, determination of eligibility for the

National Register, preparation of NR documentation and determination of appropriate treatments.

#### Section 3.1.4 Maritime Heritage

Generally, HHF concurs with the approach of identifying marine heritage artifacts, objects and sites and with conducting enhanced educational activities. HHF specifically supports MH-3.2 to enhance protective measures for sites through the National Register process.

#### **Volume II Draft Environmental Assessment**

##### No Action or Preferred Alternative

HHF concurs with the Preferred Alternative for Historic Resources (Section 1.6.3) and the action items, with the modifications as described in the comments above (on the Draft Management Plan) and below (Midway Atoll Conceptual Site Plan).

HHF has reservation about the Preferred Alternative for Midway Atoll Visitor Services (Section 1.6.14). While it is important to provide educational opportunities, as well as heritage- and eco-tourism options for a limited number of visitors, that need must be carefully considered against the potential impact to the resources. Where synergy is possible and the visitation enhances the resource (such as through volunteer activities), it is much more supportable than simple tourism. HHF will support the careful expansion and implementation of visitor services with the explicit commitment to use of the precautionary principle, wherein the well-being of the history and natural resources is prioritized over the use or convenience of the visitor. HHF also recommends that regular and meaningful opportunities for input from public interest groups be sought to help ensure accountability and necessary course corrections.

#### **Volume III Midway Atoll NWR Conceptual Site Plan**

##### Vision (page 3)

HHF concurs with the vision of Midway as a place where wildlife and historic resources are both supported. We are particularly pleased with the recognition and protection of heritage resources that derive their significance from various historical eras and associations. HHF supports the vision to tell the story of Midway, preserve its character and integrity, and make it a model of sustainability.

##### Site Analysis (page 15)

The analysis of historic and cultural resources contains good summary data of general types of resources, but lacks the individual inventory to support specific treatment recommendations. An inventory should be created that lists identification number, name, location, type of resource, current treatment, current status, and current condition for each structure, building and site. Lacking this information, later alternatives and recommendations are proposed in a knowledge vacuum.

##### Alternatives Development (page 30)

HHF supports both the individual and the intertwined goals for Midway Atoll, including a balance mix of historic preservation, habit restoration, sustainable use of materials and energy, solid operations and maintenance, science and research, and visitor use.

Specifically on the historic structures and landscapes design guidelines and principles, HHF concurs with the recommendations to follow established criteria and principles for historic structures and to prioritize reuse of historic buildings.

Throughout the narrative and charts for alternatives development, some buildings are recommended for "ruins state." This is not a recognized treatment for historic structures and is undefined elsewhere in the document. The existing historic preservation plan, still in effect, calls for one or more of six treatments: reuse, secure, leave as-is, fill in, demolish, or relocate. "Ruins" is a new, undefined term and should not be recommended as a treatment option.

##### Preferred Alternative (page 38)

HHF supports the concept of integrated biological, historic and visitor programs. However, the level of proposed demolition is incompatible with the historic preservation value. The adaptive reuse, rehabilitation, restoration and interpretation activities are encouraging and HHF supports them.

However, we are concerned about the proposal to demolish four barracks buildings, four Cable Station buildings, and potentially other buildings that are shown on the site plan map, although not listed in the narrative. A complete disclosure of which buildings are proposed for demolition, and why, would help with this analysis. Several existing buildings are labeled as "replace," which appears to be a euphemism for demolition.

Absent clear information about both direct and cumulative impacts to the structures proposed for demolition, we can neither concur nor oppose this option. Using the precautionary principle, the "no action" alternative may be more appropriate for those sites. However, HHF concurs with the proposals to rehabilitate and reuse historic buildings and supports those elements of the preferred alternative.

#### **Conclusions**

Thank you for the opportunity to comment on the draft management plan, environmental assessment and Midway conceptual plan. We look forward to continuing to participate in the planning processes as they proceed and as implementation occurs. If you have any questions, please contact me at 808-523-2900 or via mail to 680 Iwilei Road, Suite 690, Honolulu, HI 96817.

Very truly yours,



Kiersten Faulkner  
Executive Director.

Nina Monasevitch  
4457 Laukini Rd.  
Lihue, HI 96766

01056

U.S. Fish and Wildlife Service  
Papahānaumokuākea Marine National Monument  
Box 50187  
Honolulu, HI 96850

July 20, 2008

I have read the draft Monument Management Plan for The Papahānaumokuākea Marine National Monument and have found some very disturbing problems, that I will address in this letter. This Monument is the most biologically diverse ecosystem on the planet, with critically endangered species struggling to survive in a marine environment, which is increasingly unhealthy and seriously threatened due to human actions.

Over fishing is causing devastating collapse of fish stocks and entire marine eco systems. 52% of the world's fisheries are fully exploited and 24% are over exploited, depleted or recovering from collapse. The global fishing fleet is 2.5 times larger than what the oceans can sustain or support. 72% of the world's marine fish stocks are being harvested faster than they can reproduce. A full one-fourth of the total catch (27 million tons in 2003) in unintended "by catch". We are wiping out entire fish populations. Marine biologists say the stocks of many large oceangoing fish have fallen by 80 to 90 percent!! The critically endangered Hawaiian Monk seal's population is dropping at 4% per year. With just under 1,200 left, that gives us less than 20 years to save this endemic rare species. (90 percent of the Monk seal population is in the NWHI.) Twenty percent of the world's coral is gone, 24 percent in imminent danger-that is nearly three-quarters of the world's reef gone or nearly gone!

With these shocking facts I find it unconscionable that "Sustenance fishing" is being considered in the monument. ANY fishing is not compatible with the purpose of the Monument. Allowing

any extraction of resources for consumption or any other purpose is not consistent with preserving the monument in its pristine state, let alone allowing the removal of up to SEVEN TONS of magnificent large predatory fishes. You have not provided adequate scientific justification for your claim that removing seven tons of the Monument's resources will not harm Monument resources or alter its ecosystem. For our oceans and marine life to survive, you MUST NOT allow ANY extraction of resources in this Monument!

Also, the establishment of the Papahānaumokuākea Marine National Monument was preceded by years of input from the public and stakeholder groups that identified several key principles to be incorporated into the Monument's goals. Those principles included:

- a. Making protection of the Northwestern Hawaiian Islands, their wildlife, and ecosystems the core and preeminent purpose of the Monument, and that all other considerations and activities must not impair this purpose; and
- b. Maintaining the "natural character" of the Northwestern Hawaiian Islands.

I am distressed to see that these principles, and others, are not incorporated into the draft Monument Management Plan, which leaves the Northwestern Hawaiian Islands incompletely protected and open to activities that will impair their health and resilience.

The Papahānaumokuākea Marine National Monument is a treasure belonging to all Hawaiians and the Nation. I am very concerned that you have failed to build an advisory body, similar to the Research Advisory Council, and a robust public-comment process into the management plan. The public and stakeholders must be given the opportunity to provide input to and review of the management of the monument if it is truly going to be the nation's Monument. This is sacred land, thus, Hawaiian Council should be elected to provide cultural and spiritual direction and protection.

Because the Papahānaumokuākea Monument is such a biologically rich gem, and because the above listed crisis facing our ocean marine life, it is imperative that 100% protection be the preeminent purpose of the Monument. By 100% protection I mean that Resource

1

2



Conservation and Protection should be the primary purpose and focus of the mission and goals. Keeping the area completely undisturbed! NO human activities including but not limited to; any military exercises, including sonar, all forms of fishing, resources extraction or bioprospecting, "eco" or any other form of tourism. All current historic National and State protections for the NWHI need to be upheld. The only activity in the Monument should be some LIMITED scientific research, and debris removal both only by highly responsible persons under strict protocol and scrutiny of advisory councils and management agencies.

Please take the time to carefully consider the incredibly fragile biological gem this area is and do what is Pono.

Mahalo,



Nina Monasevitch

Executive Director  
James A. Donofrio



July 22, 2008

01057

Papahānaumokuākea Marine National Monument  
Box 50167  
Honolulu, HI 96850

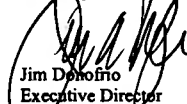
**RE: Comments on Draft Monument Management Plan**

On behalf of the Recreational Fishing Alliance (RFA) we offer the following comments regarding the management of the Papahānaumokuākea Marine National Monument (Monument). Without question, the Monument is an area of cultural and ecological importance fully deserving of protection from damaging activities. Specific to coral reefs and reef associated organisms which are confined to the boundaries of the Monument, it acceptable to limit all destructive or extractive activities that impact them. However, there are species of importance to the recreational fishing community such as tuna, marlin, dolphin, and other highly migratory species that when pursued, do not result in destruction, cause loss of or impose injure to the Monument resources. RFA supports limited recreational fishing for highly migratory species in a manner that will not impact bottom habitat or species. Trolling natural baits and lures at high speeds near the surface is consistent with this position.

Under the draft Monument management plan, subsistence and research fishing is permitted to continue. There will be mortality associated with these extractive activities. RFA is certain that recreational fishing in the Monument for highly migratory species, if permitted, would impose minimal additional mortality. Furthermore, Pacific highly migratory species are under the authority of the Inter-American Tropical Tuna Convention, which manages these species with precaution and conservation. Fishery management plans for these species mandate quota management and utilize annual catch limits. As such, regulations to limit harvest have been set and are enforced by NOAA Fisheries. It is not necessary to impose additional measures upon anglers who fish for highly migratory species by restricting them from the Monument.

The Monument is over 139,000 square miles and regardless of how remote the area, RFA is extremely uncomfortable about excluding recreational anglers from any area of the ocean without a scientifically proven cause. With regard to the Monument, recreational fishing for highly migratory species, which, by definition, constantly traverse in and out of Monument boundaries, is not a conservation problem nor would it compromise the objectives and goals of the Monument. While we believe that special protection should be imposed to protect coral reefs and associated species, RFA is firmly opposed to the arbitrary restrictions of the Monument management plan which prohibit limited recreational fishing.

Sincerely,



Jim Donofrio  
Executive Director

Legislative Offices: PO Box 98263 • Washington, DC 20090 • Phone: 1-888-SAVE-FISH • Fax: 703-464-7377  
Headquarters: PO Box 3080 • New Gretna, NJ 08224 • Phone: 1-888-JOIN-RFA • Fax: 609-294-3816

**DETAILED COMMENTS**

**ON THE**

**DRAFT MONUMENT MANAGEMENT PLAN, DRAFT CULTURAL**

**IMPACT STATEMENT, DRAFT ENVIRONMENTAL ASSESSMENT, AND A**

**DRAFT MIDWAY VISITOR SERVICES PLAN**

**FOR THE PAPAĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT**

by **NWHI hui**

members of KAHEA: The Hawaiian-Environmental Alliance,

‘Īlio‘ulaokalani Coalition and the Sierra Club

**July 23, 2008**

90

**Executive Summary**

Mahalo for the opportunity to review and comment on the next 15 years of management for the Papahānaumokuākea Marine National Monument. These comments are the culmination of more than eight years of advocacy by members of KAHEA: The Hawaiian-Environmental Alliance, ‘Īlio‘ulaokalani Coalition, and Sierra Club, on behalf of the strongest possible protections for the fragile and sacred Northwestern Hawaiian Islands. As the NWHI hui, we were the first to advocate for a monument to protect Hawaii’s kupuna islands. Today, we are honored to participate in the effort to implement that proposal. While we are hopeful that the great leadership shown by the State of Hawaii and the U.S. to set aside and protect this vast coral reef ecosystem and Wao Akua will be successful, we do have serious concerns about the direction of the current Draft Monument Management Plan (DMMP).

As currently proposed, the DMMP shifts the focus of management away from full conservation and instead promotes expanded harmful use of the Northwestern Hawaiian Islands. The three co-managing agencies - the Department of Commerce, Department of Interior and the State of Hawai‘i - propose no mitigation measures on the proposed expansion of military activities in the Monument, and includes proposals to increase extractive research, vessel traffic and construction for tourism activities. At the same time, the current proposal closes the door on meaningful public participation by not establishing a Monument Advisory Council.

The analysis provided here details ten key shortcomings that must be addressed in securing the highest degree of protection for this pristine natural area. Key among the concerns is the abandonment of the "precautionary principle," which requires biological, cultural and historic resource integrity be favored when the impacts of any proposed activity are uncertain. In addition to problems associated with proposed increases human activity and a lack of controls on military activities, other key concerns identified by the NWHI hui include: no prohibition against bioprospecting, lax and undefined enforcement protocols, insufficient resources for Native Hawaiians involvement in Monument decision-making, poorly-defined permitting process, and an inadequate Cultural Impact Assessment.

We trust that the Co-Managers will ensure these flaws are remedied by amending the DMMP to:

1. Protect Monument resources from the harms of human activity in the following ways:
  - a. **Assess the risk and cumulative impact of all human activities affecting the region, including global warming.** The current environmental assessment fails to adequately review the past, present, and likely future impacts of the human presence in the Monument. This information is crucial for proper management and should serve as the basis for numerical carrying capacity.

**b. Require mitigations on military activities affecting Monument resources.** Military exercises should not occur in the Monument, yet the U.S. Navy proposes to expand its activities in and around the Monument, including ballistic missile tests, chemical warfare exercises, and high-intensity active sonar. It is up to the Co-Managers to uphold Monument regulations requiring the Navy, at the very least, to minimize and mitigate the harm of its activities.

**c. Strictly limit tourism activities in the Monument.** To ensure the human footprint in the Monument is not deepened, set a maximum limit on the number of tourists visiting Midway based on current tourism levels.

**d. Prioritize conservation-based science needs to ensure the management needs of the Monument are met.** This means restricting permitted activities to those absolutely necessary for protecting endangered and threatened species and their habitats. This must include re-instating the prohibition on bioprospecting.

**e. Overhaul the permitting process so that it reflects the strongest protections of overlapping jurisdictions and incorporates rigorous permit terms required in state refuge waters prior to “Co-Management.”** The vast majority of permit applications are for access to the fragile state Refuge waters and USFWS Refuges. Until the implementation of the joint permit, the state Board of Land and Natural Resources required rigorous permit conditions (see Appendix A), including a full impact/take log, a detailed waste log and precautionary requirements for any extractive activities. We urge a return to this more protective approach to permitting.

**2. Ensure Public Participation on the Monument Management Board (MMB)** – The MMB currently makes all management decisions about the Monument without public oversight. Opening the Monument Management Board to the public will ensure that the public trust resources of the NWHI are well-managed in a transparent and accountable way. Additionally, the three Co-Trustees should establish a Monument Advisory Council, which like the original Reserve Advisory Council, would operate under sunshine laws, and include Native Hawaiians, representatives of the conservation community, independent scientists, and independent educators as voting members with the authority to review all management decisions, including issuance of permits.

**3. Empower Native Hawaiian decision-making** by integrating Native Hawaiian cultural knowledge of indigenous traditions and ecosystem management into the larger management scheme. For example, the Native Hawaiian Cultural Resources Working Group must have the

authority to review any management decision. Without meaningful participation of cultural practitioners in management and adequate funding, resources, and commitment to empowering Native Hawaiian decision-making, the ideas contained within the DMMP are simply empty promises. Currently, ten times more funding is proposed in the DMMP for scientific research than for activities related to cultural perpetuation, this is unacceptable.

**COMMENTS RECEIVED VIA E-MAIL**

**APPENDIX C**

---

---

00001



Laurel\_Baldrige/KAPA  
AH/HIDOE@notes.k12.  
hi.us

04/23/2008 01:03 PM

To: PMNM\_MMP\_comments@fws.gov  
cc:  
Subject: suggestion for 57,001 Marine Monument

THIN THE SHARK POPULATION! ESPECIALLY TIGERS!!!! Then we would not have endangered turtles and monk seals, and it would make our waters alot friendlier and more fun to look at for snorkelers and divers. The sharks have been protected too much - the ancient Hawaiians used to hunt them.

00002



Roy Bendell  
<sunupwaterman@yah  
oo.com>

04/23/2008 09:44 PM

To: PMNM\_MMP\_Comments@fws.gov  
cc:  
Subject: North western Hawaiian Island reserve

I was a lobster fisheries Observer and researcher in the NWHI in 1997.

If new laws are to go into effect :

1. Police the Japanese vessels from catching the fish that Hawaii residents are then not allowed to catch.
2. Set up areas for specific fishing and rotate them to keep the populations intact.
3. Allow diving and spearfishing in some designated areas. ie Midway: specify a reef.
4. Niihau residents and Hawaiians should have some areas of bycatch - not the whole reserve. This applies to Residents of the state of Hawaii as well. Its not right to exclude everyone. Thats like going back to segregation.-Thanks- Roy Bendell

Be a better friend, newshound, and know-it-all with Yahoo! Mobile. [Try it now.](#)



Jeff Drazen  
 <jdrazen@hawaii.edu>  
 07/11/2008 05:00 PM

To: PMNM\_MMP\_Comments@fws.gov  
 cc:  
 Subject: comments

00174

Co Trustees,

I am a researcher currently involved in the investigation of deep-sea habitats and communities in the PMNM. I read the draft Management Plan eagerly. It was very good to see that the deep water habitats of the monument received attention. While the islands and coral reefs are a phenomenal resource, the deep sea is the largest habitat in the monument. 85% of the area is in water depths greater than 2000m. Although the draft plan give attention to the deep sea the necessary level of detail is lacking particularly compared to that given to terrestrial and shallow water environments. Below are several major points. These are also pointed out in the annotated pdf of volume one (attached, filename - dmmp\_voll\_Drazen\_comments.pdf). A few minor points are also contained in the annotated version. Hopefully these comments will assist you in developing the final version of the management plan. Please do not hesitate to contact me with any questions or if you would like to discuss any of the points raised. Please confirm receipt of this email and TWO attachments.

Mahalo!

Jeff

Major points

1) In several places in the Management plan techniques for deep-sea investigations are given. Unfortunately the list omits many major tools which should be implemented in the future to characterize the environment and its inhabitants. These include free vehicles of all types. These are instruments which are deployed and retrieved in the same fashion as the baited drop camera mentioned in the existing text. They can house current meters, CTDs, acoustic profilers, in situ experiments, or other environmental or biological sensors. AUVs for autonomous underwater vehicles are another technology that should be brought to bear. AUVs are small independent robotic vehicles equipped with a variety of sensors and/or cameras. The department of Oceanography currently has two AUVs called gliders which are extremely useful in characterizing environmental conditions by themselves for weeks at a time. Finally, the management plan says nothing about the collection of specimens (biological or environmental). Many avenues of investigation will be closed if collections are not a part of the plan.

2) Throughout the plan there seems to be little mention of geological, chemical and physical oceanography of the PMNM. These variables are integral components to habitat characterization and activity in these areas should be specified in MCS-1.3.

3) Not all deep-sea habitats are described in the plan. Each island receives a section but the various deep water habitats are not similarly treated. The section on banks and seamounts is good. However, all other deep water habitats are clumped together under "pelagic habitats." In particular the treatment of abyssal habitats in this section is poor. For instance, it states on page 23 "The next zone is the abyssopelagic zone (13,123 to 19,685 feet) (4,000 to 6,000 meters), where there is extreme pressure and the water temperature is near freezing. This zone does not provide habitat for very many creatures except small invertebrates such as squid and basket stars." Basket stars are not abyssopelagic but benthic. More importantly, this statement that the habitat does not provide habitat for many creatures is incorrect. Many creatures could imply numbers of taxa or numbers of individuals. Our baited camera work to 4000m last summer clearly showed an active assemblage of fishes and invertebrates at all depths (Yeh and Drazen, in press, see attached photo from 4000m of P&H). Work in the abyssal plains of the Pacific, Atlantic, and elsewhere continue to show an astonishing diversity of small sediment dwelling animals. A diversity that has been compared to that in tropical rain forests. Some speculate that there could be million of species! In terms of abundance yes the numbers of animals are low. A distinction between numbers of taxa and numbers of individuals should be made. Most importantly the abyssal plains should be a separate habitat heading. This benthic habitat is probably the single largest in the PMNM.

<<...>>

4) The threats of global climatic changes to deep-sea animals should also be given on pages 61-63. Seibel and Walsh 2001 (Seibel, B. A., and P. J. Walsh. 2001. Potential impacts of CO2 injection on deep-sea biota. Science 294: 319-320) have a wonderful article describing the great susceptibility of deep-sea animals to ocean acidification and many other articles are available. On page 9 it states "Overall, the fauna of the Monument's waters below standard SCUBA diving depths remains poorly surveyed and documented, representing an enormous opportunity for future scientific research in a system largely undisturbed by trawling or other forms of resource extraction." This is very true and brings up a very good point. The monument presents an ideal opportunity to study the impacts of global climate change. Most regions of the world's oceans face multiple human threats such as pollution and fishing. The Monument does not and thus any changes seen during monitoring programs will be easier to interpret in light of changing environmental conditions. not only is global change the biggest threat to the Monuments deep-sea habitats but it is the best place to study these impacts on deep-sea ecosystems.

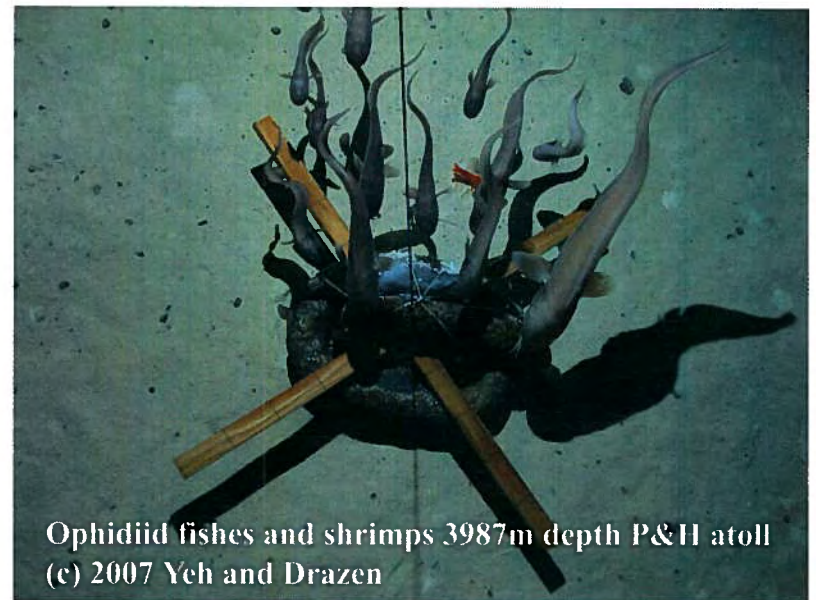
5) On page 9 it is stated that "Even deeper yet, the abyssal depths of the Monument, while harboring limited biomass, are home to many odd and poorly documented fishes and invertebrates, many with remarkable adaptations to this extreme." The biomass density is low however, due to its large area within the monument the total biomass of the abyssal community is quite large. I have used biomass estimates for large invertebrates (echinoderms, crustaceans, enidarians) and fishes on the abyssal plain north of the NWHI (Smith 1992) to estimate the biomass on the abyssal plains of the monument. This estimate probably underestimates the biomass density in PMNM which is predominantly shallower than this station (5700 m). The estimate is 68900 to 74600 g wet mass km-2. This is a low density but with an area of 304,000 km for depths > 2000m this yields a total PMNM deep-sea biomass of 21000 to 23000 metric tons. This "back of the envelope" calculation gives a good minimum estimate to be refined by additional research. Most importantly, it should illustrate that the statement in the draft management plan must be carefully reworded to illustrate both the low biomass density yet considerable biomass monument wide in abyssal habitats.

<<...>>

Jeffrey C. Drazen

Assistant Professor  
Department of Oceanography  
University of Hawaii  
1000 Pope Rd  
Honolulu, HI 96822

808-956-6567  [dmmp\\_vol1\\_Drazen\\_comments.pdf](#)  [P&H\\_3987m\\_0867 Yeh and Drazen.pg](#)





00003



Brian Daniel  
<bdaniel@lava.net>  
04/28/2008 07:20 AM

To: U.S. Fish & Wildlife <PMNM\_MMP\_Comments@fws.gov>  
cc:  
Subject: Marine National Monument

Hi:

Thanks for giving me the opportunity to to express my feelings on

this important issue. I think eco-tourism is a wonderful thing. It raises our awareness and appreciation of the earth and the plants and animals which inhabit it. I regret that I didn't go to Midway when Midway Pheonix was in partnership with U.S. Fish & Wildlife. It's a small island and a big atoll, always something to explore and learn about. That partnership ended when you guys started cutting down all the iornwood trees, the justification being that the birds don't need them and they are not native anyway. And I guess the reasoning goes that a denuded island would be less attractive to the one species which has done the most damage, homo sapiens. So eco-tourism went out the window and with this new plan the whole chain of reefs and tiny motus will be locked up forever. Is this the one thing that George W. Bush did right? I doubt it, his decree cost him no political capital in this country, and it vastly expanded U.S. claims to the Pacific Ocean, encouraging other nations to do likewise, we are already seeing the fallout, with Russia claiming large parts of the Arctic Ocean.

Brian Daniel  
3031 Manoa Road  
Honolulu, Hawaii 96822

00004



Susan White  
04/28/2008 11:14 AM

To: PMNM\_MMP\_Comments@fws.gov  
cc: Beth Flint/PIE/R1/FWS/DOI, David Zabriskie/PIE/R1/FWS/DOI, "Barbara Maxfield" <barbara\_maxfield@fws.gov>  
Subject: Fw: Monument Management Plans comments

sent to e-mailbox.

Susan White, Superintendent  
Papahānaumokuākea Marine National Monument  
>< >< >< >< >< >< >< >< >< >< >< >< ><  
U.S. Fish & Wildlife Service, National Wildlife Refuge System  
300 Ala Moana Blvd. Rm 5-231, Box 50167  
Honolulu, HI 96850  
ph: 808/792-9481 fax: 808/792-9585  
email: susan\_white@fws.gov  
>< >< >< >< >< >< >< >< >< >< ><

"We must all hang together or, most assuredly, we shall all hang separately." - Ben Franklin

--- Forwarded by Susan White/R1/FWS/DOI on 04/28/2008 11:12 AM ---

Ian Jones <ljones@mun.ca>

04/28/2008 11:32 AM

To Susan\_White@fws.gov, Beth\_Flint@fws.gov, David\_Zabriskie@fws.gov  
cc melinda c <connersm@gmail.com>  
Subject Monument Management Plans comments

Hi David, Susan and Beth,

Extremely busy here organizing Aleutian Island logistics for eight people, so I have only managed to skim over the Monument Management Plan (MMP) docs - nevertheless, I would like to submit some brief and general comments for your consideration.

The strong statements in support of Research in the MMP are commendable. I was very pleased to see how Research was mentioned so frequently and given such a high degree of importance in the MMP. Only through a strong ongoing role of Research can the Monument be properly managed. Without biological research, we will continue to linger in a state of ignorance about ecological processes in the Monument and even about the general biology of plants and animals living in the Monument. In short, without a strongly supported scientific research component, proper management of the Monument's resources is unlikely. Thus the MMP must not only provide lip service to supporting Research, but also provide a strong, clear, unequivocal and well-organized plan for encouraging and supporting research on the Monument. In particular, the process for issuing permits for scientific research must be user friendly, swift and not overly onerous to would-be researchers. The Monument is a challenging and remote location for

research to begin with - so in order to encourage scientific activity and innovation, the permit process should be welcoming, easy to follow, logical and fair - if it is not so perceived, leading scientists will choose to go elsewhere and the Monument will linger in isolation from science.

Some suggestions related to promoting scientific research activities that could be incorporated into the MMP:

Factor in scientist's intellectual property rights into the permitting process. Only a lay summary of the proposed research should be widely circulated for public discussion. The full details of proposed research must remain confidential and viewed only by the permitting committee members and selected peer reviewers. Project proposals contain individual scientist's ideas that are essentially their trade secrets, such ideas and related protocols/methods/technology need to remain confidential and protected until the work is published. If the MMP does not factor this concept into the permitting process, you will be violating scientist's intellectual property rights and discouraging the best and most innovative researchers' activity on the Monument.

When considering the value of proposed research to the Monument, the MMP guidelines should explicitly acknowledge that research on a wide variety of subjects is essential, even if it appears to have no immediate application to management. It is seldom possible to know whether a particular research subject is going to be a crucial tool for future management, so the MMP should discourage any kind of permit committee second guessing about the value of proposed projects, but instead welcome research on as wide a possible scope. As an example, studies of diatoms in lake sediments were considered to be frivolous and lunatic fringe until recently - when these studies were recognized to be the crucial information source re climate change. The Monument needs to welcome biological research on all subjects without prejudice about supposed value. Only by doing so will Monument management be optimized in a rapidly changing biosphere.

Consult Hawaiian biological science leaders such as David Duffy and Sheila Connant about the design of the research permit process - let them help you make the process as streamlined and user friendly as possible. Start with those two characteristics as the basic criteria for your permit process and work from there. Unless the permit process is easily understood, fast and fair the MMP will be discouraging essential work on the Monument. I can't state this strongly enough: the Monument's permitting process ease of use will be the greatest factor in determining whether needed research gets carried out. Without lots of research, your Monument will not be appropriately managed and protected.

These are my quick suggestions - I hope you find them useful.

I would appreciate it if you could stick them in your MMP comments bin for me :- ) thanks!

in haste,

Ian

Ian L. Jones

Professor  
Department of Biology, Memorial University  
St. John's, Newfoundland, A1B 3X9, CANADA

phone (709) 737-7666  
fax (709) 737-3018  
web: <http://www.mun.ca/serg>

On 23-Apr-08, at 7:34 PM, [Susan.White@fws.gov](mailto:Susan.White@fws.gov) wrote:

I encourage you to log onto [www.papahanumokeakea.gov](http://www.papahanumokeakea.gov) to access the newly-released draft Monument Management Plan and call for comments. The draft plan proposes a comprehensive course for overall management of the Monument for the next 15 years. It is released for public review and comment for 75 days.

Thank you again.



Jessguessnrandy@aol.com  
04/30/2008 09:30 AM

To: PMNM\_MMP\_Comments@fws.gov  
cc:  
Subject: Public Comment Request for Submittal and Review

00005

To the Representative Individuals Overseeing the Public Comments for the State of Hawaii, U.S. Department of the Interior and U.S. Department of Commerce:

Thank you for allowing me this opportunity to voice my concerns, feelings, and opinions in regard to the planning of the "biggest Marine National Monument".

I was elated upon first hearing the news and thought, 'finally my prayers have been answered.' *Yes, I do pray to God to please protect whatever might be still alive in our very badly damaged ocean ecosystems.*

Upon hearing who had declared this monumental event, I immediately became suspicious that there had to be an ulterior motive coming into play. Upon further investigation, the reasoning became quite transparent. Not that this changes any of the major plans that are scheduled in the near future, of course. And not that it changes the plans that have already been acted out just recently.

So many injustices are suffered in this world of ours by those who are considered to have no self-value simply because they lack the financial means deemed necessary in order for one to assert oneself in a position of power. How then will our wildlife and ecosystems, and most of all *our planet*, ever win against these odds?

If whales could earn a living, I am sure that they would do so just as every human tries because it is necessary for survival. How does a creature protect itself from something that it knows nothing of? Contamination, pollution, habitat destruction, war; these are all things of a man-made existence. Should it not be, then, man to whom protection and reparation should be sought from?

Please forgive my cynicism, it is just that I get a sick feeling in my stomach to think that the area deemed as a marine sanctuary could also very possibly be the very same area in which the Great Trash Barrier Reef also resides.

Tell me this is not so. Please tell me that this is not so. On land, we would not deem a teeming, festering landfill a national park so why wouldn't the same rules apply to a sanctuary in the water?

I understand that you are all probably very busy in your daily professions but it would mean so much to me if someone were able to assure me that what I fear is incorrect. I would be able to breathe normally again; for the moment.  
Thank you in advance.  
Sincerely,

Jessica England  
Seal Beach, CA 90740  
[jessguessnrandy@aol.com](mailto:jessguessnrandy@aol.com)

Need a new ride? Check out the largest site for U.S. used car listings at [AOL Autos](#).



Rita Kanui  
<kawehi11@msn.com>  
05/12/2008 03:32 PM

To: <pmnm\_mmp\_comments@fws.gov>  
cc:  
Subject:

00006

Aloha,

As a Kanaka Hawai'i, I would like to respond to the Papahanaumoku Monument concept usurped by US, is illegal under international law.

Hawai'i was illegally overthrown and illegally occupied since 1897. We continue to be held hostage in our own homelands by the US and the purported State of Hawai'i. I am not an American, never wanted to be one and don't see myself as an American in the near future.

With all that is going on in Hawai'i and the world, it is my hope that the US should admit to the occupation and end it. The taking of our sacred islands in the so called northwest islands is an example of the continued occupation in a billegerent way. Stop wasting money, time and energy.

Me Kealoha Pumehana R. Kawehi Kanui

Make Windows Vista more reliable and secure with Windows Vista Service Pack 1.  
[http://www.windowsvista.com/SPI?WT.mc\\_id=hotmailvistasplbanner](http://www.windowsvista.com/SPI?WT.mc_id=hotmailvistasplbanner)

00008



"CHAVENGSAK  
PHOSRI"  
<saksakon@gmail.com  
>

To: PMNM\_MMP\_Comments@fws.gov  
cc:  
Subject: Midway Resident

05/29/2008 06:33 AM

Sir

we would like to fishing outside fish for clipper house cooking.

Thanks a lot.

Chavengsak

Phosri,Thawatchai Phosri,Kriengsak Phosri.

00009



"Space Options"  
<design@spaceoptions  
.com>

05/30/2008 08:58 AM

To: <PMNM\_MMP\_Comments@fws.gov>  
cc:  
Subject: Papahānaumokuākea Monument public comment on Barrier Free requirements for the Monument

Dear Sirs/Madame,

Since the Midway Atoll will be open to the public, the US Fish and Wildlife is required to conduct a self evaluation of the all the resources, services and programs, to decide which will be open to the public and be in compliance under FWS – 43 CFR 17 Subpart E Section 17.510 and DOI directives. This FWS federal regulation requirement is to make programs, services, operations, and facility provisions for individuals with disabilities who can travel and visit the Monument.

The evaluation should yield a comprehensive land use plan that outlines programmed service areas of preservation with no public contact along side similar program areas of public access which is can be controlled and channeled to preserve the monument and historical artifacts. Access to the historical military preservation would need to be barrier free for individuals with disabilities. There will be various levels of access in conjunction with the historical preservation aspect. The military aspect would have a program similar to the NPS historical military memorials and parks.

This initial evaluation can initially be a land use and historical resource plan that will most likely change with the public comments and further review by FWS. Concessionaires, cooperating associates, and contractors are required to strictly adhere to all aspects of FWS - 43 CFR 17 Subpart E regulations.

Please forward a copy of the current 43 CFR 17 Subpart E self evaluation and the written requirements for concessionaires, cooperating associates, and contractors to the address below. Thank you for providing this opportunity to ask questions and submit public comments.

Jean Tessmer, ASID  
Space Options  
Federal barrier free consultant  
PO Box 29  
Kula Hawaii 96790  
(808) 878-8386 voice  
(808) 878-8376 tly – fax  
design@spaceoptions.com



Kevin  
 <stardustsparkin@gmail.com>  
 05/31/2008 10:19 PM

To: PMNM\_MMP\_Comments@fws.gov  
 cc: Subject: Papahānaumokuākea Marine National Monument Draft Management Plan

00010

300 Ala Moana Blvd, Room 5-231  
 Box 50167  
 Honolulu, HI 96850

To whom it may concern,

Please keep the military and fishing industry OUT OF Papahānaumokuākea. They do not belong there, and their presence there causes irreversible damage.

Yours,

- Kevin Nesnow  
 Honolulu, HI



LonelyMan and  
 HandsomE  
 <hellojackz@hotmail.com>  
 06/03/2008 09:31 AM

To: <pmnm\_mmp\_comments@fws.gov>  
 cc: "hellojackz@hotmail.com" <hellojackz@hotmail.com>, <saksakon@gmail.com>  
 Subject: SUBSISTANCE FISHING AT MIDWAY

00011

Dear Sir or Madam

We are all Thai's and are midway residents. We would like to resume recreational fishing at Midway for on-island consumption to be eaten at The Clipper House.

We will not fish from within the atoll's fringing reef due to the threat of ciguatera poisoning.

Hope for your kind and favourable consideration.

Thai's Employee's

- |                           |                   |
|---------------------------|-------------------|
| 1. Adoon Sripitak         | Liquid Fuel       |
| Maint.System Mech.        |                   |
| 2. Akon Rodcharoen        | Cook              |
| 3. Apirak Ang-Yan         | Carpenter         |
| 4. Apiwat Juethong        | Building Main     |
| Mechanic                  |                   |
| 5. Chavengsak Phosri      | Water/Sewer       |
| Lead                      |                   |
| 6. Chatchai Janthet       | Hydroponic        |
| Gardener                  |                   |
| 7. Hatsanai Wichana       | Laborer           |
| 8. Jatutarom Argatvatana  | Mess Attendant    |
| 9. Khamwang Chaloothong   | Power Production  |
| Lead                      |                   |
| 10. Kidjarom Wongwai      | Cook              |
| 11. Kittiphot Taksintanee | Mess Attendant    |
| 12. Kittipong Junthasang  | Electrician       |
| 13. Kriangkrai Sriprasert | Painter/Corrosion |
| Control                   |                   |
| 14. Kriengsak Phosri      | Power Production  |
| Mechanic                  |                   |
| 15. Marwin Phiromsank     | Mess Attendant    |

16. Narongkorn Thatsanangkon	Electrician
17. Niran Phumanee Operator	AGE Mech/Equip
18. Poem Phonsila	Welder
19. Pongsakorn Wichasawatdi	Cook Lead
20. Prajim Plai-Ngarm	Telecom Mech
21. Preecha Songserm Mechanic	Building Main
22. Sakchai Prosamniang Housekeeper/Janitor	
23. Sakhorn Samianram Housekeeper/Janitor	
24. Seekhun Saikham Mechanic	Refrig/AC
25. Siripong Upara Electrician	High Voltage
26. Sitthisak Paenmuang Maintenance/Laborer	Ground
27. Somchet Wittayakhom Specialist	Work Control
28. Sukhon Singhathum Mechanic	Refrig/AC
29. Surat Baojanya Control	Painter/Corrosion
30. Thanisorn Charunthanakitkarn Mechanic	Building Main
31. Thawal Sonchar Operator	Equip Mech/Equip
32. Thawatchai Phosri Operator	Water/Sewer
33. Vithool Roongganavanong	Plumber
34. Winai Prasertklang	Electrician
35. Wirach Tamwongwan	Supply Specialist
36. Woravut Santirojanakul Specialist/Driver	POL

---

Discover the new Windows Vista [Learn more!](#)



David Orthaus  
<dorthaus@mac.com>  
06/10/2008 04:54 PM

To: pmnm\_mmp\_comments@fws.gov  
cc:  
Subject: Midway Atoll Comments

00012

Things I would like to see at Midway Atoll as a current resident,

1. On and Off shore fishing
2. Scuba Diving
3. Golf Course or Driving Range
4. Open up all the beaches
5. Paved Roads
6. New Housing for the residents
7. Short Order Grill
8. Better/faster airplane to get us on and off island
9. Swimming Pool
10. Being able to catch lobster



bombero4ever@aol.co  
m  
06/10/2008 04:54 PM

To: PMNM\_MMP\_Comments@fws.gov  
cc:  
Subject: Midway Atoll

00013

I would like to see **scuba diving** here and the reason is there is alot of other things besides the coral reef and the REEF HOTEL to see in a beautiful part of the world and on the island or inside the reef also plus not mention wrecks of the Corsair US NAVY World War 2 plane in the outside the reef and all the other stuff like the anchors where they used to park the large sailing vessels. Also i would like to see **sport fishing** out here and I have heard that it was a good source of fun and eating also for the island and it would be a good thing to have that back. I love fishing no matter what kind it is. Also I am certified PADI Master Scuba Diver with over 100 dives and I would be willing to help out whenever needed to go diving with Instructors. Plus a golf driving range or a small golf course would be nice not during bird season cause Morale and the weekend there isnt alot to do outside and i am a Outdoors guy and this island is small but it could be a great place for all these to be at and so thanks and hope this happens.

Sincerely

Aaron L Pritchett  
Midway Atoll Henderson Field  
Airport Firefighter/ Operations

[Get the Moviefone Toolbar](#). Showtimes, theaters, movie news, & more!





David Ryan  
<dryan46@yahoo.com>

06/10/2008 05:35 PM  
Please respond to  
dryan46

To: PMNM\_MMP\_Comments@fws.gov  
cc:  
Subject: Public comment on Midway Refuge

00014

Hello,

I was the airport manager at Henderson Field, Midway Atoll NWR from 2004-2006. I am now back managing the airport at Midway once again. As a resident of the island I can tell you that there are very few outdoor activities that residents can enjoy. When I was here the first time we were allowed to fish which was wonderful. All fish went to the dining hall for all residents to enjoy. I can only estimate but I believe total fish taken per year for the whole island was about 60. Only Ahi and Ono were taken. This was a great morale booster and just plain fun. I would like to see the return of subsistence fishing along with at least considering the taking of a limited number of lobsters. One must remember there are many months in the winter when fishing doesn't even happen due to rough seas. I would also like to see consideration of scuba diving for certified divers. Even if depth was limited, it would add a lot to the variety of things to do. Finally I would like you to consider sailing or windsurfing in small craft in the lagoon. All of these are healthy activities that would improve morale greatly. Thank you for your consideration.

Regards,

David M. Ryan



"Sandy Webb"  
<mrssandywebb@hawaii.rr.com>

06/13/2008 11:32 AM

To: <PMNM\_MMP\_Comments@fws.gov>  
cc:  
Subject: education portion of plan

00017

Aloha – I'm part of the Midway Alaka'i Program and the management plan states that only members will run successive workshops – this is not correct. It should read that members of the Midway Alaka'i Program will MENTOR new members in the years after they participate in the education program on Midway. A number of resource personnel from NOAA, USFWS and related community groups may run the workshops for the program.

I am also a member of the 2005 NOAA Boatload of Educators voyage to the monument and a high school educator in Hawaii who has written curriculum units related to the module. I think funds should be available to contract educators to run teacher workshops in the CONTINENTAL U.S. to introduce teachers to the myriad of educational resources available relating to the monument. There has to be more than just curriculum on a website to educate the public about the monument and help them understand its enormous ecological value.

I think the voices of Andy Collins at NOAA and Ann Bell of the USFWS should carry considerable weight in any revision to the Papahānaumokuākea Marine National Monument plan – they not only understand the needs of researchers, educators but they have considerable knowledge of what it will take to protect the species found there.

Sandy Webb, Mililani, HI  
94-830 Lelepua St. Apt. C  
Waipahu, HI 96797



Rita Kanui  
 <kawehi11@msn.com>  
 06/13/2008 04:07 PM

To: <pmnm\_mmp\_comments@fws.gov>  
 cc:  
 Subject: Comments

00019



Kerry LeMons  
 <Kerry.LeMons@chuga  
 ch-ak.com>  
 06/14/2008 10:02 AM

To: "PMNM\_MMP\_Comments@fws.gov"  
 <PMNM\_MMP\_Comments@fws.gov>  
 cc:  
 Subject: Paphananumokuakea Marine National Monument Public comments

00020

1. Midway Atoll is a US Territory and as such the State of Hawaii does not have enforcement authority for environmental or health concerns (i.e., environmental permits). Who will have permitting authority for permits such as National Pollutant Discharge Elimination System (NPDES) and air quality?

EPA Region 9 does not list Midway as one of the areas of concern or enforcement. Currently environmental, health and Safety fall under the Fish and Wildlife Services (FWS) which incorporate much of the federal EPA standards, but not all or as stringent. In addition, there is no real oversight authority to ensure compliance.

As stated in the monument plan, there will be an increase in personnel (construction, visitors and residence) all of which will impact the local environment by increasing that amount of solid/hazardous waste generated on island. Current operations require that all waste be separated by type (plastic vs recyclable metals). Most waste is either incinerated or landfilled on island. Plans need to be developed to manage this increase as landfill space is a premium and the incinerator is not rated to handle a large increase in waste.

2. As a resident of Midway Atoll, I believe that sustenance fishing should be allowed, 1) to increase moral of the community, 2) reduce cost in providing fresh fish, 3) reduce cost in transporting supplies (i.e., foodstuff) to the island. Due to the small number of personnel living on Sand Island, the impact to the environment will be negligible.

Thank you for your consideration in this matter.

Kerry LeMons  
 Resident of Midway Atoll



Rick Long  
 <dhsc6411@hotmail.com>  
 06/15/2008 08:54 PM

To: <pmnm\_mmp\_comments@fws.gov>  
 cc:  
 Subject: Comments on Draft Management Plan

00021

Dear Sirs,

I attended the public hearings on the Papahānaumokuākea - North West Hawaiian Islands Draft Management Plan on Maui this week, and have had time to read parts of the 4 volume document.

I am a retired psychiatric social worker having last worked for the State of Illinois. I am currently a volunteer for the Hawaiian Islands Humpback Whale National Marine Sanctuary, and participate in frequent reef surveys for the University of Hawaii, and private NGOs.

From my first hand experience in the ocean, I am very aware of the impact of human activities, including my own, on the marine eco-system. As a social worker, I am also very aware of the importance of supporting the Hawaiian cultural practices in the North West Hawaiian Islands - the kupuna islands.

I would like to see the management plan limit all human impact in the national marine monument, and instead apply "cutting edge" technologies to create a "virtual" museum that could be used by everyone.

Web cams could be discretely placed at many locations on the islands and atolls to observe the birds and monk seals. Satellite and radio transmitters, as well as critter cams could be also be used to track migratory species. Underwater cameras could be placed on the reefs to observe marine animal behavior. Resident scientists and Hawaiian cultural practitioners could hold video sessions with those of us back in the main Hawaiian Islands. Databases and video libraries could be placed on the internet for use by local students.

What was once the privilege of the rich, to be able to travel to exotic locations, is now within the reach of children in the third world countries because of computer technology and the world wide web.

Why not bring all of our marine sanctuaries and national parks alive and online for everyone to enjoy and explore?

Thank you.

Rick Long  
 120 Manino Circle, #202  
 Kihei, HI 96753



dsfuzzy@bellsouth.net  
 06/18/2008 11:14 AM

To: PMNM\_MMP\_Comments@fws.gov  
 cc:  
 Subject: Comments for Papahānaumokuākea Marine National Monument

00026

Good Morning,

I would like to make 2 comments on the Papahānaumokuākea Marine National Monument (PMNM). I am a private citizen that happens to be employed on the island of Midway. The first comment that I would like to make concerns an action performed by a Fish & Wildlife Service (FWS) government employee, Mr. Barry Christensen, that I would like to have reversed and such an action prevented from ever reoccurring. I also notice that I am commenting to FWS, and would extremely appreciate this comment being brought up the governmental chain at least one level above FWS. A military sign was painted over with a sign that has "Midway House" and flowers on it. The house is of historical significance, but the sign in front of the house isn't, according to FWS personnel. Thus, Mr. Christensen and his wife personally repainted the sign. This house had been occupied by Navy personnel for many years, and is the place where the peace accord for the Vietnam War was signed by President Nixon and the North Vietnamese Government. I would like to bring to the attention of my fellow citizens that The Battle of Midway was a very large turning point in WWII and that the American lives lost during that heroic battle do not deserve to be forgotten. I am extremely dissappointed that no military organizations, such as The Veterans of Foreign Wars (VFW) or the American Legion (AL) were consulted in this matter. So, ask yourselves, my fellow citizens, do you want to return the sign to its prior condition and pay homage to the military lives lost on Midway and allow future generations the opportunity to remember this building as a significant place of significant military history? Or, do you want to remember that Mr. Christensen, a FWS government employee, and his wife repainted the sign and put flowers on it, because they could???

Basically, my specific comment, is that I would like specific protection of anything that could be determined as military significance and I do not want FWS governmental employees deciding what they personally think is significant or not. I live on this island and can share with my fellow citizens that there is very little left on this island to pay homage to the military for their service to their country and it deserves better protection than that provided by Mr. Christensen.

My second comment concerns sustinance fishing at Midway. I believe it to be a very good idea. The high cost of flying all food onto the island is not cost effective and should be considered as a factor in determining the decision on sustinance fishing. The island is now open to the public, and even more food will be required in the future. All meat products that are brought to the island are frozen. Fresh fish would provide a much better diet to the people that have to live and work here on Midway. I don't want to sell the fish and would simply like the opportunity to eat fresh fish. I firmly believe that flying frozen food to an island is very expensive to the taxpayers, but if you allow a man to fish, he will eat healthier for life!

Thank you for your time and consideration,

Douglas "Scott" Feazell  
 Private Citizen



Sarah Moon  
 <moonsiktwo@yahoo.com>

06/19/2008 12:33 PM  
 Please respond to  
 moonsiktwo

To: PMNM\_MMP\_Comments@fws.gov  
 cc:  
 Subject: PMNM-MMP Comments

00034

June 19, 2008

Re: Papahānaumokuākea National Monument Management Plan

We have visited Midway Island twice since it was first turned over to the National Fish & Wildlife Dept. from the Navy. We studied the limu/algae, the invertebrates and writing/sketching our impressions. We stayed two weeks each time learning a deep appreciation for these NW Hawaiian Islands. We also went to most of the public hearings and meetings concerning the fate of these islands from the very beginning. Thousands of people attended and expressed a positive statement to designate this archipelago a protected National Monument.

We have decided after careful thought to offer the following to be included in the Management Plan:

- (1) There must be a citizen-based public commission Council comprised of a cross section of the public and government representatives. A member from each main Hawaiian Island, an educator, a member/representative of OHA, an artist/writer, a journalist, and a fisherman all to be members of this commission with legal authority to grant all permits.
- (2) There must be a limit, determined for the year in advance by the Citizens Council, on the number of permits allowed for groups of tourists, scientific researchers, student groups and fishermen.
- (3) There must be established a certain amount of time to educate those permitted to understand and respect the environment.
- (4) There must be a limit on the number of tourists and researchers each year.
- (5) No cruise ships should be allowed to anchor off shore within the boundaries

Aloha No,

My 'ohana is related to the; Moana, I, Keawe and Kauaia-A-Mahi lines that can be traced back 97 generations to Kumu Honua, The First Man.

Our comments are simply that Hawai'i is illegally occupied by the U.S. military and because of this we as a people are being held hostage in our homelands commenting to this body, our concerns, on special appearance being that we are not Americans, but Hawaiians, by nationality with our rights intact and documented in the 1839 Declaration of Rights, 1864 Constitution, 1850 Treaty, conventions, international law on occupation, Apollon vs. Edon, Hawaiian Kingdom Laws; Civil and Penal and cases studied in the Hawai'i Reports Vol. 1-5 and Vol. 1 on The Statute Laws of His Majesty Kamehameha 1845-46.

As a descendent of Bernice Pauahi Paki (Bishop) it is our responsibility to protect and preserve the vested rights in and on the lands in Hawai'i by using the laws of this land. It is our contention that the lands you speak of belongs to, The Hawaiian Kingdom government that continues to exist even under the present occupation and it is through this understanding that we approach this body, as heirs-at-law...not the public at large, or as Americans since Hawai'i was never legally annexed to, by or with the permission of our people, na kanaka maoli.

Papahānaumoku (Mother Earth) is my relative and I am appalled at the fact that the U.S. and it's many corporations claim her now when she is our mother? How can a foreigner do that? The old saying applies here, "It's not funny to fool mother nature" this is why America is having all these weird weather patterns...you are holding our mother and her children hostages in their own homeland and we will not have that. Papa is not your relations and she begs to be set free from your clutches that are not pono.

We pray that the American people will see what this Bush administrative office is doing to us and tell your government to end the illegal U.S. military occupation and the usurpation of the 1850 Treaty...1839 Declaration of Rights...1864 Constitution...Hawaiian Kingdom Laws; Penal and Civil and plain old human rights. It's time to end the occupation and to bring pono back to our land through healing.

Me Kealoha Pumehana R. Kawehi Kanui

Now you can invite friends from Facebook and other groups to join you on Windows Live™ Messenger. Add now.  
[https://www.invite2messenger.net/im/?source=TXT\\_EML\\_WLH\\_AddNow\\_Now](https://www.invite2messenger.net/im/?source=TXT_EML_WLH_AddNow_Now)

(6) There must be a ban on all and any military exercises or ballistic tests in and over the monument. The military must clean up all their old junk they left behind.

(7) Protect the ancient Hawaiian cultural sites.

(8) For all permits there must be public hearings on all the main islands for a month and at least 30 days for public comments for all permits.

Mahalo

Jan and Sarah Moon

121 Lokoaka Street

Hilo, Hawaii 96720 [moonsilktwo@yahoo.com](mailto:moonsilktwo@yahoo.com)



James Roberson  
<[test2bnoble@hotmail.com](mailto:test2bnoble@hotmail.com)>

06/20/2008 04:20 AM

To: <[pmnm\\_mmp\\_comments@fws.gov](mailto:pmnm_mmp_comments@fws.gov)>  
cc:  
Subject: Sustenance Fishing

00039

#### FWS Committee Members

I am writing in reference to: Reference Draft Monument Management Plan Appendices Volume III page D-113-D-125. As an Island resident I would respectfully ask that Sustenance Fishing be allowed for people living and working here at Midway on a permanent basis. This will reduce the cost of flying frozen fish from Honolulu.

Also, it would provide a productive recreational activity for island residents.

It would be very much appreciated if permission to Sustenance fish is granted.

Positive regards,  
James Roberson

---

Introducing Live Search cashback . It's search that pays you back! [Try it Now](#)

**Carlin G. Robinson**

00041

**From:** "Carlin G. Robinson" <Bosco808@hawaiiintel.net>  
**To:** <PMNM-MMP-Comments@fws.gov>  
**Sent:** Wednesday, June 18, 2008 1:43 PM  
**Subject:** Draft Management Plan Papahānaumokuākea-MMP

Having been a visitor, contractor and management consultant on this island, I would like to suggest that the primary use and management of this National Monument be put under the auspices of the U.S. Coast Guard, to be used as a training facility and the last outpost of United States Territory. I have not been there for many years, but at the time (60's & early 70's) there was some very good facilities.

Mshalo, Carlin G. Robinson

Dacaccia@aol.com To: PMNM MMP Comments@fws.gov  
06/23/2008 05:29 PM cc: management of maine monument

00042

Response to management plan for Northwest Hawaiian Islands 6/23/08

I don't see how you can spend \$355 million managing the NW Archipelago. I think you should simply end all fishing and other extractive activities in the Manne Monument. Period Use some of the money to buy back the licenses of anyone now fishing there

When they built the space center at Cape Canaveral in Florida, A large area around the space center was off-limits to anyone, including fishermen. They discovered that these waters became a breeding ground for fish. Now, large quantities of large fish are swimming out of the restricted area, and into waters that are fishable. So the fishermen are benefitting from this closed area. Much of Hawaii is being over-fished. The fish and the fishermen will benefit from having this area totally closed to fishing.

Regarding the mice on Sand Island, by all means, get rid of them. And clean out rodents on any other islands in the archipelago. I would think that it would take a lot less than five years to find a rodenticide that would not harm the birds. Go for it!

Aloha, David Caccia  
Honokaa, HI 96727

Gas prices getting you down? Search AOL Autos for fuel-efficient [used cars](#)

6/18/2008



Judy Dalton  
 <dalton@aloha.net>  
 06/24/2008 01:24 PM

To: PMNM\_MMP\_Comments@fws.gov  
 cc:  
 Subject: Papahānaumokuākea Marine National Monument public comments

00049

**Comments on the Papahānaumokuākea Marine National Monument Draft Management Plan**

**100% protection of marine life, including seals, sea turtles, and sea birds should be the main mission and goal of the monument.**

**Considering just one of the species - the Hawaiian monk seal - it's very survival as a species is dependent upon Papahānaumokuākea providing life-saving protection.**

**The Monument should be treated as National Marine Sanctuary and have ZERO impacts allowed into this pristine area. The following measures must be adapted to assure the full protection of all of its inhabitants:**

- NO humans.**
- NO fishing. (Starting immediately.)**
- NO cruise ships.**
- NO military. (There's no justification for their exemption.)**
- NO WESPAC**

Thank you for considering my comments.

Judy Dalton  
 4330 Kauai Beach Drive,  
 Lihue, Hawaii 96766  
 808-246-9067



Carolyn Classen  
 <pololu@hotmail.com>  
 06/25/2008 09:15 AM

To: <pmnm\_mmp\_comments@fws.gov>  
 cc:  
 Subject: public comment - Papahānaumokuākea Marine National Monument

00055

I attended the June 19 public meeting in Hilo and would like to add that this Papahānaumokuākea Marine National Monument definitely needs to be protected for ongoing research and limited tourism, probably only on Midway. However, 800 cruise ship tourists a day is a bit much for Sand Island or Eastern Island.

I did visit Midway Atoll with my son and some friends back in 1998. We did some volunteer work for FWS (trail clearing), so I can appreciate the unique wildlife there. Also, I am one of the volunteers here with the Monk Seal Response Team, helping to educate the public and protect our few endangered Hawaiian monk seals on island.

I appreciate the Environmental Assessment you have done, and hope you will stay in close communication with all branches of the US Armed Forces that may venture into this National Monument.

Sincerely,

Carolyn Sugiyama Classen, Esq.  
 1222F Kaumana Drive, Hilo, HI 96720

Please add me to the Monument email listserv.

---

The other season of giving begins 6/24/08. Check out the i'm Talkathon. [Check it out!](#)





"Bob Webster"  
 <bob@upperspace.com>  
 06/29/2008 08:39 PM  
 Please respond to bob

To: <PMNM\_MMP\_Comments@fws.gov>  
 cc:  
 Subject: Public Comment for Draft Management Plan

00061

**A Public Comment  
 for the  
 Papahānaumokuākea Marine National Monument  
 Draft Management Plan**

I have just (yesterday) left the Papahānaumokuākea Marine National Monument after a recreational visit. I am submitting these comments from the standpoint of private boats, primarily small sailboats, visiting the Monument on recreational permits.

The Midway Atoll is a spectacular place. As a national monument, it should be accessible by the public. Unfortunately, the permit system as currently established makes it very difficult for people to visit the monument, especially those on private boats.

1. In order to visit the monument in June, we were required to submit a complex application in January. Even so, we did not receive our approved application until June 10, two days before our departure for Midway. This is unacceptable.

A private boat should receive a permit in just a few days after application. The rules and limitations on visits by recreational boats should be determined and made public by Midway Atoll. There is no reason for a public comment period on such a recreational visit that does not request unusual activities.

A private boat should not be required to submit an application months in advance. A standard application for a recreational visit should be allowed two weeks before a visit, although the approval would be contingent on space available at Midway, and the applicant would be required to meet the inspection and other requirements.

2. The Monument is a public resource, and should be available to the public in general. I should not be required to justify "how my visit will help the Monument" or write how I will accomplish my activities "in complete sentences," as is currently required. The Monument should be open to everybody, and you should not be required to pass an examination first. I have never heard of a U.S. National Monument with this kind of barrier to entry.

If a person visits the Monument for tourism and recreation, that should be enough information for the Monument. The following application questions are completely inappropriate.

- "Is there a practicable alternative to conducting the activity within the Monument? If not, explain why your activities must be conducted in the Monument."

- "How does the end value of the activity outweigh its adverse impacts on Monument cultural, natural and historic resources, qualities, and ecological integrity?"
- "Explain how the duration of the activity is no longer than necessary to achieve its stated purpose."

Questions such as these indicate a mindset of keeping everybody out of the Monument, except as a last resort. Instead, the public should be automatically *entitled* to visit, within reasonable rules.

3. Private boats visiting the Monument are required to install Vessel Monitoring Systems. There is a system approved and available that costs \$1,500. However, we were required to purchase a \$3,000+ model which included a terminal we had no need for and never used. Furthermore, we were required to pay several hundred dollars to a company in Honolulu for installation, costing more than \$4000. Only one company was authorized to do the installation, and I was not allowed to install the VMS, even though it is not a difficult installation. (It is generally a bad idea for the government to require people to do business with a specific company.)

An extra \$4000 is cost prohibitive to the majority of people who desire to visit the Monument on private boats. VMS systems should be made available for a reasonable price. The Monument could loan or rent VMS systems to visitors, or at a minimum the lower-priced \$1,500 model could be used and personal installations allowed.

4. Information on facilities available to private boats should be made public. A holding tank pumpout service should be available to allow more and especially smaller boats to enter the no-discharge zone. There is a requirement for a fuel boom, which costs several hundred dollars, when fueling recreational boats. This requirement is unnecessary and should be removed for boats with limited fuel capacity, maybe 500 gallons or less.

5. Non-commercial fishing from private boats for food to be consumed on the boat should be allowed throughout the monument, with the possible exception of Special Management Areas and within three miles of the islands.

6. (This is a minor point.) The name "Papahānaumokuākea" is too long and hard to remember. Some spaces would improve it (Papahāna umoku ākea), or possibly using "Northwest Hawaiian Islands" in conjunction with or as an alternative to Papahānaumokuākea.

Midway Atoll and the Papahānaumokuākea Marine National Monument are public resources, and should be treated as such. As it stands now, it is very difficult for ordinary people to visit the Monument, particularly on private boats. The perception that the Monument exists primarily for a select few government personnel should be avoided, and the barriers to entry for the public should be reduced to a level consistent with national parks and monuments around the country.

Robert Webster, Sunday, June 29, 2008  
bob@upperspace.com



robert fram  
<pfibob@hotmail.com>

06/30/2008 02:48 PM

To: <pmnm\_mmp\_comments@fws.gov>, GOV LINGLE  
<governor.lingle@hawaii.gov>, BIG JIM HAMULAR <jnsart@mac.com>

cc:  
Subject: The PMNM / NW Isles

00062

After all my years of direct involvement with the Hawaii Seafood Industry and upon reading the article in Hono. Advertiser , Sec B, on Wed. April 23rd 2008, I decided a fact and logic based comment was overdue. The whole reason for a marine monument is TO PRESERVE , the reefs , seals, turtles, seabirds and of course fish and sharks. Any person who really sees and understands that environment up there in the NW Hawn. Islands knows that the GREATEST THREAT are the MASSIVE sections of broken off ghost nets. We cannot monitor this without some presence in the NW Hawaiian Islands, because satellite Imagery will not show the monofilament nets.

It is time for government to work hand in hand with industry to monitor and ensure that area remains in its most pristine condition. The coral gets snapped off and damaged , the seabirds , turtles , seals and all fish in the area of the ghost nets are threatened. Lets set up a list of goals:

- 1) Goal #1-- To preserve the coral reefs and all the wildlife in the Monument.
- 2) Goal #2-- THE MONITORING OF GOAL #1.
- 3) Goal #3-- Identifying all of the threats, removing and or reducing all of those threats where ever possible. (ghost nets, oil spills and shipwrecks-- primarily foreign vessels)
- 4) Goal #4-- Find and tag -- mark location with GPS , using floats and GPS senders, to set up removal.
- 5) Goal #5 -- Get Industry and government (Coast Guard, DLNR, NOAA etc) to work together.
- 6) Goal #6 -- Create a plan , on a trial basis , to try achleve a balance between scientific information, species and population counts, fish stocks and quotas and of course, coral reef monitoring.

A possible such plan would be to:

- 1) Divide the PMNM into 10 distinct areas.
- 2) Permit 10 bottom fishing boats, and assign each one an area.
- 3) Each vessel must scout the fringe reefs in their respected area for the ghost nets. Any nets spotted will be called in to the Coast Guard and marked for removal. (small transponders could be used for the largest most destructive ghost nets)
- 4) In order to cover the WHOLE PMNM, there may need to be some fuel subsidy to reach the more distant areas. The State of Hawaii and the Federal Government with the help of the Coast Guard could not monitor this area as THOROUGHLY OR AS ECONOMICALLY as teaming up with industry.
- 5) Each vessel will have quotas system , and will turn in vital fish population reports, while culling out a tiny fragment the current fish stocks.
- 6) These permitted bottom fishing boats could take scientific teams up to, and back from the most isolated NW Islands.

In closing , the REAL THREAT to the ecosystem in the NW Hawaiian Islands and the entire PMNM are the ghost nets. These nets drift in DAILY and kill for years, ignoring them is a crime against the Wildlife that calls this environment HOME !!

Pls call Bob Fram @ 1-808-478-7581 of One Ocean Non-profit Assc.

Introducing Live Search cashback . It's search that pays you back! [Try it Now](#)



"Barbara DiBernard"  
 <bdibernard@gmail.com>  
 m>

07/01/2008 12:58 PM

To: PMNM\_MMP\_Comments@fws.gov  
 cc:  
 Subject: comments on draft plan

00063

I am a "regular" person, not a scientist, who has been to Midway Atoll 3 times--for a week in 1999, 2 weeks in 2000, and a week in May 2008. All 3 times I came with a group through the Oceanic Society.

I am very impressed by what I have read of the plan, of the thoughtfulness, care, and science that has gone into it. My reason for writing is to urge you to continue the visitor plan. It has been an honor to visit Midway. The opportunity to be with and among the wildlife is extraordinary and unprecedented in my experience. In my experience also, the Oceanic Society is doing a good job of preparing visitors for their trip, especially in informing them clearly (as does the FWS orientation) of the reasons for and importance of the limits in where you can go and what you can do, because of the priority of maintaining habitat and the best conditions for wildlife.

On my most recent trip, the Chugach staff was extraordinary. Food, lodging, and other needs were seen to with care and thoughtfulness. I believe they are doing an excellent job. FWS staff were excellent also in helping us interpret and understand what we were experiencing.

After my previous visits to Midway, I did educational talks for the local Audubon chapter as well as a group at the University of Nebraska and a class at another local college. I emphasized the message of marine debris/plastic and its effect on albatross. I know that had an impact on some members of the audience--one woman has told me, 8 years later, that she still thinks about albatross when she buys something, and wonders if its disposal will have a bad impact on them.

I plan to do talks for groups this year as well, with my new slides and updated info on the Monument.

I have also been a member of Friends of Midway Atoll since my first trip and find them a wonderful and useful group with which to be associated.

In short, my experiences have shown that the educational and advocacy goals of the visitor program are working. I am glad to see that visitor programs are part of the long-range plans.

Thanks to all who have worked on the plan.

Sincerely,

Barbara DiBernard  
 1045 N. 41st St.  
 Lincoln, NE 68503  
 402-466-0117  
 bdibernard@gmail.com



wayne sentman  
 <mangoman37@hotmail.com>

07/01/2008 09:20 PM

To: <pmnm\_mmp\_comments@fws.gov>  
 cc:  
 Subject: Papahānaumokuākea Marine National Monument Draft management plan Comments

00064

Please see attached comments on a word document. Also cut and pasted below in case there is problem opening attachments.

Thank you for the opportunity to comment on this very dynamic management plan.

Sincerely, Wayne Sentman

=====

#### Comments on Papahānaumokuākea Marine National Monument Draft Management Plan

Offered by: Wayne Sentman  
Contact info: 109 Rockview Street #1  
Jamaica Plain, MA 02130  
Email - mangoman37@hotmail.com

Brief Background - I am a wildlife biologist who worked on Midway Atoll from May 1998 - May 2002. I was employed by NMFS, Oceanic Society, University of Hawaii, and also volunteered for USFWS. I assisted with USFWS and NMFS projects relating to monkseal, seabird, spinner dolphin, shark, marine debris, and sea turtle monitoring. In the above roles (and under direction of USFWS staff biologist) I helped to train USFWS volunteers, Oceanic Society research participants, and visiting researchers about monitoring and handling Midway's wildlife. Also I served as a USFWS, NMFS, NOS, and State of Hawaii DLNR contract employee for individual projects at Kure Atoll, Pearl & Hermes Reef, and Midway Atoll. These contracts related to seabird banding, invasive plant species removal, guiding international film crews around sensitive wildlife, and vessel groundings. I have led over 125 ecotourism groups for Oceanic Society's former natural history and research programs at Midway, given over 150 educational lectures and tours for USFWS previous visitor program, and taught a University of Hawaii marine mammal field program at Midway. During 1999 - 2002 I assisted in developing monitoring patrols used for assessing wildlife/human interaction carried out by USFWS. During 2008 I have been leading ecotourism groups to Midway Atoll as part of the new Visitor services program.

Overview - During the last 5 months I have led the first 5 ecotourism groups at Midway Atoll since the shut down of the previous visitor program 6-years ago for Oceanic Society. These programs have been greatly successful and created 75 new advocates for the Marine Monument. Additionally many of these participants joined the Friends of Midway group in addition to contributing over \$4000 in sales to the island gift store, of which any profits realized going to USFWS projects or needs. These participants also contributed over \$34,000.00 in refuge fees to the operation of the visitor program with just their five 1-week groups.

My personal interest in commenting on the PMNM Draft management plan lies in seeing that the Midway visitor program be fully supported by the monument and not expected to be solely funded by USFWS monies. My current and past experiences with WWII veterans, local Hawaiians, and world traveled ecotourists on Midway testify to the power of individuals actually being able to stand on Midway (and now the monument) and appreciate the cultural value, historic setting, and natural beauty of the NWHI firsthand. Without fail, all of these visitors to Midway left as strong constituents for the continued conservation of Midway and the rest of the NWHI. These individuals experience will go a long way to establishing an educated, national constituency for the Monument and one accepting of the strict limitations needed to be in place for the protection of this fragile ecosystem.

#### Comments on Draft monument management plan

Section 1.4 - page 58 - Starting line 12 - Plastic ingestion by Albatross (and other seabirds)

This section should include figure of annual impact of this plastic on island. USFWS biologists have estimated that each year approximately 5 tons of plastic is 'landfilled' at Midway brought to the island by adult albatross and fed to their chicks.

Section 2.2 - page 85 - Starting line 32 - Midway becomes wholly NWR

No mention that since that time (1996) Midway has been open to tourism and that from 1996 - 2001 approximately 500 or more tourists a year visited.

Nowhere in this paragraph does it mention that the described refuge purposes were successfully carried out.

Section 3.1 - page 105 - Understanding & Interpreting NWHI

This section should better speak to the importance of Midway Atoll to this mission. As the only accessible 'window' into the monument for many educators, researchers, native Hawaiians, and other visitors, more thought should be devoted to the important and visible role Midway specifically will play in this goal.

Maybe some thought should be given to adding an additional Action Plan outlining the 'Development of Educational and Wildlife Tourism Opportunities at Midway'

It seems odd to acknowledge Midway's role in the 'Historic Resources' action plan but then not specifically speak to its role in the 'Marine Conservation' action plan, as well as its specific potential to directly realize the monuments educational and interpretive goals.

Section 3.4.2 - page 234 - Line 1 - Increase Law Enforcement capacity on Midway

This section infers that an increase in 'recreational activities' at Midway somehow is responsible for needing more law enforcement capabilities. This is not a true statement.

Past tourism at much larger numbers did not result in greater law enforcement needs at Midway. In fact the most common source of Law Enforcement needs has been (and continues to be) related to Coast Guard and NOAA boat crews (as well as year round residents) and consumption of alcohol.

This distinction is important, if one believes a Law Officer is required for a successful visitor program then the conclusion is that the visitor program should bear the cost of this need. In this case that would not be valid logic. Adding tourism to Midway will not significantly change enforcement needs at Midway and tourism programs should not be looked at as the reason enforcement needs will increase at Midway.

Section 3.4.3 - page 238 - Line 34 - Need for action section

In the past visitor programs to Midway have also demonstrated not only 'connection and commitment' to protecting Monument resources, but more importantly a true understanding of the fragility of the NWHI ecosystem, and support for the limited access and visitor restrictions that must be maintained by the Monument. As there is not a 'resident' constituent population on these atolls, it is extremely critical to the long term support of the Monument that a 'National' support base be developed and maintained that not only connects with nature but comprehends the challenges and expenses of this remote and very large protected area.

Section 3.4.3 - page 240 - Line 17 - Visitor Impact

This statement is misleading. As one of the designers and data recorders for the collection of wildlife

disturbance data during the past visitor program on Midway, there was ample wildlife disturbance related to visitors and boat operators observed at Midway.

A more accurate reflection of what was recorded and observed in the past, is that with

1. Proper staffing (rangers that are actively out patrolling the island at the same times visitors are, and not in their offices, are able to help visitors interpret wildlife viewing rules).
2. Thorough orientations.
3. An active program of rangers patrolling the island looking for disturbance events (this is critical not in 'catching visitors' but rather in helping staff understand where problem areas are and in learning what orientation messages are not being understood by the visitors).

wildlife disturbance events related to visitation can be successfully mitigated and adapted to changing numbers or behaviors of both the wildlife and the visitors. However if any one of the above needs is not fully met the potential for visitors to have detrimental impacts to sensitive wildlife is likely.

Section 3.4.3 - page 240 - Line 43 - Visitor program review (financial)

Related to the visitor program at Midway there are issues that can already be identified as financial concerns based on the previous visitor program and on the small amount (85) of visitors seen so far in 2008.

One of the biggest limitations to the availability of Midway to a more diverse group of visitors is the airfare cost (currently more than ? the total cost of a 1-week visit to Midway per participant). This high airfare cost makes it difficult to propose student trips, and attract family groups. CFO-7.2 identifies addressing this cost in the long-term but no short-term (less than 5 years) solutions are offered.

Also participants have indicated that they are willing to pay a higher fee to visit the Monument but want/expect more opportunity to visit the reefs (snorkel). Currently neither the boats nor manpower (operators) exists to offer visitors the scope of activities they would like to have available to them for the relatively high prices (\$4400/person) they are paying to visit. Additionally unlike in the past visitor program when the bulk of tourists came to Midway to view the albatross and other seabirds, current visitors are placing more emphasis on viewing marine resources as this is highlighted by the Monument designation. More people want to have available opportunities to spend time in the water viewing corals and marinelife in addition to the seabirds.

It is quite evident by past experience at Midway that any effort to have visitors will be an expensive undertaking, and cannot truly be expected initially to be a profitable or self-sustaining endeavor.

This draft management plan in addition to recognizing the value of Midway as a window into the monument should also pledge the commitment of the funds necessary to establish and solidify the long-term stability of a visitor program at Midway. The visitor program cannot be depended on, nor should it initially be required to pay for itself. With those unrealistic expectations a visitor program will be doomed to repeat as a failed enterprise.

As outlined in the Draft Plan the value of a successful visitor program to the Monument is too great to have this outcome.

Section 3.5.2 - page 256 - Line 34 - Activity CBO -3.4

Sentence says that the Monument has plans to 'incorporate Midway Atoll visitors into volunteer programs' of various focuses. There needs to be a greater outline of how this will be accomplished. Currently there is no mention of subsidizing costs for visitors to make this idea a goal that can be attained. While there is

definitely a large population of individuals willing to participate, and even pay for these volunteer opportunities, at current costs to get to Midway this number would rapidly drop to a limited few.

Once again the Monument plan needs to identify this as a priority and acknowledge that funds would be made available to facilitate these opportunities being accessible to visitors of diverse ages and incomes.

It is hard to understand how 'Developing Midway' is not listed as one of your CBO strategies, with it's own defined Action Plan. It would seem that this should be at the top of the list.

Section 3.5.4 - page 271 - Line 38 - Activity OEL-1.8

Sentence 'Developing lower-cost housing and increasing classroom and laboratory space will facilitate these programs' should also include reduction of air transport costs. The groups mentioned will not be able to take advantage of the above actions without cheaper or subsidized ways to arrive at Midway prior to the realization of CFO-7.1.

Learn more about Wayne Sentman at  
<http://web.mac.com/naturefinder/!Web/Site/Welcome.html>

=====

don't wait any longer  
dive in the ocean



and let the sea be you - Rumi CommentsPMNMDraftplan.doc



ssgolden@webtv.net  
(Susan Golden)  
07/04/2008 09:33 PM

To: PMNM\_MMP\_Comments@fws.gov  
cc: ssgolden@webtv.net  
Subject: Comments on MMP

00091

When the Presidential Order establishing the NWHI Monument in June 2006 was advertised, I was energetically supportive and encouraged that finally the NWHI would get the recognition and protection it deserved. So I am very disappointed by the MMP. The recognition seems limited to the exploitation of resources and expansion of tourist use. The protection is absent.

Marine debris is a big problem in the NWHI and has been recognized for many years. It ravages the reef, destroys native species on beaches, and kills many endangered animals and birds who mistakenly digest the plastic debris. In 1996 cleanup started on the estimated 750 to 1000 tons of debris in the NWHI at that time. A good start was made (over 550 tons) but since 2006 removal has slowed down. Now cleanup is less than half the 57 ton expected annual accumulation. So this great pristine monument is a growing garbage dump. It's hard to maintain pride in this vision. Although I encourage any effort to reduce incoming debris, it seems rather futile to find by air and collect floating debris before it reaches the NWHI. It's a big ocean. In any case, cleanup cannot be reduced or eliminated until an alternative is found. The cleanup must continue until the job is done and effort is the highest priority. It must be the first dollar priority.

The exemptions to monument access permitting must be eliminated if efforts for reduction of marine debris, reducing alien species, restoring the native environment, and protecting endangered species will succeed. Bottomfishing must be immediately eliminated. Passage without interruption must no longer be allowed. Activities and exercises of the Armed Services must stop. These exemptions create much debris.

The increase of Midway as a tourist center seems especially ill conceived. To call the more than 3-fold increase (from under 1 cruise ship a year to 3) a "moderate" increase is certainly disingenuous. My first concern is health and safety. There is significant toxic "dumps" and ordnance that are not resolved prior to additional tourists. This opening up to tourists has occurred already before any protections or corrections of problems. The areas designated "no dig for perpetuity" are impossible to maintain. These areas are routinely breached. The current (new in October 2005) drinking water system will serve regularly 120 with daily maximum of 200, but a cruise ship expects 800. The wastewater system is already at capacity and overloaded at storms. The new electrical system (October 2005) and distribution (November 2006) is also at capacity. To assume there is no impact on infrastructure since they're just tourists or not overnight residents is not accurate. This reminds me of Kailua-Kona. When it rains, the toilets on the pier won't flush and all storm sewers back up. This is a health disaster waiting to happen.

Although much has been planned for increased tourist quarters, nothing in the plan mentions disability access. Indeed the building plans included show disability access is NOT considered. The ADA is still the law of the land although the current administration seems to ignore it.

The exceptions for passage through the monument waters create great risks. Just allowing the currently averaging 50 ships a day, and military exercises will likely bring in much invasive species and make other environmental emergencies likely. Although mitigation through insurance is claimed, it is not clear how this is expected to work. Monitoring of permits is mentioned but no fines, no regulations, and no funding is included. Based on current example for review of permits and

mitigation demands when problems occur, it is obvious that protection will not occur. Human contact in all ways must be minimized.

Protection of the Monument must become real. Stopping all human contact at this time - and with it recognition and knowledge opportunity, is preferable than risking harm and destruction due to an inadequate plan for protection and restoration. More human contact will create more waste and permanent destruction of this great resource.



SALLY  
<sallyfurness@verizon.net>

07/05/2008 11:41 AM

To: PMNM\_MMP\_Comments@fws.gov  
cc:  
Subject: Papahānaumokuākea

00092

Unfortunately I don't live in Hawaii any longer, but I was recently visiting. I'm glad this national monument has been established and the management plan (I'll admit I didn't read the entire thing) looks as though it protects this valuable, wild place in a realistic way. Thank you for having a part in saving a piece of our wild planet - so little is left. If we don't do it, who will? Aloha, Sally Furness





nvisibull@aol.com  
07/07/2008 04:42 PM

To: PMNM\_MMP\_Comments@fws.gov  
cc:  
Subject: draft plan comments

00096

Comments on Draft Monument Management Plan

Here are my comments on the Management Plan.

Thanks for letting me comment,  
Jimmy Breeden

The Famous, the infamous, the lame - in your browser. [Get the TMZ Toolbar Now!](#)



Comments on Monument Management Plan.doc

Description of Islands are inconsistent, should reformat.

Pg 9

Laysan Finch and Laysan Ducks are endemic to the archipelago, not just the monument.

Pg 13

Misspelled the scientific name of the Miller Bird. Don't mention that the Nihoa Finch and Miller bird and the Laysan Duck as critically endangered species.

Pg 17

Description of Laysan Island is inaccurate. Says 100 acre lake, Environmental Assessment says 70 acres, which is correct? Where did you find your information?

Document says that Laysan Teal and Laysan Finch were "previously harbored". These species still occur there.

Time of eradication project of Cenchrus is different in the Environmental Assessment, which is correct?

Pg 20

How do know that the ducks are thriving? Maybe change language to "appear to be thriving".

Eastern Island still has Ironwoods that sprout, so continued management is required.

Pg 68

Wouldn't you prevent further importation of exotics if Midway and Tern were quarantined?

Pg 67

Verbesina kills seabirds? Where did you get your data? How did removing Cenchrus restore Laysans veg. community? There is still a lot to be done. Cenchrus time of eradication not consistent with rest of document.

What is your source for calling the Laysan Finch endangered? IUNC lists it as vulnerable. Keep status consistent through out document.

Pg 72

No mention of LADU being impacted by lights and noise. Waterfowl are very sensitive to these disturbances.

Pg 89

Wouldn't you need to make Midway and Tern quarantined to "Prohibit introducing alien species from within or into the Monument"?

Pg 98

You mention endangered species like the monk seal, but there is no mention of critically endangered species like the land birds.

Pg 99

No mention of critically endangered species, lines 14-20.

Pg 145

"Protect marine mammals and aid in the recovery of threatened and endangered plants and animals within Papahānaumokuākea Marine National Monument." Wouldn't you want to also want to protect threatened and endangered plants and animals, as well as aid in the recovery of marine mammals?

Pg 146

What source did you use to call the Laysan Finch Critically endangered, keep consistent in document? Your #'s for Laysan Duck are inaccurate, you should contact experts. Only 42 were translocated, 26 of which passed their genes into the gene pool. You should verify these #'s with the people that work with Laysan Teal..

Pg 152

Laysan Duck: Should use correct number of birds translocated. Get information that is available to the public.

Pg 153

Laysan Finch bones are found on some of the main Islands, they are not only endemic to the NWHI's. Where did you get your information from?

Pg 155

Sand Island should be taken off the list unless the Maui sp of Pritchardia is removed.

Pg 160

No mention of non-migrant birds (waterfowl/passerines).

Pg 161

If "alien species are one of the greatest threats" then why no quarantine on Midway or Tern?

Pg 172

Ironwoods also take plenty of nesting habitat away from seabirds?

Pg 197

Using mosquito fish displaces mosquitoes (they just go some where else), and is an ineffective management method. Introducing mosquito fish to new areas also depletes any remaining native (aquatic) invertebrates that may still be there.

Pg 198

Mowing verbesina is an ineffective management tool. Mowers run over seabirds and crush burrowing seabirds while dispersing seeds.

Thanks for letting me comment,  
Jimmy Breeden



"Lani Lofgren"  
 <lanidee@aloha.net>  
 07/07/2008 06:49 PM

To: <PMNM\_MMP\_Comments@fws.gov>  
 cc:  
 Subject: proposed draft management plan for monument

00097

Dear People, I am a long time resident with a love for the ocean and its creatures. My area of the island is Niu Valley and I have witnessed the great fight to save the Ka Iwi coastline and the continuing defense of its conservation. Please be very careful with your plans for Papahānaumokuākea. Do no harm is a very high standard to meet. Because of the nature of decisions about anything having unintended consequences, please focus on protection. Please talk to the Hawaiians. These are people of the ocean who have the kuleana for such things. Their knowledge and experience and reverence for and of the ocean will help all of us to take care. Educate us about this wonderful place without letting us overwhelm it or degrade it. Thank you for your work. Lani Lofgren, 5799 Kalanianaʻole Hwy, Honolulu, HI 96821



keaw\_kun  
 <woravut@gmail.com>  
 07/07/2008 09:07 PM

To: PMNM\_MMP\_Comments@FWS.gov  
 cc:  
 Subject: Comment the Midway Atoll NWR Conceptual Site Plan

00098

Reference Draft Monument Management Plan Appendices Volume III page D-113-D-125. As an Island resident I would respectfully ask that Sustenance Fishing be allowed for people living and working here at Midway on a permanent basis. This will reduce the cost of flying frozen fish from Honolulu and get a fresh food on Island.

Also, I would like to ask for the gymnasium because I read through the book Volume IV. It say about demolish or change for emergency shelter. I recommit to rebuild or relocation for the island residents exercise or get more activity.

It would be very much appreciated if permission to Sustenance fish is granted and think about relocation or rebuild the gymnasium.

Positive regards,  
 Woravut S.



"Michelle H. Reynolds,  
PhD"  
<mireynol@vt.edu>  
07/07/2008 10:59 PM

To: PMNM\_MMP\_Comments@fws.gov  
cc:  
Subject: Comments for mangement plan

00099

Attached are comments in WORD on the NWHI Management Plan



Comments\_on\_the\_Draft\_Monument\_Management\_Plan(1).doc

## Comments on the Draft Papahānaumokuākea Marine National Monument Management Plan

Here are general comments on the presentation of information, accuracy of information, questions about accuracy, and the suggestions for improvement in the draft document. These comments will be generally focused on the terrestrial and aquatic ecosystems and birds which were often inconsistently described in the document. The detail and information provided for the marine resources were well written. Comment will be listed in chronological order.

1. Page 10 Climate: The weather is variable between the NWHI. Yet, why is weather data from FFS presented, but other islands are not, despite that daily weather data is available from Midway Atoll and Laysan Island. This document would be more informative if the variability between islands were shown, instead of only a brief report of Nihoa's weather and a graph from FFS. El Nino climatic events have dramatic impacts on the flora and fauna of the NWHI, and should be described here.
2. Page 17 Laysan Island: Is the area of Laysan correct? The literature reports island area closer to 415 ha.
3. Page 17 Line 24 Laysan Lake: the area of the lake reported here as 100 acres, varies enormously with season. This range of variability should be reported or else the area of mudflat or lake basin could be described since this is more constant.
4. Page 17 Line 32: The "endemic" birds of Laysan should be referred to as "land birds". The remaining "land birds" are endangered species and should be described as "endangered land birds". The endangered land birds are endemic to the Hawaiian Islands, but their current range restriction (endemism) on Laysan may be anthropomorphic. The endangered Laysan duck was not naturally endemic to Laysan. It is a relictual population that was extirpated (went extinct) on the other Hawaiian Islands. The Laysan finch was also endemic to the Hawaiian Islands, not Laysan. Laysan Island supports the last individuals of a largely extirpated Hawaiian Island endemic fauna. The largest population of Tristram's Storm-Petrel, a species of conservation concern breeds on Laysan, but is not mentioned specifically. Laysan's is the only natural hypersaline ecosystem in the Hawaiian Islands. The highly adapted and unique invertebrate fauna of Laysan's dominant hypersaline ecosystem is also omitted any mention in the Monument's Management Plan. The fresh water wetlands of the NWHI are very important historically and biologically. These are not mentioned. The endangered species of Laysan should be listed here in the introductory information to be consistent with other sections.
5. Page 18 Lisianski: the wetland(s) of Lisianski were destroyed after the de-vegetation by introduced mammals. The accidental introduction of mice is not mentioned (Olsen and Ziegler 1996). This occurred prior to the rabbits, and was described as a major negative impact. Since wetland restoration has been proposed on Lisianski, this ecosystem loss should be included. Also, Lisianski

- lost a breeding population of land birds, the Laysan ducks historically (known from about 150 years ago). This should be mentioned.
6. Page 19 Pearl and Hermes: Laysan finch is described as “endangered” at Pearl and Hermes, but not at Laysan. The species is endangered, as are both populations.
  7. Page 20 Midway Atoll Line 6: Midway Atoll also supports the first successful reintroduced population of critically endangered (IUCN 2007) Laysan ducks translocated from Laysan Island in 2004-2005. Laysan ducks utilize both the largely introduced vegetation of Midway Atoll and restored patches of native vegetation. This reintroduction is significant because Island ducks are globally threatened taxa, and because the Laysan ducks are the most endangered waterfowl in the Northern Hemisphere and the U.S. Their listed status is omitted throughout most of this document. Successful removal of rats from Midway Atoll and Kure is not mentioned. This action was beneficial to plants and birds, and future accidental introduction of rats would have negative impacts to all islands of the National Monument. Emergency action plans are needed for each island in the event of an accidental introduction of terrestrial predators or competitors. *Rattus* should be the first priority for emergency action plans.
  8. Page 34 line 6: What happened to the endangered endemic land birds here? Island endemic species do not migrate and are the most vulnerable vertebrate fauna of the National Monument. Their ecology is very unique because of their extremely limited ranges and limited mobility.
  9. Page 39 Terrestrial Invertebrates are mentioned; however the unique WETLAND invertebrates are ignored. Wetland invertebrates of the National Monument are unique resources and provide prey for migratory shorebirds, water birds, and endangered land birds.
  10. Page 63 Diseases: The avian diseases impacting or potentially impacting the endangered Laysan duck are omitted. These include Avian Botulism, and Echinuria identified by the NWHL (Dr. Thierry Work). Both pathogens have the potential to decimate shore and waterfowl populations of the National Monument. The risk of Avian Flu and West Nile or other emerging disease should be mentioned as risks.
  11. Page 67 Line 30: omit the word “all”. Recommend changing “kills 100’s” to “believed to contribute to Albatross mortality”. Since, this has never been quantified. The sentence describing the impact of seasonal dieback on Pearl and Hermes should be a separate sentence.
  12. Page 67 Line 42: *Pluchea indica* is classified as a noxious weed known to negatively impact wetlands. The primary impact of introduced ants on Laysan Island is not their impact on Laysan’s seabirds, but their impact on the native endemic terrestrial invertebrate fauna (especially endemic lepidopteran larvae), and other important prey for to migratory and land birds, or ecosystem function.
  13. Page 71 Line 28: The risk of mammalian predators and other predatory or competitive species, new diseases and disease vectors could devastate the fauna of the Monument. The impacts and risk of rats and other accidental introductions should be emphasized here. Again action plans for each island are needed for quick response to catastrophic species introductions.
  14. Page 72 Line 8 Light and Noise Impacts – What about human disturbance to wildlife? Anthropogenic noise is a well documented disturbance to breeding water birds. The endangered Laysan ducks and ducklings are very susceptible to brood fragmentation and abandonment during their breeding season. Disturbances can be visual or auditory or due to vegetation management or weed control activities during the sensitive periods (breeding and flightless molt).
  15. Page 93: There appears to be no description of research based monitoring for terrestrial resources here. Line 24 only mentions long term oceanic and coast “observing”, monitoring, and research.
  16. Page 98 Line 39: Why are only the marine endangered species mentioned? There are four very unique endangered land birds completely restricted to one or two islands. Their existence is entirely dependent on the management of the NWHI and luck (or the frequency of stochastic events).
  17. Page 99 Line 21: This does not explain how management prioritizes actions or how multispecies management efforts will be integrated. How will the estimated costs within the action plan (table 3.1) be divided?
  18. Page 112 Line 6: Only marine mammals are protected? What about protection for migratory birds, endangered species and other resources? The bias throughout the document is concerning.
  19. Page 146 Line 14: only three of the four endangered land birds are considered “critically endangered” by the IUCN. Laysan finches are endangered, but are not designated critical.
  20. Page 146 Line 26. Only 42 Laysan ducks were translocated from Laysan Island to Midway Atoll. Approximately 65% of these became breeders. Reporting “about 50” birds translocated is inaccurate and sloppy for an official document under public review. The number of translocated birds is published information and readily available. Reporting “50” glosses over the genetic consequences of few founders (i.e. risk of creating new translocation bottle necks, loss of genetic biodiversity for the species) at the translocation site, risk of close inbreeding, and risk of loss of disease resistance in isolated and closed populations). The language “Laysan ducks are flourishing” appears lifted from an early press release. The species on Midway is not currently being monitored (although plans are in place to initiate a long term monitoring effort). At Midway, there are numerous habitat management conflicts, limited brood rearing habitat, new diseases (avian botulism), and risks to ducklings and breeding ducks that are not adequately addressed for the long term. This type of document should move towards addressing the long term persistence of species (as missing components of Hawaiian ecosystems) - instead of repeating reports of the initial success as if species recovery has been secured.
  21. Page 147 Line 27: The Laysan ducks “desired outcome” is highly oversimplified. It is possible to “increase populations” as a short term goal without adequately advancing recovery, maintaining their genetic biodiversity, protecting existing populations, or creating stable or self sustaining populations. Including the scientists that study the species ecology in planning for their management is useful.

22. Page 153 Line 21: Consider changing to “land birds” and “survey” since census is defined as “counting all”. This is rarely possible with passerines or ducks. Has the adequacy of annual survey of passerines been assessed recently by a biostatistician? Surveys should certainly be continued (especially for all endangered birds, and seabird species of conservation concern where logistically feasible), however, if variance is too high given detection probabilities, more than one survey per annum may provide more meaningful information. Particularly before translocation activities, since removals may be detrimental to source populations, if not timed during robust population dynamics. Demographic information prior to translocation would provide better information for assessing population dynamics.
23. Page 153 Line 28: Simple guidelines for genetic management of translocated isolated populations should be established (and adapted) before translocations are initiated. Translocations should support the conservation of genetic biodiversity. Although this was recommended (and planned) for Laysan ducks, implementation was stalled because of lack of information, and the perception that establishment and early reproductive success may negate the need for long term genetic management. Genetic studies of assessing species genetic variability may also help support preservation of existing genetic biodiversity of translocated populations.
24. Page 197 Line 18: The eradication of mosquitoes at Midway Atoll should be a high priority, since mosquitoes are also human disease vectors. Use of mosquito fish, *Gambusia affinis*, is an antiquated and ineffective control that simply displaces mosquitoes to inaccessible sites (pipes, cisterns, drains, and ephemeral wetlands). *Gambusias decimate* aquatic invertebrates and compete with endemic and migratory waterfowl, and shorebirds for aquatic invertebrates. Introduced fish should not be employed within the National Monument when other methods are available for mosquito control. Where possible, *Gambusia* should be removed from habitat created specifically to support brood rearing by endangered Laysan ducks, since this invasive fish competes directly for aquatic invertebrates important for the downy duckling life stage, and degrade wetland habitat for migratory species

*Thank you for the opportunity to provide comments,*

*Michelle Reynolds.*



sakhorn samianram  
<zenmidway@yahoo.com>  
07/08/2008 09:07 AM  
Please respond to  
zenmidway

To: pmnm\_mmp\_comments@fws.gov  
cc:  
Subject: Sustenance Fishing at Midway

00100

Monument Committee Members,

I am writing in reference to : Reference Draft Monument Management Plan Appendices Volume III pages D-111 to D-123. As a Midway Resident I would respectfully ask that Sustenance Fishing be allowed for people living and working here at Midway on a permanent basis. This will reduce the cost of flying frozen fish from Honolulu.

Also, it would provide a productive recreational activity for island residents.

It would be very much appreciated if permission to Sustenance fish is granted.

If you have any questions about my comment please e-mail me at zenmidway@yahoo.com.

Kind regards,  
Sakhorn Samianram  
Housekeeper  
Midway Atoll NWR



"Diana King & Michael Casey"  
 <kingcasey@hawaiiintel.net>

07/08/2008 09:30 AM  
 Please respond to  
 "Diana King & Michael Casey"

To: <PMNM\_MMP\_comments@fws.gov>  
 cc:  
 Subject: Comments on Papahanaumokuakea Draft Management Plan

00101

**Comments on the Papahanaumokuakea Draft Monument Management Plan**  
 Respectfully submitted by Diana King ([kingcasey@hawaiiintel.net](mailto:kingcasey@hawaiiintel.net))  
 July 8, 2008

Dear Plan Review Committee:

Please see comments, attached.

Aloha,

Diana King  
 (808) 263-3042  
 1167 Lunalua St.



Kailua, HI 96734 Comments on PMNM Draft Management Plan-Submitted by D King.doc

The Papahanaumokuakea Draft Monument Management Plan is an impressive body of work. That it was created through the efforts of many people who care deeply about the Northwestern Hawaiian Islands and the marine environment that surrounds them is apparent. And, in all likelihood, spending time in the Monument itself played a crucial role in helping the authors develop the understanding and respect for this rich and varied area that is reflected in the Plan.

I have read, perused, and skimmed many USFWS draft recovery plans for individual species. Of necessity, they tend to be very specific and direct about exactly what measures need to be taken to best ensure the recovery of a particular endangered species. The PMNM is not a single species. It is not a single genus, or family, or even kingdom! It is not critical habitat for any one organism. Being too specific with what is intended to be a long term management plan for a collection of ecosystems is not appropriate, (although plans for individual species within the area may be).

As a generalist, geographer, and environmental educator, my comments are not very specific either. I am certainly not qualified to comment on recommendations for any specific species. I do, however, wish to make a plea to the review committee to bear in mind the broader possibilities that this amazing Monument holds for conservation in general. The Papahanaumokuakea Marine National Monument has something for everyone: military history buffs, recreational ocean users, students, scientists, Hawaiian cultural practitioners, bird watchers, photographers, star gazers, songwriters, and more. It is vast enough, remote enough, and special enough to capture the imagination of many who might not otherwise consider themselves part of the conservation movement. It provides an opportunity to not just preach to the same committed choir, but to expand that choir dramatically.

And in the end, a large global choir is what it will really take to protect the resources of the Monument, and the oceans beyond. It doesn't matter what takes place within the borders of the Monument if global warming dissolves the coral reefs, or swamps the low lying islets, or changes the ocean currents in such a way as to irreparably disrupt food systems. As our global population grows and the demand on fisheries intensifies, keeping an extra person from accidentally crushing a petrel burrow won't help in the long run if the fisheries are so depleted that the chick within the burrow starves. And the marine debris problem can't be solved by a handful of scientists and volunteers collecting drifting pieces of net.

These are far-reaching global problems that will require the involvement of virtually everyone to really address. And the Monument is the kind of place that can help to inspire that involvement, not just in the United States but in Pacific Rim countries and indeed across the globe.



I am not suggesting that the gates be thrown wide and public be welcomed in with their fishing boats, boogie boards and ATVs. But I do think that providing strategic access to the Monument, especially to those who may be able to inspire others, is warranted. Documentary producers, writers, and musicians are one such group. Teachers are another important constituency, especially if they can be supported in providing distance learning opportunities (via web cams, etc.) to their students. Politicians and business people, who make policy and have the power to influence how business is conducted, should see this special place and come to understand a little about it. The list goes on.

But the aim should not be limited to creating a constituency that can support and help care for the Monument alone. The examples of Papahānaumokuākea can provide inspiration for good conservation action in other communities as well. The story of the removal of rats from Midway, and the consequent recovery of a host of species, is nothing short of inspiring. If enough people knew about it, then removal of rats from offshore islets and other discreet areas in the main islands and elsewhere might be much easier. The size and abundance of marine life in the Monument would be jaw-dropping to many fishermen, and some, maybe enough, might be inspired to support fishery conservation measures in the main islands, rather than working so tirelessly against such measures. And no one can watch a chick swallowing a regurgitated lighter, or come across carcass after carcass of plastic filled albatrosses, without becoming zealot about marine plastics.

I understand that many biologists are justifiably concerned about wasting their time babysitting visitors who don't know the first thing about the marine ecosystem, and are as likely to harm as help if not properly supervised, educated and instructed. But scientists also sometimes harm the creatures they wish to protect, in conducting their own research efforts. They persist in doing so because they believe the long term gain justifies the short term pain. I would argue that the same is true of public access and interpretation. Providing staff to share a little of what they know and have come to understand is time and money that is far from wasted.

Restricting access to the Monument to only the privileged few will breed resentment and the appearance of elitism. It certainly won't expand the choir, or convert any carbon-wasting, over-fishing-loving, littering individual to enlightenment. Ensuring that educational and interpretive opportunities remain a core function of the Monument, with appropriate guidelines and funding, is essential for Papahānaumokuākea to achieve its full potential.

As noted earlier, the authors of the draft plan must surely have been inspired by the resources of the Monument to complete their tremendous opus. I believe they recognize the power of that inspiration, and have tried to include some measure of public interpretation in the plan (despite some challenges from the scientific community). But I think this section could be stronger. Papahānaumokuākea can be used to leverage an environmental ethic that encompasses the Pacific and beyond. The Monument is our shared kuleana, or responsibility. Everyone should have a part to play.



THAWAL SONCHAR  
<thasorny2k@yahoo.com>  
07/08/2008 04:48 PM

To: pmnm\_mmp\_comments@fws.gov  
cc:  
Subject: Sustenance fishing

00161

FWS Committee Members

I am writing in reference to: Reference Draft

Monument Management Plan  
Appendices Volume III page D-113-D-125. As an Island resident I would respectfully ask that Sustenance Fishing be allowed for people living and working here at Midway on a permanent basis. This will reduce the cost of flying frozen fish from Honolulu. Also, it would provide a productive recreational activity for island residents.  
It would be very much appreciated if permission to Sustenance fish is granted

Positive regards.

Thawal Sonchar



"John Seebart"  
<seebartj001@hawaii.r.com>

07/08/2008 05:31 PM  
Please respond to  
"John Seebart"



Comments regarding the new Marine National Monument.doc

To: "Northwest Hawaiian Islands Marine National Monument"  
<PMNM\_MMP\_Comments@fws.gov>  
cc:  
Subject: Comments on Marine Monument

00164

Comments regarding the new Marine National Monument:

1. I think that the protection of the area and its wildlife is a great thing.
2. I think the Hawaiian name it has been given is too big, and too hard to pronounce.
3. I do not agree with the access policies which have been promulgated. It seems to me that with the cessation of commercial activities the area will thrive. With the only area open to public access being Midway Island, for the vast majority of people, access will be impossible.

The fact is, even if all areas were accessible by the public, very few people would actually visit the area. It is remote. One would think that a reasonable permit process including some testing process to ensure visitors understood what was permitted and what was not, combined with a monitoring operation would allow access without risk to the environment.

I read in the original bill that vessels would have to have a monitoring device; this seems like a reasonable thing. It also seems reasonable that people who want to visit the Monument, as a rule, would be people who value what is being done and consequently would be unlikely to cause harm. It seems quite likely that these visitors could actually be used for the benefit of the monument. At the very least concerned visitors could provide random monitoring of the area and could report suspicious activity, removing some flotsam and jetsam, and possibly some other services.

The people of the United States have made this Monument possible, all it's scientific value not with standing; it just seems plane wrong to exclude those people from their new Monument. After all, as mentioned above, only a few intrepid souls are likely to venture so far.

Some non scientific people will be allowed into the Monument. This will amount to a special class of people; these are the Hawaiians, who will be allowed to certain areas for religious practices. Insofar as others are also allowed in this would not be a problem. One would surmise that permitting Hawaiian priests while excluding the average citizen not only establishes a special class of U.S. citizen, but violates the U.S. Constitutional requirement to separate church and state. This Monument is, after all, the United States of America. I do not mean to suggest that Hawaiians should be excluded from the Monument, nor should anyone, including Hawaiians, be prevented from practicing their beliefs; it just does not seem right to allow some citizens and exclude others on the basis of religion.

Please change the proffered access policy to allow access to the Monument by the average citizen. It is our Monument. You are keeping safe it for us.

Thank You,

John Harry Ku'uleialoha Seebart

808-665-0353 Home  
310-245-1334 Cell

5095 Napili Hau St.  
PMB 178  
Lahaina, Hi. 96761



alan margolis  
<alanjmus@yahoo.com  
>

07/10/2008 06:05 PM

To: PMNM\_MMP\_Comments@fws.gov

cc:

Subject: comments on draft management plan Papahānaumokuākea Marine  
National monument

00173

My brief comments are delayed because of urgent eye surgery,

\* SApce should be limited to 30 at ny one time and should students, contractors and researchers as well as eco-tourists.

\* Stays might be extended to include added time for habitat restoration and beach clean-up.

I was very impressed with the FWS personnel interest, dedication and effectiveness.

Best wishes, Alan Margolis



Duane Erway  
 <DuaneErway@hawaii.rr.com>

07/16/2008 02:16 PM

To: PMNM\_MMP\_Comments@fws.gov  
 cc: Keeley Belva <Keeley.Belva@noaa.gov>  
 Subject: Comments on the Draft Monument Management Plan (DMMP)

00177

Aloha!!!

The Draft Management Plan for the Papahānaumokuākea Marine Monument in the Northwestern Hawaiian Islands fails in three major ways:

- 1) There is no requirement for public comment on permits. There needs to be public comment on all permits to access the public trust resources of Papahānumokuākea. Also, Monument Management Board meetings are closed to the public: they need to be open.
- 2) Despite eight years and nearly 100,000 public comments in support of FULL conservation in state waters, this requirement is not in the management plan.
- 3) Fails to set a protective limit on all human activity in this delicate area, including military exercises, research, and tourism. Fails to set a cap on the number of day-visitors to Midway.

We respectfully request these items be remedied in the Final Monument Management Plan.

Marjorie Erway  
 Duane Erway  
 P.O. Box 2807  
 Kailua-Kona, 976745



"pelicanhawk@junoco.com" <pelicanhawk

07/20/2008 02:55 PM

To: PMNM\_MMP\_Comments@fws.gov  
 cc:  
 Subject: Marjorie Hawkins

00178

Probably the most amazing vacation I ever had was the week-long cruise of the Great Barrier Reef in Australia. It was a relatively small boat (approx. 15 passengers plus crew). All the cruises on the reef were controlled, licensed and did no damage.

As I understand it, there are no plans to allow similar cruises in the Northwestern Islands. That's a shame because no pictures or films I've seen have even halfway matched the beauty of being there.

Not only would this policy deny a life-time experience to the public, educating and publicizing the value and worth of the Northwestern Islands, but would also keep the informal eyes of the passengers and crews from noticing and reporting illegal trespassers. Isn't illegal fishing still a problem there?

Totally banning anyone but scientists seems to be a remarkably "dog in the manger" attitude.



Will Cook  
 <willj.cook@gmail.com>  
 >  
 Sent by: Ocean  
 Conservancy  
 <webmaster@oceancon  
 servancy.org>

07/21/2008 11:02 AM  
 Please respond to Will  
 Cook

To: PMNM\_MMP\_Comments@fws.gov  
 cc:  
 Subject: Papahanaumokuakea Marine National Monument Management Plan  
 Comments

00179

Jul 21, 2008

Co-Trustees of the Papahanaumokuakea Marine National Monument

Dear ,

I am pleased that you are proceeding with developing a management plan for the Papahanaumokuakea Marine National Monument. The Northwestern Hawaiian Islands are a truly a unique treasure that belongs to all Americans and the world. We have a sacred duty to provide it the greatest protection possible and to preserve it in all its natural character and as a fully functional, intact, and resilience ecosystem. The draft Monument Management Plan represents a substantial effort to deal with the complex and daunting task of managing such a vast area, and I applaud the many excellent management structures and measures that you have proposed. However, I am concerned that the plan fails to put in place all the protections, regulations, and management structures necessary to ensure the future that we all desire for the Northwestern Hawaiian Islands.

1. Sustainance fishing is not compatible with the purpose of the Monument. Allowing any extraction of resources for consumption is not consistent with preserving the monument in its pristine state, let alone allowing the removal of up to SEVEN TONS of magnificent large predatory fishes. You have not provided adequate scientific

justification for your claim that removing seven tons of the Monument's resources will not harm Monument resources or alter its ecosystem. I do not believe that we should risk the Northwestern Hawaiian Islands ecosystem merely to save the government a few thousand dollars and to provide government employees and university researchers with a luxury fresh ahi.

2. The establishment of the Papahanaumokuakea Marine National Monument was preceded by years of input from the public and stakeholder groups that identified several key principles to be incorporated into the Monument's goals. Those principles included:

- a. Making protection of the Northwestern Hawaiian Islands, their wildlife, and ecosystems the core and preeminent purpose of the Monument, and that all other considerations and activities must not impair this purpose; and
- b. Maintaining the "natural character" of the Northwestern Hawaiian Islands.

I am distressed to see that these principles, and others, are not incorporated into the draft Monument Management Plan, which leaves the Northwestern Hawaiian Islands incompletely protected and open to activities that will impair their health and resilience.

3. The Papahanaumokuakea Marine National Monument is a treasure belonging to all Hawaiians and the Nation. I am very concerned that you

have failed to build an advisory body, similar to the Research Advisory Council, and a robust public-comment process into the management plan. The public and stakeholders must be given the opportunity to provide input to and review of the management of the monument if it is truly going to be the nation's Monument.

4. The Monument Management Plan provides a good framework that COULD eventually lead towards conservation of its ecosystem and resources

therein. Your Marine Debris Action Plan is a good example of what other action plans should strive for to achieve the necessary degree of conservation.

I urge that you continue to develop the Monument Management Plan to 1) prohibit all sustenance fishing, 2) clearly and precisely make

PROTECTION the core and preeminent purpose of the Monument, 3) reaffirm that protection means maintaining and restoring the ecological integrity AND the natural character of the Northwestern Hawaiian Islands, and 4) establish transparent and robust processes, including

the use of advisory bodies, that will guarantee the opportunity for the public and stakeholders to provide input to and review of Monument management decisions, especially those involving permitting. Thank you for taking my comments into consideration. By implementing these recommendations, you will have a stronger overall management document that will move towards effectively protecting our national treasure.

Aloha,

Mr. Will Cook  
1234 Harvard St NW  
Washington, DC 20009-5357

00363



Lehua-kim Kimberly  
<kimberly63@hotmail.com>

To: <pmnm\_mmp\_comments@fws.gov>  
cc:  
Subject: Comment on MMP

07/21/2008 02:11 PM

This is in Word 2003 format. Comment on Volume 1.

---

Keep your kids safer online with Windows Live Family Safety. [Help protect your kids.](#)



Comments on the basics of the Papahānaumokuākea plan.doc

Comments on the basics of the Papahānaumokuākea Marine National Monument management plan draft.

In the very start of the Monument Management Plan it seems to say very nice things, and it does point to needed actions and changes. Repeatedly it makes reference to the "Life of the Plan," even in the beginning (and the more so as it goes on). But says it and structures it in a way that virtually guarantees little. It only offers potential. General and specific in implication or detail. At least as regards good. It starts by mentioning the United States Governments' actions and nice modern intent as now defined and worded, when the very history of the Northwestern Hawaiian Islands [NWHI] no matter who was in charge, when it comes to the good-old USA has been nothing but negative at the short end of the moment. Specifically the Presidential Proclamation 8031 keeps being pointed to, which doesn't say much just because it's either to create the Papahānaumokuākea Marine National Monument. Or because the supposedly honorable President {and this applies not just to the current one, but any past one, AND every other politician shares in this. Even the up-and-coming politicians in schools, playing a seemingly harmless social game under the label of politics} issued it, the very government has proven likewise. Like in Hawaii State, where Military presence is welcomed for nothing but money purposes to mention nothing else, and in turn the military likes Hawaii for it's strategic placement. The ability to be anywhere in a very short time, this use or abuse is still potential for both the State and regarding the NWHI unfortunately. The peons of the general public mean nothing to them and the same goes for any testimony the government asks for, or about the harm they do. Past or present. The recent and continuing story of the Superferry, the theoretical H-4 and public service, is a study in this very phenomena. Or anything left behind after excusing themselves cleanup. I believe, from what I've read, that the Monument status via Proclamation 8031 and subsequent World Heritage push of the NWHI is not but a sham to make the Otherwise terroristic acting United States Regime seem nice. Potential nice results without the nice background. A balance to the invasions and wars it currently engages in and plans. It also lists the co-trustees. *The State of Hawaii*, via the *Department of Land and Natural Resources [DLNR]*; the *U.S. Dept of the Interior through the Fish and Wildlife Service [FWS]*; and the *Department of Commerce, through the National Oceanic and Atmospheric Administration [NOAA]*. Some of the designated partners are also listed throughout the plan, but rarely come up directly unless they are needed at a given point. Called Stakeholders among other designations. But rarely any different than the co-trustees themselves in action, status or policies. Overall the co-trustees see to the monument management, but daily management is done by others, mostly Federal and State agencies that comprise or are connected to an entity that is referred to as the Interagency Coordination Committee [ICC]. With other groups only contracted to help in certain ways. Meaning that it's complex not simple. Among specific introductory agencies are the U.S. Coast Guard, U.S. Geological Survey, Environmental Protection Agency and Department of Defense. As this is a national designation and therefore federal label, only such groups and the like are repeatedly listed in the draft plan. It lists other State and smaller agencies or groups, but only as deemed necessary. How they interact or relate is variously referred to and detailed throughout the draft in each section as is considered relevant. This sets the tone for the rest of the draft's message. And tells it's true intent, regardless of it's wording. Both of the draft meaning

and the Monument designation itself, hidden within a rather fractured but nicely patched picture. First is the State of Hawaii, which had formerly been the Kingdom of Hawaii which had taken at least part of the NWHI for it's own. The NWHI are also known in several ways as Kupuna or older relatives to the current lands of Hawaii, it's life and the Hawaiian blood therein. Whether 50%+ or not, as yet the official blood designation of recognition as *Hawaiian*. Further stating that children, descendants and family of these with less are either not Hawaiian enough or are not really Hawaiian at all with the Kingdom of Hawaii overthrown. A.K.A. This is the United States, get a grip: we're in power. The State itself is by other views illegal, I won't address that herein unless that issue connects to another. My point is that the State of Hawaii is a political entity, which makes it corrupt in some ways as a starting point- therefore shedding doubt on the so-called care it will give or offers, whether by Memorandum of Agreement as specified/stated or otherwise. Especially with later admissions even just in the basic parts and early details of the draft as it stands currently. The U.S. Department of the Interior alone doesn't express anything objectionable alone, it takes care of interior land and cultural things on one level or another. But, that coupled with the other two, the political State of Hawaii and the Department of Commerce- through the NOAA, especially the last, sheds the final x-ray on stated intent and meaning within the words. The real intent is to exploit or restrict the use of the Monument area to protect it from a theoretical X when the allowed per se Y {a multitude of things, concerns, problems and issues spread throughout the rest of the draft; permits and other excepted activities/intents, including those presented in action plans} may do the exact harm that it's as stated trying to stop. In some ways like the Military and others did with the island of Kaho'olawe when the bombing stopped. Not only was it for the danger remaining or the toxicity of the island, but secrets and other that would embarrass the former users if they were seen. The tone of the draft to a thinker and someone who takes history into account is set from the first page of the introduction. A very grim one, but the NWHI are also grim in depths of meaning where it applies to Monument status. Or in any applicable substance applied thereafter.

Following the Introduction are the somewhat mostly respectful descriptions and sometimes detailed statements of the Hawaiian Islands and their history in theory or physically, from a purely archeological/western or scientific point of view. Always at a remove, usually. The common detached views applied. These are respectful in a way but are also merely rhetorical in a big way, they state details, facts and theories or views and non-english base stories/statements as a casual thing. Much like the debate of creation vs. evolution in the educational sector: the history, theory and facts of the NWHI are stated but have no meaning beyond the immediately implied, and details following those don't give much more meaning to them. Only making up a detailed picture and implying meaning as substance. The descriptions of the islands, reefs and atolls that comprise the Monument are rather respectful and safe [et al.] until military and human actions past the 18<sup>th</sup>-19<sup>th</sup> centuries are considered. It is then that there changes the whole structure of the draft from draft or statement as such to statements of intent and meaning, with facts, culture and respect interwoven into it as a way to soften the stated intent. To integrate things not in the structure into the plan so as to imply consideration is, has or will be done in the future in those regards. Speaking as if from above to those below or inferior in many cases. Which basically have nothing to do with culture or history; or ethnicity as is



suggested by including Hawaiian people, practitioners or agencies and views into it at any level. As simple examples, the descriptions of atolls and islands where military history is involved: the basic descriptions are physical, spiritual (if any particular attachments or possibilities), and historical- followed by short human summaries of their affects and actions on the island or area as is reported or known. The latter part of such summaries and statements as intros to the specific places in question are much more detailed and in a way. They end up being statements of their non-recent history followed by the intent, reasons, glories and damages caused within 100-125+ or so years past, and how actions are intentioned to ideally protect. Foregoing all negative as such people or ideas are wont to do by design or motive. After that come the specific descriptions and designations used and favored by military {a large source of specific information on the NWHI, among others/ they've had the largest interaction and survey possibilities being so long lodged in there}, conservation, scientific and other official agencies large or small that have any information to add. The most understated but involved of these are those that mean money, and this issue also implies who will be brought up most often. These are the equivalent of ads in a published magazine. Even when they're repetitive in any way for any reason, taking from the potential substance that is begged, or any that is there. Stating what scientifically are the levels, problems, processes and solutions to a given or theoretical (and therefore considered real, especially when economics are concerned) or literal problem or potential. They tie in to the restated, and slightly expanded purposes of the monument, seeming to explicitly turn away from the problems and harm that could well come to be between the first implementation of any planned action or arrangement and the next meeting or review scheduled whenever it is to occur. As the exact parties and the issues they regard differ or overlap much of the time.

Further reinforcing the implied meaning and intent of the Dept. of the Interior {Allowing fishing when it's being set up, most likely by non-Hawaiians. And restricting native fisherman, when it's big not small fishers and companies, and their ways that cause the greater damage or depletion that's mainly concern} and the Dept. of Commerce, money and exploitation are the real intents. At a meeting I asked a few specific questions on who'd be allowed in and what kind of activities would be allowed. By official Permit, certain types and varieties of specific types, which is granted. Most of which are at best transitory concerns or accidental problems at worst. But "exempted" activities or people, which in some cases may mean no accountability whatsoever for actions or their' affects, are the biggest problem in this part. Regulated by permit, actions are: Research, often overdone and overdrawn out nowadays. There potentially making newly gathered data old even before release depending on what is in question. Also depending on when the data was gathered. How it will be released, or to who. Or why. Education purposes, which partly can be done outside the area in question, whether national or ecological-natural history area designation. Conservation and management that has to be done on site, hopefully with no self-policing groups alone within. Nothing is assured even then. A self-policing group can hide things under lawful activities and actions, the more official a group the less actual watching is likely to be done. Native Hawaiian Practices, a reasonable acceptance. Though, it seems to me that the authorities of the western mindset want to control so much that even this permitted or allowed activity would become hard to do. With further implied threats or base implications. As the details further explain when they are presented in the Hawaiian history or cultural

portions of the MMP. Therefore, as the military and every government since the overthrow has done, to possibly smother any such potential. Such actions continue even now, in more than one guise. Special Ocean Uses, which would seem to apply mostly to commercial uses. And even that doesn't say too many specifics when it's spelled out. But in every political and power bureaucracy there is potential for abuse. As in possibly, allowing non-permitted actions or people to gain permit even with currently or presently obvious potential problems and restricting otherwise permissible actions merely because of a technicality or in favor of a more profitable one. Bribery is not an impossible thought in this process, especially as money IS involved. The last of the specific topics of permit types is Recreation. Even if "recreative" activities are allowed only in a given area, the plan states Midway as so listed almost singularly. Presumably already contaminated or/and controlled areas, even something like that doesn't guarantee that any toxin or other invading external object that goes into the water or by land/air will not get onto any other atoll or island. Or into the sea environment. And especially if it has anything to do with or near the sea, it's bound to affect everything, how would such as this be dealt with? Levels of safety, etc. will be monitored and developed, even with some clean up, that doesn't guarantee the safety of these recreative, per se, groups themselves either. Many details are offered, but little concrete details are. These are only implied in detail, law, policy and other as the details are supplied. Very little is stated in detail, which is where the biggest worry comes in. Mostly intention and theory as regards action are given. No one action only has just a single given result, even if it helps in any way. The exemptions, which in an answer at a public meeting, included military access and activity to the NWHI and the monument it comprises as a **requirement** for the 'Monument' to exist or be protected as such nationally at all. In part this ties to the very implied meaning of the monument and why it was created. Implying only a part of what is stated when the entire picture is complete. Thus defeating some stated parts of the "honorable" intent even before it's explained. Furthering this is the fact that any permittee has to show insurance or financial ability to potentially pay for damage to get a permit at all shows the real baseline. Money, it does imply accountability to the permittee, but only to a point. From a simple view this is reasonable, but reading between the lines of the numerous cross connections and partially stated interactions along with the repeated and weaving message yields a different thing altogether.

The *Exempted* activities that may or will [in some cases, assuredly so] occur in the monument are: Emergency Response to Threats to Life, Property or the Environment. This can be easily understood, possibly even encouraged if it's severe enough. Or the type of emergency at hand. But again, this ties into the fact that damage may occur and the response may be to an accident, especially if that occurs from an exempted activity. Who will clean up after the emergency is over? Say an exempted group doing an exempted activity causes an emergency. In response from technology because of the rush in whether it's through water or air or on land, great damage or that potential is done in several ways on the natural environment. This can be water, land, oceanic, air or life. Who then cleans up the mess, repairs- if possible, the damage? Since an exempted activity by an exempted group caused the emergency, and the exempted response to the emergency caused more damage thus. It seems it would fall to the co-trustees and others, not those who caused the damage directly. It could in turn lead to, as the United States political and legal system has so eagerly shown often enough, more restrictions that

mainly affect those who had no part in it rather than any part of the blame. Favoring those in power, those with enough resources or those who are usable by the system, the rich and others of such stature. And limits can be made of what is or isn't acceptable in a given situation or environment, but damage even minutely doesn't mean it'll stay that way. Delayed reaction is a big part of too little too late. Details are what make a general theme or topic, not the other way around. That also asks who will be allowed to do it. If a vessel passing through the Monument can offer clean and fast assistance to a vessel that just needs minor help or a tow, does this say that only an official group can actually do the help needed? Others' restricted just to keeping out by watching? Law Enforcement is another seemingly well to do allowable activity, it possibly is at times. But this ties in to damage potential, as well as but more so than abuse from such. As well as who, what and how. Also when and why, in some detail. Another abuse potential, like Depleted Uranium in Hawaii Island. Many of the affects of this often vaporized weapon can also be attributed to non-DU causes. Such as diabetes, DU affects the cellular energy systems which can cause it. Using the cover of health and drawing on general habits, DU affects were denied. That's just one example. Because of that and other such issues, responsibility is shirked or denied, legally. When toxic affects are known in more ways than one, from many a source. You can enforce but if overdone it will violate more than a given law or set of laws, even if acceptable under laws or policy and regulation applicable at any given time. And more recently a great many exemptions to law breaking in the United States has come to pass, often by those sworn to uphold the same. And they've been excused at times, whether because of technicality, some connection that allows them to slip through unpunished, or executive-corporal favoritism who push laws or excuse an otherwise not allowed activity/action. Or even worse to hide something, like the current Governor did in her efforts to push the Superferry- which was not supported. Activities and Exercise of the Military, who have been increasingly been used as the police. Or the non-military as an extension of the Military. There were reports of practicing a missile shutdown over the NWHI, these were in the skies. Everything up there comes down, so they could potentially damage the Monument, who's responsible for any harm it may do? Not the military, they're exempt. Even if they play a part in the clean up. On the Big Island of Hawaii, radioactive Depleted Uranium has been reported to be present. And more than a few citizen groups reported radioactivity, in and out of the Pohakuloa Training Area. After so long, the military stopped doing what it said it would do: either because it saw little it could do or decided to pull out because of the long-lasting damage already done they couldn't really clean up. Implying responsibility if they continued, any agency or group can possibly do this. The larger the group, the bigger that possibility. And with the military being exempt as well as so big in reach, they could claim strategic location (as with Hawaii) from either former or present; or possible future, locations within the Monument and do further damage in the name of national security and "freedom." Increasingly used and stated, and believed, to be enough for arrests and detentions. According to what I've been told, Monument staff watching have not noticed any action by the military that breaks laws. But that doesn't mean nothing was done or no damage occurred. A law may state an exact limit, but that limit may still be more than enough for damage. An increasingly dangerous example is using mercury in flu shots, and other commonly accepted or done-allowed uses of toxic agents in every day western life. I would only specifically harp on the military because THEY

are the ones who could do the most damage while there, accidentally or not. No other cause that will be in the Monument, human or not, besides extreme storms mixed with human damaging agents within them, can cause more damage than they do. And they are exempt as a part of the agreement which sets it up. The last regulated and permitted activity is Passage Through the Monument Without Stopping. This brings up particular concerns, some of which can't be spotted or prevented further until after they occur. Will there be people following every craft as it goes through to ascertain nothing happens? Cruise ships may dump bilge water, you can't just spot that easily- or prevent damage from it, even if you stop it. Covert fishing may occur. Detours that are desired to be taken by a given group. Not even a ship stationed every few nautical miles can completely prevent any such. Including landing by unpermitted people beyond a ship wrecking near shore. One thing in the plan that may be reasonable is to make sure all those using, managing or passing through, or enforcing rules therein, know the new limits of the established Monument. Even if they know and try to follow such, and it gets out in time, will an undue incident that can't be controlled that causes a course to err make them responsible for damage caused by a natural wave, wind or other? And since this can happen to all vessels of any type and variety, is there only the regulated and not the allowed that will be held so? There's also skyward damage that can occur, the monument as it is encompasses not only the sea and land, but the sky above. This is semi-dramatically pictured in the Hawaiian creation stories and beliefs. Papahānaumoku, Earth Mother, and Wakea, Father sky, coming together created the earth and man. All are one, so the damage in air/sky doesn't mean no ground or sea damage. One natural example in the plan is a locust that started on Nihoa, then spread westward up the chain. But man-made disturbance is much more damaging, even when subtle. Even allowed flights whether for exempted or patrol duties can do damage- that potential isn't restricted to civilian use or purpose intent. Only in this is the military not as so indicted as the rest.

It seems to me, that the very base of this draft Monument Management Plan [MMP] for managing the Papahānaumokuākea National Marine Monument is based not on protecting the environment or the life therein in reality, but to exploit it softly. Use it for all it's worth, for as long as possible. As it seems to apply to every national park or reserve established within U.S. borders or territory. Especially considering some of the activities that are allowed to happen, and who does them. And it further focuses on only the human activities of the present in most cases, particularly the intent. Or of the recent past, as in making Midway into a national historic sight just because it focuses on the United States and what it did. Natural History and Geology are a secondary but important note, to highlight one without theoretically ignoring the other. Going back to the introduction to the draft plan, it goes through fact, theory thought, some ethnic and other views or practices. But they are treated as merely what happened. Dry history, in affect. Meaning in average language: it's the past, it already happened, what can we do about it now? The fact, the Truth, is- the past became the present. And it makes the future, time is divided in Mankinds' eye, but overall past and present merge to make future. Only the unknown future isn't set, but time; past-present-future are all intimately connected. You may not be able to change that past but you can look at it, possibly repair anything done from that and preserve it. This presumed view alone assures that the past will catch up to those living today, most don't dare look. Particularly applying to the mindset of the agencies, co-trustees, partners, stakeholders, governments and other that are set to

manage the NWHI, as Monument or in other circumstances. They never learn it, it's a linear sequence that has little to do with them to most people, professional or otherwise in status. And only if you look at it explicitly can you learn what happened and why, and possibly avoid future problems thus. But details are an unacknowledged key, and as ignored. Part of this looking back means knowing what made the past into what it was, and if the past views created problems, how will you avoid them in the future. Here lies the blockage. If the same views, rules, policies, regulations or laws in different forms are pushed to avoid exact problems from one past times, the past is sure to repeat itself. It seems that the very base used is faulty because it is to continue an already out-of-whack system and it's policies. Even skimming the remaining parts reveal a western structure of thought and action for the MMP. *i.e.* - *Strategy X-1/Activity X-1.1/Activity X-1.2, etc.* The Western thought structure often doesn't acknowledge or see change, damage or harm done till it's done already, often after it's too late to really do anything. With an accepted or implied "Oops" and potential to avoid that specifically later. With little thought or care to what that may mean later, or what may come from the ignorance. All throughout the beginning of the plan as stated, it interjects a fact, figure, thought or picture of Hawaiian culture or views. The exact term used describes the meaning: and therefore intent, of what is done and why. Hawaiian views, ways, culture and standards are just *integrated* into the already set laws, policy and procedure. And then only when they fit without too much change. Flexibility is allowed so long as real change is avoided in all but the most severe of situations. This is not a renewal or extension of the Hawaiian culture or view in any way, this is the native culture grafted *onto* the existing Monument structure. That point is especially stated in the requirement and limit that "Nothing in the Proclamation diminishes or enlarges the jurisdiction of the State of Hawaii." Besides the political implications of that, it adds to the mitigated view that Hawaiian culture and history is an aside, but also a boost to the political powers that be. A political past, but dead history. It implies the intent and views of the environment by both the writers of this MMP, whether only a part or interwoven through. It specifically shows in section 3.2.3. Although law is generally flexible, a specific set of laws and structures as the draft is only reinforces western thought. Actual Hawaiian thought, structure, beliefs or culture are very briefly if at all considered. Much less integrated as such.

Specifically titled **Habitat Management and Conservation Action Plan**. These words imply action and conservation by those involved. It may, but details don't reveal it too deeply. Before need for action as defined in the MMP in this section, it says it addresses the "Environmental and Anthropogenic Stressors section describes known threats to biological integrity, diversity, and environmental health of the Monument." Most of the action plans specifically involve the FWS and NOAA, with the State of Hawaii and other minor level per se agencies scattered through it. All parts of the plan or Action Plans specifically invoke law and policy, meaning exact people, agencies and actions. Possibly punishing those who don't do it within that structure *even if* the actions taken are proper and helpful in a given circumstance. The very wording used states that the Monument is a part of the State in a way, but mostly not the State's responsibility directly. Furthering intent that the Monument is to make the USA look good, not really to preserve the area or anything in it as a real meaning. Though it may do parts of that. This is specifically stated, addressed and idealized in the specific actions. Social relevancy designations aside. To rebuild the environments if possible, but also to alter them to

'assure' the survival of some species by translocating them. Which may have consequences of it's own even if the efforts are successful or don't seem to have changing affects on the new placement. Part of this means, in detail, to use herbicides and other such substances, usually artificial. Is this for species survival or the humans' comfort? Although it may help the animals or species in a given situation, even if it has no direct or immediate adverse affects that can be seen, that doesn't mean it's good. A minor affect that appears at first may alter the potential of restoring habitat further. In many ways stated intent is to restore in many cases and balance, but in the same ones or others at a given time set to add one feature or another to transplant a species to theoretically keep the species alive alters that given environment even so. There are no details, even theories, only ideals that are desired to be used, to control temporarily allowed alien species within the Monument before replacing them with '*native alternatives*' in some cases, those that exist, for both land and species management to keep land from being lost, to restore species numbers or to rebuild certain features. Would that not alter the landscape, even with any good results? To propagate species is an ideal action, but where and how are concerns. Why is also an issue, this is where details are necessary. And in some ways as often ignored for that purpose. Ideals are easier to justify. And where many plans, proposals, propositions and other enquiries usually falter, including in this one. Propagating other birds and other species on other islands, besides altering the land that's there, is also potentially damaging. Immediate or not isn't the point. What if a given chosen environment with the monument is adaptable, but acts as an invasive species in another way. Much further down the line within or beyond the 15-year period of the plan as it is. And an invasive species may not appear to do too much damage, too. But invasive means just that. Invasive, introduced. Throughout the MMP it frets over changes done in this way or that way. Just because an adoption in a given setting is possible doesn't mean it's not harmful. Another alteration it is, and therefore potential damage if done even so. Another reason for species translocation stated is changing weather and rising seas. History has shown that various climate changes, whether artificially amplified by man-made alterations or just what had occurred naturally (like the changing of magnetic poles, possibly in Hawaii it changed from 10 degrees east of true to 15. What may happen, how and when are unknown), will affect any given area. Land and sea alike. To keep certain plant species, seeds will be taken and sent to this or that location for safekeeping, preservation in one way or another or possibly artificial propagation elsewhere. Such as is being done on Kure atoll to resupply some of the lower latitude above sea lands there. Birds or other species as seen fit will be translocated and be given new life per se, elsewhere. What if these efforts don't work? The species range, as stated in the MMP as well as what can be found out otherwise, is limited. Even as far south as the main Hawaiian Islands may not match enough. And any other location along the same latitudes elsewhere are not of the same geographical environment or weather. The goals and ideals of the plan are high for what they hope to do. And for the 15 year period of the plan, some of what is proposed may not be feasible in the way it's proposed. Because as well as time, there's also environment and those particular limitations that it involves. Many of which are not allowed into the plan as is. A plan may say 3 years in do this, but within two things may change to make that specific action not doable or have different affects as a generic example. Any change in the

monument itself may derail parts or all of it. And any artificial action to help may be altering or damaging, on any level.

There's also concern of the future of the Monument. In time the Monument itself will go under, the Emperor Seamounts and the islands leading north to Alaska prove it. But one specific concern is for rising seas, whether it's just the earth cycle now or because of global warming. If no other area really can hold these transplanted species, or the environment can't be recreated, will these end up in a special zoo or other? That is one way some have thought to do, or have done, to preserve species. As to global warming and rising seas, how do you plan to preserve or replace land lost to that, scrape up more coral, etc. to extend the land like was done before in the NWHI? And it is stated that even dead coral in the NWHI are not to be destroyed. They also built an airport that's sinking in that way in Japan. Replacing land is also unacceptable in most ways, as well as philosophy as to why. When Kako'olawe was lost as a bombing range, the military acquired about as much as they lost on the Big Island. They only transferred location, not "lost" anything. But they gained a new area to ruin. If land or habitat is lost how will you replace any of it? Especially if the species you want to transplant can't survive in other areas. And what if the species in question to this form or that can't be kept alive outside the monument? As for the rising seas and global warming, that's not likely to change. If pollution of any type continues to exist and more of it made: many of the technology and uses that will set up and maintain the Monument, and any who come through it or impact it for any reason, all will use much that same technology. So pollution is not anything that can be stopped cold, put simply. No new technology can stop or reverse it. In a similar case, recently people on Hawaii Island tried to lobby officials, et al. to reverse or at least ease up the output of Kilauea Volcano, the vog it releases. Which can have bad effects on people and things. The last word after almost senseless studies? You can't do anything, the view as to pollution and global warming is much the same in structure. Even if ALL- and I emphasize that, meaning 100% of artificial pollution by all people of every location, job, race, class, land, nationality, source, etc. of pollution was stopped and everyone switched to non polluting means, the pasts' accumulated pollution would stay around for decades at the very least. But that's not likely. Besides that fact, even if it was wanted and people were set up for it, because that pollution not only means fossil fuels but weapons, etc. as well. Once it was proposed that more weapons should be exploded because it could supposedly bring down global temperatures. Pollution comes from many sources. Protecting the monument and it's species if the sea is rising is not impossible in some ways but nearly impossible if you plan to use the monument as the same means to save them. So many species exist within the NWHI, the Papahānaumokuākea Marine National Monument, but if land reduces some may be lost if no alternatives are found. To preserve the species will also require more even if no land was being lost or the sea wasn't rising. If you try to propagate any species in the wrong way or environment, at any level or time, you will destroy, reduce or alter the species in consideration even if they survive the efforts. In particular if non-natural means are used. Ending up with non-natural variations of an older species. The closer to human interaction and environments, regardless of how wild they are or are not after the fact, the more altered they'll be. There was a species in Australia, the Tasmanian Tiger. The last confirmed one of it's kind, even if it had been propagated, was in captivity. So if it had survived in any way, it would have been altered regardless of how wild or free it would have been were the species known to

be alive today. So it will be in any efforts that aren't as close to natural as possible (meaning by the species itself in it's natural or chosen environment in most cases) however you try to propagate or preserve any animal or plant species in the NWHI. As far as the sea and lost land, unless it's completely artificial nothing can be done of that. Mankind has seen to that, and continues to. The issue of global warming occurred to some even as the industrial age started, and they were ignored or ridiculed for bashing the convenience it offered. They had a point, nobody saw it until it became a problem. Even yet some want to deny it's existence.

This plan gives stated ("desired") outcomes, current status, background history, descriptions, 'Need for Action' statements, strategies and activities to care for the monument. This shows just how static the MMP really is, since a change in the way one group or stimulus occurs that throws part of it out of whack will alter how that agency functions, what it can do, how it interacts with other agencies, in the Interagency Coordination Committee among other groups, and what applies, as well as what that means. Even with Emergency Response and Assessment Teams [ERATs] in place or in action. That's true even if you had more. The worst part of it is the timing, Do "this" in so many years. What if something occurs before that time, even with existing agencies, laws, etc. you can't really respond if things are too much in the air. And the basics of the MMP as it stands show most of it to be just that. As the plan itself says about many things: namely, details are to be worked out precisely in time or *to be determined*. And determining things on the level of the Monument can't be waiting like that, time waits for none. And damage is damage regardless of what you label it, or what level you accept of it. Or how much it's ignored. There are plans, agencies, rules, etc. that are already on the job, but the proposed changes will change things and will require changes to occur. Which will possibly create either a lack or excess in one service or another. Security is an ongoing example in the present. Or, possibly, absence for a time of a given action by any agency that's being reshuffled. In line with this concern is how the agencies involved will interact, so as to really care for and respond to needs or necessities (things that can't 'wait') of the Monument and the life within, as well as the human management side of things. And to make sure there isn't too much if any lack as any change happens. Often this will be on several levels, so a real substance to "smooth" transition requires a lot more than what is being offered. Even with educated volunteers or willing experts, in small or larger numbers. Communication and cooperation in a bureaucracy is shaky at best, which bodes not well for the NWHI if things go wrong especially. If setting it up is so complex and detailed, how much more so will managing it be? Especially with the changing or integrating of laws and other to theoretically connect them all. Especially if it concerns non-U.S. groups. It may not be possible to just connect anything like that. If it depends on law and policy it will be hard, at best. And nearly impossible at worst, and of course worst case scenario means impossible at it's most severe. At each listed step major agencies and sometimes more than one, are involved in a stated step, this makes just setting it up very complex. That only states that it will be that much more so for the users and those who apply for permits. When it's hard at the top, it'll be as difficult at the bottom or worse. The last part of the Interagency concerns is AC-3.3, the World Heritage issue. Should this occur, it will be that much more complex for all involved. If you've ever heard of red tape, that will be a forest in a jungle of it. Meaning any who use or pass through it, whether for official, casual or purposeful reason, will be potentially scared off

before they can get in. Which in some cases may be the intent, as sad and regretful as that may be. People in power have hardly changed since known time, it's only the ways used rather than the views. The use of law goes on the assumption that nobody will follow good actions or intent if it isn't there or that *control is necessary*, and as often it's those in power that abuse it, which makes things worse. Hopefully it won't be as bad for the NWHI. Bureaucracy is red tape applied, only time will tell.

Of particular concern to me is how Hawaiian culture and traditions will be involved. It is not just what I brought up previously. Namely: it's grafted onto a structure which may, or may not, accept it. And if it doesn't it gets either diluted or outright rejected, politely. The 'current' status, as when this plan was released, in part, "required that Native Hawaiians, among others (*-which others? And are any of these 'others' Hawaiian in any way?*), provide advice regarding management of the Reserve and ensuring the continuance of Native Hawaiian Practices." That also asks which in the Hawaiian community or population will you ask? Just those who cooperate with you; who will bend beliefs and applications until you can twist a theoretically Hawaiian practice or view into a preconceived {not that flexible, either} structure? Education is also brought up, education by experience or books, as is pretty much the same structure taken and view in the assumed superior (it has powerful backing, can it be wrong?-) No Child Left Behind Act. And even if experience is chosen, which set of beliefs will be used? As the plan writer says early on, exact details can only be guessed at in certain ways, since the culture is lost by time and western influence. Even those that have survived have been changed. One thing that may have changed in belief as an example, when the structure that is known of Hawaii by the time Cook found them was introduced in a second immigration. At that time, the people were in part referred to as *Manahune*, a people of small status. Such were the lower classes in some ways, socially it was true. But from at least a few sources, westerners took it to be more than belittling or degrading than it was even then. It became *Menehune*, at first likely a joke and then people believed it as such. The views being they are magical, mystical or unusually capable people of small physical form, so things can come up within a night by modern story beliefs of these "menehune." In a similar vane, like when people thought only males ruled in Egypt, but there were female 'pharaohs.' And when evidence popped up that there were at first people assumed the female was actually male. Now it's believed differently. On page 261, within section 3.5.3, it explains part of why this is done. It continues onto 262. And, further, "*not only because of strong public support, but also because of the mandates of the National Marine Sanctuary Program to protect biological and cultural resources.*" "Not only because," very potent language and intent. Public support is well, but a National Marine Sanctuary Program makes public support secondary. It's because of law, not support otherwise, that this is done. You can't stomp out the native group as was and still is done partly now, and still claim to treasure it and it's contributions: BUT you can mitigate it. And it's being done, even the draft plan makes that clear. Kaho'olawe is seen as one way it's successful, but I would doubt that. In stated intent in any case. Why? It's already ruined, whether the restoration and potential cleanup is successful or not, would the western-minded people of the State of Hawaii be so pleasant if Kaho'olawe were in prime condition? And if it were would it be held for the Hawaiians or would it be used as another nature tourist attraction? "Efforts are needed to directly engage Native Hawaiians in a variety of ways," is stated. And whether just generic but determined or unknown as

yet {To be determined}, or specific things allocated and set up already, the *Specific and meaningful inclusion* implied only has part of a meaning in the present views of native peoples. Hawaii or otherwise. Throughout the plan, the Monument Management Board is said will do this or that, which is fine. But the billion dollar question is: will what they do Help? Like it has been known and shown especially recently that the Office of Hawaiian Affairs, one of the stakeholders of the monument, does what is best for it as an entity, not the Hawaiian people. Very like any government recognized group can start actions that affect people who it represents who had no say, and will in the end disagree with that decision. Because it's not always possible to fulfill such, the specific example that comes to mind is unions. Like how other members can attack or harass members not agreeing with them, say, if the others are on strike in the Teachers' Union. But OHA is even worse than that by far. It is a political entity, therefore it plays political games. The pawns in it's games are not only others, and of course money or attention-support it can garner, but Hawaiians. The very people it's supposed to represent. Of any blood percentage. And once again, this is laid out in such a way that the western style and mindset rules regardless of how much native tradition, culture or practices are integrated. In many places, in the strategies and activities as well as in general descriptions or explanations, the specific phrase '*for the life of the plan*' is used. This limits the actual concern or commitment that the plan implies. In what ways? Take your pick. Again, details. And in most cases, most won't look of course.

Ocean Ecosystem Literacy is focused on near the end of the basic plan. Strategy OEL-1 states to develop/implement educational programs in Hawaii to increase awareness and stewardship of ocean resources. So long as people are using it as a commodity, as the State of Hawaii does for tourism purposes, even if such literacy existed it would be limited to maintaining altered systems in the majority of views. And even if a virtually untouched area still existed, from near or far, something will always affect it. Like Marine Debris for the NWHI, the very seas and currents about them draw the debris in. It expands on what can be done to increase awareness. The best way is to make sure people know before they affect anything. But in general Strategy OEL-1 seems to be doing what was done before with voting concerns, influence the kids to push or encourage the parents that voting is important. *You need to vote*, said by people unaware of what that actually means no less. When, as far as voting goes, it's been proven that even legitimate votes are discounted due to race or other indication. Even worse as far as voting goes, programs have been developed that would change, say a 57%-43% vote to exactly 51%-49% in favor of the one who paid to be favored. Even though it was +6 in one and -6 in the other. In the same way, the strategies on any level to educate people are at best biased and at worst incomplete or choosy about who knows what and what they can do. Hands-on learning by specific curricula will be developed for a specific affect, even if something is left out. If something is in such a case, it will be likely be mitigated by choice (lesser priority in view) rather than chance. Two durations, 3 and 5 years are used in section 3.5.4. OEL-1.1 in a word, awareness, is intent. OEL-1.3 gives 5 years. If one used the 5-year duration, what if it took 5 years to do the goal at applicable levels, but for years 1 to 4 nothing happened? Technically you could say it was done but at what price. If awareness doesn't come in the needed levels, and in a natural time cycle to make that awareness affective, it would actually mean a lag. Like some Hawaii schools, Statewide, lowered standards to supposedly meet the No Child Left Behind act. And in

the end much of them failed anyway. If the Monument is what it seems to be, than it will be like the *Child* in No Child Left Behind, Child really means country. That act was enacted to make USA children look smarter so they could seem to be more proficient in tests, etc. To give the educational statistic applied to the U.S. a boost. When the very statistics that it supposedly boosted was the result of years, decades or centuries and not 2-3 just decades of dumbing down. Some of which seems to be or is intentional. The result of an entire lifestyle that took at least 200 years to really settle. Similarly, expanding educational this or that on ocean literacy may help but also reveal how much isn't known and actually set people and things back as far as stewardship of the sea and it's species. Or resources. And to most, including governments, businesses and profiteers, it's resources and money that are the most important. The "dollar" is *losing* value worldwide. And Congress, and others before them I'm sure, are considering to enact a small thing signed by the president that will erase state lines. It will make Canada, the USA and Mexico into one state per se. With one monetary value. The Amero. So it is with the Monument, America is collecting things to make it look nice. As a political entity, it doesn't want any but subordinate governments to exist. So therefore, the Monument existence with the stipulation that *Nothing in the Proclamation diminishes or enlarges the jurisdiction of the State of Hawaii* is to ensure that the government has control over all things when it's said and done. As part of the educational push, parts of Midway Atoll, as a teaching area for natural and historical {likely in reverse} area, it will be expanded. Once again there's the alteration issue. You can maintain a part of Midway as natural, but if you try to maintain it while altering it there's only so much unaltered areas that can exist. Or so much protection possible. OEL-1.9 wants to put it into all areas of educational life. *Ensuring that the MMB is achieving it's desired goals and reaching target audiences.* There's also, again, using the 5-year example, what if you get to the goal at 5 years but damage in either the educational level or the environment incidents increase until then. Oops won't do it then, especially if you've had time, evidence and testimony to what you ignore. Just because a goal is reached in structure doesn't mean the means equal the result as such. The entire plan, in whole or in part, as expressed in several ways in the plan, and in 3.6 as: "a set of strategies and corresponding activities to address a desired outcome." This states the idealism behind the reasons of the MMP. Not necessarily meaning that it's intent is to be nice or to restore. There are several types of co-existing reserves or areas in the Monument. It goes back to red tape, attention and money.

In section 3.6.1, even in simple terms, it talks about centralizing the operations of the Monument. With other stations as needed elsewhere, but all central stations are in developed areas where the western state of mind is prevalent. One given example is of Kure atoll, stated as a part not of the NWHI but of Honolulu management because of some arrangement. In the educational section it says about "bringing the place to the people," rather than they to the place. In the NWHI that makes sense. But how do you plan to do that, even similar experiments, etc. may not do that. Or the 'telepresence' of audiences via video or other. And since these outreach-education activities will be in westernized areas, it's not likely to hold even if it's learned in areas beyond remote or protected areas. In this way, those promoting the Monument in certain ways have a barrel of native issues, alien ideals, alien species potential, altered environment, altered species and restoration-maintenance concerns on their plate. And the fact that things are

centralized make things that much worse. There are a multitude of contradictions in the Papahānaumokuākea Marine National Monument draft plan. Some of these by design.



"B.E.A.C.H."  
<beach\_org@yahoo.com>

07/22/2008 04:34 PM  
Please respond to  
beach\_org

To: PMNM\_MMP\_Comments@fws.gov  
cc:  
Subject: Comments on Draft management plan

00616

Comments on the: Papahānaumokuākea Marine National Monument Draft Management Plan (DMMP)

Submitted by: Beach Environmental Awareness Campaign Hawai'i  
Date: July 22nd, 2008

We would like to comment on the issue of groups wishing to assist with marine debris removal in the Northwestern Hawaiian Islands. Although there are NOAA staff who are working on the problem of ghost nets and fishing gear, there still is a lot of marine debris of all types on the beaches. These beaches could be restored with the efforts of volunteers. Our volunteer organization, Beach Environmental Awareness Campaign Hawai'i has the experience to assist with organizing marine debris clean-ups in the monument which would involve careful removal of the debris as well as an education component. We can also provide equipment and training to long-term volunteers to make removal of marine debris faster and more efficient. We would like to see the draft include provisions for such a beneficial project as well as a streamlined process for short service project permits where the involvement in the monument is to clean up marine debris and make a difference.

Sincerely,

Suzanne Frazer  
Co-chair, Beach Environmental Awareness Campaign Hawai'i

Dean Otsuki  
Co-chair, Beach Environmental Awareness Campaign Hawai'i



bonnie morgan  
<artsyoceanic@yahoo.com>

07/23/2008 08:36 AM  
Please respond to  
artsyoceanic

To: PMNM\_MMP\_Comments@fws.gov  
cc:  
Subject: Fw: NWHI protection

00620

TO whom it may concern .. I want to know why the military is practicing in this sacred area and firing weapons with depleted uranium into the waters there ? This news is from someone in the military there who is witnessing this action .. Depleted uranium should be banned ..it is illegal ,deadly and lasts forever !! This needs to be investigated immediately .. Do not hesitate on this matter please ! this is a heads up !.. from Bonnie Morgan 5095 Napilihau 109B-311 Lahaina HI 96761

--- On Wed, 7/23/08, Anne Miller <amiller@oceanconservancy.org> wrote:  
From: Anne Miller <amiller@oceanconservancy.org>  
Subject: NWHI protection  
To: artsyoceanic@yahoo.com  
Date: Wednesday, July 23, 2008, 5:21 AM

Bonnie,

Thank you for your call. Please see the following link for information on our involvement in the protection of the Northwest Hawaiian Islands :

[http://www.oceanconservancy.org/site/News2?news\\_iv\\_ctrl=-1&page=NewsArticle&id=11223&JServSessionIdr009=ip6bpxeip2.app45b](http://www.oceanconservancy.org/site/News2?news_iv_ctrl=-1&page=NewsArticle&id=11223&JServSessionIdr009=ip6bpxeip2.app45b)

From this link you may click other links too that should answer your question regarding protection from the military. Also, from this link is an option to submit your comments and concerns on the NWHI and the Monument management plan. The deadline for this is today (Wednesday, July 23rd, 5 pm Hawai'i time)!

Thank you, again, for contacting Ocean Conservancy!

Best,



00801



Frank Stanton  
<fstanton@hawaii.edu>  
07/23/2008 01:46 PM

To: pmnm\_mmp\_comments@fws.gov  
cc:  
Subject: Comments on the Draft Management Plan for Papahānaumokuākea  
Marine National Monument

**ANNE MILLER**

Member Services Coordinator

Ocean Conservancy

1300 19th Street, NW

8th Floor

Washington, DC 20036

[www.oceanconservancy.org](http://www.oceanconservancy.org)

**Cast Your Vote for Ocean Conservancy, 1 click per day supports our work:**  
[www.oceanconservancy.org/stonyfield](http://www.oceanconservancy.org/stonyfield)

## Comments on the Draft Management Plan for Papahānaumokuākea Marine National Monument

The proposed management plan for the Papahānaumokuākea monument is fundamentally flawed because it is a piecemeal multi-governmental mess of jurisdictions and regulations. The only solution will be the creation of an independent agency to manage the monument. The sooner this is realized the better. The current structure and the proposed structure of a management body will only continue the dysfunctional and inadequate protection of the monument. At the recent International Coral Reef Symposium Dr. Terry Hughes, ARC center of Excellence for Coral Reef Studies, noted that the most significant factor for the management of the Great Barrier Reef (GBR) in Australia was the wise move by the government to create the GBR Authority with independent control over the management of the reefs. Dr. Hughes noted the dysfunction and overall failure of the US Coral Reef Task Force as an example of how not to manage a reef ecosystem. The current and proposed management plans for the NWHI resemble the US Coral Reef Task Force in its complexity and vulnerability to multi-agency conflicts and politics.

Having the Hawai'i State Land Board in control of permits is just one example of how the proposed plan is doomed to fail. The political nature of the Land Board and bureaucratic infighting within the Department of Land and Natural Resources (DLNR) has already contributed to the failure of effective management within the Monument. Recent permit refusals, unrealistic bureaucratic restrictions, and inappropriate penalties to scientists has hampered vital research and has created an environment of mistrust with the very group that has the most to offer the managers of the monument. Given the long-standing political nature of the Land Board there is no way forward while this institution holds a stranglehold on operations within the monument. The current and proposed plan will guarantee that managers will not have the information needed to maintain the integrity of the coral reef ecosystem in the NWHI in the future.

I urge the current co-trustees to relinquish the day-to-day operations of the monument to an impartial, apolitical agency of professional natural resource managers. This Papahānaumokuākea Management Authority could be modeled on the GBRA and operate within the broad mandates of the co-trustees but without the political meddling that has damaged the monument thus far.

Frank G. Stanton, Ph.D.



Lisa Long  
 <angelsfortruth@earthlink.net>  
 07/23/2008 03:43 PM

To: Imccann@oceanconservancy.org,  
 membership@oceanconservancy.org,  
 corporate@oceanconservancy.org, amiller@oceanconservancy.org,  
 cc: shannon rudolph <shannonkona@gmail.com>, bonnie morgan  
 <artsyoceanic@yahoo.com>, Cathy Garger  
 <savorsuccesslady3@yahoo.com>  
 Subject: Papahānaumokuākea is nothing but a secret (now not so secret) Navy  
 weapons testing area.

00804

Sent on the link below and CCed to those above.. and hundreds in BCC.

Papahānaumokuākea is nothing but a secret (now not so secret) Navy weapons testing area. Start with the truth.. and work from there. "The prohibitions required by the Presidential Proclamation establishing the Papahānaumokuākea Marine National Monument do not apply to activities and exercises of the Armed Forces. Current Navy activities associated with the Monument are missile defense operations.  
[http://www.govsupport.us/navynepahawaii/Docs/Vol1\\_Part1lof1\\_sec\\_3\\_7HRC\\_DEIS\\_JULY07.pdf](http://www.govsupport.us/navynepahawaii/Docs/Vol1_Part1lof1_sec_3_7HRC_DEIS_JULY07.pdf) In the Hawaiian Islands Humpback Whale National Marine Sanctuary **certain military activities were identified as exempt** from the interagency consultation requirements and the prohibited activities designated under the National Marine Sanctuaries Act." So they can injure and kill whales, bomb reefs, use chemical weapons... do whatever they want in our National Monument areas, and you are not allowed to go there to see what they are doing, as the area is "protected". In addition to what our country tests there.. we have other countries adding toxic pollution to the environment.

RIMPAC includes 160 ships, 6 submarines and 19,000 troops firing into our air, land and ocean weapons that contain **Depleted Uranium** and/or chemical agents, or worse.... so enjoy your fresh fish.

"The live-fire opportunities - which include a massive beach-landing scenario where soldiers will be equipped with laser guns and sensors - are part of the largest international maritime training event in the world, called the Rim of the Pacific, or RIMPAC. The event is held every two years off the Hawaiian coast and brings together such countries as the United States, Canada, Chile, Australia, South Korea, Japan and Singapore. Underwater detonations, five-thousand hours of MID-frequency active tactical sonar, chemical laser weapons, Electronic Warfare, Live fire BOMBING, Missiles and assaulting beaches."

So yes, protect the treasure so no one knows how they are destroying it.. along with our country and world.

Just thought you should know that WE know. And this information has been sent to over 3000 news people and activists, worldwide, several times.

Lisa Long <http://AngelsForTruth.com> <http://HawaiiBeat.com>

[http://www.oceanconservancy.org/site/News2?news\\_iv\\_ctrl=-1&page=NewsArticle&id=11223&JServSessionIdr009=jp6bpxe1p2.app45b](http://www.oceanconservancy.org/site/News2?news_iv_ctrl=-1&page=NewsArticle&id=11223&JServSessionIdr009=jp6bpxe1p2.app45b)

I saw nothing on your site about **Protection from the Military**.

All I found was your "protecting" it from fisherman and prying eyes.  
[http://www.oceanconservancy.org/site/DocServer/background\\_info\\_on\\_comments\\_for\\_NWHI\\_management\\_plan\\_7\\_2.pdf?docID=3981](http://www.oceanconservancy.org/site/DocServer/background_info_on_comments_for_NWHI_management_plan_7_2.pdf?docID=3981)  
 Please provide the information and the links where military activities would NOT BE EXEMPT.  
 Lisa Long

Bonnie,

Thank you for your call. Please see the following link for information on our involvement in the protection of the Northwest Hawaiian Islands :

[http://www.oceanconservancy.org/site/News2?news\\_iv\\_ctrl=-1&page=NewsArticle&id=11223&JServSessionIdr009=jp6bpxe1p2.app45b](http://www.oceanconservancy.org/site/News2?news_iv_ctrl=-1&page=NewsArticle&id=11223&JServSessionIdr009=jp6bpxe1p2.app45b)

From this link you may click other links too that **should answer your question regarding protection from the military**. Also, from this link is an option to submit your comments and concerns on the NWHI and the Monument management plan. The deadline for this is today (Wednesday, July 23rd, 5 pm Hawai'i time)!

Thank you, again, for contacting Ocean Conservancy!

Best,

ANNE MILLER

Member Services Coordinator

Ocean Conservancy

1300 19th Street, NW

8th Floor

Washington, DC 20036

[www.oceanconservancy.org](http://www.oceanconservancy.org)



Liz Foote  
<[lfoote@hawaii.rr.com](mailto:lfoote@hawaii.rr.com)>  
07/23/2008 04:14 PM

To: PMNM\_MMP\_comments@fws.gov  
cc:  
Subject: Comments on the Papahānaumokuākea Marine National Monument  
Draft Monument Management Plan

00805

Thank you for the opportunity to provide my comments.

Liz Foote

From: Liz Foote, Hawaii Field Manager, Coral Reef Alliance and Executive Director,  
Project S.E.A.-Link  
Address: 37 Kuaiwa Way #20-A; Wailuku, HI 96793  
Email: [lfoote@hawaii.rr.com](mailto:lfoote@hawaii.rr.com)  
Phone: (808) 669-9062

I would like to submit a few general comments as well as some specific feedback on the Papahānaumokuākea Marine National Monument Draft Monument Management Plan.

First of all, as an educator who recently had the honor of traveling to Midway as part of the first Alaka'i group (January 2008), I would like to provide a statement attesting to the educational value of traveling to this special place and experiencing it firsthand.

I don't think it is possible for me to adequately express and convey the impact of that experience on me. I am fully aware that it was an honor and a privilege for me to be there as part of this "ambassador" group that was tasked with helping to create an educational program for the site. The potential for learning ecological and stewardship messages is immense, and the impact of experiencing the lessons of Midway firsthand cannot be replicated. However, the messages and themes that emerge from time spent on the island have the potential to inspire those fortunate enough to visit this place, so that they in turn can share the lessons with their students and other community members. Therefore, a cohort of only 15 Alaka'i per year can have a far-reaching impact when they return to their lives and work after time spent learning the lessons of Midway.

I particularly support the "Ocean Ecosystems Literacy (OEL)" programs as outlined in section 3.5.4. However, regarding OEL-1.7, I see that the educator workshop (Alaka'i) program is listed as biennial, and I would like to strongly suggest that this become a yearly program instead.

In addition, I would like to support the Midway Atoll Visitor Services Action Plan (section 3.4.3), and any measures or funding that will result in expanded and enhanced interpretive tools, methods and educational displays onsite. The "living classroom" themes of the island can be reinforced and communicated through effective educational strategies and materials. These themes can also be supported and visibly demonstrated by making the facilities themselves a "model for sustainability," as outlined in Alternative B, Volume IV, in the Midway Atoll NWR Conceptual Site Plan. I support the assessment that Alternative B "best meets all management concerns," and is focused on sustainability.



Les Watling  
<watling@hawaii.edu>  
07/23/2008 11:05 AM

To: PMNM\_MMP\_Comments@fws.gov  
cc:  
Subject: comments on management plan

00807

To Whom this may be concerned:

I would like to offer a few brief comments on the current proposed management plan for the Papahānaumokuākea National Monument.

1. I appreciate that the management plan recognizes the unique and extensive deep water habitats within the Monument boundary.
2. I would like to emphasize that the deep water fauna, with the exception perhaps of some deep-sea fish, is largely unknown. Deep-sea octocorals that have been collected and loaned to me for examination are all species new to science, and several represent entirely new groups, such as genera or subfamilies. I suspect that similar statements will be made about many of the other invertebrate groups after they have been successfully sampled.
3. The deep-sea octocorals I have looked at sometimes also represent evolutionary relicts, with their closest living relatives being in the Atlantic Ocean.
4. Consequently, I strongly support Activities MCS 1.3 through MCS 1.5 which will insure that these deep-water habitats be thoroughly studied.
5. In order to undertake such studies, however, the Permitting process needs to be streamlined, or the requirements loosened up a bit, especially with regard to studies in the deep-sea that will have no impact on shallow reefs or land-dwelling organisms. For example, the permit application seems to be written to cover primarily shallow water activities or activities where the scientist is targeting one large species. Under Item 9a, one is requested to list all species that will be collected, how many, and their sizes, etc. In deep water habitats, or for many shallow-dwelling small invertebrates, such estimates are impossible. In the deep water, we have no idea what is there, and for many of the octocorals, for example, it is not possible to tell closely-related species from each other until they are at least on the ship if not at one's home laboratory. However, if we really want to know about the diversity of species in the monument, such "unknown" individuals will need to be collected.
6. Is it the purpose of the permitting process to determine what research activities is/has been conducted within the boundaries of the Monument, or to limit research activities within the boundaries of the Monument? If the latter, the Permit process as currently laid out gives no guidance as to what is acceptable and what is not (beyond the normal legal issues of dumping hazardous materials, dredging living coral reef, etc.) within the framework of research activities. That is, what activities are specifically likely to result in the denial of a research permit.

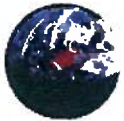
Many thanks for your efforts in putting this management plan together.

With best regards,

Les Watling  
Department of Zoology  
University of Hawaii at Manoa  
2538 McCarthy Mall, Edmondson Hall 152  
Honolulu, HI 96822  
Fax (808) 956-9812  
cell phone: 808-772-9563

Pew Fellow in Marine Conservation  
Research Curator, Bernice P. Bishop Museum  
Affiliate, Yale Peabody Museum

05871



[REDACTED]  
[REDACTED]  
Sent by: Ocean  
Conservancy  
<webmaster@oceanco  
nservervancy.org>

07/22/2008 05:36 PM  
[REDACTED]  
[REDACTED]

To: PMNMM MMP Comments@fws.gov

cc:

Subject: Papahānaumokuākea Marine National Monument Management Plan  
Comments

Sample of the Form E-Mail Comments  
Received from The Ocean Conservancy

Jul 22, 2008

Co-Trustees of the Papahānaumokuākea Marine National Monument

Dear ,

I am pleased that you are proceeding with developing a management plan for the Papahānaumokuākea Marine National Monument. The Northwestern Hawaiian Islands are a truly a unique treasure that belongs to all Americans and the world. We have a sacred duty to provide it the greatest protection possible and to preserve it in all its natural character and as a fully functional, intact, and resilient ecosystem. The draft Monument Management Plan represents a substantial effort to deal with the complex and daunting task of managing such a vast area, and I applaud the many excellent management structures and measures that you have proposed. However, I am concerned that the plan fails to put in place all the protections, regulations, and management structures necessary to ensure the future that we all desire for the Northwestern Hawaiian Islands.

1. Sustenance fishing is not compatible with the purpose of the Monument. Allowing any extraction of resources for consumption is not consistent with preserving the monument in its pristine state, let alone allowing the removal of up to SEVEN TONS of magnificent large predatory fishes. You have not provided adequate scientific

justification for your claim that removing seven tons of the Monument's resources will not harm Monument resources or alter its ecosystem. I do not believe that we should risk the Northwestern Hawaiian Islands ecosystem merely to save the government a few thousand dollars and to provide government employees and university researchers with a luxury fresh ahi.

2. The establishment of the Papahānaumokuākea Marine National Monument was preceded by years of input from the public and stakeholder groups that identified several key principles to be incorporated into the Monument's goals. Those principles included:

a. Making protection of the Northwestern Hawaiian Islands, their wildlife, and ecosystems the core and preeminent purpose of the Monument, and that all other considerations and activities must not impair this purpose; and

b. Maintaining the "natural character" of the Northwestern Hawaiian Islands.

I am distressed to see that these principles, and others, are not incorporated into the draft Monument Management Plan, which leaves the Northwestern Hawaiian Islands incompletely protected and open to activities that will impair their health and resilience.

3. The Papahānaumokuākea Marine National Monument is a treasure belonging to all Hawaiians and the Nation. I am very concerned that you

have failed to build an advisory body, similar to the Research Advisory Council, and a robust public-comment process into the management plan. The public and stakeholders must be given the opportunity to provide input to and review of the management of the monument if it is truly going to be the nation's Monument.

4. The Monument Management Plan provides a good framework that COULD eventually lead towards conservation of its ecosystem and resources

therein. Your Marine Debris Action Plan is a good example of what other action plans should strive for to achieve the necessary degree of conservation.

I urge that you continue to develop the Monument Management Plan to 1) prohibit all sustenance fishing, 2) clearly and precisely make

PROTECTION the core and preeminent purpose of the Monument, 3) reaffirm that protection means maintaining and restoring the ecological integrity AND the natural character of the Northwestern Hawaiian Islands, and 4) establish transparent and robust processes, including

the use of advisory bodies, that will guarantee the opportunity for the public and stakeholders to provide input to and review of Monument management decisions, especially those involving permitting.

Thank you for taking my comments into consideration. By implementing these recommendations, you will have a stronger overall management document that will move towards effectively protecting our national treasure.

Aloha,

A redacted signature block consisting of three horizontal black bars of varying lengths, completely obscuring the name and any handwritten notes or dates.



---

---

**APPENDIX D**

**PUBLIC MEETING COMEMNT SHEETS**

**PUBLIC COMMENT SHEET** 00016

Papahānaumokuākea Marine National Monument  
Draft Management Plan

Name: Marv & Michele Paularena  
Representing: NOAA Hawaiian Islands Humpback Whale Nat. Marine Sanctuary  
Volunteers,  
Mailing Address: 190 S. Waikea Ave, Apt. CC5  
Rahului, HI 96732-1397

E-mail: mpaularena@yahoo.com  
Add your address to the Monument mailing list?  Yes  No  
Add your e-mail to the Monument list serve?  Yes  No

**COMMENTS**

I would urge looking into use of the U.S Navy to  
enforce control of ships, fishing, etc. in Papahānaumokuākea  
waters. This might supplement Coast Guard and state  
enforcement ships and/or personnel without need for heavy  
funding. Mahalo

Please submit this form in the Public Comment Box, or mail to: (continue on reverse)

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

**PUBLIC COMMENT SHEET** 00018

Papahānaumokuākea Marine National Monument  
Draft Management Plan

Name: BILL LYMAN  
Representing: MYSELF  
Mailing Address: 1104 LILINA ST. #17L  
HONOLULU, HI 96817

E-mail: KAPAHU@YAHOO.COM  
Add your address to the Monument mailing list?  Yes  No  
Add your e-mail to the Monument list serve?  Yes  No

**COMMENTS**

I COULD ONLY STAY FOR THE INFORMATIVE  
PART (PART I) ON JUNE 9, 2008 @ KAI'IAE  
REC. CENTER, BUT I AM PLANNING TO  
STAY FOR PART I & PART II ON  
JUNE 24, 2008 @ UCC. I WOULD LIKE  
TO SAY HOW WONDERFUL IT IS TO SEE  
SUCH KNOWLEDGEABLE CARETAKERS LEAD  
THE WAY FOR FUTURE GENERATIONS. A  
SPECIAL THANK YOU TO TINA 'AULANI WILHELM. MAHĀLO

Please submit this form in the Public Comment Box, or mail to: (continue on reverse)

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

**PUBLIC COMMENT SHEET**

Papahānaumokuākea Marine National Monument  
Draft Management Plan

00023

Name: Yanda Hanakahi

Representing: 'Aha Kūle Advisory Committee, Chair,  
Molokai Rep.

Mailing Address: PO Box 507,  
Hōōlehua, HI 96729

E-mail: hanakahi@sandwichisles.net

Add your address to the Monument mailing list?  Yes  No

Add your e-mail to the Monument list serve?  Yes  No

**COMMENTS**

Native Hawaiian fishermen/practitioners should be  
allowed to anchor in NWHF, ~~and~~<sup>get</sup> return  
to Hawaii with their catch. Hawaiians have  
always fed their families ~~at~~ from the ocean &  
land! #

You (Fed govt.) need to communicate/get input  
from Native Hawaiian fishermen who learned  
their practice from "ancestor knowledge."

Please submit this form in the Public Comment Box, or mail to: (continue on reverse)

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

**PUBLIC COMMENT SHEET**

Papahānaumokuākea Marine National Monument  
Draft Management Plan

00024

Name: Gandharva Mahina Hou Ross

Representing: Molokai High School & Fisherman

Mailing Address: P.O. Box 1461 Kaunakakai HI 96748

E-mail: Gandharva\_Ross@notes.k12.hi.us

Add your address to the Monument mailing list?  Yes  No

Add your e-mail to the Monument list serve?  Yes  No

**COMMENTS**

① How do I get students there to  
do hands on activities. Resource monitoring

② How do fishermen get there to help  
alleviate the concern of lots of high end  
predators (ulua)

Please submit this form in the Public Comment Box, or mail to:

(continue on reverse)

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

**PUBLIC COMMENT SHEET**

Papahānaumokuākea Marine National Monument  
Draft Management Plan

00025

Name: \_\_\_\_\_

Representing: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

E-mail: \_\_\_\_\_

Add your address to the Monument mailing list?  Yes  No

Add your e-mail to the Monument list serve?  Yes  No

**COMMENTS**

Very concerned about the number of people  
allowed on Midway - protect the resources  
first! Sensitive burrow habitat,  
sensitive coral habitat.

Please submit this form in the Public Comment Box, or mail to:

(continue on reverse)

Papahānaumokuākea Marine National Monument

300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

**PUBLIC COMMENT SHEET**

Papahānaumokuākea Marine National Monument  
Draft Management Plan

00027

Name: Keith G. Greene

Representing: SELF

Mailing Address: \_\_\_\_\_

83-5636 middle Keel

Captain Cook HI. 96709

E-mail: \_\_\_\_\_

Add your address to the Monument mailing list?  Yes  No

Add your e-mail to the Monument list serve?  Yes  No

**COMMENTS**

I Propose Aerial surveillance from  
the air for floating Marine debris -  
Poaching fishermen, from an Ultra lite  
aircraft equipped with floats drawing  
less than 4 inches of water, operating  
cost <sup>of</sup> \$10<sup>00</sup> to \$15<sup>00</sup> dollars an hour.

This aircraft can be relocated on a  
24 foot vessel, Pictures available.

Thankyou Keith G. Greene

Please submit this form in the Public Comment Box, or mail to:

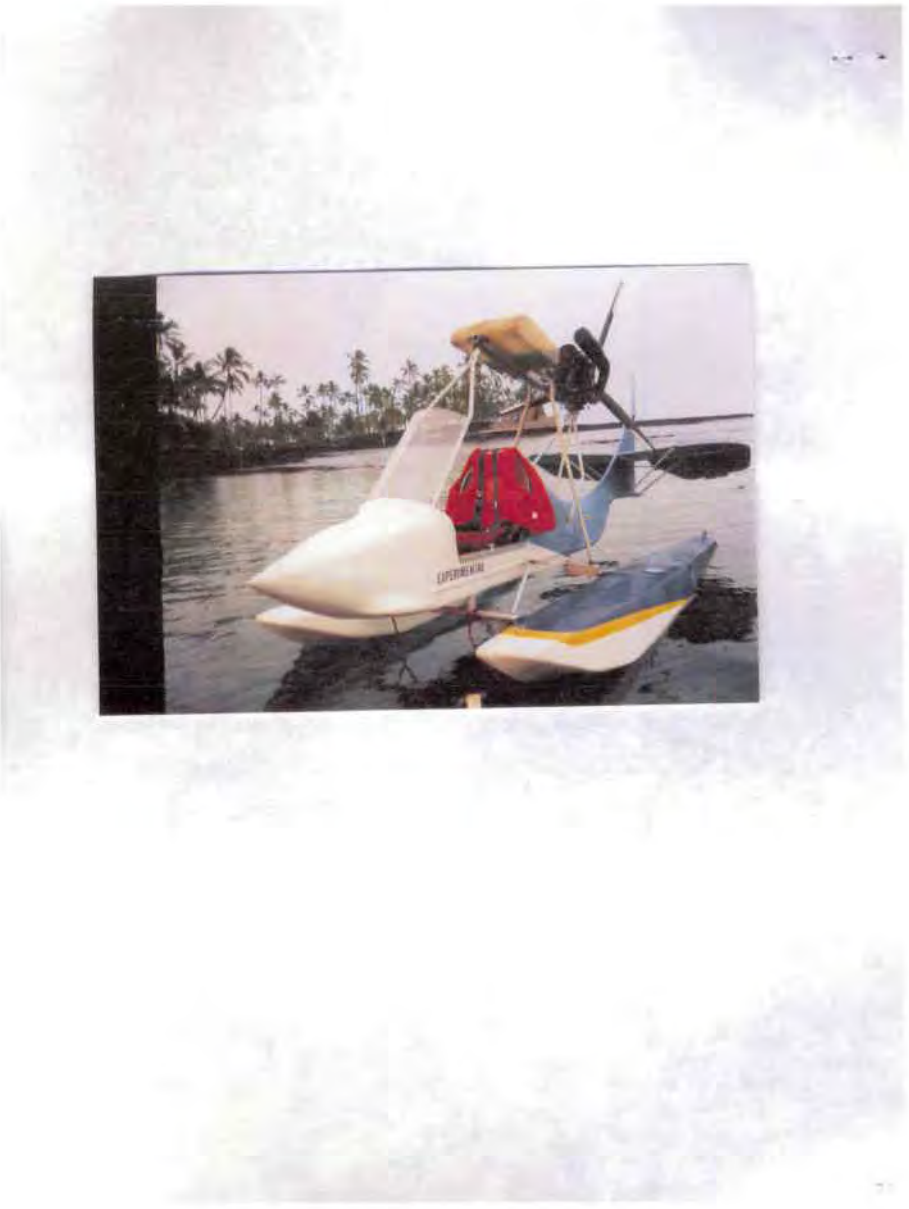
(continue on reverse)

Papahānaumokuākea Marine National Monument

300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)





## PUBLIC COMMENT SHEET

Papahānaumokuākea Marine National Monument  
Draft Management Plan

00028

Name: LEAH SNYDER

Representing: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

73-4231 Nana St Kailua-Kona

HI 96740

E-mail: \_\_\_\_\_

Add your address to the Monument mailing list?  Yes  No

Add your e-mail to the Monument list serve?  Yes  No

### COMMENTS

I would like to know exactly what the Navy does there  
@ the monument (Sonar?) why isnt any of this published

It would be nice to see the waste removal + incineration  
into energy practiced on these islands - maybe you could  
be an example for our (habitated) islands

Please submit this form in the **Public Comment Box**, or mail to:

*(continue on reverse)*

**Papahānaumokuākea Marine National Monument**  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

**PUBLIC COMMENT SHEET**

Papahānaumokuākea Marine National Monument  
Draft Management Plan

00029

Name: ROBERT FLAATT

Representing: self

Mailing Address: PO Box 1034

Captain Cook HI 96704

E-mail: robert@fishes.com

Add your address to the Monument mailing list?  Yes  No

Add your e-mail to the Monument list serve?  Yes  No

**COMMENTS**

The us. military is exempted from the regulations.

Insufficient funding will inhibit the management plan activities, making Papahānaumokuākea a de facto military reservation. Because only the military will be able to visit.

Either the law must be changed or the Papahānaumokuākea renamed a 'National Military Reservation'.

Please submit this form in the Public Comment Box, or mail to:

(continue on reverse)

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

**PUBLIC COMMENT SHEET**

Papahānaumokuākea Marine National Monument  
Draft Management Plan

Name: ROBERT FLAATT

Representing: self

Mailing Address: PO BOX 1034

CAPTAIN COOK, HI 96704

E-mail: robert@fishes.com

Add your address to the Monument mailing list?  Yes  No

Add your e-mail to the Monument list serve?  Yes  No

**COMMENTS**

Section 20 of DMMP Public Meetings Q&A is not clear as to the number of times a cruise ship may visit.

It says "four" "A maximum of four cruise ships per year", but not how often each ship may visit.

The implication in the presentation is once, but as written it could be 365 times. A draftier clarity is

Please submit this form in the Public Comment Box, or mail to:

(continue on reverse)

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

**PUBLIC COMMENT SHEET**

Papahānaumokuākea Marine National Monument  
Draft Management Plan

00031

Name: AKA M. Makai, Kūpuna Makai

Representing: \_\_\_\_\_

Mailing Address: Annulated by  
NAHINA DWARTE

E-mail: \_\_\_\_\_

Add your address to the Monument mailing list?  Yes  No  
Add your e-mail to the Monument list serve?  Yes  No

**COMMENTS**

- MIDWAY ISLAND - concerned about chemical use → would like to see the prohibition of chemical removal
- would like to see the Clean-up ordinance in the ocean all chemical
- ban all long-line fishing in the Monument
- public to receive reports on lobster fishery <sup>especially for</sup> <sub>Regulation</sub>
- would like to see the incorporation of ahupua'a based management

Please submit this form in the Public Comment Box, or mail to: *aka makai* (continue on reverse)

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

**PUBLIC COMMENT SHEET**

Papahānaumokuākea Marine National Monument  
Draft Management Plan

Name: \_\_\_\_\_

Representing: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

E-mail: \_\_\_\_\_

Add your address to the Monument mailing list?  Yes  No  
Add your e-mail to the Monument list serve?  Yes  No

**COMMENTS**

- would like to see direct ~~MANA~~ Hawaiian (Genoi) management of marine and terrestrial wildlife + plantlife
- like to see stricter protocols to safeguard against invasive species sprawl

Please submit this form in the Public Comment Box, or mail to: (continue on reverse)

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)



**PUBLIC COMMENT SHEET**

Papahānaumokuākea Marine National Monument  
Draft Management Plan

00032

Name: Faith Maile Ngimidoi

Representing: Brown People ☺

Mailing Address: P.O. Box 10105 Hilo, HI 96721

E-mail: maile@hawaii.edu

Add your address to the Monument mailing list?  Yes  No  
Add your e-mail to the Monument list serve?  Yes  No

**COMMENTS**

Increase Volunteering Opportunities!!! I will be a guinea pig.

Please submit this form in the Public Comment Box, or mail to: *(continue on reverse)*

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

**PUBLIC COMMENT SHEET**

Papahānaumokuākea Marine National Monument  
Draft Management Plan

00033

Name: Marshall Sonnenberg

Representing: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

E-mail: \_\_\_\_\_

Add your address to the Monument mailing list?  Yes  No  
Add your e-mail to the Monument list serve?  Yes  No

**COMMENTS**

Internship, educational, and student research opportunity that brings together both modern science and traditional knowledge would be most relevant for the future stewardship of the Papahānaumokuākea.

Please submit this form in the Public Comment Box, or mail to: *(continue on reverse)*

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

# PUBLIC COMMENT SHEET

Papahānaumokuākea Marine National Monument  
Draft Management Plan

00035

Exemption, in some cases not only means it's allowed, but  
Unaccountable!

Name: Lehua-kim Kimberly

Representing: \_\_\_\_\_

Mailing Address:  
55 Ahona Place

E-mail:  
Kimberly63@hotmail.com

Add your address to the Monument mailing list?  Yes  No

Add your e-mail to the Monument list serve?  Yes  No

## COMMENTS

I know/understand there's exemptions and rules/regulations  
or compromises. Even skimming it the plan/draft makes that  
clear, and it's to be expected. But, say what if an exempted  
activity, military or otherwise (especially military-exempt)  
causes or leaves damage, which then either makes irreparable  
loss or hardship or otherwise structured management. If it's  
others, they can be held accountable. But such as the  
military can't. It's a catch-22 built INTO the  
agreement. That applies to all, but mostly them.

Please submit this form in the Public Comment Box, or mail to: (continue on reverse)

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

PUBLIC COMMENT SHEET

Papahānaumokuākea Marine National Monument  
Draft Management Plan

00036

Name: Dan Lindsay

Representing: self

Mailing Address:  
2390 Kaiwika Rd  
Hilo HI 96720

E-mail: danlle@aloha.net

Add your address to the Monument mailing list?  Yes  No

Add your e-mail to the Monument list serve?  Yes  No

COMMENTS

① I am deeply concerned that sufficient resources be devoted to enforcement of regulations, especially fishing violations & waste discharge by cruise vessels of others transiting the refuge. Numerous well-documented regulations which are not enforced vigorously & uniformly are useless.

② Far more volunteers would be available if they did not have to commit three months. That seems an excessive length of time, & I believe efforts should be made to shorten the time commitment to 30 days. (This is a selfish comment, as I would love to volunteer but cannot commit more than a month at a time.)

③ I am very pleased that the plan recognizes the threat posed by invasive species, & I hope that sufficient resources will continue to be devoted to this vital set of activities.

Please submit this form in the Public Comment Box, or mail to:

(continue on reverse)

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

PUBLIC COMMENT SHEET

Papahānaumokuākea Marine National Monument  
Draft Management Plan

00037

Name: KEVIN SULGIT

Representing: \_\_\_\_\_

Mailing Address:  
R.R. 2 Bx 4547  
PAAHOA, HI 96778

E-mail: KEVIN.SULGIT@YAHOO.COM

Add your address to the Monument mailing list?  Yes  No

Add your e-mail to the Monument list serve?  Yes  No

COMMENTS

PLEASE KEEP THE UNITED STATES FEDERAL GOVERNMENT AND IT'S MILITARY AS FAR AWAY AS POSSIBLE FROM THESE SACRED PLACES. NO DEVELOPEMENT, NO FISHING, NO HUNTING.

Please submit this form in the Public Comment Box, or mail to:

(continue on reverse)

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)



**PUBLIC COMMENT SHEET**

Papahānaumokuākea Marine National Monument  
Draft Management Plan

00038

Name: JoAnn GARRIGAN

Representing: Self

Mailing Address: 70 Lahi St  
Hilo HI 96720

E-mail: joannaloha@hawaiiantel.net

Add your address to the Monument mailing list?  Yes  No  
Add your e-mail to the Monument list serve?  Yes  No

**COMMENTS-**

Keep human visitors to  
A minimum Footprint left only  
Lottery for permits at times  
To keep it less politically  
oriented  
Who decides who gets permits?

Please submit this form in the Public Comment Box, or mail to: *(continue on reverse)*

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

**PUBLIC COMMENT SHEET**

Papahānaumokuākea Marine National Monument  
Draft Management Plan

00040

Name: Cleg HOLIMAN JUN 19 2008

Representing: \_\_\_\_\_

Mailing Address: \_\_\_\_\_  
P.O. Box 61  
Holualoa HI 96725-0061

E-mail: \_\_\_\_\_

Add your address to the Monument mailing list?  Yes  No  
Add your e-mail to the Monument list serve?  Yes  No

**COMMENTS**

I attended the public comment testimony portion of the Draft Management Plan for  
Papahānaumokuākea, held at the King Kamehameha Hotel, Kailua-Kona, Hawaii,  
18 June 2008. My concern specifically amongst others is 8031, F-6, Section 1 Armed  
Forces. "The prohibitions required by this proclamation shall not apply to activ-  
ities and exercises of the Armed Forces (including those carried out by the United  
States Coast Guard) that are consistent with applicable laws." The Plan appears to  
address many aspects of "preservation" and use of the Monument except Military.  
WHY is the military EXEMPT from the prohibitions, rules, regulations, ordinances,  
requirements, restrictions and permits you intend to impose upon every & all users?

Please submit this form in the Public Comment Box, or mail to: \_\_\_\_\_

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

(1)

Dr. Carl Stepath  
POB 3265, Lihue  
Save Our Seals

00043

Papahanoumokuakea National Marine Reserve meeting with the Federal government, National Fish and Wildlife, June 23, 2008

5:30; Hilton Kauai Beach Resort at Nukoli, Kauai

Hello, I want to thank you for all your conservation work, and I think the Papahanoumokuakea National Marine Reserve is wonderful. I respectfully would like to make some comments.

My name is Carl Stepath, I have lived on Kauai for most of my life, and I have a PhD in marine science education. My issues to address are the dissemination of Federal government agencies Papahanoumokuakea National Marine Reserve information and education materials <sup>to local libraries</sup> the protection of the Hawaiian monk seal (*Monachus schauinslandi*), and the support of improved marine education programs on the Island of Kauai.

Please give us your assurance that all material generated with respect to the Papahanoumokuakea National Marine Reserve will be placed in our libraries on the island, including KCC. I think this very important on all the islands, but especially here because we are the closest to the reserve and need to improve our marine studies education. We have a problem with a lack of marine education on Kauai.


Please address the horrific problems concerning the extinction of our state mammal, the monk seal! This animal ('Ilio-holo-i-ka-uaua - "dog that runs in rough waters") is now our state mammal, and is endangered - as well as being endemic to our waters. I think it is critical that we protect these animals for future generation. Hawaiian monk seals are the **only** marine mammal native to Hawaii, and a primitive member of the Family Phocidae. How can we best protect it? We need protected areas for the seal, so it can breed, have their pups

The U.S. military has been, in essence, the dominant historical occupier of the area and their effects, relative to conservation, are obvious, shown to be a detriment and are self-willed. Given these propensities inherent to military attitude, demands and activities, WHY are they not fully required to engage and abide by the philosophy and action prescribed by preservation and conservatism central to the Plan? The military's only duty is to defend the area from foreign intrusion. It has no other right of utility.

It is suggested you also approach other views expressed at the meeting as well.

Briefly:

1. How can Executive Orders 13089, 13178 and 13196 apply when the unresolved issues of Hawaiian Sovereignty and ceded lands has not been addressed?
2. Describe the Armed Forces right to enter into the territory given the primary concern expressed in #1 above? The military is in violation everywhere else in the Hawaiian Islands. The same would be for the Monument.
3. Preservation and Conservation has nothing to do with nostalgic militaria. Remove all existing military components, returning all land and sea elements to a pristine and truly natural condition...and then leave.
4. If the area is projected to be part of a World Heritage Site, you are instructed to disallow any formal or legal attachments to the idention. It is Hawaiian and Hawaiian only. The territory belongs to the Ali'i, Kahuna and Kanaka. The Co-trustees must approach the Hawaiian governing body for permission to do anything.

 JUN 19 2008



2

Dr. Carl Stepien  
Save Our Seas  
POB 3266, Lihua 967

and raise their young. These areas need to be protected and relatively safe from predators such as sharks and dogs. Maybe these protected areas for the seal should even be expanded to Ni'ihau and Nihoa?

Please help our young people here on Kauai and throughout Hawaii learn more about the importance of the ocean, and especially about how to support visiting scientists. Our young people here are very untrained in marine environmental science, and this should be improved. There is a special need for skills such as marine scientist research assistants and marine monitoring. Coral reefs and our fisheries are necessary for future generations, and we need to improve the marine science and geography education opportunities for our young people, especially here on Kauai, which is the closest main island to the reserve. Just having one or two day trainings is nice, but it is not enough. We need programs in our K-12 schools to teach our young people about our coasts, the ocean and how to take care of it. Right now there is very little of this on Kauai, and it is necessary that we work together to provide better ocean and coastal related education for the people and future citizens here.

You are mostly from somewhere else, and are highly educated. Where do you think the people that live here can get and improved education? Right now the possibilities are very limited and the residents do not leave for training, and if they do, they seldom return. The support of marine studies education in the school system here on Kauai is very important to help support the future success of the Papahanoumokuakea National Marine Reserve.

Thank you for your time and attention to this matter.

## PUBLIC COMMENT SHEET

Papahānaumokuākea Marine National Monument  
Draft Management Plan

00044

Name: GABRIELA Taylor

Representing: Self

Mailing Address:  
5620 Keapuna Rd  
Kapaa, HI 96741

E-mail: GABRIELA@KEAPUNA.NET

Add your address to the Monument mailing list?  Yes  No

Add your e-mail to the Monument list serve?  Yes  No

### COMMENTS

① NO CRUISE SHIPS SHOULD BE ALLOWED TO STOP & UNLOAD ANY PASSENGERS IN THE N.W. HI ISLANDS.

② NO MILITARY OPERATIONS & TESTING ALLOWED IN N.W. HAWAIIAN ISLANDS

③ ANY CURRENT COMMERCIAL FISHING PERMITS SHOULD BE REVOKED AT THE END OF THIS YEAR - NOT 2011 & THERE SHOULD BE A LIMIT ON THE CATCH SET FOR 2008.

Please submit this form in the Public Comment Box, or mail to:

(continue on reverse)

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

**PUBLIC COMMENT SHEET**

**Papahānaumokuākea Marine National Monument  
Draft Management Plan**

00045

Name: Katy Rose

Representing: Kauai Alliance for Peace + Social Justice

Mailing Address:  
PO Box 1459  
Hanalei HI 96714

E-mail: KLROSE @ EARTHLINK.NET

Add your address to the Monument mailing list?  Yes  No  
Add your e-mail to the Monument list serve?  Yes  No

**COMMENTS**

I am here to register my objection and the objection of  
many people that the US military has unimpeded authority  
to engage in exercises over + around the NW Hawaiian  
Islands. The threat to the fragile ecosystem is grave and largely  
unknown, and the military is not providing any mitigation.  
In addition, the use of the airspace above the islands and  
the subsequent threat of toxic debris, the use of high  
intensity sonar, and unknown further military activity  
blatantly disrespects the sacred nature of the area

Please submit this form in the **Public Comment Box**, or mail to: (continue on reverse)

**Papahānaumokuākea Marine National Monument**  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: PMNM\_MMP\_Comments@fws.gov

to Native Hawaiian people. Finally, I am concerned about the implications for humanity as a whole as the US increases its militaristic presence and around the world and the manner in which the use of Hawaii as a training ground facilitates US military presence around the globe with particularly negative impacts on the populations of the global south. US military out of Hawaii and Papahānaumokuākea.



**PUBLIC COMMENT SHEET**

Papahānaumokuākea Marine National Monument  
Draft Management Plan

00046

Name: Ray Catania  
Representing: Kanai Alliance for Peace and Social Justice  
Mailing Address: 4215 Kole Plce  
Lihue, HI 96766

E-mail: raymondcatania@aol.com

Add your address to the Monument mailing list?  Yes  No

Add your e-mail to the Monument list serve?  Yes  No

**COMMENTS**

There should be absolutely no military or war game activity in the monument area. The monument is a testament to life, a natural base for the continuation of life in Pacific and the Hawaiian archipelago, a sacred area for the perpetuation of the Native Hawaiian culture which benefits everyone.

Please submit this form in the Public Comment Box, or mail to: (continue on reverse)


Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

**PUBLIC COMMENT SHEET**

Papahānaumokuākea Marine National Monument  
Draft Management Plan

00048

Name: \_\_\_\_\_  
Representing: \_\_\_\_\_  
Mailing Address:  H. Wyeth  
PO Box 189  
Anahola, HI 96703

E-mail: \_\_\_\_\_

Add your address to the Monument mailing list?  Yes  No

Add your e-mail to the Monument list serve?  Yes  No

**COMMENTS - see reverse.**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Please submit this form in the Public Comment Box, or mail to: (continue on reverse)

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

PUBLIC COMMENT SHEET

Papahānaumokuākea Marine National Monument  
Draft Management Plan

00050

Aloha tatou!

According to the Paramount Chief and Master Navigator of Taumako, a small island in the Solomons whose inhabitants are perhaps the only Polynesians who still know the arts of building and sailing voyaging canoes in the ways of their ancestors, the first step in constructing a canoe is to plant a garden. This is because the canoe builder must feed those who help with the work. First you plant and nurture a garden; when the food is ready to harvest, canoe construction can begin.

It seems to me that what has been going on in the Northwest Hawaiian Islands has gotten this sensible process backwards. Resources, whether fish, birds, or guano have been harvested, but until recently no one gave a thought to the garden that produced them. I am glad that this trend of thought is changing while there is still some garden left to tend.

Yet, like others who attended the hearings on the draft management plan, I am disquieted by the persistence of that harvesting-without-replenishing mentality in some of its provisions. This sort of thinking has gotten the main Hawaiian Islands into their present ecological mess. In the Papahānaumokuākea we have an opportunity to redeem ourselves; let us not waste it!

Specifically, I disagree with the provisions that would allow cruise ships to visit the place, that would allow continuation of a fishing plan administered by a body whose record of stewardship is anything but commendable, and the unrestricted use of the area for military activity.

By all means allow people into the garden of Papahānaumoku, but with the understanding that they must pay for the privilege by helping tend that garden. There are ample ways they can do this: scientific research, debris removal, replenishment of native flora and fauna, educational programs for schools etc. Cruise ships, exploitative fishing vessels, and others who consume without replenishing should be prohibited.

The Papahānaumokuākea deserves all the aloha we can give it. Until we get the garden to flourish, we should not try to build the canoe. First things first!

*He'ionalani Wright*

Name: N. GAZDAR

Representing: \_\_\_\_\_

Mailing Address: 909 MAKAHIKI WAY #6  
HONOLULU, HI, 96826

E-mail: NASIR@Herc.HAWAII.EDU

Add your address to the Monument mailing list?  Yes  No

Add your e-mail to the Monument list serve?  Yes  No

COMMENTS

STUDENTS / TEACHERS VISITS  
& INTERSHIP SHOULD BE ABLE  
IN ALL DISCIPLINES.  
I HAVE MANY STUDENTS FROM  
GG103 GEOLOGY OF HAWAIIAN  
ISLES CLASSES TO LEARN  
FIRST-HAND VIA INTERSHIP.  
MAHALO

Please submit this form in the Public Comment Box, or mail to:

(continue on reverse)

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)



**PUBLIC COMMENT SHEET**

Papahānaumokuākea Marine National Monument  
Draft Management Plan

00051

Name: Lela M. Hubbard

Representing: Na Koa Ikaika

Mailing Address:  
99-407 Aiea Hts Dr  
Aiea HI 96701-3516

E-mail: lmhubbard@hawaiiantel.net

Add your address to the Monument mailing list?  Yes  No

Add your e-mail to the Monument list serve?  Yes  No

*Conservation of Resources*  
**COMMENTS**

*What is being done to protect  
what's left of the lobster  
fishery after WestPac has  
almost destroyed it?  
Also why the kapu of bottom  
fishing in the summer when  
they spawn instead of in  
the winter? Because too much  
money is at stake and to*

Please submit this form in the Public Comment Box, or mail to: (continue on reverse)

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: PMNM\_MMP\_Comments@fws.gov

Lela M. Hubbard  
99-407 Aiea Heights Drive  
Aiea, HI 96701-3516  
(808) 487-2311  
[lmhubbard@hawaiiantel.net](mailto:lmhubbard@hawaiiantel.net)  
Na Koa Ikaika

Testimony on the Navy's Proposal for the activities affecting the Northwestern Hawaiian Islands  
Papahānaumokuākea Marine Monument

The intent for this marine monument was to create a sanctuary, a puuhonua. Na Koa Ikaika, an ohana of family and friends, supports Hawaiian culture and traditions. Moreover, we believe in the protection of our natural resources.

The Navy's proposals turn this sanctuary into a farce, a piece of paper, an entity where the Navy can act with impunity—bomb and destroy and pollute at will. ALL ACTIVITIES WHICH UNDERMINE THE INTEGRITY OF THE ENTIRE ARCHIPELAGO MUST STOP. PAU. You have already done an excellent job of destroying Hawaii. PAU with your military assaults, training, missile launches and interceptions. At least we can perhaps maintain the sanctity and relative purity of Papahānaumouakea.

Furthermore, we also wish to see that no more fishing is done in the area by scientific expeditions, military incursions or even cultural visitations. We must preserve the fish there to re-stock our depleted species.

I would also propose cultural monitors accompany military expeditions to negate any harm to the area.

Mahalo for the opportunity to share my concerns,

*Lela M. Hubbard*

Lela M. Hubbard  
Na Koa Ikaika

*June 24, 2008*

PUBLIC COMMENT SHEET

Papahānaumokuākea Marine National Monument  
Draft Management Plan

00052

Name: Suzanne Garrett

Representing: Public Voice

Mailing Address:  
2023 Lime St. #J  
Hon. HI 96824

E-mail: Seetogo2@yahoo.com

Add your address to the Monument mailing list?  Yes  No  
Add your e-mail to the Monument list serve?  Yes  No

COMMENTS

I think the part that needs to be ReAddressed & Rewritten is that the military needs to (at least) follow the same guidelines (Laws) governing the protection of these islands. Please Leave this AS is -

Please submit this form in the Public Comment Box, or mail to:

(continue on reverse)

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

PUBLIC COMMENT SHEET

Papahānaumokuākea Marine National Monument  
Draft Management Plan

00053

6/24/08  
5:45 pm

Name: David C Spafford

Representing: Self as Research Asst UTM Marine Botany

Mailing Address:  
2189 Hebo Place  
Honolulu, HI 96816

E-mail: dspaf@Hotmail.com

Add your address to the Monument mailing list?  Yes  No  
Add your e-mail to the Monument list serve?  Yes  No

COMMENTS

Once invasive seaweeds arrive at a new site, they are difficult (if not impossible) to eradicate. Please do not allow military, commercial persons or equipment, tourists or divers to use the NWHI's. Even research activities must be limited to minimize the risk of invasive seaweeds reaching this precious, irreplaceable ecosystem. KEEP PEOPLE OUT!

Please submit this form in the Public Comment Box, or mail to:

(continue on reverse)

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)



**PUBLIC COMMENT SHEET**

Papahānaumokuākea Marine National Monument  
Draft Management Plan

00054

Name: JUNG PATRICKSON

Representing: Myself as a concerned citizen

Mailing Address:  
2428 Tunitaha ST #703  
Hono, HI 96815

E-mail: \_\_\_\_\_

Add your address to the Monument mailing list?  Yes  No  
Add your e-mail to the Monument list serve?  Yes  No

**COMMENTS**

May the preservation of these islands  
serve as an example to the world  
of a new and better way of uniting  
conservation of nature and respect  
for humanity - past, present, and future  
Aloha!

Please submit this form in the Public Comment Box, or mail to: (continue on reverse)

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

**PUBLIC COMMENT SHEET**

Papahānaumokuākea Marine National Monument  
Draft Management Plan

000167

RECEIVED  
JUL 6 8 2008

USFWS-HAWAIIAN/PACIFIC NWRG  
HONOLULU, HAWAII

Name: DAVE GONZALES

Representing: PUBLIC PARTICIPATION

Mailing Address:  
POB 11435 HONOLULU, HI. 96828

E-mail: \_\_\_\_\_

Add your address to the Monument mailing list?  Yes  No  
Add your e-mail to the Monument list serve?  Yes  No

**COMMENTS**

THE PAPAHAUUMOKUAKEA OR NWHI MNM MUST STRESS  
CONSERVATION  
AS ITS FIRST PRIORITY. THE CITIZEN BASED ADVISORY COUNCIL  
MUST BE INCLUDED AS A PARTNER EQUALLY IN ALL DEALINGS  
WITH THE PUBLIC. AFTER ALL, CITIZEN PARTICIPATION IS ONE OF  
THE KEY ROOTS OF OUR DEMOCRATIC PROCESS. THE FACT THAT THE  
U.S. NAVY DID NOT EXCLUDE ITSELF FROM THEIR RANGE AC-  
TIVITIES AREA, AS SHOWN BY THEIR INADEQUATE EIS, BELIES  
THEIR CLAIM OF ENVIRONMENTAL STEWARDSHIP OF OUR DELICATE

Please submit this form in the Public Comment Box, or mail to: (continue on reverse)

Papahānaumokuākea Marine National Monument  
300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

## PUBLIC COMMENT SHEET

Papahānaumokuākea Marine National Monument  
Draft Management Plan

Name: \_\_\_\_\_

Representing: \_\_\_\_\_

Mailing Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

E-mail: \_\_\_\_\_

Add your address to the Monument mailing list?  Yes  No

Add your e-mail to the Monument list serve?  Yes  No

### COMMENTS

MARINE ECOSYSTEMS. IT IS UNDERSTATEMENT TO SAY THAT THIS HAS CAUSED GREAT CONSTERNATION & CONTROVERSY AND WILL BE SURELY CHALLENGED LEGALLY BY A SKEPTICAL PUBLIC. THE ONLY MENTION OF THE U.S. NAVY'S INTENT IN THIS MASSIVE DRAFT (VOLUME III, PAGE 51132, 6-5) IS MINISCULE TO THE POINT OF BEING RIDICULOUS AND WILL BE CHALLENGED - THE NAVY PAST HISTORY ENVIRONMENTALLY LOCALLY IS NOT SUSTAINABLE, THE BLANKET EXEMPTION WILL BE REPEALED BY A NEW ADMINISTRATION

Please submit this form in the **Public Comment Box**, or mail to:

(continue on reverse)

Papahānaumokuākea Marine National Monument

300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

## PUBLIC COMMENT SHEET

Papahānaumokuākea Marine National Monument  
Draft Management Plan

00169

Name: Patricia Richardson

Representing: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

482 Awela Street

Hilo, HI 96720

E-mail: patricia.richardson@hotmail.com

Add your address to the Monument mailing list?  Yes  No

Add your e-mail to the Monument list serve?  Yes  No

### COMMENTS

First of all, I'd like to say that I am extremely happy that the NWHI have

been designated a Marine National Monument. I am very impressed with all the efforts of NOAA and U.S.F.W. staffs to set up rules, protections and management plans for this area, unique on our planet. As a volunteer at Mokuapapa in Hilo and as a three-time albatross counter on Midway Atoll with Fish and Wildlife, I am familiar with the beauty and fragility of this huge area and am aware of the tragic loss it would be if we fail to protect and manage it well. My comments and suggestions are on an attached sheet.

Please submit this form in the **Public Comment Box**, or mail to:

(continue on reverse)

Papahānaumokuākea Marine National Monument

300 Ala Moana Blvd., Rm 5-231 • Box 50167 • Honolulu, HI 96850

You may also e-mail comments to: [PMNM\\_MMP\\_Comments@fws.gov](mailto:PMNM_MMP_Comments@fws.gov)

Public Comment Sheet for Papahānaumokuākea Marine National Monument

I have three suggestions to make:

1. No cruise ships
2. No military presence
3. Facilitate University of Hawaii classes on Midway Atoll

Supporting Comments:

I am surprised and dismayed that cruise ships are allowed anywhere in the Monument. Even at Midway Atoll, already heavily impacted by human presence for over a century, cruise ships are invasive. They are a danger to coral reefs and to the purity of the water. Oil spills, dumping of waste water, anchoring and running aground are potential dangers not worth risking. Cruise ships should be banned from the entire Monument, including Midway Atoll.

The U.S. Military should be given NO exemption from any of the protective measures set up for the Monument. There should be absolutely no sailing into or flying over, no sonar testing or bombing practice or any other military maneuvers within Monument waters.

And finally, a positive suggestion: all effort – funding, organizing, administration, etc.- should be made to re-open University of Hawaii marine science classes on Midway. My first visit to Midway Atoll was through a U.H. class on seabirds taught on Midway in June of 2000. Others should have this opportunity to experience the beauty, isolation and peace of Midway. And I would love to return for another class myself! (N.B. Classes should not be limited to the marine science department. English, Biology, Environmental sciences, Agriculture, etc., could benefit from this unique setting.)

Thank you for considering my comments as you finalize the management plan for Papahānaumokuākea Marine National Monument.

Patricia Richardson  
482 Awela St.  
Hilo, HI 96720

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

NORTHWESTERN HAWAIIAN ISLAND  
MARINE NATIONAL MONUMENT  
PUBLIC MEETING  
June 23, 2008

RALPH ROSENBERG COURT REPORTERS, INC.  
(808) 524-2090



1 JACKIE LOTT: Hello, my name is Jackie,  
 2 J-A-C-K-I-E, Lott, L-O-T-T. I'm a professor at  
 3 (Inaudible) Valley College in Lancaster, California.  
 4 I've finished my 18th year there. I'm also a  
 5 part-time resident, soon to be full-time resident of  
 6 Kauai, and I just want to give you some feedback about  
 7 the new Hawaiian monument.

8 First of all, my biggest concern as a  
 9 resident of Kauai is there does not seem to be any  
 10 restriction and there's overbroad use of the military  
 11 powers. There doesn't seem to be any environmental  
 12 studies done. There doesn't seem to be any  
 13 measurement of the damage or the lack of damage or the  
 14 ongoing damage to any of the marine life, and yet  
 15 that's the same justification for having the monument  
 16 to begin with. There's also no environmental  
 17 information or studies being done about the military  
 18 aircraft or test bombing or intercept testing that I  
 19 know is done off the coast of Kauai and probably  
 20 extend into the monument.

21 Also, I think that there needs to be a  
 22 better outreach, even more of an outreach to the  
 23 native population and indigenous people of Kauai, and  
 24 even other Polynesian people, like the people of Fiji  
 25 and Samoa, whose ancestors have also been part of the

—RALPH ROSENBERG COURT REPORTERS, INC.—  
 (808) 524-2090

1 Hawaiian history, but especially the Hawaiians.  
 2 They're very humble people and they don't really feel  
 3 included in the American government, for whatever  
 4 reason. And as other cultures, for example, the  
 5 Hispanic or Afro-American cultures, as an example, you  
 6 have to keep asking them and keep informing them to  
 7 get them to be involved, or, as I see it, the  
 8 Hawaiians, as much as they want to participate, they  
 9 don't have any confidence that their participation is  
 10 going to count.

11 I think like one of the speakers said  
 12 tonight, that we -- I think it was the Surfrider  
 13 Foundation, we need to think more of this as a  
 14 conservation effort, rather than a tourist attraction,  
 15 and we need to keep human intervention to a him.  
 16 Horror stories of people saying that there are going  
 17 to be cruise ships or groups of 50 people a day  
 18 spending the night on one of these preserved islands  
 19 is just unthinkable. We should learn from our  
 20 brothers and sisters on the Galapagos Islands who are  
 21 taking a very minimal amount of people, but they've  
 22 almost destroyed the habitat there biologically.

23 We need to really, really keep this to a  
 24 very bare minimum of human contact, if at all, and why  
 25 we would allow things like fishing or anything to be

—RALPH ROSENBERG COURT REPORTERS, INC.—  
 (808) 524-2090

1 taken is just against the whole purpose of having the  
2 monument, which should be and is espoused to be  
3 conservation.

4 And another speaker tonight talked about  
5 the fact that the initial plan seems to have the  
6 people in charge are going to be -- have closed  
7 meetings instead of opened to the public. This goes  
8 against all American rights and other government  
9 entities that as a democratic society hold open  
10 meetings and forums and televise how their  
11 representatives are voting and speaking and so forth.

12 I can be contacted at P.O. Box 1617,  
13 Lancaster, California 93539. And if you want to  
14 include me in anything, I'd appreciate it. Thank you  
15 very much. Thanks for listening.

16 (End of audiotaped proceedings.)  
17  
18  
19  
20  
21  
22  
23  
24  
25

1 **C E R T I F I C A T E**  
2

3 I, Jessica R. Perry, Certified Shorthand Reporter  
4 for the State of Hawaii, hereby certify that the  
5 proceedings were taken down by me in machine shorthand  
6 and was thereafter reduced to typewritten form under  
7 my supervision; that the foregoing represents to the  
8 best of my ability, a true and correct transcript of  
9 the proceedings had in the foregoing matter.

10 I further certify that I am not attorney for any of  
11 the parties hereto, nor in any way concerned with the  
12 cause.

13 DATED this 1st day of August, 2008, in Honolulu,  
14 Hawaii.  
15

16  
17 -----  
18 Jessica R. Perry, CSR, RPR  
19 Hawaii CSR 404  
20  
21  
22  
23  
24  
25

---

---

**APPENDIX E**

**INDIVIDUALS SUBMITTING E-MAIL FORM LETTERS  
THROUGH NGO WEBSITES**

## Individuals Submitting Email Form Letter Comments Through NGO Websites

Jenny A	Susan Alby	Sara Anderson	Dana Aronowitz
Jacqueline A.	Susan Aldredge	Pam Anderson	Sheila Arries
Frank Aaron	Christine Aldrich	Leroy Anderson	Diane Arrieta
Marrisha Abbot	Tom Aldridge	Judith Anderson	Ardith Arrington
Dorothy Abbott	Patricia Alejandro	John Anderson	Thomas Artin
Anne Abbott	J. Alexander	Vicki Anderson	Yael Artzi
Calvin Abbott	Emily Alexander	Larry Anderson	Jennifer Aryf
David Abel	Thomas Alexander	Deanne Anderson	Lindsey As
Mary Able	Joseph Alfano	William Anderson	Lori Ashley
Carl Abrahamson	Rockell Alhale	Randy Anderson-Orr	Nancy Ashley
Barry Abrams	Kristen Allbritton	Jessica Anderson-Winston	Sandra Ashmore
Joan Abruzzo	Nicole Allbritton	Saliane Anderssen	Elyse Ashton
Theresa Acerro	David Allen	Amanda Andes	Chris Ashton
Kristine Acevedo	Keegan Allen	Heidi Andrade	Nayeem Aslam
Beverly Ackerman	Jeffrey Allen	Chris Andrade	Shelley Asper
Adrienne Acoba	Deanna Allen	Susan Andres	Mary Asproyerakas
Michele Adams	James Allen	Sherry Andresen	Artemis Asproyerakas
Nannette Adams	Dena Allen	Gordon Andrews	Kathleen Assiff
Cynthia Adams	Susan Allen	Paul Andrews	Emilio Astier
Teri Ann Adams	Elizabeth Allen	Martha Andrews	Aizza Asuncion
Pat Adams	G Allen	Penelope Andrews	Mikel Athon
Kathleen V. Adamski	Ric Allen	Shelley Andrews	Julie Attardo
Deni Adaniya	Lindsey Allison	Arik Andrysiak	Roberta Audino
M. Addison	Frances Allred	Bryony Angell	Joyce August
Genevieve Adell	Sydney Allrud	Jennifer Angelone	Boyer C. August
Tom Adkisson	Katie Almeida	Kate Angermeier	Candi Ausman
Ellen Adler	David Almond	Shirley Ann	Jakki Austin
Surendar Advani	Greg Aloe	Elaine Anthonise	Alyssa Austin
Sean Affayroux	Ona Alpert	Jay Antol	Nicole Avedon
Barbara Aguado	Kim Altana	Paul Antonelli	Andrea Avendano
Emily Aguilera	Carol Altavilla	Rachel Antonucci	Jennifer Averde
Karina Aguilo	K Althammer	Craig Antrim	Amy Aversa
Cecilia Aguirre	Julie Altman	John Anuci	Vikki Avey
Eugenia Ahern	Allen Altman	Ray Apodaca	Ron Avila
Judy Ahern	Rita Altman	Cheri Apodaca	Louis Avrami
Sarah Ahrens	Liz Alvarado	Hilary Aquino	Stacey Ax
Tracey Ahring	Natalia Alvarez	Lee Archardl	Jude Ayer
Kirsikka Ahtiala	Alma & Ame' Alvarez	Paula Archer	Charles Ayers
Ed Aiken	Rachael Alvarez-Jett	Sheri Archey	Charlie Ayers
Joel Ainger	Carla Alzuro	Anthony Arcure	Maryanne Aylesworth
Donna Ainsworth	Sarah Amandes	Sholey Argani,	Janet Ayres
Michael Airoidi	Julie Amato	Amin Arikat	Robin B
Shelley Aitoro	Dennis Amaya	Carolyn Arkison	Fabienne Babb
Peter Ajemian	Mary Amberg	Margie Armantrout	Jill Babore
Francis Akamine	Isbell Ambiel	Jill Armentrout	Christina Babst
Alison Albee	Susan Amick	Joan & Paul Armer	Miryam Bachrach
Burt & Staci Alber	Sharon Amorosa	Thomas Armstrong	Brenda Backstrom
Catherine Albers	Dale Anania	Linda Arndt	Sarah Backus
Harrison B. Albert	Gail And	Marilyn Arnett	John Bader
Anthony Albert	Connie Anderson	Cathy Arnett	Terry Badger
Deborah Albert	Helen Anderson	Rebecca Arnhold	Mary Baechle
Lynne Albert	Rhonda Anderson	Sherry Arnold	Ted Baer
April Alberts	Katryna Anderson	Frank Arnold	Howard Baer
Lisa Albright	Constance Anderson	Sharon Arnoldi	Michelle Bafik-Vehslage
Nicole Albright	Glen Anderson	Sharon Arnowitz	Joanna Bagatta

Chris Bahnsen	Dana Baron	Mary Beattie	Wendy Bergman
Ingrid Bahr	L. Baron	Brittany Beatty	Laurie Beringer
Rich Bahr	Joyce Barone	Richard Beccaloni	Nicole Berkheimer
William Bailey	Jill Barr	Margaret Beck	David Berkshire
Douglas Bailey	Mike Barr	Lisa Beck	Michael Berla
Marcia Bailey	Alessandro Barracciu	Thea Becker	Steve Berman
David Bailey	Alison Barratt	David & Helen Becker	Bryce Bermingham
Gerald Bair	Stacey Barreiro	Tracy Beckerley	Pamela Bermudez
Rachel Baird	Jean Barrell	Jonathan Beckett	Andrea Bermudez
Susie Baker	Dianna Barrella	Gail Bedinger	Bruce Bermudez
Shelly Baker	J. J. Barrera	Floyd Bednarz	John Bernard
Karen K. Baker	Terri Barreras	Noel A. Bednaz	Karen Bernhardt
Erin Baker	Richard Barrera-Siller	Jeffrey Bedrick	Michele Bernier
M Baker	Charles Barrett	Clara Beeler	Chip Berning
Stanley Baker	James Barrett	Iggy Beerbower	Scott Bernstein
Sheila Baker	Ange Barrett	Chris Beeson	Jeannine Berroteran
Marla Baker	Gordon Barrett	Cecilia Behrendt	M Berry
Bonnie Baker	Jack Barrett	Dixie Belcher	Joycey Berry
Graham & Sandy Baker	Betty Barrett	Todd Belcher	Joycey Berry
Howard Bakken	Tim Barrington	Joan Beldin	Joycey Berry
Shawn Baland	Robert Barrington	R. Belding	Cherelle Bertch
Pamela Baldinger	Sarah Barrs	Timothy Belford	Annie Bertrand
Barbara Baldock	Bethany Barry	Kausar Belgaum	Hans Bertsch
Teresa Baldock	Shannon Barry	Barbara Bell	Lucille Bertuccio
Laurie Baldwin	Hester Bartels	Anthony Bell	Ruth Bescrypt
Jeff Ball	John Barthel	Sharon Bell	Linda Bescrypt
Kathleen Ball	Alice Bartholomew	Robert Bell Iii	Jonathan Beshel
Jane Ball	M Barton	Lara Bellefeuille	Barbara Besold
Tom Ballard	Gary Barton	Nancy L Bellers	Rae Besserman
Ranko Balog	Angela Barton	Darcy Bell-Symes	Paul Betancourt
Michael Balsai	Joni Bartschi	Toni Beltrano	Christopher Betancourt
Sol Baltimore	Martha Bartter	Bree Belyea	John Bettencourt
Laura Beth Bamberger	Samuel Baseler	Bret Belyea	Lisa Bettles
Lisa Banik	Melinda Bashen	Leslie Bemis	Robin Beugless
Crystal Banks	Linda Bass	Pamea Benbow	Peter Beves
Tamara Bannister	John Bassett	Constance Bencze	Elaine Bevilacqua
Ankush Bansal	John Bastone	Sabina Benestante	Marisa Bezjian
Leafgreen Banyan	Kim Bates	Joan Benincasa	Shelley Bialek
Clayton Barbeau, Ma, Mft	Natalie Batovsky	Ilene Beninson	Jerome Bibuld
Virginia Barber	Gail Battaglia	Zoya Benjamin	Nicole Bickel
Barcilon@Bellso Barcilon	Bennett Batten	Alicia Benke	Kevin Bickers
B Bard	Frances Baty	Cynthia Benner	Autumn Bidwell
Alta Bardsley	Dawn Bauer	Matthew Bennett	Lynette Biedermann
Bonnie Barfield	Louis Bauer	Bruce Bennett	Lynne Biegler
John Barfield	Barbara Bauer	Barbara Bennigson	Jeff Biehler
Sheryl Barger	Carol Bauer	Sheryl Benning	Rita Bieszk
Lauren Barker	Pauline Bauer	Susan Benson	Victoria Bigelow
Van Barker	Tom Bauer	Cecile Benson	Susan Biggs
Dan Barkley	Robert Baum	Sigrid Benson	Leon Biggs
Jessica Barley	Nelson Baumer	Eric Benson	Bertha Bikulcs
James Barnes	Allie Baurer	Coralie Benton	Joseph Bilicska
Sandra Barnes	Bruce Baxley	Jennifer Bentzel	Lisa Bill
Donald Barnes	Joseph Bayley	Suellyn Benzvi	Donna Bills
Lynn Barnes	Frank Baylin	Bernard Berauer	Claudine Bing
Aegina Barnes	Leticia Bayona	Claudia Berdeen	Bevin Birchenough
William Barnes	Michael Bayouth	Nicole Berens	Kenneth Bird
Pamela Barnett	Hannah Beadman	Elaine Berg	Caroline Bishop
Jessica Barnett	Baret Beall	Barbara Berger	Ashlee Bishop
David Barnett	White Bear	Debbie Berger	Jeffery Biss
Sandra Barnett	Helen Beardsworth	Christine Berger	Gracia Bittner
Linda Barnhart	Helen Beasley	Nancy Berger	Simona Bixler
Mary Ann Baron	Dawn Beattie	Kristina Bergman	Pam Bixter

Michael Black	A Bonvouloir	Amelia Braselton	Amber Brown
Steve Black	Barbara Bonvouloir	Michele Braun	Greg Brown
Rick Black	Donna Boonchit	Karin Braunsberger	Carol Brown
Bruce Blacknight	Howard Booth	Monica Brazel	Jan Brown
Katie Blackshear	Andrea Boothby	Christine Brazis	Terri Browne
Tom Blahnik	Alvaro Borba	Cathleen Brdlik	Patricia Browne
Clara Blair	Mary Borello	Patricia Bredenberg	Patricia Browne
John I. Blair	Alain Borie	Joe Breman	Brenda Browning
John Blair	Pat Borlik	Michelle Brenard	Victoria Brownlee
Carmen Blakely	Ann Bornstein	Eleanor Brennan	Michele Brown-Ramirez
Stephen Blakely	Amy Borodach	John Brennan	Sarah Brownrigg
Shawna Blaker	Cindy Borske	Thomas Brenner	Peter Brownrigg
Gary Blanchard	Karen Boseke	Lisa Breslauer	Lynn A. Brozovich
Phoebe Blanchford	D Bostaph	Jeannine Brewer	Devin Brubaker
Maryant Blanco	Jenna Boswell	Veronika Brezovakova	Thomas Bruice
Brian Bland	Susanne Both	Shelley Brickell	Marjolein Bruinen
Madaline Blau	Nancy Boucha	Kathy Bricker	April Brumson
Robin Blauschild	Tasha Boucher	Jacki Bricker	Donna Bruneau-Lester
Lori Blauwet	Susan Bouchonville	Daniel J. Briere	Arthur Brunet
Naomi Blinick	Patricia Boud	Bill Briggs	Cathy Brunick
Laura Blitzer	Cassidy Boulan	Gillian Briley	Lisa Bruno
Marilynn Block	Sue Boulton	Cynthia Brinson	Natalie Bruso
Sharon Blodinger	David Bourbeau	Denise Bristol, Ms	Lisa Brwn
Jerry Bloomer	Michelle Bourg	Stacey Bristow	Mary Nell Bryan
John Blouch	Eric Bourgeois	Kathy Britt	D. Bryan
Lee Blowers	Jeffrey Bove	Melinda Broadwater	Karen Bryan
Kim Blubaugh	Adam Bowen	Laura Brochard	Brooke Bryant
Robin Blum	Linda Bowen	Pamela Brocious	Karen Bryant
Gerald Blume	Katie Bowen	Christi Brockway	Elizabeth Bryant
Harry Blumenthal	Lynnette Bower	Donald Brockway	Geraldine Brylski
Fulford Bob	Alexandra Bowers	Seymour Brodsky	Sharon Buazard
Ralph Bocchetti	Mary Bowie	Marnie Bromby	Sharon Buazard
William Bodden	Jane Bowler	Peter Bromer	Barbara Buchanan
Ruth Bodeman	Candy Bowman	Eric Bronner	Carrie Buck
Michael Patrick Bodin	Kim Bowman	Ashley Bronzan	David Buck
Michael Bodin	Florine Bowman	Eric Brooker	Ronald Buckles
Patrick Bodin	Richard Boyce	Gloria Brookman	Kathleen Buckley
Dan Bodnaruk	Rebecca Boyd	Chelsea Brooks	Tom Buckmaster
Ed Bodnovich, Jr.	Rachel Boyd	Angela Brooks	Thomas Bucsko
Karen Boesch	Natalie Boydston	Shaun Brooks	Shannon Buddes
Sue Boezi	Mary Boyer	Judy Brooks	Colleen Budzien
Larry Bogert	Kathy Boyington	Michelle Brooks	Lisa Buehler
Ronald Bogin	Darlene Boyle	Scotia Brosnan	Chris Buelow
Stephen Bohac	Dennis Boyle	Patty Brothag	Cierra Buer
Irene Bohmann	Jill Boyle	Kelle Broussard	Frank Bufano
Erika Boka	Rajshree Boyragee	Melissa Brow	Jennifer Bunner
Christina Boland	Nanette Bradbury	Amelia Brower	Rbunsick Bunsick
Deniz Bolbol	Alikona Bradford	Richard Brown	Sheryl Buntin
Diane Bolman	Jennifer Bradley	Rich Brown	Kristen Bunting
Patricia Bolt	Joseph Bradley	Jack Brown	David, Paul And Xavier Burch
Geri Bommarito	John F. Brady	D Brown	Kristin Burch
Suzanne Bompensa	Geraldine Brady	Susan Brown	Ben Burchell
Marta Bonatz	R Brailly	Louise Brown	Karen Burchett
Leslie Bond	Evelyn Brakopp	Sylvia Brown	Richard Burford
Lea Bond	Ruth Bramall	Warren Brown	Ryan Burger
Jose Ricardo Bondoc	Helen Bramlett	Alice Brown	Dana Burger
Tamara Boneck	Steve Branch	F.A. Brown	Roos Burger
Carmen Bonilla-Jones	Joanna Brand	Laurie Brown	Janice Burgi
Donna Bonin	Anita Brandariz	Stefanie Brown	Josephine Burke
John Bonior	Ramna Brandt	Tina Brown	Elizabeth Burke
Patty Bonney	Sarah Brandt	Doug Brown	Cassandra Burke
Robert Bonometti	Cynthia Brant	Colleen Brown	Newton J. Burkett, Jr.

Kerry Burkhardt	Priscilla Campbell	Emily Cartmill	Jan Charvat
Valerie Burkley	Aarlene Campion	Giorgia Caruso	Gib Chase
Michele Burleson	Teresa Campos	Sabrina Case	Jayni Chase
Ruth Burman	Isaac Campos	Jacqueline Case	Michael Chase
Deborah Burnett	Shannon Canada	Lynn Casella	Sherwin Chasen
Sally Burns	Frank Cannon	Donna Casella	Lynette Chasen
Catherine Burns	Fran Cannon	Siobhan Casey	Odette Chauve
Jodi Burns	Rosemary Caolo	Patricia Casey	Bryan Chauveau
Don Burns	Mary Capehart	Nancy Casna	Jill Cheatham
Ellen Burnside	Sarah Caplan	Dawn Cason	Lori Cheezem
Kathy Burpee	Anthony Capobianco	Elizabeth Casseri	Lital Chelzinger
Pamela Burrer	Jeanette Capotorto	Christine Castan	Frances Chen
Karen Burroughs	Karen Cappa	Victor Castellanos	Gay Cheney
Julia Burrows	Fawn Capps	Leigh Castellon	Amy Cheney
Janet Burrows	Sharon Cappuccio	Judith Casten	Jeri Cheraskin
Aubrey Bursch	Louis Caputo	Elizabeth Castigliero	Colin Cherot
Grace Burson	Richard Cardella	Jan Castlen	Joy Chesna
Alexandra Burt	Sylvia Cardella	Lexie Cataldo	Robert Chesrow
Debra Burton	Rosemary Cardello-Letch	Peter Caton	Stacy Chetta
Emily Burton	Erica Carder	Claire Caudill	Kathy Chiavola
Stephen Burton	Lynn Cardiff	Danielle Caughey	Carol Childerley
Mark Burwinkel	Robert Cardillo	Harriet Cavalli	Gary Childers
Dara Busch	Dorothyann Cardlin	Ann Cavaluzzi	Jason Chinn
James Busemeyer	Aglaiia Cardona	Joseph Cavanaugh	Rosemarie Chinni
Jim Bush	Bethany Cardone	Mick Cave	Eric Chipman
Nancy Bush	Marcio Cardoso	Karen Caya	Pamela Chipman
Chantal Buslot	Elizabeth Carey	Rob Caylor	Mark Chiu
Barbara Busse	Heidi Carla	Richard Cedor	Sherri Chiu
Heather L. Butler	Walter Carlin	James Celico	Rhonda Choi
Dori Butterick	Cynthia Carlon	Maria-Luisa Centeno	Fairbrother Christa
Ryan Butts	Chris Carlon	Euribiades Cerrud	Jessica Christian
Julie Buzinski	Susan Carlsgaard	Pat Chaban	Kelly Christian
Sharon Byers	Savitri Carlson	Paula Chadbourne	Stephen J. Christian
John Byl	Rita Carlson	Kathy Chadwell	Candy Christiance
David H. Byman	Sarah Carlson	Jeanne Chadwick	Nancy Christy
Christopher Byrnes	Keith Carlton	Liz Chaffe	Lenny Chrostowski
Sharon Byron	Diane Carney	Claudia A. Chaffin	J. Chrystal
Doug Byron	Stephen Carney	Janis Chaffin	Jonathan Chu
Beth Cady	Michael Carney	Leslie Chaffin	Tom Church
Abigail Cahill	Annabelle Caron	Joseph Chaiklin	Barb Churchill
Jamie Caito	Betty Carpenter	Mikki Chalker	Theresa Ciavarella
Nicole Calabrese	Jeremy Carpenter	Nancie Chalmers-Herbst	Natalie Ciocca
Antonio Calabria	Malo & Kl Carpenter	Karen Chamberlain	Melanie Cipher
Christine Calardo	Donna Carr	Cory Chamberlain	Ruth Ciriello
Janet Calcaterra	Laurie Carr	Nancy Chamberlin	Alexis Cisneros
Stephanie Calcavecchio	Martin Carreon	A Chameides	Roger Citron
Patrick Caldwell	Arlette & Patrick Carrigan	Lesia Chan	Morgan Clark
Carol Caletti	Diana Carroccia	Corey Chan	Robert Clark
Bob Caletti	Tim Carrol	Roger Chan	Tom Clark
Helle Calhoun	Dee Carroll	Trish Chaney	Misty Clark
Lee Cali	Chris Carroll	Christy Chaney	Martha Clark
Jeanne Callahan	Eric Carroll	Patricia Chang	Cindy Clark
Robin Callaway-Welch	Susan Carroll	Carol Changus	Erika Clark
Heather Calloway	Sandra J. Carrubba	Mary Ann Chapman	Betty Clark
Elizabeth A. Camp	Marilyn Carse	Timothy Chapman	David Clarke
Laura Campanelli	Larry Carter	Donna Chappell	Jennifer Launch-Meyers
Suzi Campbell	Ashley Carter	Sheila Charette	Linda Clave
Bob Campbell	Susan Carter	Laura Charles	Kimberly Clemens
Laurel Campbell	Kimm Carter	Stanley Charles	Clare Cleveland
Elizabeth Campbell	Brenda Carter	Ruth Charnes	Mike Clifford
Patricia Campbell	Amanda Carter	Heidi Charnquist	Loren Clift
Barbara Campbell	Charlene Carter	Donna Charter	Gregory Clifton



Andrea Clmino  
Megan Clossey  
Cynthia Cluck  
Jerry Clymo  
Patty Coates  
Kylie Cobb  
Joan Coble  
Larry Coble  
Larry Coble  
E Coblentz  
Bruce Coburn  
Joe Coco  
Pam Coe  
Margery Coffey  
Kathy Coffman  
Cindy Cohen  
Lauren Cohen  
Howard Cohen  
Harriet Cohen  
Josh Cohen  
Bruce Cohen  
Sylviane Cohen  
Darcy Cohn  
Kristina Coiro  
Pam Coker  
Kim Colangelo  
Rodolfo Colberg  
Jessica Colby  
Sandra Cole  
Brandy Cole  
Sandy Cole  
Beth Cole  
Kim Cole  
Patrice Cole  
Lori Colelman  
Candy Coleman  
Megan Coleman  
Suzanne Coleman  
Stuart Coleman  
Anne Colgan  
John Colgan-Davis  
Carol Collier  
Michael Collier  
Betsy Collins  
Carol Collins  
Stefanie Collins  
Russell Collins  
Barbara Collins  
Susan Collins  
Jannice Colon  
Jim Columbia  
Gerald Comisar  
Lara Compton  
Carolyn Comstock  
Susan Conant  
Connie Conaway  
Gabriel Condie  
Frances Cone  
Vira Confectioner  
Cassie Conger  
Robert Conlan  
John Connelly

Caryn Connolly  
Nora Connolly  
Thomas V. Connor  
Lisa Connor  
Joseph Connors  
Jen Connors  
Jody Conrad  
David L. Conrad  
Melissa Conrad  
William Conrad  
Conrad Conrad  
Thomas Conroy  
Kathleen Conroy  
Sue Considine  
Bianca Constance  
Patti Constantino  
Earl Conteh-Morgan  
Nancy Contreras  
Meranda Contreras  
E. Blaine Converse  
Michael Conzo  
Patricia Cook  
David W. & Sa Cook  
Kay Louise Cook  
Adrienne Cook  
Andria Cook  
Miriam Cook  
Will Cook  
Julie Coon  
Mitzi Coons  
Katie Coontz  
Donna Cooper  
Marcia Cooperman  
Sandra Cope  
Stephen Copeland  
Ivy Copley  
Kathy Corcoran  
Joel Cordero  
Alicia Cordero  
Wm. A. & Janet M. Corkran  
Jared Cornelia  
Dawna Corning  
Julie Corrar  
Bernie Corrigan  
Kelly Corso  
Wynne Corson  
Anthony Cortez  
Sarah Cortez  
Sarah Cortez  
Monica Cortez  
Monica Cortijo  
Cara Corzo  
Mark Cosgriff  
Francisco Costa  
Elmer Costabile  
Lanie Costeas  
Chrisy Costello  
Lisa Costello  
Karl Costenbader  
Gail Costic  
Cassandra Costley  
Kristina Cotten

Clare Cottreau  
Ricardo Cottrell  
Kanit Cottrell  
Doug Couchon  
Jesse Counterman  
Chuck Countryman  
Marjut Coursaris  
Vera Cousins  
Sandi Covell  
Teresa Covington  
Steve Covington  
Leonard Cowan  
Dylan Cowles  
Tanya Cowperthwaite  
Scott Cox  
Lisa Cox  
Michael Cozzi  
Phil Crabill  
Helen Crabtree  
Susan Craig  
Maya Craig  
Nora Crain  
Mary Ann Cramer  
Neal Crandall  
Michael Crane  
Raymond Crannell  
Shea Craver  
Christine Crawford  
Donna Lee Crawford  
Ian Cree  
Dawn Creighton  
Patricia Crespo  
Jessica Cresseveur  
Norman Cressy  
Judy Cristelli  
Ron Critchfield  
Marjorie Crockett  
Nancy Crom  
Sandy Crooms  
Kathy Crosby  
Tara Cross  
Danielle Cross  
Jean Crossman  
Jennifer Crowston  
Cathy Crum  
Diane Crummett  
Iris Cruz  
Tabitha Cruz  
Marian Cruz  
Cynthia Cruzcowart  
Michelle Csonka  
John Cuda  
Wilma Cuellar  
Kevin Cuenca  
Dale Cullen  
Deb Cullings  
Gary Culpepper  
Joe Cundari  
Sofia Cunha  
Juliette Cunico  
Cam Cunningham  
Carol Cuoco

Christine Curcio  
Jim Curland  
Connie Curnow  
John Curotto  
Margarita Curras  
Jon Current  
Nancy Currier  
Arthur Currier  
Carol Curtis  
Janet Curtis  
Aaron Cushing  
Amanda Cutler  
Megan Cutler  
Barry Cutler  
Christiane Cutter  
Amy Cutting  
Heather Cyphers  
Vicki Cyr  
Christine Cyriacks  
Liz D.  
Florence Dacey  
Thomas Dadant  
Lisa Dadgar  
Isadora Dahlen  
Deborah Dahlgren  
Bianca Dailey  
Namita Dalal  
Emily Dale  
Lucie D'alessandro  
Anne Daletski  
Alexis Dallaportas  
Richard Dalmau  
Dennis P. Daly  
John D'ambra  
Lisa D'ambrosio  
Stephanie D'ambrosio  
Jacqueline Dames  
Jeanne Dancer  
Josh Daneker  
Janis D'angelo  
Robert Daniel  
Roger Daniel  
Dawn Daniel  
Paul Daniello  
Patricia Daniels  
Allen Daniels  
Ella Danis  
Dorothy Dankanyin  
Marie Danna  
Lisa D'antonio  
Wendy Darasz  
Elizabeth Darovic  
Robert Dart  
Suvra-Anita Das  
Suganya Dasarathy  
Lynne Daub  
Scott Daugherty  
Jacinda Daugherty  
Alissa D'auria  
Diane Dauten  
Desiree Davenport  
Laura Davenport

D. Dirk Davenport	Janet Delaney	Christine Dildine	Rex Dowling
Danica Davidson	Dino Delano	Gavin Dillard	Ann Downey
Donna Davidson	Robin Delapena	Debbie Dillon	Candace Downing
Leslie Davidson	Robin Delapena	Ed Dillon	Eleanor Dowson
Kirstin Davidson	Carlos Delgado	Linda Dills	Robert Doyle
Diane Davidson	Diana Dellamarie	Richard Dimatteo	Heather Doyle
Dennis Davie	Tom Dellay	Bill Dimick	Kristina Doyle
Emma Davies	Jennifer Dellinger	Robert Dimick	Kate Doyle
Nancy Davies	Michelle Delorme	Brigitte Dinaberg	Jsusan Dragieff
Dorothy Davies	Leslie Delphus	Kevin Dindial	Davy Dragland
April Davila	Tamara Demaio	James Dine	Derek Dragotis
Jill Davine	Derek Demane	Charles Dineen	Monica Drake
Heather Davis	Jennifer Deming	Boris Dirnbach	Patrick Anthony Drake
Shirley Davis	Cindy Deming	Patricia Dishman	Dana Drake
Laura Davis	Kathleen Dempsey	Dennis Dittmar	Elena Drei
Carolyn Davis	Jeffrey T. Denisuk	John Diversey	Korina Drenon
Robert Davis	Pam Denman	John T. Dixon	Linda Drescher
Darlene Davis	Elizabeth Denning	Donna Dixon	Arlene Drester
Scott Davis	Steve Dennis	Holly Dixon	Sera Harold Drevenak
Mckinley Davis	Rhonda Dennis	Donald Dixon	Jane Drews
Trish Davis	Mahi Denny	Joanie Doas	Brandi Dringus
Sandra Davis	Rachael Denny	George Dobosh	Marilyn Drucker
Phil Davis	Michele Denski	Renata Dobryn	Bruce Drucker
Becky Davis	Tommie Denson	Lynn Dodson	Valerie Druguet
Danielle Davis	Anne Depoalo	Carol Dodson	Carmen Druke
Brendal Davis	Genevieve Deppong	Sandie Dodson	Darrin Drumm
Jil Daw	Christian Dequincy	Sarah Doenmez	Doug Dryer
Helen Dawkins	Russel Deroche, Jr.	Judy Dolan	Julie Du Bois
Peggy Dawson	Star Derose	Cody Dolnick	Jane Du Brin
Dan Dawson	Marie Dervartanian	Alexander Dolowitz	Michelle Du Preez
Charlie Day	Shelley Deshong	Geoffrey Doman	Mona Dube
Michael Dayton	Tom Desimone	Monica Dominguez	Harris Dubin
Ruth Anne Dayton	Francoise Desoutter	Rebecca Domken	Danielle Dubno
Richard De Cicco	D. Despain	Catherine Domozych	Stephen Dubois
Maelena De La Fuente	Peggy Detmers	Mary Donaghy	M. Dubose
Isa De Luca	Danny Detora	D. Donato	Russell Ducosin
Frank De Santis	Kyle Dettloff	Shellie Donbrosky	Philippe Ducreux
John De Silva	Merry Develle	Leslee Doner	Tim Duda
Ron & Maria De Stefano	Connie Devine	Wendy Donigian	Michelle Dudeck
Juliana De Tarnowsky	Karla Devine	Kristin Donley	Ward Dudley
Katharine De Vall	Dede Devlin	Gloria Donn	Paula K. Dueweke
Cameron Deacoff	Mary Devlin	Stephen Donnelly	Mark Duff
Sue E. Dean	Natashja Dewolfe	Anthony Donnici	Michael Duffey
Rayline Dean	Patricia Dexter	Mike Donohue	Jodi Duggan
Tatiana Dean	Adelheid Deyke	Marie Donze	Dani Duke
Amy Deane	Paul Deyoung-Martin	I. Dorman	John Dukes
Vic Deangelo	John Diamond	Melissa Dorrell	April Dumas
Margaret Deardo	Patty Diana	James Dorsey	David Dumas
Brian Debasitis	Hortense Dias	Ed Dorson	Lynette Dumont
Judi Debilzan	Martha Diaz	Rajan Dosaj	Linda Dunbar
Noel Debruton	Catherine Dichner	Twyla Douaire	Victoria Dunch
Terry Deegan	Jesica Dicione	Isabelle Doucet	John Dunkelberger
Anna Deel	Robert Dick	Katy Dougherty	Jason Dunlap
Susan Deemer	Josh Dick	Sharon Dougherty	Matthias Dunlop
Dawn Deerwester	Jeffrey Dickemann	Virginia Douglas	Stacy Dunn
Tony Defalco	M Dickson	Gayle Doukas	Judy Dunn
Michelle Defelice	Chris Diehl	Deanna Doull	Stephen Dunne
Val Degrace	Kerri Diener	David Dow	Dee Dunseith
Claudia Del Fiacco	Tran Diep	Michael Dowd	Evelyn Duplissis
Cezar Del Valle	Maria Difiore	Laura Dowdal	Cj Dupont
Sallie Delahoussaye	Barbara Digennaro	Chuck Dowe	James Dupuis
Adair Delamater	Gloria Diggle	Chet Dowell	Heather Dupuy

Janet Duran	Annette Elledge	Megan Faber	Scott Fershleiser
Tammy Durante	Philip & Susan P. Ellin	Donna Fabiano	Jessica Fetting
Ganapathy Durgadas	Gina Ellinger	Roudaire Fabienne	Daniel Fewster
Naomi Dutch	Beverly Ellingwood	Jim Facette	Eddo Feyen, Jr.
Jeanne Dutto	Barbara Elliott	Esther Fagan	Deb Fick
Krissa Dutton-Schandelmaier	Audrey Ellis	Michael Fagiano	Tanya Field
Nastja Dvorsek	Shawn Ellison	Matthew Fahey	Heather Files
Melissa Dyas	Laurie Elms	Vivian Fahlgren	Matthew Finch
Angel Dybas	Sue Elsasser	Art Fahy	Andrea Finch
Danny Dyche	Kathryn Elsner-Kerch	Mary Eaton Fairfield	Michael Fine
Susan Dzienius	Barbara Elwell	Bonnie Faith-Smith	Melinda Fink
Jennifer Spirakis Dziurka	Kyle Embler	Greg Falberg	David Fink
Susan Eames	Barbara Emerich	Fred Fall	Ellen Finkelstein
John Earl	Leigh Emerson-Smith	Ja Fallon	Mike Finocchiaro
Julia Earl	Kelly Emo	Mcspadden Family	Geremea Fioravanti
Roxanne Earnest	Debbie Endresen	Adriana Faraldo	Mark J. Fiore
Michele Easel	Amber Engeset	Adriana Faria	Mark Fiorini
Janet Eason	John Englander	Nolan Farkas	Todd Firer
Jennifer Eastes	Rick Englehorn	James Farley	Jennifer Fischer
Carol Easton	Sandra Engoron-March	Nick Farmer	Erin Fischer
Rick Easton	Emily Engstrom	Stephen Farmer	John Fischer
Kathleen Eaton	Elizabeth Enright	Vanessa Farmer	Cynthia Fischer
Pat Eaton	Dianne Ensign	Nancy Farmer-Lanz	Meade Fischer
Holly Eaton	Sarah Epstein	Tiffany Farnham	Elaine Fischer
Nichole Ebel-Bailey	Kelly Epstein	Donna Farnsworth	Kristin Fischer
Michael Ebner	Ara Erdekian	Allison Farr	Lawrence Fischman
Rita Eccles	Donette Erdmann	Camille Fasanella	Loretta Fisher
Glomarie Echevarria	Erin Ergenbright	Joan Faszczewski	Clarence Fisher
Leilani Echols	Mauguy Eric	John Faust	L Fisher
Tonya Echternach	Brian Erickson	Gina Favela	Ted Fishman
Jacqueline Eckert	Janis Erickson	Vanessa Favero	Kaye Fissinger
Diana Eckholdt	Sarah Erman	Alan Fawley	Loreli Fister
Paul Eckstein	Tristin Eros	Robert Fay	James H. Fitch
Gregg Eddie	Heather Ervin	Thomas Fedorka	Mia Fiterman
Robert Edelen	Donald Erway	Karen Fedorov	Sylvia Fitzpatrick
Michelle Edell	Jeffrey Erwin	Audrey Fee	Dian Fitzpatrick
Gayle Edelman-Tolchin	Amanda Esrey	Mike Feenaughty	Jim Fitzpatrick
Eileen Edgecomb	Neal ESTERLY	Dennis Feichtinger	Tom Fitzsimmons
Teresa Edmonds	Douglas C. Estes	Gordon Feighner	Kyla Fjeld
Steven Edmonds	Gregory Esteve	Barbara Feild	Donna Flade
Treesa Edstrom	S. Etherton	Md Fein	Merrill Flam
Brian Edstrom	Diane Ethridge	Joe Feinstein	T. J. Flanagan
Bess Edwards	Richard Eubank	Sandra Feldman	Jolene Flaugher
Monnie Efross	Elissa Eunice	Mark Feldman	Patricia Fleischer
Dee Egger	Teresa Evans	Peter Feldstein	Dan Fleischman
Cynthia Eggert, Phd	Pam Evans	Annette Felix	Coree Fleming
Marisol Eguiarte	Michael W. Evans	Vivienne Fennimore	Jill Fleming
Melissa Ehrenreich	Dinda Evans	Debra Feraco	Chris Fletcher
Sherrie Ehrlich	Jodi Evans	Paula Ferguson	Lynne Fletcher
John Ehrlich	H Evans	Patricia Ferguson	Claire Flewitt
Annette Ehrlich	Heather Evans	Cathie Ferguson	Marty Flick
Remi Eichten	Dinda Evans	Jennifer Ferguson	Danise Flood
Carl Eiferman	Franklin Eventoff	Richard & Karen Ferling	Noah Flood
Charles Eisenberg	Theresa Everett	William Fernandez	Jenny Flood
Monica Eisfeld	Robert Evers	John Ferrara	Lara Flook
Lyara Ekvinai	Susan Evilsizer	Roberta Ferrara	Christine Flores
Judy El Masri	Matthew Evinger	Betty Ferrero	Thomas Flores
Amy M. Elbert	Eve Eyer	Rene Ferretti	Karla Flores
Yara Elboroloso	Janet Eyre	Janda Ferris	Christy Flores
Leslee Eldard	Jennifer Ezell	Michele Ferritto	Linda Flores-Cierzan
Debbie Elholm	Jet Ezra	Mike Ferro	Rosario Flores-Lozads
Jeanne Elisha	Paul Miriam Ezust	Katie Ferroggiaro	Frank Florin

Frank Florin  
Edward Flounoy, Jr.  
Bobbie Flowers  
Vida Fodor  
Andrew Foertsch  
Jennifer Fogarty  
Dan Fogarty  
Maxwell Fogleman  
Marah Fogler  
Erin Foley  
Catherine J. Foley  
Mark Foley  
Sylvia Foley  
April Foley  
Robert L. Foley, Jr.  
Jeanne Folks  
Susan Folsom  
Eileen Fonferko  
Christina Fong  
Heidi Font  
Stevie Foote  
Victoria Foraker  
Ellen Forbes  
Claudia Ford  
Julie Ford  
Carol Ford  
Robyn Forehand  
Alla Formanyuk  
Jack Forster  
Helen Forsythe  
Lily Fortin  
D'anna Fortunato  
Maryanna Foskett  
Fritz Foss  
James Fossard  
Ken Foster  
Tory Foster  
Janet Fotos  
Linda Foulkes  
Fluke Foundation  
Eric Fournier  
Andrea Fowler  
Winston Fowler  
Caroll Fowler  
Bill Fowlie  
Edwin Fox  
Christopher Fox  
Julie Foxhoven  
Marie Foxton  
Nadine Foxworth  
Brianna Frachtman  
Jeffrey Fradley  
Michael Fragola  
Darren Frale  
Connie Fraley-Hartzell  
Lisa Francia  
Lorri Francis  
Steve Francombe  
Cynthia Frank  
Harriette Frank  
Cynthia Franks  
Tina Franzgrote

Marion Frazier  
Tresa Frazier  
Don Fredrickson  
Robert Fredrickson  
Hannah Freed  
Melissa Freedman  
Dawn Freeman  
Lisa A. Freeman  
Marti Freitag  
Neil Freson  
Michelle Frey  
Sherry Frey-Brown  
Nancy Freyer  
Marian Fricano  
Charles Frick  
Katja Fried  
Tamara Friedler  
Leanne Friedman  
Valerie Friedman  
Mitchell Friedman  
Darlene Friese  
Debbie Friesen  
Raymond Frink  
Rev. Dan Frisby  
Andrea Fritz  
Mary Ester Fritz  
Andrew Froehle  
Jeff Frontz  
Diana Frost  
Robert Frost  
Megan Frost  
Earl Frounfelter  
Ester Fuchs  
Freya Fuhrman  
Brice Fukumoto  
Anna Louise Fulks  
Erica Fuller  
Roy Fuller  
Andrea Fulton  
Dawn Funck  
David & Audrey Funk  
Chad Fuqua  
Kat Furitsch  
Jessie Furman  
Shearle Furnish  
Ben Fusaro  
Eben Futral  
Raja G  
Krista G  
Tim G.  
Robert G. Harris G.  
Susan Gaar  
Tracie Gabrisko  
Kathrina Gafycz  
Elena Gageanu  
Cj Gainer  
Diana Gaitan  
Andrej Gajic  
Debra Gakeler  
Stacy Galarza  
David Galas  
Mark Galbraith

Jess Galchutt  
Celeste Gale  
Barry Galison  
Erin Gall  
Cyn Gallagher  
William Galli  
Kathryn Gallo  
Shelley Galloway  
Christopher Galton  
Michael Galuska  
Stephanie Gamache  
Elinn Ganassi  
Linda Gancitano  
John & Barbara Gangale  
Sheila Ganz  
Valerie Gaona  
Kelly Garbato  
Jennyvik Garcia  
Jeffery Garcia  
Yolanda Garcia  
Claire Garcia  
Silvana Garcia  
Holland Garcia  
Lisa Garcia  
Sandy Garcia  
William Gonzalez Garcia  
Laura Garden  
M. Kim Gardener  
Bryan Gardiner  
Louis Garding  
Debbie Gardinier  
Dj Gardner  
Robert Gardner  
Sarah Garitee  
Gregory Garnant  
Denise Garrett  
Frank Garrison  
Steven Garron  
Brandi Gartland  
Katie Garton  
Jenna Garvey  
Lydia Garvey  
Matt Garville  
Arlett Garza  
P Gaspar  
Melissa Gates  
Nancy Gathing  
Suzanne Gatto  
Blaise Gauba  
Louisa Gavigan-Reichert  
Jessica Gawlik  
Linda Gazzola  
Irving L. Geary  
Laurie Gebaroff  
Bill Gebert Jr.  
Lisa Gee  
Jim & Susan Gear  
Abby Gegeckas  
Coral Gehrke  
Eric Geier  
Kay Geier  
Gemma Geluz

Kimberlee Geng  
Lisa Gengo  
Diane Gentile  
Simon Gentry  
Eunice Gentry  
Erin Gentry  
Margalith Georgalis  
Carolyn George  
Cristin George  
Correne George  
Amber & Jeremy George  
Christine Georgiou  
Joann Gerfen  
Marjorie Geri  
Caroline Gerlach  
Tricia Gerrodette  
Kristin Gerschbacher  
Uschi Gerschner  
E. Alexander Gerster  
Edward Gerster  
Stephen Gerwer  
Eric Geswender  
Raymond Gettins  
Thomas Getts  
Deanna Gianopoulos  
Maryellen Gibb  
Kenneth Gibb  
William Gibbs  
Chris Gibson  
Lee Gibson  
Darrell Gibson  
Lynn Gideon  
Michele Gielis  
Gary Gilardi  
Kellie Gilbert  
David Gill  
Kathleen Gill  
James Gilland  
Charles Gillard  
Taylor Gillespie  
Sharon Gillespie  
Kimberly Gillespie  
Julia Marie Gillett  
Kenna Gillette  
Eric Gilliland  
Dawn Gilliland  
Nancy Gillis  
Kay Gillis  
Robert Gillman  
Mark Gillono  
Richard Gilman  
Eric Gilmartin  
Jane Gilmore  
Michelle Gilpin  
George Gilsinan  
Brian Gingras  
Lisa Ginkinger  
Janice Giordano  
Elizabeth Giordano  
Myriam Giovannini  
Paul Girello  
Joline Gitis

Patricia Giurleo	Renay Gonzalez	Steve Green	Michelle Guarin
R. Gladish	Sahara Gonzalez	Lisa Green	Victoria Guarracino
Natalie Gladstein	Willy Gonzalez	Lenore Greenberg	Roselina Guerra
Herb Glahn	Yazmin Gonzalez	Helena Greene	Maria Guerra
Lynn Glahn	Rob Gonzalez	Rachelle Greene	Adriana Guevara
Marcy Glantz-Dever	Marisol Gonzalez	Eilleen Greene	Sean Guffey
Kyle Glanville	Beatriz Gonzblez	Monte Greene	Daniel Guggenheim
Jean Glaser	Robert Goodale	Ashlie & Lorae Greene	Sylvie Guibert
Richard Glassberg, Dvm	Kelly Goodingham	Judith Greenfield	Carol Guillemette
Karen Glauber	Laney Goodman	Holly Greenfield	Patricia Guilmette
Garry Gleckel	Trudi Goodman	Ramona Greenstein	Guy Guinn
Daphne Glenn	Richard Goodman	Patricia Greenwald	Pat Gula
Tanis Glenn	Kay Goodman	Andrea Greenwold	Tana Gullotta
Karen Glenn	Steven Goodman	Ronald D. Greenwood	Toni-Jean Gundersen
Michele Glenn	Nicole Goodson	Helen Greer	Darryl Gunderson
Michele Glick	Hilary Goodwin	John Gregg	Mb Gunner
Aelred Glidden	Ingrid Gordijn	Athanasia Gregoriades	Peter Gunther
Becky Glinka	Marcia Gordon	Barbara Gregorio	Alexa Gusick
Stephen Gliva	Billie Gordon	Marc Gregory	Deborah Guthrie
Janice Gloe	J Gordon	Probyn Gregory	Rand Guthrie
Tim Glover	Ingrid Gordon	Chilton Gregory	Nichole Gutierrez
Leanne Glygoroff	Jonathan Gordon	Nancy Gregory	Kathy Gutierrez
Michelle Gobely	Wendy Gordon	Tina Greiner	Mark Gutman
Marek Goczal	Rick Gordon	Dianne Grenland	Larry Guzman
Dorota Goczal	Kristine Gordon	Jillian Grey	Pamela Gylling
Seth Godfrey	Andrea Gordon,	Samantha Grieves	Pam H
Donna Godfrey	Dan Gore	Angie Griffey	Kathleen H.
Patrick Godon	Suzanne Gorenfeld	Veronika Griffin	Nancy H.
Linda Goecke	Bonnie Gorman	Jody L. Griffin	Margaret Haas
Emily Goenner	Marie Gorsline	Debbie Griffin	Jeffrey Haas
Lois Goertzen	Mary Goss	Deneen Griffin	Roger Haase
Jean Goetinck	Debbie Gosselin	Lara Griffith	Sabrina Habib
Karen Goetze	Lyn Gottschalk	Elizabeth Griffith	Adam Hacker
Alan Goggins	Jeanette Gowdy	Carolynn Griffith	Virginia Hadley
Natasha Gogin-Moses	Amy Gowe	Joy Griffith	Amanda Hafner
Nan Gold	Beverlee Goynes	Thomas Grimes	Cath Haftings
Marilyn Gold	Meghan Grady	Nancy Grimes	Julie Hagan-Bloch
Warren Gold	Catherine Graf	James L. Grimes, DVM	K. Hageman
Howard & Mary Gold	Rosemary Graf	James Grimes, Dvm	Chris Hager
Pat Goldberg	Stephen Graham	Barton Grimm	Jon Hager
Lynn Goldberg	Judith Graham	Suzanne Grimm	Brett Hager
Constance Goldberg	Charlie Graham	Susan Grimwood	Ron Haglind
Helen Goldenberg	Kimberley Graham	Kirsten Grish	Darlene Hagopian
Susan Goldin	Nate Graham	Deanka Grisham	Jaimi Haig
Ellen Goldin	Al Gramstedt	James L. Grizzell	Bryan Haigh
Leonard Goldman	Tonya Graney	Bryce Groark	Carola Hakkert
Jody K. Goldstein	Dave Grant	Fran Groff	Jeff Halbert
Emily Goldstein	David Grant	Bob Grondin	Sara Hale
Sonia Goldstein	Dori Grasso	Nancy Gronlund	Rachel Hales
Steven Goldstein	A. Joan Gravel	Martin Gross	Kim Haley
Carol Ann Goldstein	Scott Gray	Phil Gross	Jenny Haley
Roz Goldstein	Corinda Gray	Mary Grossman	Gina Halferty
L Gols	Karen Gray	Ellen Grossman	Trish Halick
Nora Golub	Lynn Gray	Sikt Grote	Suzanne Hall
Beatriz Gomes	L Greatrix	Earl Grove	Dinorah Hall
Maria Gomez	Paul Greatrix	Richard Grove	Joanna Hall
Grace Gomez	Claudia Greco	Craig Grube	Carla Hall
Diane Gonzales	Mikkell Gredvig	Paula Gruginski	Mary Halligan
Karen Gonzales	William Green	Kim Grunden	Susan Hollowell
Paula Gonzalez	Anne Green	Brice Grunert	Ken Haltenhoff
Guillermo Gonzalez	Melissa Green	John Grunwell	Libbie Hambleton
Sandra Gonzalez	Stacy Green	Edward Guardino	Katherine Hamilton

Heather Hamilton	Robert & Debra Harrison	Julie Heffington	Laura Hewitt
Bonnie Hamilton	Leah Harrison	Eliza Hegeman	Cindy Hewitt
Dianna Hamilton	Robert Harrison	Andra Heide	Cheryl Hewitt
Norma Hamilton	Catherine Harrison	Krista Heide	Gail Heyser
Allyson Hamm	Greg Harrison	Roberta Heiden	Harriet Heywood
Candy Hammond	Patty Harrison	Arline Heimert	Brian Hiatt
Marcella Hammond	Gloria Harrod	Angela Heinecke	Steve Hibshman
Dell Hammond	Theresa Hart	Angela Heinecke	Patrick Hickey
Stephanie Hammond	Tami Hart	Ruth Heino	Kelly Hickman
Gertrude Hammons	Mary Harte	Eilis HELLER	Terry Hicks
Donna Hamsher	Charles Hartik	Alice Heller	Janet M. Hicks
Lillian Hanahan	Albert Hartley	Kathleen Helmer	Robert Hicks
Dawn Hancock	Tina Hartman	Phyllis Helmes	Mana Hideki
Andrew Hand	Heidi Hartman	Doreen Helmly	L.D. Hieber, Jr.
Steven Handwerker	John Hartman	Chris Hels	Clark Hiestand
Sidney Haney	Amanda Hartman	Maria Helscel	Audrey Higbee
Linda T. Haney	John Hartsfield	Jessica Helterman	Janice Higgins
Mohammed Hannan	Nicola Hartzell	Jessica Helterman	Shana Hildebrand
Donna Hanneken	Carol Hartzell	Nancy Henderson	Matthias Hildebrandt
Jill Hanns	Kate Hartzler	Melinda Henderson	Theodora Hill
Mark Hanschka	Joe Harvey	Margaret Henke	Anna Hill
Jody Hansell	Travis Harvey	Adele Henkel	Robert Hill
Mike Hansen	Craig Harzmann	Carl Henne	Richard T. Hill, Jr.
Jennifer Hansen	George Hasapidis	Mary Henninger	Karie Hillery
Michelle Hansen	Michael Haskell	Abbie Henrickson	David Hills
James Hanson	Marjorie Hass	Mallika Henry	Rev. Gordon Hills
Art Hanson	Laura Hassin	Jennifer Henry	Lisa Hills
Natalie Hanson	Merissa Hatcher	Kristy Henry	Lisa Hills
Delene Hanson	L. Hatfield	Mel Henshaw	Kathy Hilt
Warren Hanson	Barry Hatfield	Barbara Henshel	Patrick Hilton
Jane Hapgood	Barclay Hauber	Laura Hensley	Grace Himmelberger
Dora Hardegger	Sara Hauck	Lana Henson	David Hind
Ronald Harden	Molly Hauck	Witch Sisters Henson	Whitney Hines
Susan Hardin	Jennifer Hauge	Margaret Hepler	Willie Hinze
Peggy Harding	William Hauser	Betty Herbert	Stephanie Hipple
Mylee Harding	Kevin Havener	Janet Herbruck	Deborah Hirsch
Jane Hardy	Pauline Havens	Tim Herbstrith	Catherine Hirsch
Cherri Hardy	Judi Havens	Frank Herda	Regina Hirsch
H Hardy	Patricia Haverkamp	Roy Hermann	Mark Hirschman
Missy Hargraves	Peter Hawk	Liza Hermann	Linda Hirsh
Claire Hargrove	George Haye	Mai Hermann	Seth Hirsh
Lisa Anne Harkins	Judith Hayes	Marni Hermecz	Kenneth Hittel
Betts HARLEY	Kenna Hayes	Helena Hernandez	Susan Hittel
Amy Harlib	Jan Hayne	Ricardo Hernandez	Cherida Hivale
Lori Harmon	Elisabeth Haynes	Susana Hernandez	Cherida Hivale
Tommy Harmon	TI Haynes	Dena Hernandez-Kosche	Hskan Hjerpe
Cara Harmon	Cindy Haynes	Martin Hernandez-Lopez	Richard Hjort
Tom Harper	Janet Hays	Laura Herndon	Mike Hlat
John Harper	Judith Hazelton	Andria Herron	David Ho
Pam Harper-Smith	Cathy Hazzard	Christine Hersey	Shelby Ho
Thane Harpole	Jim Head	Lorraine Hersey	Jo Hoag
Debbie Harrell	Susan Head	Bob Hershey	Kirk Hockinson
Peter T. Harrell	Mark Heald	Thomas Hert	Kristine Hodge
Lonnie Harrington	Gerilyn (Gess) Healey	Charles Hertel	Lindsey Hodges
Erin Harrington	Richard & Eileen Heaning	Marcia Hertz	Mark Hodie
Siobhan Harrington	Yvonne Hearn	Charles Hess	Jake Hodie
Adam Harris	Melody Heart	Daniel Hess	Tom Hoemig
John Harris	Brenda Heath	Susanne Hesse	Kenneth Hoerauf
Lowell Harris	Jeanne Hebert	Michael Hetz	Jamie Hoerter
Jaden Harris	Ken Hedges	Michelle Hetzler	Rebecca Hoeschler
Karin Harris	Nancy Hediger	Judy Heumann	Eva Hofberg
Rachael Harrison	Rodney Hedrick	Walter Hewett	Michelle Hoff

Phillip Hoff	Thomas Houdek	Sharon Hyke	Gayle Janzen
Judith Hoffberg	Susan Hough	Ruxandra-Ana Iacob	Patricia Jarrett
Lilli Hoffman	Donna Houghton	Maria Iacovou	Debbie Jarrett
David Hoffman	Janet Houle	Rebecca Ianieri	Pam Jarvie
Thomas Hoffman	Darrell House	Florence Iannantuano	Jessica Jasper
Stanley Hoffman	Virginia House	Kim Iannetta	Barbara Javor
Kit Hoffmann	Bradley Houseworth	Ed Immar	Bonnie Jay
Travis Hofmann	Karin Houston	Eric Indermuehle	Bonnie Jay
Sheryl Hogan	Lynn Houston	Pec Indman	Patty Jay
Chris Hogger	Stephanie Houston	Jaycie Ingersoll	Mark Jazyk
Mark Hogsett	Stacy Hovde	Citizens Initiative Omega	September Jazzborne
Felicity Hohenshelt	Jean Howard	Katherine Iosif	D Jefferson
Joseph Holdner	Deanna Howard	Teresa Iovino	Cynthia Jeffries
V Holdsworth	Celeste Howard	Emil Ippolito	Norma Jellison
Wendy Holifield	Doreen Howard	Tanya Irby	Cheryl Jenkins
Linda Holing	Bobbie Howard	Natali Irizarry	Lynn Jenkins
Lois C. Holland	Kristin Howard	Marian Isaac	Mindy Jenkins
E. Hollander Hollander	Kristina Howard	Diana Isaia	Michele Jenkins
Stacey Holliday	Gail Howatt	Cher Isbell	Stacy Jenkins
Ann Hollyfield	Melyssa Howe	Larry Isenburg	Marni Jenkins
Krystal Holm	Rob Howe	Haura Iseya	Keith Jennings
Dale Holman	Carol Howe,	Zahirul ISLAM	Linda Jennings
Debbye Holmes	Jen Howell	Morgan Ivens	Steve Jennings
Howard Holmes	Oakley Howell	Richard Iverson	Patricia Jennings
Michael Holsinger	David Howenstein	Barbe Iverson	Leila Jerene
Amy Holt	Elaine Howes	Pilar Iwankiw	Nicole Jergovic
Barbara Holtz	Leanne Hoye	Laura J	Harriet Jernquist
Wendy Holtzman	Eric Hoyer	Gail J.	Daryne Jessler
Steve Holzberg	Cheryl Hoyle	Cary Jack	Dr. Jim
Steve Holzberg	Cheryl Hoyle	Tom Jackson	Laura Jimenez
Gregg Holzer	Clifford Hritz	Amy Jackson	Rowena Jison
Alison Holzer	Terry Huey	Stephanie Jackson	Kempf Jmarc
Barb Holznagel	Geraldine Hufker	Ginny Jackson	Matt Johansen
Nichole Honeybourne	George Hughan	Bruce Jackson	Gina Johansen
Steven Hong	Linda Hughes	Alicia Jackson	Kira Johnson
Debbie Hood	Afton Hughes	Corliss Jackson	Deborah Johnson
Jennifer Hooker	Kenneth Hughes	Jeanette Jackson	Cher Johnson
Lay Hoon The	James Hughes	Tina & Tom Jackson	Vicki Johnson
Thomas Hooppaw	Lisa Hughes	Justine Jackson-Ricketts	Kirsten Johnson
Susan Hoover	Brendan Hughes	T Jacobik	James David Johnson
Jacki Hoover	Anne Huibregtse	Teri Jacobs	David G. Johnson
Amy Hopkins	Terence Huie	Patricia Jacobs	Frank Johnson
Dora Hopkins	Jon Hultgren	Sandy Jacobsen	Karen Johnson
Jeff Hopkins	Bill Humm	Lisa Jacobs-Malakian	Lindsay Johnson
Sarah Hopley	Rebecca Humphrey	Regina Jacobson	Theresa Johnson
Nicole Hopper	Tom Huneke	Gail Jacobson	Stephen Johnson
Patrecia Horn	Sarah Hunnewell	Jennifer Jacoby	Helene Johnson
Roger Horn	Linda HUNT	Maxine Jaffee	Shannan Johnson
Jean Hornberg	Julia Hunter	Donna Jaggard	Pat Johnson
Daniel Horner	Jesse Hunter	Pinky Jainpan	Paul Johnson
David Horning	Hariet Hunter	Diane Jalbert	Joanne Johnson
Tina Horowitz	Marsha Hunter	Rosemary Jalink	Vallee Johnson
Karla Horst	Ann Hunter-Welborn	Susan James	Rebecca Johnson
Christine Horton	Karl Hunting	Jerry James	Sharon Johnson
Patricia Horvatic	Krista Hunt-Rossmann	Sonny James	Ana Johnson
Ruth Hosek	Kristin Hurley	Jamika James	Mark Johnson
Kristen Hoskins	Patricia Hurley	Debra James	Sharon Johnson
Maryjo Hostnik	Clarice Hutchens	Alexia Jandourek	James D. Johnson
Deanna Hotchner	Colleen Hutchins	Joyce E. Janicki	Christina Johnson
Amy Houbre	Donald Hyatt	Misti Janocosek	Kim Johnson
Holiday Houck	Jinx Hydeman	Melanie Janssens	Susan Johnson
Alexandra Houck	Jocelyn Hyers	Melanie Janssens	Chessa Rae Johnson



Laura Johnson	Joi Kamper	Shawn Kelly	Donal Kinney
Carrie Johnson	Deonna Kamradt	Wayne Kelly	Joan Kirby
Celeste Johnson	Caroline Kane	Shirley Kelly	Liane Kirby
Janet Johnson	Erika Kane	Marian Kelner	Kelly Kirby
Chris Johnston	Lisa Kane	Michael Kemper	Nicole Kirk
Philip Johnston	Masayo Kaneko	Jason Kemple	Judith Kirk
Kim Jones	Terri Kaneoka	Jill Kempner	Karen Kirk
Beth Jones	Phil & Susie Kaplan	Adam Keniger	Kathy Kirkland
Tony Jones	Beth Kaplan	Jennifer Kennedy	Mileen Kirkpatrick
David H. Jones	Dave Kaplowitz	Lydia Kennedy	James Kirks
Sherry Lee Jones	Glen Kappy	Karen Kennedy	Jill Kirkstadt
Rodney & Terri Jones	Hannah Karim	Robin Kennedy	Brian Kirsch
Aaron Jones	Lija Karklins	Heather Kennedy	Saran Kirschbaum
Alison Jones	Gerald Karlovitz	Diane Kennedy	Alicia Kirschenheiter
Douglas Jones	Michael Karmazin	Marita Kennedy-Castro	Donna Kitt
Janice Jones	Michael Karp	Jim Kennison	Irene Kitzman
Amie Jones	Mary Karr	Leigh Kennison	Eugene Kiver
Dick Jones	Annabeth Karson	Melanie Kenoyer	Luba Kladienko
Colin Jones	Howard Kastan	Ed Kent	Peter Klappert
Dorothy Jones	Pagan Kate	Benita Kentros	Laura Klein
Brian Jones	Andrew Katsetos	Scottie Kenyon	Leslie Klein
Patricia Jones	Dc Katten	Leonore Kenyon	Robin Klein
Jeff Jones	John C. Katunich	Liese Keon	Karin Klein
Laurel Jones	Sharon Katz	Patrick Keough	Julie Kleinvert
Stephen Jones	Marilyn Katz	Doug Keran	Sabrina Kleinknecht
Melanie Jones	Ishmael Katz	Becky Kercher	Thomas Klem
Anthony Jones-Scott	Kalmon Kaufer	Theodore Kerhulas	Frank X. Kleshinski
Alice Jordan	Dr. & Mrs. George B Kauffman	Delaney Kerr	Shawn Kline
Meyer Jordan	Jeanne Kaufman	Paul Kersch	Rebecca Kline
James H. Jorgensen	Katherine Kautz	Gail Kershner	Rachel Klingberg
Diana Jorgensen	Kristin Kavanagh	Nancy Kessler	Kay Klinsport
Kecia Joy	Beatrice Kay	Sharon Ketcherside	William Klock
Kyria Joyner	Casmay Kay	Dawn Keur	Bruce Klosner
Samia Jubran	Scott Kaymen	Kathryn Kevany	Carmen A. Klucсор
Linda Judd	Lorrie Kazan	Lynda Key	Jeanne Klynstra
Ross Judd	Michelle Kazdin	Larry Keyes	Kari Knabe
Dave Judelson	Shelly Keating	Sharon Keys	Brandi Knight
Melissa Judge	Elizabeth Keddy	Ann Khambholja	Haley Knopke
Belinda Judge	Sharon Keeley	Teresa Kho	Reynold Knops
Barbara Juknialis	Raymond Keeling	Andrea Khunnadchian	Robert Knourek
Michelle Juneau	Zachary Keenan	Sandy Kicinski	Mark Knowles
Armando Jusino	S. Keenum	M Kickert	Barry Knudsen
Halina Just	Joy Keeping	Mark & June Kiefer	Alice Knutson
Jan Justice	Lee Kefauver	James Kielma	David & Betty Knutzen
Charlene Kabcenell	Emily Kehmeier	Brett Kieslich	Linda Kobler
George Kacouris	Jennifer Kehret	Greer Kilchenstein	Carol Kobylinski
Valerie Kadium	Alex Keir	Christy Kiley	Joann Koch
Diana Kado	Robert Keiser	Chrys Kim	Pat Koebel
Norma Kafer	Cara Keister	Donald Kim	Lisa Koehl
Darci Kahan	Joanne Kellar	Toni Kimball	Jennifer Koeller
Deborah Kahn	Anita Kelleher	Duane Kimme	Michelle Kofler
Donna Kainec	Stacey Kellenbeck	Sharon Kimmel	Susan Kofnovec
Jake Kaiser	Shirley Kellerman	Bryan Kimmell	John Koh
Jamie Kaiser	Doreen Kelley	Yvonne King	Kristin Kokal
Jessica Kaiser	Timothy D. Kelley	Lori King	Ellen Kole
Susan Kalan	Adrienne Kellogg	Judith King	Fritz Kolmerten
Joy Kaleta	Jessa Kellogg	Sara King	Paul Koluvek
Ulge Kalkay	Kristian Kelly	Danny King	Cristina Komarowski
Kevin Kallenbach	Michael Kelly	Sandra King-Bodnar	Barbara Kommers
Robert Kalovsky	Barbara Kelly	David Kinne	Janine Kondreck
Lisa Kamin	Alice Kelly	Ann Kinney	Cristine Konicki
John Kaminski	Eadie Kelly	Douglas Kinney	Sue Kono

Sharon Koogler	Kim Kurcab	Alice-Eve Lavelle	Cindy Letchworth
Matthijs Koopmans	Christian Kurtz	Ian Lavelle	Michael Letendre
Christopher Kopach	Aileen Kutaka	Robert Lavin	Michael Letendre
Anne Kopec	Erwin Kuylen	Rhonda Lawford	John Lettiere
Kathi Kopp	Avery Kuypers	Timothy Lawnicki	Aldrinana Leung
Jen Kordell	Allyssa Kvenvold	Rhett Lawrence	Arlene Lev
Kipp Koren	Colleen Kvenvold	Leslie Lawrence	Mary Levan
Christopher Kornmann	Celeste Laak	Joseph Lawson	Andrew Levin
Karen Kortsch	Buck Labadie	Jo Laz	Harvey Levin
Dawn Kosec	Diane Labin	A Lazar	Annette Levin
Kati Koster	Judith Lachat	Morgane Le Morzellec	Christy Levine
June Koster	Lucas Lackner	Dan Leach	Lynne Levine
Patty Koteles	Marc Lacombe	Munson Leann	Ruth Levow
Denise Kotrla	Gary Ladner	Charles Lear	Robert Levy
Jenna Kotuli	Steve Lafleur	Alison Leary	Allan Levy
Dina Kovarik	Rochelle Lafrinere	Karin Lease	Jean Lewandowski
Stephanie Kowalski	Gerry Laird	Debbie Leathers	G Lewin
Gary Kozak	Michael Laird	Candy Leblanc	Donna Lewis
E Thomas Kozan	William Lake	Daniela Leblanc	Victoria Lewis
Julie Kozel	Jessica Lake	Ann Leduc	Anne Lewis
Michelle Koziol	Kelly E. Lally	Anthony Lee	Vicki Lewis
Summer Kozisek	Bettina Lambert	Michael Lee	Sherry Lewis
David Kozlowski	John Lambert	Irene Lee	Nancy Lewis
Judy Krach	Larry Lambeth	Peter Lee	Cheryl M. Lewis
Diane Kraft	William Lamond	Berry Lee	Brian Lewis
Natalie Kraft	Juliet Lamont	Dennis J. Lee	Andy Lewis
Suzanne Kral	Gary Lampman	Kleomichele Leeds	Kathleen Lewis
Richard Kramer	Deborah Lancman	Sara Lefsyk	Ellen Lewis
Julie Kramer	Martha Land	Linda C. Leghart	Jeremy Lewis
Nancy Kramer	Jennifer Landers	Kathy Legros	Eve Lewis
Leslie Kramer	Linda Landers	Pekka Lehtikainen	Chani Lewis
Lawrence A. Krantz	Mireya Landin	Richard Leibold	O Lewis
Scott Kraynak	Maggie Landis	Laura Leifer	Linda Lewman
George Kraynak	Brian Landrovaal-Gottejman	Tim Leighton	Theresa Lianzi
Marin Kress	Jennifer Landstrom	Linda Leimbach	Georgia Libbares
Debbie Kreuser	Eric Lane	Doris Lein	Stephen Lich
Quentin Kreuter	Lana Lane	John Leisenring	Evelyn Lickfeld
Sally S. Kriebel	Pearl Lang	Kurt Leith	Kurt Lieber
Juli Kring	Elizabeth Lang	Alexandrina Leitpo	Darren Liebman
Eva Kriz	Molly Lang	Helen Lembeck	Laura Liebman
Kathy Kroll	Scott Lang	Adele Lemer	Barbara Liebowitz
Kathy Lou Kronenberger	Mike Langley	Chhiv Leng	Karin Liedtke
Anthony Kropovitch	Larry Langston	Doug Lenier	Louis Liepack
Anita Krpan	Leslie Lanning	Vivienne Lenk	Mary Lieras
Jon Krueger	Rick Lanza	Dennis J. Lenz	Nancy Lilienthal
Alison Kruk	Seth Lapidus	Richard Leonard	Nancy Enz Lill
Martha F Krupa	Dedra Lapidus	Richard Leonard	Alicya Lima
Cathy Kubik	S. Laplante	Andrea Leonard	Paul Lima
Joanne Kuczynski	Joe Lapointe	Stephen Leone	Maria Limani
Brian Kuebel	Edmond Lareau	Sergio Leos	Daphne Lin
Chris Kuhar	Amanda Larkin	Jodie Lepere	Katherine Lin
Laura Kuhl	Jacqueline Lasahn	Michael & Anais Lepisto	Christina Lin
Peter Kuhn	Bethany Latham	Lodiza Lepore	Sarah Lincoln
Betty Kuhns	Joe Latham	Karen Lerman	Britt Lind
Daniel Kulpa	Emma Lathan	Kenneth Lerner	Paige Linden
Holly Kumpf	Trev Lattin	Albert H. Lerner	Debra Linder
J Kunesch	Karen Latuchie	Sophia Leskie	Michael Lindley
Joab Kunin	Diane Laubenstein	Mike Lesley	Jennifer Lindsay
Pamela Kunke	Lily Lau-Enright	Virginia Leslie	Evan Lindsay
Lisa Kunsch	Paul Lauenstein	Stephanie Lessard	Ilona Lindsay
Rosamond Kuntz	Annie Laurie	Stephanie Lessard	Barbara Lindsey
Philip Kunzler	Dawn Lauryn	Laura Lester	Kathy Lindsey

Al Lindstrom	Judith Lotz	Cynthia Macfarland	Chris Maraghy
Scott Linke	Karen Loughmiller	Elizabeth Macfarlane	Kathy Marble
Pat Linley	Vincent Louie	Enrique Machare	Lori March
Warren Linney	Katie Louise	Denise Machowski	John Marchese
Lois Linser	Sarah Love	Avila Macinnes	Carmell Marchino
Eliz Linser	Marcia Lovelace	Janice Mackanic	Dana Mardaga
John Linton	Nick Lovro	Mary Mackenzie	Ben Margolis
Liana Liotta	Karin M. Lowden	Anni Mackin	Sylvia Marie
Timothy Lippert	Leslie Lowe	Chris Mackrell	Eva Marie
Sherry Lippiatt	Bevyn Lowe	Eleanor Maclellan	Janet Marineau
Daniel Lippman	John Lowell	Tracy Macmath	David Marinsik
Joanne Lipton	Ellen Lowenburg	Kristyn Macphail	Marie Mark
Tamara Lischka	Melinda Lowery	David Macpherson	Thomas Markland
Janet Liss	Sanna Lowrance	Diann Macrae	Lynne Marko
Kirstin Litchfield	Amanda Loyd	Michelle Macy	Claudia Markov
Edna Litten	Donna Lozano	Natalie Mades	Saul Markowitz
Pam Little	Brian Lu	Cynthia Madrid	Theresa Marks
Steve Little	Hilary Lubin	Shanti Maffey	Elise Marks
Amanda Little	Raquel Luciano	Nabia Maghelli	Donna Marks
Anne Little	Erica Luckstead	Lynn Maguire	Vickie Marks
Alison Litton	Gary Ludi	Joel Maguire	Mary Martha Markus
Corinne Livesay	Nalani Ludington	Joel Maguire	Darlene Marley
Meghan Llewellyn	Susan Ludke	Kay Maher	Julie Marquis
Randall Lloyd	Linda Ludwig	Vicki Maheu	Brian Marr
Kelly Lloyd	Remy Luerssen	Susan Mahikoa-Sorensen	Pat Marriott
Sheila Lobel	Judy Lujan	Charlotte Maier	Nina Marrocco
Julie Locascio	Grace Lulejian	Joanne G. Mainiero	Claire Marron
Jan Lochner	Diego Luna	Melissa Maison	Heather Marsh
Jason Locke	Roger Lundgren, Jr.	Patty Majors	Sherry Marsh
Hollis Locke	Linda Lupien	Elena Makhova-Scharf	Theresa Marsh
Steven Locke	E. Luria	Andrea Maki	Wendy Marshall
Georgia Locker	Jamie Lurtz	Rosa Malagisi	Linda Marshall
Amber Lockhart	Jo Ann Lutze	Elisabeth Maley	Rebecca Marshall
Mike Loessin	Kim Luu	Tracey Malfa	Edna Marshall
Christine Lofgren	Maile Luxor	Chad Mallett	Karem Martakos
T Logan	Laura Lux-Thompson	Judy Malley	John Martel
Lynne Lohr	Maresa Luzier	Ann Mallow	Jon Martell
Margaret Lohr	Donita Lyden	George Malone	Karen Martellaro
Esme Lombard	Linda Lyerly	Amber Maloney	Annemarie Marten
Donna London	Deborah Lyle-Dysart	Ken Maloney	Ruth E. Martillo
Julie Long	Frauke Lympius	Janie Malsin	Marsha Martin
Debra Long	Tom Lynch	Bruce Malter	Tana Martin
Lisa Long	Jaremy Lynch	Jessica Mammenga	Carol Martin
Diane Long	Laura Lynch	Daniel Manahan	Patsy Martin
Genevieve Long	Kelli Lynch	Ms. Pat Manaster	Larissa Martin
Andrew Long	Patty Lynch	Laura Mancilla	Michael B. Martin
Leland Long	Sandy Lynn	Michael Mancini	Ken Martin
Lisa Long	Sandra Lynn	Joyce Mancuso	Trisha Martin
Dona Longacre	Andy Lynn	Fanny Manesis	Drew Martin
Agnes Lontai	Cheri Lyon	Denise Manfredonia	Wayne Martinez
Nicholas Lopetegui	Dawn Lyon	Jessica Manganello	Danny J. Martinez
Aldolfo Lopez	Scott Lyons	Jane Mangini	Maya Martinez
Cristina Lopez	Lisa Lysik	Paulette Mangione	Gabrielle Martin-Neff
Katherine Lopez	Crystal M	Pearl Manion	Silvia Martinotti
Natasha Lopez	Kathleen M.	Marian Mankos	Jennifer Martinson
Dian Lord	Melinda Mabray	Colleen Mann	Jo Anne Martinson
Justin Lord	Jody Mac Donald	Louise Mann	Miroslaw Marut
Eric Lorenz	Robert Macaux	Becca Mann	James Marvin
Linda Lorenzo	Meredith Maccracken	Martha Manners	Karen Maseng
Pamela Loring	Linda Macdonald	Dale Manning	Sana Mashood
Alan Lott	Sharon Macdonald	Rocfo Manzano	Howard Masin
Alan Lott	Pat Mace	Derek Manzello	Linda Maslin

Marla Mason	Sudi Mccollum	Isaac Mckillen-Godfried	Deirdre Mendez
Mary Mason	Melissa Mccool	Kathleen Mckinley	David Mendez
Patricia Massari	Douglas Mccormick	Shoshanah Mcknight	Vince Mendieta
Eileen Massey	Heather Mccooy	Melissa Mclaughlin	Jeannine Mendrola
Esther Massimini	Edwin Mccready	Michael Mclaughlin	Barbara Menkes
Debbie Massry	Jan Mccreary	Robin Mclean	Wendy Mercer
Mary Masters	Chad Mccrory	Barbara Mclendon	Barbara Merkel
Janice Mastin-Kamps	Andrea Mccrossen	Lindsey McMahan	Fran Merker
Laura Mastropasqua	Charlie Mccullagh	Anah McMahan	Carol Merrill
Patricia Masuda	William Mccullough	Diane McMahan	Steve Merrill
James Mathieson	Dassi Mccurdy	Gail McMahan	Courtney Merritt
Jessica Matt	Allison Mcdaniel	Annie McMahan	Kim Merville
Konrad Matthaei	Joanna Mcdermed	Jack Mcmanus	Constance Merwin
Marcella Matthael	Emily Mcdonald	Michael Mcmanus	Archie Merwin
Tim Matthews	Larry Mcdonald	Greg Mcmenamy	Beth Mescher
Virginia Matthews	Rebecca Mcdonough	Katherine Mcmillan	Tracey Messercola
Melissa Matthews	Marcia Mcduffie	Colleen McMullen	Jeri Lynn Metcalf
Greg Mattics	Kathleen Mcenerney	Mrs Jack McMullen	Belle Metelits
Georgia Mattingly	Ira Mcevoy	William McMullen	Patty Metz
Tim Mattson	Robert Mcevoy	Tracie McNabb	Katie Metzroth
James Maurer	R Mcewan	Catherine Mcnamara	Brian Meyer
Laura Mauricio	Rebecca Mcewen	Joseph Mcnamara	Kathy Meyer
Br. Jonathan Maury, Ssjc	Caroline Mcfarland	Andrew Mcnamara	Ross Meyer
Betty Mauser	Katrina Mcfarland	Marnie Mcnulty	Marilyn Meyer
John Chase Maxwell	Doria Mcgahey	Nancy Mcpherson	Michele Meyer
Susan Maxwell	Louise Mcgannon	Neil Mcqueen	Patricia Meyer
Brenda May	Ann Mcgarry	Doris Mcquiddy	Twyla Meyer
Bruce May	Greg Mgarvey	Lenore Mculloch	Christopher Meyer
Kathleen Mayer	Irene Mcgauley	Kevin Mcvan	Rosemary Meyers
Robin Mayerat	Robert Mcgee	Erin Mcvay	Karen Mezynski
Marilyn Mayers	Malissa Mcgee	William Mcvay	Michele Mich
Kelly Mayhew	Sandra Mcgee	Heidi Mcwatters	Nina Michael
Corinne Mayland	Carol Mcgeehan	Jack Mead	Sarah Michaelides
Gene Maynard	Cynthia Mcgill	Stacey Mead	Patricia Michaeloff
Linda Mazer	Ron Mcgill	Alvita Medeiros	Christopher Michaels
David Mazure	June Mcginnis	Suzanne Medina	William Michalouski
Antony Mazzotta	Martina Mcglynn	Paola Medina-Diaz	George Michaux
Dale Mazzuca	Jeffery MCGonagill	Stephanie Medlyn	Kirsten Michelotti
Jeanette J. Mcadoo	K MCGovern	Nancy Meegan	Lee Michelsen
Bud Mcallister	Donlon MCGovern	Judith Meek	Kalen Mickey
James Mcandrew	Louise MCGowan	Marilyn Meek	Lisa Mickley
Carol Mcardell	Catherine MCGroarty	Debbie Meerbott	Sue Middleton
Bruce Mcbeth	Michelle MCGuckin	Dan Meier	Margie Middleton
Mary Mcbride	Myle MCGuinness	H. Meigs	Susab Miga
Heidi Mcbride	Michael MCGuire	Sybil Meindl	Denise L. Miga
Sidra Mccain	Beth Mchenry	Sarah Meinert	Marcia Migdal
Patricia Mccain	Anton Mccinerney	Martin Meisner	Joe Mihm
Jan Mccall	John Mccintosh	Benny Mejchar	James Mikel
Elaine Mccall	Nancy Mccintyre	Andres Mejides	David Mikkelsen
Louis Mccarten	Robin Mckay	Iris Melbourne	Kristen Miles
Ai Mccarthy	Amy Mckay	David Melcer	Shayla Miles
Elizabeth Mccarthy	Claire Mckay	Jan Melious	Mary Lou Milham
Heidi Mccarthy	Robin Mckay	Terri Melloway	Joni Millan
Kim Mcclachrie	Michelle Mckee	David Melloy	Lourdes Millan
Al Mcclain	Kristy Mckee	Jean Melom	Pearl Millard
Kelly Mcclellanahan	Laura Mckee	Linda Melton	Jim Miller
Harriet Mccleary	Mary Mckeeper	B. L. Melton	Kristen Miller
Nancy Mccclintock	Don Mckelvey	Kathryn Melton	Ruth Miller
Elizabeth Mccloskey	Jacci Mckena	Maira Memmi	Wendy Miller
Eric Mcclore	Dale Mckenna	Ruth Mendelon	Janet Miller
Mary Lee Mcclore	Jessica Mckenzie	Cal Mendelsohn	Debbie Miller
Leslie Mccollom	Renae Mckeon	Cal Mendelsohn	Phylis Miller

Harriet Miller  
Nancy Miller  
Gertrude Miller  
Gail Miller  
Kenneth Miller  
Justin Miller  
R. Miller  
John Miller  
James Miller  
Tim Miller  
Mary Miller  
Kenneth Miller  
Kim Miller  
Stephanie Miller  
Analia Miller  
Dianne Miller-Boyle  
Sharon Millerman  
Robert Milligan  
Gerry Milliken  
Katrina Miner  
Regina Minniss  
Shannon Minor  
Ginger Mira  
Kim Mirabella  
Quilla Miralia  
Sophie Miranda  
Lee Mishkin  
John Miskelly  
Jared Misner  
Joan Mitchell  
Susan Mitchell  
Karen Mitchell  
Tara Mitchell  
Laurie Mitchell  
Jonathan Mitchell  
Phillip Mitchell  
Anita Mitchell  
Joyce Mitchell  
Michele Mitchum  
Michael Mitsuda  
Joe Mittemiller  
Donna Mo  
Anthony Modafferi  
Bill Modisette  
Marne Moe  
Theresa Moell  
Robert Moffatt  
Dale Mohr  
Alexis Mohr  
Janet Molchan  
Tiffany Moldenhauer  
Michael Molder  
Bianca Molgora  
Ron Molina  
Laryl Monette  
Dana Monroe  
Bruce Monroe  
Margo Monson  
Ron Monson  
Susan Montague  
Chris Montalbano  
Anthony Montapert

Melanie Montemurno  
Douglas Montgomery  
Susan Montgomery  
Paula Montgomery  
Maryann Moon  
Kelly Moore  
Steven Moore  
Elizabeth Moore  
Alison Moore  
Jodie Moore  
Sandy Moore  
Dee Moore  
Eric T. Moore  
Lin Moore  
Sandy Moore  
Laura Moore  
Phoebe Morad  
Nicole Morales  
Mike Moran  
Robert More  
Philomena Morello  
Sue Morem  
Olyme Moreno  
Vicente Moretti  
Denise Morey  
Carrie Morford  
Bonnie Morgan  
D. Morgan  
Jason Morgan  
Sue Morgan  
Marcy Morgan  
Sharon Morgan  
Robert Morgart  
John B. Morgen  
Gary Morgret  
Carla Morin  
Lucien Morningstar  
Melinda Moros  
Theresa Morrell  
Michael Morrey  
Dan Morris  
Ray Morris  
Cheryl Morris  
Dee Morris  
Caren Morris  
Ann Morris  
Kathy Morris  
Kristen Morris  
Tara Morris  
Katherine Morris  
Kathleen Morris  
Lisa Morrison  
Joseph Morrissey  
Janet Morrissey  
Samuel Morse  
Martha Morton  
Arlena Morton  
Stephanie Mory  
Darren Moscoe  
April Mosen  
Jason Moser  
Rosemary Moser

Marci Moss  
Paul Moss  
David Moss  
Roy Moss  
Tam Mossman  
Julie Motl  
Marcie Mott  
Patrick Motteau  
Patti Motter  
Marilyn Mouradjian  
Wanda Mourant  
Mike Moxley  
Joseph Moye'  
Melanie Moyer  
Christina Moynagh  
Joanne Moynihan  
Patricia Mozzillo  
Scarlett Mraz  
Kathie Mudge  
Mindy Mudgett  
Susan Mudrey  
Megan Mueller  
Lynda Mueller  
Christina Mueller  
Dina L. Muellman  
Walter Mugdan  
Lindsay Mugglestone  
Jennie Mugrace  
Sarah Mulcahy  
Sharon Mullane  
Cindy Mullen  
Dena Mullen  
Peter Muller  
Rachel Mullis  
Shelley Mulry  
Daniel Mulvaney  
Diva Muni  
Jeni Munn  
Santiago Munne  
Maki Murakami  
Laura Murchison  
Phyllis Murdoch  
Kim Murdock  
Lauren Murdock  
Fred Murhammer  
Katia Murillo  
Theresa Murphy  
Patrick Murphy  
Kathy Murphy  
Judith Murphy  
Michele Murphy  
Sabrina Murphy  
Pamela Murphy  
Raymond Murphy  
Deborah Murphy  
Laura Murphy  
James Murphy  
Leslie Murphy  
Linda Murray  
Jamie Murray  
Catherine Murty  
Juliette Muscat

Jill Muse  
Nick Musica Iii  
Karen Mussette  
Mary Mutch  
Eileene Muzzarelli  
Robert Myers  
Amy Myers  
Corinne Myers  
Debra Myers  
Amy Myers  
Sylvia Myers  
Heather N.  
Lynda Naclerio  
Shruti Nagar  
Brad Nahill  
Tomoko Nakamura  
Rodney Nakamura  
S. Nam  
Holly Nance  
Pettitjean Nancy  
Laura Napoleon  
Paul Naser  
Kirsten Nathan  
Thomas Natiello  
Susan Navidad  
Craig Nazor  
Andrea Neal  
Sandra Nealon  
Carol Nealy  
Michael Neary  
Jenny Neat  
Debra Neckanoff  
Jim Nedeadu  
Veronica Neely  
Kim Neff  
Alejandro Negren  
Roslyn Nehls  
Nancy R. Neilsen  
Beverly Nelmes  
Connie Nelson  
Lucinda Nelson  
Joseph Nelson  
Thomas Nelson  
Nicola Nelson  
Steven Nelson  
Saren Nelson, Adn, Lpc  
Donna Nemanic  
David Neral  
Jaysa Nesbitt  
Jenny Ness  
Ariel Nessel  
Joey Nessif  
Paul Netusil  
Jeffery Neu  
Charlotte Neuhaus  
Alice Neuhauser  
Victor Neumayer  
Jay Neutzler  
Jay Neutzler  
Willis Neville  
Phyl Newbeck  
John Newberry

Bonnie Newburg	Elisabeth Null	Judy O'neill	Jan Paley
Robert Newhouse	Shannon Null	Tammy O'neill	Michelle Palladine
Jill Newick	Massimo Numa	Bobbie O'neill	Janna Palliser
David Newlon	Lara Nunes	Michelle Oom	Walter Palmer
Jeanne Newman	Sandra Nunes	Maren Oom	Grayce Palmer
Ricki Newman	Karina Nunez	Annelies Ooms	Francis Palmer
Janice Newman	Rayleen Nunez	Lori Oostendorp	Tia Panagos
Kathy Newman	Phyllis Nycum	Gerald Orcholski	Penny Pane
Anita Newman	Deb Nykamp	Carole Orelli	Cynthia Pannucci
Cheri Newman	Eric Nylen	Margaret Orem	Marguerite Panzica
Michael Newmark	Dawn O	Robert Orlando	John Papandrea
Gregory Newsome	Bonnie M. Oakes	Christine Orlando	Mike Papay
Carol Newton	Ichim OANA	Martha O'rourke	Julie Papay
Peter Newton	Farah Obaidullah	Shannon O'rourke	Rozzie Pappafotis
Celin Ng	Andrew Oberlin	Sandra O'rourke	Teresa Paradis
Yvette Ngo	Elizabeth Obrecht	Maureen O'rourke	Jan Parham
Myha Nguyen	John O'brien	Carol Orr	Anand Parikh
Amy Niccore	S. O'brien	Barbara Orr	Christine Parini
Amanda Nichols	Carter O'brien	Matthew Orr	Gerhild Paris
Dani Nichols	Melissa Ochal	Dan Orr	Karin Paris
Maureen Nichols	Maura O'connor	Larry Orzechowski	Aggie Parish
Rose Nichols	Meave O'connor	John Osborne	Jason Park
Meg Nicholson	Sean O'connor	Andrew Osborne-Smith	Trevor Parker
Terrence Nicholson	Emily O'connor	Ruth Osburn	David Parker
Deena Nick	Brigid O'connor	Ellen Oshinsky	Irene Parks
Stephen Nicklay, Sgt, Usa, Ret-Med	Katharine Odell	Ruth Osias	Rachel Parnell
Gail Nicol	Ken Odell	Kristen Osman	Donna Parr
J. Nicole	Julie O'donnell	Marie Osmundsen	Lance Parr
Chris Nicosia	Cathy O'donnell	Tamara Osterman	Robert J. Parra
Donald Niday	Deanne O'donnell	Rachel Ostrand	Roger Parris
Rael Nidess	Celeste Oehl	Joseph O'sullivan	Laura Parsons
Joyce Nielsen	Frederick Oelrich	Jill Otani	Amy Parsons
Michaela Niermann	Christine Oettle	Annmarie O'toole	Julia Partansky
Landis Niernberger	Tony Ogden	Melissa Ott	Sammantha Partlow
Cynthia Niernberger	Nanette Oggiono	Michael Ott	Richard Partridge
Tom Niesen	Maureen Ogle	Tim Ott	Vercknocke Pascal
Patricia Nigro	Lorrie Ogren	Sara Otto	Peggy Paschall
Ian Noah	Catherine Okimoto	George Ouell	Pat Pascual
Sandra Noah	Alan Olander	Tracy Ouellette	Greg Pasek
Lynn Noe	Pamela Olcott	Glenn Outon	Elke Passarge
Brandon Noel	Susan Oldershaw	Judy Overstreet	Kelly Patrick
John Nogare	Erin Oleno	R.E. Overstreet	Rev. A.A. Patrick
Mark Nokes	Carry Oliphant	Aledajeanne Owen	Thomas Patterson
Kristen Nolan	O.C. Oliveira	Emily Owens	Catherine Patterson
Bruce Noll	John Oliver	Mary Owens	Mary Patterson
Grace Noll	Michelle Oliver	Sheila Oxford	Kathleen Patton
Gwen Nolte	Alice Olivo	Jim Oxyer	Lydia Patton
Christine Nonnenmacher	Peter Ollendorf	Debra Ozenick	Nancy Patumanoan
J Nonya	Shawn Olsen	Billie Ozerengin	Rashida Paul
Fleur Nooyen	La Olsen	Michele Ozuna	Elyse A. Paul
Gina Norman	Linda L. Olson	Natalie P.	Katherine Paulson
Sean Normandeau	Brett Olson	Laurent Pacalin	Darrolanne Paulson
Patricia Norris	Karen Olson	Susan Pacey-Field	Candice Paulus
Christopher Norwood	Randall Olson	Fenisia Pacini	Louise Pauly
Deborah Notch	Martha Olver	Fenisia Pacini	Monica Pavlides
Richard Noto	Martha Olver	Roger Packard	Lindley Paxton-Barden
Mark Novotny	Polly O'malley	Howard Packer	Blake Payne
Maryalice Nowak	Dana Omara	Elisha Page	Corlean Payne
Mary Lou Nowak	Richard Ondrovic	Balakrishna Pai	Richard Payne
Celeste Nowak	Terry Oneal	Salvatore Paladino	Susanne Paynovich
Jo Nowakowski	Kirsten Oneal	Lauren Palazzolo	Nancy Pearson
	Patrick O'neil	Bridget Palecek	Rick Pearson
	Jan O'neil		

Michelle Pearson	Kimberly Peterson	Lisa Piner	Diana Powell
Randy Pearson	Marcia Peterson	Lisa Piner	Eva Powers
Jill Pease	Maree Ann Peterson	Alyssa Ping	Suzan Michele Powers
Stephanie Pecchio	Gregory Peterson	Kathy Pinkerton	Elizabeth Pozzi
Laura Peckham	Jeanne-Marie Peterson	Christiane Pistor	Brenda Prado
Nilette Pecorella	Joel Peterson	Glen Pittman	Annemarie Prairie
Joann Pedersen	Kathleen Peterson	Tami Pittman	Stephanie Pranaitis
Hanne Pedersen	Debbie Peterson	Barbara Pizzini	A. Pranger
John Pedersen	April Peterson	Suzanne Placko	Yvonne Pratt
Lance Pedigo	Julia Petipas	Mary Planding	L. Darlene Pratt
Liette Pedraza-Tucker	Shari Peto	Franklin Platizky	Carl Prellwitz
Theresa Pedrotti	Ruth Petzold	Susan Platt	Parvati Premananda
Thomas Peel	Annie PEYSSON	Mary F. Platter-Rieger	Jerami Prendiville
Emily Pegoda	Cathy Pfarr	Milica Plavsic	Roland Press
Jacqueline Peipert	Joyce Pfennig	Maria Plochocki	Yvonne Prete
Sumner Peirce	Anthony Pfohl	Irwin Plotkin	Jennifer Prettyman-Hall
Susan Peirce	John Pham	Bernard Plovnick	G. Preuss
Charles Peissel	Jayne Phelps	Dorothy Plummer	Corinna Preuss-Schaller
Diane Pekarcik	Patrisa Philips	Shannon Plummer	Barb Price
Jeanne Pekny	Sharon Philips	Shari Plummer	Maria Price
Michelle Pelc	Tricia Philipson	Donna Plutschuck	Roger Price
Rosalie Pelch	John Phillips	David Podmayersky	Elaine Friday
Jackie Pelegrn	Stephen Phillips	Eric Polczynski	Lisa Printz
Sandy Pelland	Julia Phillips	Alice Polesky	Jackie Printz
Joshua Pelleg	Chip Phillips	Melissa Polick	Meghan Prior
Diane Peluso	Mark Phillips	Karen Policy	Robyn Prisco
Teresa Pemberton-Jouany	Jim Phillips	Sherry Pollack	Tammie Priselac
Marie Pena	Barbara Phillips	Pamela Polland	William Pritchard
Debra Pena	Jim Phillips	Georgia Pollard	Eric Probola
Ginny Pendas	Benjamin Phillips	Bev Pollard	John Probst
Marianne Pendleton	Patricia Phillips	Ron Pollina	Stephanie Proctor
Irene Pendze	Shannon Phillips	James Pollock	Caroline Prout
Stanley Pendze	Paul Picard	Kara Pomeroy	James Provenzano
Julia Penn	Melanie Picciotti	Sara Pomeroy	Claudia Provost
Marsha Penner	Karen Pickarski	Jackie Pomies	Claudia Provost
Richard Penner	Amy Pickering	Patrice Pop	Beth Prudden
Martha Perez	Gregory Pickett	Karen Pope	Emily Prud'homme
Clara & Elsa Perez	Roslyn Piegari	Mary Pope	Rodrigo Prugue
Susel Perez	Sue Pienciak	Mike Poplaro	Nicholas Prychodko
Atalya Peritz	Annette Pieniazek	Carlo Popolizio	Mike Psinakis
Julie Perkins	Denise Pierce	D. Poppe	James Pszanka
Joel Perkins	Crystal Pierce	Sue Poppe	John Public
Ori Perkins	Pstrick Pierce	Angela Porsch	Laurie Puca
Donna Perkins	Allison Pierce	Lisa Portale	Chiffone Puckett
Kathy Perkins	Nuri Pierce	Karen Porter	Josie Puglisi
Janine Perlman	Suzanne Pierce	Alisa Porter	John Puzgles
Linda Pernot	Jennifer Piercy	Sharlyn Porter	Gabriel Pulido
Linda Perrigoue	Donna Pieroni	Tammy Porter	Eric Punkay
Curt Perry	Nicholas Pierotti	Robert Posch	Ross Purcell
Natasha Perry	Wayne Pierre	Leah Posl-Lumbis	Chris Purpus
Rita Persichetty	Amy Pierre	Melissa Posod	Claire Purvis
Lois Pesce	Alexandra Pierschalla	Christoph Poss	Elizabeth Purvis
Karen Peterman	Megan Pierson	James & Shelley Poston	Joyce Pusel
Cameron Peters	Marilyn Pierson	Lynna Potchynok	Susan Pushman
Paula Peters	Suzanne Pierson	Beverly Pott	Lee Pyle
Susan Peters	Kevin Pierson	Deb Potter	Christine Pylypowycz
David Peters	Eric J. Pihl	Christine & David Potts	Tony Pyro
Sherry Petersen	Andrea Pike	Cheryll Poulin	Kay Quackenbush
Stephen & Nancy Petersen	Ticia Pilati	Judi Poulson	George Quasha
Jack Peterson	Kathleen Pilon	Robert Pousman	Jennifer Queen
Susan Peterson	Tracy Pinckard	Ds Powell	Michele Queyroy
Todd Peterson	Jeffrey Pincus	Valarie Powell	Alec Quig



Paul Quiggle	Tonja Reece	John Rich	Helena Roberts
Jayda Quincey	Ann Reed	J. Rich	Peggy Roberts
Bill Quinlan	Nora Reed	Marg Rich	Eileen Roberts
Michael Quirk	Lisa Reed	Anita Richard	Ann Roberts
Veronica Quiroa	Gary Reese	David Richard	Greg Roberts
Leen Raats	Calvin Reeves	Sarah Richards	Jennifer Robertson
Leen Raats	Ken Reeves	Hamilton Richards	Arlene Robins
Sara Rabbani	Nadine Refsell	Kelsey Richardson	Janet Robinson
Mariola Rabin	Joseph Rega	Pam Richardson	Bina Robinson
Alison Raby	Frank Regan	Susan Richardson	Kris Robinson
Mike Racette	Joanie Regan	Roberta Richardson	Colleen Robinson
Betty A. Racette	Maureen Reggie	K.D Richardson	Phyllis Robinson
Rachel Rachfal	Sofie Rehdell	Kay Richeson	Paul Robinson
Christine Radice	Victoria Reich	John Richkus	Brenda Robinson
Paul Radley	Andrew Reich	Rosalie Richter-Goldberg	Clarence Robinson
Kira Radtke	Robyn Reichert	Deborah Rickenbach Rn	Candace Rocha
Michele Rae	Karen Reichgott	Sarah Rickerby	Jessica Rocheleau
Mary Raehl	Lynn Reid	Odette Rickert	Dave Rock
Katherine Raftery	John Reid	Robert Rickun	Sherry Rock
Gail Rains	Martin Reifinger	Ron Riddle	Kay Rockers
Kat Raisky	David Reimers	Emily Rideout	Phillip Rockey
Raman Rajagopalan	Don Reinberg	Heather Rider	Wendy Rockwell
Caryn Rakov	Jennifer Reinert	William Ridgeway	Cathi Rodgers
Karin Ralph	Emily Reiss	Melba Ridgway	Elizabeth Rodkey
Alan Rammer	Gail Reissen	Vincent Ridley	Lennie Rodoff
Nicole Ramos	Andrea Reiter	Dale Riehart	Jim Rodrigue
J Ramos	Don Reithlingshoefer	Kira Rienecker	Carolina Rodriguez
D. Randall	Babak Rejaie	Karen Rigatti	Sylvia Rodriguez
Tom Ranieri	Geoff Relf	Karen Riggarr	Joan Rodriguez
H Rankin	Diane Remicci	Wayne Riggins	Sonia Rodriguez
Doreen Rapp	Gabino Rendon	Kory Rigler	Jennifer Rodriguez-Bowman
Susan Rappoport	Angie Reno	Matt Rigney	Pamela Roe
Margo Raprager	Kristen Renton	Russell Riley	Richard Roether
Ivan Rarick	Jared Repka	Callie Riley	Suzanne Rogalin
Kathryn Rasch	Gloria Resa	Michael Riley	William Rogers
Thomas Rascon	Christina Resasco	Kelly Riley	Marliss Rogers
Dave Rasmussen	Adolfo Reta	Melanie Rimkus	Adriana Rojas
Maria Rasmussen	Anthony Retkowski	Herb Rimstidt	Ruthann Roka
Marjorie Rathbone	David Reuter	Angela Rinaldi	Kevin Rolfes
Ron Rattner	Samonds Rev.	Craig Ring	Kevin Rolfes
Mary Rausch	Mr.&Mrs. Bruce Revesz	Judith Riojas	Girazole Rolla
Mark Rauscher	D. Rex	James Riordan	Nina Rollow
Janet Rauscher	Anna Reycraft	Susan Rios	Anne Romano
G. Ray	Mildred Karaira Gandia Reyes	Thomas Riquier	Monika Romero
Amy Ray	Lisa Reynolds	Douglas Risedorf	Angelique Rondeau
Yvonne Rayburn	Nancy Reynolds	Wendy Ritchey	Betsy Ronzo
Marc Rayburn	Larry Reynolds	Albert Ritchey	Jason Rooke
Julie Rayda	Dolores Reynolds	Marsha Riti	John Rooney
Natasha Raymond	Herman Rhein	Marilyn Ritsky	Diane Rooney
Tristan Raymond	Heather Rhine	Calvin Rittenhouse	Christopher Roosevelt
Catherine Raymond	Charles Rhoades	Michael Rivard	Beverly Root
Debra Raymond	Kirk Rhoads	Mary Rivas	Colleen Roots
Keith Razack	Janet L. Rhodes	Marcie Rivera	Lik Roper
Leigh Reagan	Louis Rhodes	Elisa Rivera-Boyles	Leonard Rosa
Linda Reak	Harriet Rhodes	Barbara Rizza	Melissa Rosas
Maggie Reardon	Kelly Ricaurte	Regina Rizzolo	Greg Rosas
David Rechs	Danielle Rice	Greta Rizzuti	Carol Rosas
Elizabeth Recko-Morrison	Dan Rice	Barbara Robert	Leah Roschke
Maryellen Redish	Michelle Rice	Gretchen Roberts	Karen Rose
Robert Redmon	Chuck Ricevuto	Jeannie Roberts	Rich Rose
Kirk Redmond	Sharon Rich	Tammy Roberts	William Rosen
Martha Redmond	Ann Rich	James Roberts	Eben Rosenberger

Maria Rosenberger  
Enid Rosenblatt  
Susan Rosenfeld  
Henry Rosenfeld  
Lynn Rosenfeld  
Cheryl Rosenfeld  
David Rosenstein  
Robert Rosenstein  
Bill Rosenthal  
Kent Ross  
Linda Ross  
L. Marie Ross  
Laura Ross  
Patricia Rossi  
Rhoda Rostky  
Candiann Roswell  
Michael Rotcher  
Kelly Roth  
Michael Rothberg  
Leslie Rothman  
Richard Rothstein  
Alexander Rouhana  
Suzanne Roulston-Doty  
Les Rout  
Thomas Rowan  
Carol Rowe  
L Rowett  
Joe Roy  
Jennifer Roystone  
Shanna Rozelle  
Dawn L. Rubbert  
Scott Rubel  
Leah Rubenstein  
Leah Rubenstein  
Martha Rubiano  
Beth Rubin  
Michael Rubin  
Floride & Maria Rubinos  
Sophia Rubinstein  
Gail Rubio  
E.J. Rublev  
Alexis Rudd  
Jennie Rudd  
Kathy Rudge  
Linda Rudin  
Judy Rudkin  
Ana Rudolph  
Lana Ruegamer-Eisenberg  
Lisa Rufo  
Sandra Ruiz  
Juliann Rule  
Frances Rundlett  
Jack Runnels  
Karen Rusch  
Charlene Rush  
Charlene Rush  
Kim Rushton  
Sue Russell  
Pamela Russell  
Elaine Russell  
Jennifer Russell  
Paul Russell

Dorothy Russell  
Annlia Russell  
Sharon Russick  
Margaret Russo  
Vanessa Russo  
Audrey Russo  
Robert Rutkowski  
Sara Rutledge  
Jeremy Rutledge  
Michael Ruzza  
Therese Ryan  
Penelope Ryan  
Amy Ryan  
William Ryder  
Gail Ryland  
Helen Rynaski  
Charles Saar  
Susan Saari  
Carol Sabanos  
Michael Sabanos  
Deanne Sabeck  
Rosalie Sable  
Betty Sabo  
Corinne Sabo  
Marcus Sabom  
James Sacci  
Chris Sacks  
Mom Sacks  
Rick Sacksteder  
Nicholas Sadaka  
Joan Sadowski  
Cynthia Saetre  
Chris Safos  
Randy Sailer  
Lynn Sajdak  
Regina Sakalarios-Rogers  
Joe Salazar  
Joe Salazar  
Elizabeth Salgado  
Pedro Salgado  
Barbra Salinas  
Richard Sall  
James Salter  
Daniel Saltz  
Paulette Salzberg  
Karen Salzgeber  
David Samek  
Cecelia Samp  
Dora Sampson  
Michele Samuelson  
Jeanne Marie San Diego  
Robert Glenn San Socie  
Aurea Sanabria  
Laura Sanchez  
Natalie Sanchez  
Daniel Sanchez, Sr.  
Stephen Sandberg  
Richard Sanders  
Cindy Sanders  
Stephen Sanders  
Gustavo Sandoval  
Ani Sandoval

Kris Sands  
Val Sanfilippo  
Michelle Sangenito  
Patty Sannes  
Jenna Santangelo  
Sheila Santi  
Richard Santiago  
Gitte Santini  
Gina Santonas  
Marc Santora  
Nicholas Santoro  
Saskia Santos  
David Saperia  
Ava Saray  
Chris Sargent  
Todd Sargent  
William Sarovec  
John Sartoris  
Kate Sartoris  
Randi Saslow  
Juliana Satmari  
Nancy Sato  
Debra Saude  
Roger Sauer  
Maggie Sauerhage  
Sherry Saunders  
Ronald Saunders  
Robin Savage  
Elizabeth Saveri  
Henry Savioli  
Susan Savion  
John Savlove  
Barbara Savoca  
Ziad Sawalha  
Rosemarie Sawdon  
Jamie Sawtell  
Jennifer Sawyer  
Gail Sawyer  
Jan Saxton  
Lily Sayre  
Susan Scallan  
Phillip Scanlan  
William Scarrow  
Nancy Schaak  
Robin Schaef  
Karen Schairer  
Carol Schaming  
David Scharf  
Kathleen Schatzmann  
Joan Schede  
Lucinda Scheer  
August Scheer  
Matt Scheer  
Eliott Scheffler  
Jonathan Schell  
Kathy Schemerhorn  
Patricia Scheppler  
Judith Scher  
Carol Scherbarth  
Marvin Scherl  
Linda Schermer  
Karen Scheuermann

Dee Schiavone  
Karen Schieb  
Mary Schilder  
Charles Schille  
Mark Schindler  
Sybil Schlesinger  
Troy Schlines  
Kim Schlittler  
Richard Schloss  
John Schlosser  
Andrew Schlotterlein  
Paul Schmalzer  
Janet Schmauss  
Caitlin Schmedlin  
Eric Schmidt  
Marylou Schmidt  
Roger Schmidt  
Eric Schmidt  
Kimberly Schmidt  
Sara Schmidt  
Mark Schneider  
Maria Schneider  
Greg Schneider  
Paul Schneller  
Ursula Schnicke  
Randy Schoedler  
Tom Schoenherr  
L Schoonover  
Susan Schrader  
Paul Schraeder  
Ray Schraft  
Kim Schreiber  
Declan Schriever  
Macie Schriener  
Tracy Schroeffer  
Kay Schroer  
Laurie Schrupp  
Lorraine Schuchart  
Keith Schue  
Shani Schulman  
Audrey Schulman  
Ruth Schultz  
Sandra Schultz  
Gregg Schulze  
Amy Schumacher  
Tracy Schumacher  
John Schumacher  
Patricia Schuppert  
Linda Schwab  
Kathy Schwager  
J.B. Schwaller, P.E.  
Sam Schwartz  
Tamar Schwartz  
Richard Schwartz  
Donald Schwartz  
Don Schwartz  
Linda Schwarz  
Sarah Schwarz  
Melanie Schweitzer  
Matthew Schweitzer  
Melody Sclippa  
Brian Scott

John Scott	Steven Shaffer	Tamara Shurling	Tawna Skinner
Barbara Scott	Melissa Shaffer	Robin Shwedo	Brenda Skoland
Rita Scott	Harriet Shalat	Christiaan Siano	Debra Skup
Dorinda Scott	Bennie Shallbetter	William Sibley	Kate Sky
Benjamin Scott	Elsy Shallman	Whitney Sickels	Lisa Slater
Kari Lorraine Scott	Michael Shamamian	Suzy Siegmann	Martin Slater
Alicia Scott	Rebecca Shane	Toni Siegrist	Charmaine Slaven
Theresa Scott	Donald Shank	Denise Siele	Bob Slawson
Pam Scoville	Patricia Shank	Teri Sigler	Stephen Sleeper
Kathy Scripps	Navin Shankar	Mark Sigler	Mike Slinkard
Amanda Scuder	Ricci Shannon	Gail Sikes	Monique Slipher
Ryan Sdano	Kathleen Shannon	Rodger James Sillars	Sylvia Slivo
Elizabeth Seakins	Jessica Shannon	Peter Sills	Brian Sloan
Joni Seals	Donna Sharee	Colleen Sills	Helen Sloan
Jane Seamans	Sondra Sharee	Dawn Silver	Elaine Sloan
Janet Sears	Ryan Sharp	Margaret Silver	Stephen Slocum
Laura Sechi	T. Sharpe	Daniel Silver	Leann Slough
Tamara Sedakow	Robyn Sharpe	Ronald H. Silver, C.E.P.	Pamela Slowkowski
Klara Seddon	Shirley Shaw	Genine Silverio	John Slupski
Karen Sederberg	Donald Shaw	Alex Silverio	Maryann Smale
Jenn Sedik	Tim Shaw	Marc Silverman	Sharon Smarik
Carolyn Seeman	Kenneth Shazel	Andrew Silverstone	Susan Smart
John Sefton	Lianne Shea	Dorrie Silverstone	Raymond Smart
Evalyn Segal	Rebecca Shedd	Carol Silverthorn	Brian Smeed
Kim Segale	Mary-Elise Sheets	Sasha Silvestrini	Lisa Smith
Aaron Segall	Lucy Sheffield	Bruce Silvey	Beverly Smith
Vicki Seglin	Mickey Shell	Elaine Simenson	Morton Smith
Erik Seidel	Erga Shelley	Michael Simler	Caroline Smith
Cristina Seita	James Shelton	Dawnheather Simmons	Sean Smith
Susan Seitz	Gloria Shen	Kathryn Simmons	Shirley Smith
Leslie Seki	Ronald Shenberger	Jason Simmons	Barry Smith
Spencer Selander	Linda Shepard-Salzer	Twik Simms	Nancy Smith
Susan Selbin	Brenda Shephard	Tomas Simon	Roberta Smith
Edward Selent	Susan Shephard	Dominique Simon	Chantelle Smith
Mary Self	Mary Shephard	Philip Simon	Brian Smith
Joyce Selig	M. J. Shepley	Vivienne Simon	Rhiannon Smith
Laura Seligman	Samantha Sherline	R.W. Simon	Pam Smith
Margaret Sellers	Christopher Sherlock	Michael Simonds	Diana Smith
Meg Sellers	Marcia Sherman	Michal Simpson	Matthew Smith
Kelly Selnik	Julie Sherman	Sally Simpson	Aj Smith
Curtis Selph	Mary Sherman	Malcolm Simpson	Gerry Smith
Rob Seltzer	Kate Sherman	Kate Sims	Mercedes Smith
Margaret Seltzer	Cynthia Sherman-Jones	Donna Sims	Eileen Smith
Pauline Semenchuk	Scott Sherrets	Janice Sina	Stacey Smith
Mark, Aj, Sydney & Reese	Staci-Lee Sherwod	Maria Sines	Colin Smith
Sennett	Lydia Sherwood	John Singer	Victoria Smith
Gabriela Seoane	Tawnya Shields	Beatrice Singh	Julie A. Smith
Kiara Serafin	Jake Shirmer	Diana Singletary	K Smith
Alan Serlin	Ellen Shively	Susan Siniard	Crystal Smith
Ruth Serra	K. J. Shockley	Susan Sinkiewicz	Alicia Smith
Barry Seth	Doug Shohan	Marianne Sippel	Deanna Smith
Marianna Settles	Clare Shomer	Adria Siraco	Roz Smith
Michelle Sewald	Sylvia Shortt	Katie Sirk	Machelle Smith
Leigh Sewell	Andreia Shotwell	Valerie Sisson	Allyson Smith
Cynthia Sexton	Natasha Shpiller	Joan Sitomer	David Smith
Mike Sexton	Rick Shreve	Torunn Sivesind	Hilary Smith
Maria Sexton, Md	George Shrewsbury	Christi Sizemore -Behrend	Holly Smith
Gordon Seyfarth	Brett Shufelt	Sue Sjolin	Ashley Smith
Stephanie Seymour	Carla Shuford	James Skalsky	Deborah Smith
Sharon Shadbolt	Mirali Shukla	Julie Skelton	Connie Smith
Roxann Shadrick	Heidi Shuler	Michael Skidmore	Greg Smith
George Shaeffer	Joseph Shulman	Jayne Skindzier	Edwina Smith

Judith Smith	Richard R. Spaur, Sr.	Monica Steensma	Gerald Stringer
Ian Smith	Nancy Speer	Howard Steffens	Laura Stringer
Kathleen Smith	Kate Spence	Paul Stein	Debra Strini
Andrea Smith	Sheila Spencer	Howard Stein	Jordan Strobel
Ellen Smith	Rene Spencer	Ann H. Steinbach	Ashley Strobridge
Marilynn Smith	Linda Sperling	John Steiner	David Strong
Jacqueline Smith	Susi Sperling	Susan Steinhauser	Timothy Strong
Lisa Smith	Dave Spieler	Tamara Stellanova	Susan Stross
Lowell Smith	Barry Spielvogel	David Stemper	Michael Stuart
Gerald Smolinsky	Kathleen Spinks	Nicholas Stendel	Robert Stuart
Sandra Smyth	Yarrow Spitzfaden	Dusty Stepanski	Bruce Stubbs
Dale Snead	Toni Spott	Lorraine Stepchin	Judy Stufflebeam
Toni Snidow	Richard Spotts	J. Stephen	Sonja Stupel
Shondra Snodderly	Rebecca Sprague	Maggie Stephens	Doug Sturgess
Mary Snodgrass	Corinne Sprain	Mayme Stephenson	Steve Sturgill
Richard Snook	Pandora Springer	Ann Stetser	Cassandra Suarez
Robert Snow	Judith Springer	Megan Steva	Luis Suarez
Tom Snyder	Sarah Spungin	Nancy Stevens	Donna Lee Suelzle
Chris Snyder	Sarah Spungin	Alan Stevens	Lee Sugich
Kt Snyder	Emma Squires	Wendell Stevens	Sunmee Sul
Clayton Snyder	J.L. Sramek	Mary Stevenson	Pat Sulcer
Dustin Snyder	Dayalan Srinivasan	Cheryl Stewart	Stephanie Sullivan
Shaun Snyder	Ena Sroat	Cynthia Stewart	Terri Sullivan
Sandy Sobanski	Andrew St Laurent	Barbara Stewart	Nancy Sullivan
Scott Sobel	Kristy St. George	Edward Stewart	Lynn Sumerson
Jack Sobel	Skylar St. James-Wilcock	Dana Stewart	Pam Summa
Naomi Sobo	Gregory St. John	Leslie Stewart	Nancy Summers
Yuri Sobolev	Angela Stablein	Richard Stewart	Paula Summers
Iлона Soboleva	Karen Stacey	Karen Stickney	Jr Summers
Charmaine Sobrien	Robert Stagman	Jean Stidham	Amber Sumrall
Barbara Soby	Charlotte Stahl	J Stidham	Rebecca Sundberg
Mary Sodd	Frieda Stahl	Susan Stienstra	Ann Sunderland
James Soderling	Rheua S. Stakely	Steven Stiller	Pirjo Sundqvist
Judy W. Soffler	Karen Stamm	Jacqueline Stimpert	Jean-Damien Susini
Karen Soh	Barbara Stamp	Heather Stitely	Lisa Suski
Sheena Sokolowski	Lisa Stamper	Derek Stockdale	Jaclyn Sutherland
Beverly Solomon	Esperanza Stancioff	Wade Stoddard	Madelaine Sutphin
Jody Solow	Faugsburg@Aol.Com	Bob Stoloff	Ellyn Sutton
Rachel Sonnenblick	Standeford	Daniel Stolte	Ellyn Sutton
Shirley Sonnichsen	Jean Standish	Jonathan Stolzenberg	Lorraine Suzuki
Anita Soper	Barbara Stannard	Ransom Stone	Leilani Swafford
Lon Soper	Kate Stant	Jenn Stone	Natalie Swaim
C Soraghan	Wilhelmina Stanton	R Stone	Judith Swain
Mark Sorensen	Staci Stanton	Peter Stone	Erica Swain
Tyra Sorensen	Joan Stanton	William Stone	Linda Swan
Luis Sorino	Jamie Staples	Lynn Storrie	Brycen Swart
Marshall Sorkin	Nancy Stark	Alan Stout	Lizeth Swartz
Lorna Soroko	Alexis Starke	Nathan Daniel Stout	Greg Sweet
Michael Alynn Soros	Krystal Starkey	Patricia Stover	Caoilfhionn Sweeney
Madeline Sosa	Li Starr	Joyce Stowe-Longchamp	Jay Sweeney
Juliet Sosnowski	Darren Staszak	Guy Stoye	John Gideon Sweeney
Merian Soto	Paul & Becky Statman	Daniel Strack	Jenny Sweeney
Cynthia Soto	Linda Stauffer	Jennifer Stranz	Sarah Swenson
John Souchak	Lynda Stauffer	E George Strasser	Richard Swim
Amanda Sousa	Chris Stay	Jr Stratton	Rev. Crow Swimsawa, PhDd
Erin Sousa	Don Stayner	William Stratton	Sandra Swindall
Ada Southerland	Lori Stayton	Robert Strebeck	Gail Swinderman
Laurie Southern	Joanne Stebbins	Chantal Streemke	Mark Swoiskin
Michael Souza	Stephanie Steel	Julieta Streeter	Lydia M. Swystun
Margaret Sparks	Karen E. Steele	Marjorie Streeter	Erin Symonds
Shauna Sparlin	Vivien Steele	Phillip Strehle	Katherine Syroboyarsky
Gregory Spatz	Dawn Steelman	John Strickler	Amy Syth

Lee Syverud	Kimba Theurich	Nic Todd	Tiffany Tunich
Joseph Szabo	Janet Thew	Bryan Todd	Gabriella Turek
Michael Szajer	Jeffrey Thibeault	Laurie Todd	Donna Turiano
Alina Szmant	Andrea Thibodeau	Tonya Tolbert	Carolyn Turner
Deb Szymanski	Ron Thigpen	Gina Tom	Barbara Turner
Linda Tabor-Beck	Emily Thigpen	Molly Tomaseck	Sheila Turner
Valarie Taffs	Margaret Thilges	Michael Tomassi	Susan Turner
Ann Tagawa	Kat Thomas	Gus Tombros	Heather Turner
Jila Taghizadeh	Amanda Thomas	Michael Tomczyszyn	Pamela Turner
Marie-Claire Tagnati	Charlotte Thomas	Phil Tomlinson	Lois Tutino
Caron Allen Taira	Randy Thomas	Robert Tomlinson	Shifra Twersky
Kev Tak Shing Sak	Linda Thomas	Maryvonne Tompkins	Ian Twersky
Nara Takakawa	Jessie Thomas	Andy Tomsky	Prudence Tylanda
Julie Takatsch	Dwight Thomas	Jaci Tomulonis	Karen Uber
Geneva Talbot	Arthur Thomas	Carolyn Tonahill	Aaron Ucko
James Talbot	Bill Thomas	Jane Tondettar	Neil Uelman
Mike Tallmadge	Stephen Thomason	Noreen Tonkin	Linda Uhl
Jo Tapio	Doug Thompson	Nicole Topalian	Deborah Uhlman
Valerie Tarr	William Thompson	Harriet Toretzky	Kris Ulferts
Judy Tart	Laura Thompson	Don Torok	Bill Ullrich
Mary Ann Tasker-Thompson	Larry Thompson	Paul Torrence	Brian Ulm
Pam Taszarek	Florence Thompson	Tamara Torres	Gene Ulmer
Laura Tatti	Ed Thompson	Cynthia Torrey	Timothy Ulrey
Eleanor Tauber	Jim Thompson	Fran Tose	Julia Ulrich
Janine Taulman	Ed Thompson	Bill Tower	Veronica Umali
Tammy Taunt	Jackie Thompson	Christopher Tower	Ana Umana
Brigitte Taw	Stacy Thompson	Terryann Towers	Elizabeth Ungar
Susan Taylor	Susan Thompson	Cherie Townsend	Richard Uniszkievicz
Red Taylor	Linda Thompson	Shonessi Tracy	Meris Untalan
Debbie Taylor	Carol Thompson	Frederick Tracy	Michelle Upchurch
Imogen Taylor	Karen Thompson	Denny Tracy	Jessica Upton
Paul Taylor	Katharine Thompson	Laurinda Travers	Pedro Urrutia
Anne Taylor	Cindy Thomsen	Jotasha Traylor	Maggie Urton
Paula Taylor	Robert Thomson	Arlene Treiber	Kacy Utech
Peter Taylor	Cathy Thornburn	Ariane Trelaun	Rowena Vaca
Elfmagic Taylor	Shane Thornes	Leonie Tremaine	Alexa Valastro
Mary Taylor	Jeffrey Thornton	Nancy Tremblay	Joanne Valastro
Elizabeth Taylor	Brian Thornton	Robin L. Tremblay-Costello	Ariela Valdez
Vera Taylor	Jennifer Thorpe	Andrea Trembly	Dia Vale
Sharon Tebben	Gabriel Thoumi	William Tremear	Naomi Valenti
Terry Tedesco	Rachel Thowe	Michael Trepp	Leslie Valentine
Nathalia Tediario	Eric Thu	Terry Triplet	Jennifer Valentine
John Teevan	Janet Tice	Tia Triplett	Sonia Valenzuela
Jessica Tellez	Paula Tice	Phyllis Troia	Doris Valladares
Sara Templeton	Marion Tidwell	Scott Troup	Chris Valle
Christine Teneralli	Amber Tidwell	Jorian Trowbridge	Angelina Valles
Kalinke Ten-Hulzen	Betsy Tietjen	Rebecca Troy	Olga Valle-Tetkowski
Shannon Teper	Jane Tikkuri	Niels Truelsen	Cheryl Vallone
Ella Tepper	Katherine Tildes	Yolanda Trujillo	Ina Jean Valperts
Lee & Charlotte Terbot	Kimberly Tilley	Julia Trujillo	Caroline Van
Ron Tergesen	Merritt Tilley Iii	Sauwah Tsang	Lois Van
Marcia Terry	Garry Timms	Karma Lekshe Tsomo	Richard Van Aken
Laurie Terry	Cathy Tinder	Barbara Tucker	Hubert Van Asch
David Terry	Vivian Tineo	Andrea Tucker	Maria Van Dingenen
Stacy Tessier	Rebecca Tippens	Jessica Tucker	Marlene Van Dyke
Pat Testa	Elaine Tirrelll	Carol Tucker	Margaret Van Dyke
Barbara Tetro	Lori Tishgart	Heather Tucker	Nikki Van Fossen
C Tharp	Viviane TITS	Meredith Tucker	Valerie Van Isler
James Theimer	Patrice Titterington	Donna Tucker	Siobhan Van Lanen
Eva Theodosiadis	Norman Toback	Trish Tuley	Julie Van Ness
Richard Theriault	Theresa Tober	David Tumarkin	Ken Van Norden
Judith Therrell	Deborah Tobin	Alexandra Tumarkin	Robin Van Tassell

Stephen Van Vuuren	Anca Vlasopolos	Sandra Walter	Edward Weingarten
Betty Van Wicklen	Alex Vollmer	Dixie A. Walter	Jef Weisel
Susan Van Wyck	Judith Volquardsen	Kenneth Walters	Alan Weiskott
Vince & Sandi Vanacore	Claudia Von Grunebaum	L Walters	Kathie Weiss
Angela Vancleve	Tassilo Von Koch	John Walton	Christopher Weiss
Drew Vandecreek	Helena Von Rueden	Daniela Waltrick	Mark Weissman
Peggy Vandemark	Robert Von Tobel	Alice Walzer	Ed Weith
Kristina Vandergriff	Eric Voorhies	Cheryl Wang	Cassandra Weith
Janine Vanderhoff	Dan Vorderbrueggen	Toni Wanserski	Karen Welch
Lois Vanderkooi	Judith Vorreuter	William Warburton	Logan Welde
Roy Vanderleelie	Chelsea Vosburgh	Martin J. Ward	Judy Welker
H. Jean Vanderzanden	Christine Vosmik	James Ward	Jennifer Wells
Carolyn Vanini	Barbara Voss	Dee Warenycia	Thornton Wells
John Vardanian	Siamak Vossoughi	Jamee Warfle	Katie Welter
Barb Varellas	Harold Votey	Chezna Warner	Patricia Wendell
Robert Vargas	Mary Vought	Lawrence Warner	M Wenner
Roberto Angarita Vargas	Jeanne Voxnaes	Roxanne Warren	Cathy Wenner
Lee Varian	Serge Vrabec	Elisabeth Warren	Chrstine Wentzel
Joseph Varon	Joanne Vrecenak	Melissa Warrenburg	Scott & Ms. Sylvia Werny
Tracy Vasquez	Beth Vredenburg	Natalie Warshaw	Laura Wertenberger
Alfonso Vasquez	Marjan Vrins De Roo	Dusty Washburn	Damaris Wescott
Pam Vass	Regina W	Todd Washowich	Terry West
Leonard Vaughn	Linda Wagner	Christin Wasson	Debi West
Theresa Vaughn	Elissa Wagner	Scott Watanabe	Lynn West
Kevin Vaught	Robert Wagner	Yvette Waters	Stephen West
Liz Vawdrey	Sharon Wagner	Kevin Watkins	Linda West
Wanda Vazquez	Briana Wagner	Kathy Watkins	Carol Westerman-Jones
Melanie Vazquez	Jim Wagner	Summer Watkins-Wagner	April Westfall
Grant Vecera	Melissa Wags	Jason Watson	Michael Westfall
David Veenstra	Amanda Wagy	Courtney Watson	Jennifer Westra
Jenny Vegan	Tara Wahl	Michelle Watson	Dmarla Wever
James Veitch	Mare Wahosi	Laurel Watson	Karen Wever
Steve Velasco	Linda Waine	Jan E. Watson	Marly Wexler
Glen Venezia	William Wakefield	Kerrin Watson	Alice Whealin
Sean Vennett	Beth Wakefield	Tonya Marie Watts	Jeanne Wheeler
Ana Verastegui	Gordon Walbroehl	Carol Watts	Aaron Wheeler
Nicole Verbist	Gilbert Wald	Tiffany Watts	Steven & Waynetta Wheeler
Shellie Vermeer	Susan Wald	Barb Watts	Noreen Wheller
John Vermillion	Paul Waldman	Charles Waugh	Tony Whetstone
Lauren Verruni	Jason Waldo	Dave Waugh	Betty Whipp
Paul Verzosa	Chip Waldron	Elizabeth Way	Kathy Whitaker
Gary Vesperman	Carpathia Wales	James Wayrynen	Lyndell Whitcomb
Susan Vessicchio	Jean Walker	Sandra Weatherby	John B. White
Allison Vetter	Joan Walker	Patricia Webb	Kim White
Daniel Vice	Mary Sue Walker	Mike Webb	Jessica White
Charlotte Vick	Brad Walker	Belinda Webb	William White
Doug Victor	Elizabeth Walker	Patricia Webber	Mackenzie White
Debra Vigil	Jeanne Walker	Rita Webber	Sheena White
Diane Vigilante	Grace Walker	William Weber	Gary White
Barbara Viken	Andrew Walker	Todd Webster	Sharlene White
Aaron Viles	Tina Wall	Edward Wechsler	Mindi White
Kathy Villemuer	Mary Wallace	Gene Wedge	Harry White
Chris Vincent	Louise Wallace	Dj Weed	Lindsey White
Patrick Vingo	Jennifer Wallace	Frank Wegscheider	Chuck White
A. Vinton	Jonathan Wallace	Michaela Wehner	Apyll White
Beatrice Virga	Harlan Wallingford	Aj Weideman	Michael White
Aydee Virgen	Tom Walls	Molly Weigel	A. E. White
Caitlin Visnovec	Nellie Walpole	Steve Weihe	Chandra White
Ruth Vitale	Molly Walsh	Mike Weihrauch	Sheri Whitethorn
Barbara Vitale	David Walsh	Sherry Weiland	Laura Whitman
Nichole Vivion	Carolyn Walsh	Judith Weiler	Mary Whitney
Ivana Vlahovic	Cindy Walsh	Judi Weiner	Karen Wible

Cara Lou Wicks	Erik Wilmot	Rosemarie Woods	Latisha Younger
Melissa Widdop	Rick Wilson	Julie Woods	Patricia Youngson
Marianne Widmalm	Jesse Wilson	Shaun Woodson	Jonathan Yudis
Nancy Widman	Jerry Wilson	Glenda Woodward	Allen Yun
Charles Wieland	Michael Wilson	Nicole Woodward	Thomas Yuschak
Charles Wieland	Lydia Wilson	Mary Louise Wooldridge	Julia Zaborovsky
Karen Wiesner	Kathy Wilson	Stacie Wooley	Julie Zack
Jo Wiest	David S. Wilson	Nancy Woolley	Allison Zack
Scott Wieteska	David J. Wilson	Mary Workman	Linda Zager
Wendy Wifler	Todd Wilson	Kateryna Wowk	Alessa Zaias
Robert Wiggins	Daniel Wilson	Joe Wright	Marie-France Zamblera
Jason Wilbanks	Amy Wilson	Gary Wright	Angela Zarbano
Stewart Wilber	Michelle Wilson	Sherri Wright	Angela Zarbano
David Wilbur	Lorraine Wilson	Kimberly Wright	Natalie Zarchin
Simon Wilcock	Thomas J. Windberg	Christine Wright	Irit Zarfaty
Robert Wilcox	Jerre Winder	Clea Wright	Suzanne Zarling
Marta Wilcox	Mercedes Windt	Sharon Wright	Sheeka Zarraga
David Wilcox	Anita Winfough	Liana Wright	Jennifer Zarro
Kate Wilcox	Alvina Wingate	Ken Wright	Ann Zartler
Marika Wilde	Marguerite Winkel	Blake Wu	Carl Zeitz
George Wilder	Nanci Winnette	Dana Wullenwaber	Jennifer Kim Zeller
Jeffrey Wiles	Leslie Winston	James Wurster	Laura Zeller
Matt Wiles	Sandra Winter	Stephen Wurtz	Steven Zeluck
Kay Wiley	Jessica Wintle	Anne Wurtz-Passino	Katherine Zembko
Jesse Wiley	Marilyn Wise	Allan Wyatt	Argentina Zepeda
April Wilk	Angie Wise	Ariel Wynn	Stephen Zerefos
Tashina Wilkinson	Elizabeth Wishnick	Peggy Wynn	Dominic Ziegler
Michael Willemsen	Chris Witmer	Gareth Wynn	Madeline Zimmer
Stephen Williams	Andreas Wittenstein	Bobby Wynn	Diane Zimmer-Fascione
Charlene Williams	Sarah Witter	Christina Wynne-Torkay, DD,	Paulette Zimmerman
Lori Williams	Edwin & Helen Woerner	PhD	Robert Zimmerman
Lisa Williams	Kim Wohl	Gail Xandy	Sophi Zimmerman
R.J. Williams	James Wohler	Mary Xia	Ute Zimmermann
C. Williams	Bob Wojcik	Hideki Yamada	Etola Zinni
Terrie C. Williams	Alan Wojtalik	Lily Yang	Karen Ziomek-Vayda
Wendy A. Williams	Kelly Wolcott	Tony C. Yang	Scott Zippel
Jada Williams	Susan Wolf	Tony C. Yang	Beth Zippert
Penny Williams	Robert Wolf	Jo-Shing Yang	James Zizzo
Charlie Williams	Carrie Wolf	Letitia Yarborough	Christine Zmurek
Christina Williams	Jennifer Wolf	Susan Yarnell	Janine Zoellner
Dina Williams	Barry Wolf	Sissy Yates	Kevin Zook
Phillip Williams	Rachel Wolf	Andrew Yeager	Indra Zorn
Mark (Shaggy) Williams	Mark & Nancy Wolfe	Greg Yeargain	Joanie Fritz Zosike
Alek Williams	Nanlouise Wolfe	Mark Yedor	Tomas Zuccareno
Susan Williams	Mark Wolfe	Edith Yelland	Suzanne Zuercher
Mary Williams	Paula Wolferseder-Yabar	Mark Yelton	Frank Zukiewicz
Heather Williams	Katie Wolff	Logan Yonavjak	Erin Zumwalt
Kathleen Williams	Jennifer Wolffwood	Sandra York	Roberta Zur
Paul Williams	Michael Wollman	Shannon York	Megan Zuse
Janet Williams	Larry Wood	J. Yoshina	Patricia Zylius
Taffy Williams	Cata Wood	Jane Young	
Roger Williams, P.T.	Penelope Wood	Suzanne Young	
Maria Williamson	Wendy Wood	Gwen Young	
Debra Williamson	Jennifer Wood	Patty Young	
Gwyn Williams-Stanton	Margaret H. Wood	Jo Ellen Young	
Jenny Willinger	Gordon Wood	Ginger Young	
Rochelle Willis	Keith Woodard	Sandra Young	
Stephanie Willis	Gina Woodard	Christine Young	
Jeff Willix	Bobby Woodart	Betty Young	
Sharon Willmann	John Wooden	Alan Young	
Dina Willner	Shirley Wooden	Ryan Young	
Lady Willow	Lesley Woods	Michele Efron Youngblood	





IUCN  
Rue Mauverney 28  
1196 Gland  
Switzerland

Tel. +41 22 999 0000  
Fax +41 22 999 0002  
mail@iucn.org  
www.iucn.org

**Mr Stephen Engelken**  
Deputy Permanent Delegate,  
Permanent Delegation of the United States of  
America to UNESCO  
Ambassade des Etats-Unis d'Amérique  
12, avenue Raphaël  
75016 PARIS  
France

09 January 2010

**IUCN Evaluation of “Papahānaumokuākea: Marine National Monument, Hawaii” (United States of America) – Nominated for inclusion on the World Heritage List**

Dear Ambassador,

The IUCN World Heritage Panel met in Gland, Switzerland, in December 2009 to examine World Heritage nominations for natural and mixed properties and cultural landscapes. The IUCN Panel examined in detail each nomination dossier and any supplementary information from the State Party, reports and reviews of field evaluators and external reviewers, and other references regarding the nominated properties. Following up on the conclusions of this recent Panel meeting IUCN will formulate its final recommendation to the World Heritage Committee which will meet from 25 July to 03 August 2010 in Brasilia, Brazil.

IUCN seeks to develop and maintain a dialogue with States Parties during the evaluation process. Following the discussions of the IUCN World Heritage Panel we would thus like to kindly ask for clarification of the following point:

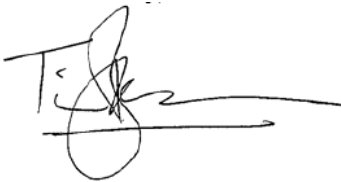
One section in the nomination document describes the military presence within the nominated property. It is stated that the Monument Management Board is working with representatives of the military to develop a consultation process to ensure that the resources and values of the property are not harmed (cf. page 172). We would be most grateful for an update regarding this development, in particular whether such a consultation process has been formalized in the meantime.

We would appreciate your response to the above points as soon as possible, in order to facilitate the evaluation process, but **no later than the 28 February 2010**, as per paragraph 148 of the Operational Guidelines. Please note that any information submitted after this date will not be considered by IUCN in its evaluation for the World Heritage Committee. It should be noted, however, that while IUCN will carefully consider any supplementary information submitted, it cannot properly evaluate a completely revised nomination or large amounts of new information submitted at the last minute. So we request to keep your response concise and respond only to the above requests.

**Supplementary information should be submitted officially in three copies to the UNESCO World Heritage Centre in order for it to be registered as part of the nomination.** An electronic copy of any supplementary information to both the UNESCO World Heritage Centre and IUCN Headquarters would also be helpful.

Should you have any questions concerning these matters, please do not hesitate to contact Mr Tilman Jaeger, World Heritage Project Management Officer (Tel: +41 22 999 0158; Fax: +41 22 999 0025; Email: [tilman.jaeger@iucn.org](mailto:tilman.jaeger@iucn.org)). Thank you once again for your kind collaboration.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'T. Badman', with a long horizontal line extending to the right.

Tim Badman  
Head, World Heritage

Cc. U.S. National Parks Service's Office of International Affairs, Mr. Jonathan Putnam  
Papahānaumokuākea Marine National Monument, T. Aulani Wilhelm, Superintendent, NOAA,  
UNESCO World Heritage Centre, Ms Mechtild Rössler and Mr Alessandro Balsamo  
IUCN Regional Office for North America, Mr. Thomas Laughlin, Acting Head of Office  
ICOMOS, Ms Régina Durighello



# United States Department of the Interior

NATIONAL PARK SERVICE  
1849 C Street, N.W.  
Washington, D.C. 20240

IN REPLY REFER TO:

FEB 26 2010

Mr. Tim Badman  
Head, World Heritage  
IUCN  
Rue Mauverney 28  
1196 Gland  
Switzerland

Dear Mr. ~~Badman~~: *Tim*

Thank you for your letter dated 09 January 2010 regarding the IUCN Evaluation of "Papahānaumokuākea: Marine National Monument, Hawai'i" (United States of America) – Nominated for inclusion on the World Heritage list. Your letter was sent to me for response. The United States appreciates the opportunity to clarify information provided regarding military presence within the nominated property and the development of a consultation process between the Monument Management Board and U.S. Department of Defense as described on page 172 of the nomination dossier.

Let me assure you that representatives of the U.S. Department of Defense have met and are committed to continuing to meet with the Monument Management Board on a regular basis to allow specific communications and the sharing of information relative to military proposals within the broader central Pacific region and opportunities for military support of Monument management efforts and objectives.

As background, Department of Defense representatives have participated for several years on the advisory council that supported the creation of the Monument. The Monument Management Board has determined that this advisory council will be bifurcated and those representing governmental entities will be part of an Interagency Coordinating Committee (ICC). The Department of Defense has been invited to become a standing member of the ICC, and military representatives were in attendance at the recent "kick-off" ICC meeting.

Regarding protection of the Monument's resources and values, those interests are protected not only by their inclusion in the Monument but also by other existing federal laws to which the United States Department of Defense is subject and with which it complies. Interagency consultations, a term of art in U.S. federal law, are conducted with National Oceanic and Atmospheric Administration, the United States Fish and Wildlife Service and the State of Hawaii when the thresholds of the Endangered Species Act, Marine Mammal Protection Act, and National Historic Preservation Act are crossed. The Monument Management Board is comprised, in part, of representatives from these agencies so the Board's interests are represented within these individual agency discussions. These formal consultations have continued to occur since the Monument was designated in June 2006 with the various management agencies.

During the development of the final Monument Management Plan in 2008, the Monument Management Board initiated discussions with the Department of Defense with the aim of developing an informal process with the purpose of sharing information and improving coordination. Two meetings were held in 2009 for this purpose and also to provide the Department of Defense with information about the final Monument Management Plan.

Last month, the Monument Management Board and Department of Defense representatives (U.S. Navy) met to continue the information sharing process to foster a stronger relationship between the various agencies. These regular meetings will take place specifically between representatives of the U.S. Navy (and potentially other military agencies) and the Monument Management Board. This relationship will continue to be refined over time to meet management needs and the shared goal of all agencies to ensure that the resources and values of the property are not harmed.

Thank you for the opportunity to provide more information about military presence in the Monument. I hope this answers your concerns and provides the assurances necessary to allow the nomination to proceed. Please let us know if you have further questions.

Sincerely,



Stephen A. Morris  
Chief, Office of International Affairs

cc: Ambassador Killion  
‘Aulani Wilhelm, Superintendent, Papahānaumokuākea MNM  
Ms. Mechtild Rossler, UNESCO World Heritage Centre  
Mr. Alessandro Balsamo, UNESCO World Heritage Centre  
Mr. Thomas Laughlin, IUCN Regional Office for North America  
Ms. Regina Durighello, ICOMOS



United Nations  
Educational, Scientific and  
Cultural Organization

Organisation  
des Nations Unies  
pour l'éducation,  
la science et la culture

Organización  
de las Naciones Unidas  
para la Educación,  
la Ciencia y la Cultura

Организация  
Объединенных Наций по  
вопросам образования,  
науки и культуры

منظمة الأمم المتحدة  
للتربية والعلم والثقافة

联合国教育、  
科学及文化组织

## The Culture Sector

H.E. Mr David Killion  
Ambassador, Permanent Delegate  
Permanent Delegation of the United  
States of America to UNESCO  
18, avenue Gabriel  
75008 Paris

WHC/74/3193/US/PA/MR

5 October 2010

**Subject: Inscription of *Papahānaumokuākea* (CN 1326) (United States of America) on the World Heritage List**

Sir,

I have the pleasure to inform you that the World Heritage Committee, at 34th session (Brasília, Brazil, 25 July – 03 August 2010), examined the nomination of the *Papahānaumokuākea* and decided to **inscribe** the property on the World Heritage List. Please find below the Decision **34 COM 8B.10** adopted by the Committee.

I am confident that your government will take the necessary measures for the proper conservation of this new World Heritage property. The World Heritage Committee and its Secretariat, the World Heritage Centre, will do everything possible to collaborate with you in these efforts.

The *Operational Guidelines for the Implementation of the World Heritage Convention* (paragraph 168), request the Secretariat to send to each State Party with a newly inscribed property a map of the area(s) inscribed. Please examine the attached map and inform us of any discrepancies in the information by and not later than **15 December 2010**.

The inscription of the property on the World Heritage List is an excellent opportunity to draw the attention of visitors to, and remind local residents of, the *World Heritage Convention* and the outstanding universal value of the property. To this effect, you may wish to place a plaque displaying the World Heritage and the UNESCO emblems at the property. You will find suggestions on this subject in the *Operational Guidelines for the Implementation of the World Heritage Convention*.

In many cases States Parties decide to hold a ceremony to commemorate the inscription of a property on the World Heritage List. Upon request to the World Heritage Centre by the State Party, a World Heritage Certificate can be prepared for such an occasion.

I would be grateful if you could provide me with the name, address, telephone and fax numbers and e-mail address of the person or institution responsible for the management of the property so that we may send them World Heritage publications.

Please find attached the brief descriptions of your site, prepared by ICOMOS and IUCN and the World Heritage Centre, in both English and French. As these brief descriptions will be used in later publications, as well as on the World Heritage website, we would like to have your full concurrence with their wording. Please examine these descriptions and inform us, by and not later than **15 December 2010**, whether there are any changes that should be made. If we do not hear from you by this date, we will assume that you are in agreement with the text as prepared.

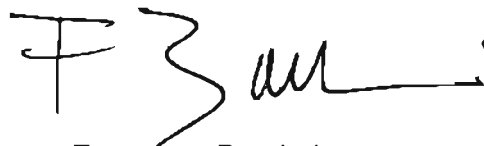
Furthermore, as you may know, the World Heritage Centre maintains a website at <http://whc.unesco.org/>, where standard information about each property on the World Heritage List can be found. Since we can only provide a limited amount of information about each property, we try to link our pages to those maintained by your World Heritage property or office, so as to provide the public with the most reliable and up-to-date information. If there is a website for the newly inscribed property, please send us its web address.

The full list of the Decisions adopted by the World Heritage Committee at its 34th session is available on line at <http://whc.unesco.org/en/sessions/34COM/>

As you know, according to paragraph 172 of the *Operational Guidelines for the Implementation of the World Heritage Convention*, the World Heritage Committee invites the States Parties to the *Convention* to inform the Committee, through the World Heritage Centre, of their intention to undertake or to authorize in the area protected under the *Convention* major restorations or new constructions which may affect the outstanding universal value of the property.

May I take this opportunity to thank you for your co-operation and for your support in the implementation of the *World Heritage Convention*.

Please accept, Sir, the assurances of my highest consideration.



Francesco Bandarin  
Director  
World Heritage Centre

cc: U.S. National Commission for UNESCO  
U.S. National Park Service  
IUCN  
ICOMOS

## **BRIEF DESCRIPTION**

Papahānaumokuākea is a vast and isolated linear cluster of small, low lying islands and atolls, with their surrounding ocean, roughly 250 km to the northwest of the main Hawaiian Archipelago and extending over some 1931 km. The area has deep cosmological and traditional significance for living Native Hawaiian culture, as an ancestral environment, as an embodiment of the Hawaiian concept of kinship between people and the natural world, and as the place where it is believed that life originates and to where the spirits return after death. On two of the islands, Nihoa and Makumanamana, there are archaeological remains relating to pre-European settlement and use. Much of the monument is made up of pelagic and deepwater habitats, with notable features such as seamounts and submerged banks, extensive coral reefs and lagoons. It is one of the largest marine protected areas (MPAs) in the world.

## **BREVE DESCRIPTION**

Papahānaumokuākea est le nom d'un vaste groupe linéaire et isolé de petites îles et atolls à faible altitude (océan autour compris) situées à près de 250 km au nord-ouest du principal archipel hawaïen et qui s'étendent sur environ 1931 km. Le site possède une signification cosmologique pour les natifs hawaïens, en tant qu'environnement ancestral, incarnation du concept de parenté entre les hommes et le monde naturel, berceau de la vie et terre d'accueil des esprits après la mort. Sur deux des îles, Nihoa et Makumanamana, on trouve des vestiges archéologiques relatifs au peuplement et à l'occupation des sols à l'époque pré-européenne. C'est aussi une zone d'habitats pélagiques et d'eaux profondes avec des caractéristiques remarquables telles que des monts sous-marins et des bancs submergés, de vastes récifs coralliens et des lagons. Il s'agit de l'une des aires marines protégées les plus vastes du monde.

## **Extract of the Decisions adopted by the 34th session of the World Heritage Committee (Brasilia, 2010)**

### **Decision: 34 COM 8B.10**

The World Heritage Committee,

1. Having examined Documents WHC-10/34.COM/8B, WHC-10/34.COM/INF.8B1 and WHC-10/34.COM/INF.8B2,
2. Inscribes **Papahānaumokuākea, United States of America**, on the World Heritage List under criteria (iii), (vi), (viii), (ix) and (x);
3. Adopts the following Statement of Outstanding Universal Value:

#### **Brief synthesis**

Papahānaumokuākea is the name given to a vast and isolated linear cluster of small, low lying islands and atolls, with their surrounding ocean, extending some 1,931 kilometres to the north west of the main Hawaiian Archipelago, located in the north-central Pacific Ocean. The property comprises the Papahānaumokuākea Marine National Monument, which extends almost 2000 km from southeast to northwest.

The property includes a significant portion of the Hawai'i-Emperor hotspot trail, constituting an outstanding example of island hotspot progression. Much of the property is made up of pelagic and deepwater habitats, with notable features such as seamounts and submerged banks, extensive coral reefs, lagoons and 14 km<sup>2</sup> emergent lands distributed between a number of eroded high islands, pinnacles, atoll islands and cays. With a total area of around 362,075 km<sup>2</sup> it is one of the largest marine protected areas in the world. The geomorphological history and isolation of the archipelago have led to the development of an extraordinary range of habitats and features, including an extremely high degree of endemism. Largely as a result of its



isolation, marine ecosystems and ecological processes are virtually intact, leading to exceptional biomass accumulated in large apex predators. Island environments have, however, been altered through human use, and although some change is irreversible there are also examples of successful restoration. The area is host to numerous endangered or threatened species, both terrestrial and marine, some of which depend solely on Papahānaumokuākea for their survival.

The pristine natural heritage of the area has deep cosmological and traditional significance for living Native Hawaiian culture, as an ancestral environment, as an embodiment of the Hawaiian concept of kinship between people and the natural world, and as the place where it is believed that life originates and where the spirits return to after death.

On two of the islands, Nihoa and Makumanamana, there are archaeological remains relating to pre-European settlement and use, including a large ensemble of shrines, heiau, of a type specific to Papahānaumokuākea, but which resemble those of inland Tahiti. These, together with the sites of stone figures that show a strong relationship to similar carvings in the Marquesas, can be said to contribute to an understanding of Hawaiians strong cultural affiliation with Tahiti and the Marquesas

**Criterion (iii):** The well preserved heiau shrines on Nihoa and Mokumanamana, and their associated still living traditions are both distinctive to Hawai'i but, positioned within a wider 3,000 year old Pacific/Polynesian marae-ahu cultural continuum, they can be seen as an exceptional testimony to the strong cultural affiliation between Hawai'i, Tahiti and the Marquesas, resulting from long periods of migration.

**Criterion (vi):** The vibrant and persistent beliefs associated with Papahānaumokuākea are of outstanding significance as a key element in Pacific socio-cultural evolutionary patterns of beliefs and provide a profound understanding of the key roles that ancient marae-ahu, such as those found in Raiatea, the 'centre' of Polynesia, once fulfilled. These living traditions of the Hawaiians that celebrate the natural abundance of Papahānaumokuākea and its association with sacred realms of life and death, are directly and tangibly associated with the heiau shrines of Nihoa and Mokumanamana and the pristine islands beyond to the north-west.

**Criterion (viii):** The property provides an illustrating example of island hotspot progression, formed as a result of a relatively stationary hotspot and stable tectonic plate movement. Comprising a major portion of the world's longest and oldest volcanic chain, the scale, distinctness and linearity of the manifestation of these geological processes in Papahānaumokuākea are unrivalled and have shaped our understanding of plate tectonics and hotspots. The geological values of the property are directly connected to the values in Hawai'i Volcanoes National Park and World Heritage property and jointly present a very significant testimony of hotspot volcanism.

**Criterion (ix):** The large area of the property encompasses a multitude of habitats, ranging from 4,600 m below sea level to 275 m above sea level, including abyssal areas, seamounts and submerged banks, coral reefs, shallow lagoons, littoral shores, dunes, dry grasslands and shrublands and a hypersaline lake. The size of the archipelago, its biogeographic isolation as well as the distance between islands and atolls has led to distinct and varied habitat types and species assemblages. Papahānaumokuākea constitutes a remarkable example of ongoing evolutionary and bio-geographical processes, as illustrated by its exceptional ecosystems, speciation from single ancestral species, species assemblages and very high degree of marine and terrestrial endemism. For example, a quarter of the nearly 7,000 presently known marine species in the area are endemic. Over a fifth of the fish species are unique to the archipelago while coral species endemism is over 40%. As many species and habitats remain to be studied in detail these numbers are likely to rise. Because of its isolation, scale and high degree of protection the property provides an unrivalled example of reef ecosystems which are still

dominated by top predators such as sharks, a feature lost from most other island environments due to human activity.

**Criterion (x):** The terrestrial and marine habitats of Papahānaumokuākea are crucial for the survival of many endangered or vulnerable species the distributions of which are highly or entirely restricted to the area. This includes the critically endangered Hawaiian Monk Seal, four endemic bird species (Laysan Duck, Laysan Finch, Nihoa Finch and Nihoa Millerbird, and six species of endangered plants such as the Fan Palm. Papahānaumokuākea is a vital feeding, nesting, and nursery habitat for many other species, including seabirds, sea turtles and cetaceans. With 5.5 million sea birds nesting in the monument every year and 14 million residing in it seasonally it is collectively the largest tropical seabird rookery in the world, and includes 99% of the world's Laysan Albatross (vulnerable) and 98% of the world's Black-footed Albatross (endangered). Despite relatively low species diversity compared to many other coral reef environments, the property is thus of very high in situ biodiversity conservation value.

### **Integrity**

The boundaries of the property are all located in the ocean, but nevertheless have been clearly defined, demarcated on navigational charts and communicated widely. The large size of the property ensures inclusion of a wide variety of habitat types, including a highly significant area of marginal reef environment as well as submerged banks and deepwater habitat. It also ensures a high degree of replication of habitat type. Although past use has altered some terrestrial environments the property is still predominantly in a natural state: its nature conservation status is exceptional. This is largely due to its isolation as well as a combination of management and protection efforts, some dating back more than 100 years, including national natural resource protection legislation as well as internationally adopted restrictions. The integrity of the property and its ecological processes are in excess of most other island archipelagos and most other tropical marine environments in the world.

All the cultural attributes that reflect Outstanding Universal Value are within the boundaries of the property. The archaeological sites remain relatively undisturbed by cultural factors. Although none of the attributes are under severe threat, some of the archaeological sites need further conservation and protection against damage from plants and wildlife.

### **Authenticity**

The unique arrangement of the collections of shrines of Mokumanamana and Nihoa islands need to be read in detail for their sacred and religious associations, linked to other similar sites across the Pacific. The strong spiritual religious associations of Mokumanamana Island are living and relevant. Damage due to natural processes of decay, and disturbance by wildlife could also disturb their layout and ability to display clearly their meaning.

### **Protection and management requirements**

Papahānaumokuākea is a highly protected area established through Presidential Proclamation in 2009, which adds to pre-existing state, federal and international legal mandates. The multiple layers of Federal and State legislation and regulation protect Papahānaumokuākea's natural heritage and also its cultural heritage: both monuments and landscape. The property was declared a Marine National Monument under the national Antiquities Act, and is further protected by other national legislation including as the National Historic Protection Act, Historic Sites Act, and the Archaeological Resources Protection Act. There are also traditional Native Hawaiian protocols protecting the property's physical and intangible cultural heritage.

The multiple jurisdictions have created a complex institutional environment for management of the property, but management planning and intervention practices are appropriate. The three management Agencies for the property are the US Fish and Wildlife Service, National Oceanic and Atmospheric Administration and the State of Hawaii Department of Land and Natural Resources. There is a need to establish and maintain effective natural, archaeological and cultural heritage skills in managing the property. An archaeologist/cultural heritage specialist is

required for the property, to complement the management of its natural values. The multiple jurisdictions have created a complex institutional environment for management of the property, but management planning and intervention practices are well conceived. In view of the threats facing the property, well-governed multi-agency involvement and participation is strength, provided the complexity does not compromise operational capacities and the ability to quickly respond to challenges. It is a particular strength in relation to addressing the threats to the property that originate beyond its boundaries.

A Monument Protection Plan has been drawn up by key stakeholders, which will act as the guiding document for the property over the next 15 years. This includes strategic objectives and detailed thematic action plans that address priority needs. It is important that these efforts are sustained with the aim to increase streamlining, including to achieve more effective mechanisms for stakeholder participation and outreach. There is a need to ensure that the management system achieves effective, equitable and integrated management that protects and conserves both the cultural attributes and natural features of the property that are the basis for its Outstanding Universal Value.

Threats to the natural values of the property emanating outside its boundaries include marine litter, hazardous cargo, future exploration and mining, military operations, illegal, Unregulated and Unreported (IUU) fishing, commercial fishing, anchor damage, vessel strikes and Invasive Alien Species.

A key issue in relation to threats to cultural attributes is the need to ensure archaeological sites are not disturbed by burrowing animals or plants, and that monitoring indicators address the impact of natural processes on the archaeological resources. There is also a need for management to be underpinned by clear documentation of the physical cultural resource, based on the outcomes of the current archaeological investigations.

4. Commends the State Party on the on-going comprehensive management efforts and encourages the State Party to continue and intensify efforts to address the threats to the property emanating outside its boundaries, including marine litter, hazardous cargo, future exploration and mining, military operations, illegal, Unregulated and Unreported (IUU) fishing, commercial fishing, anchor damage, vessel strikes and Invasive Alien Species, through consultation, collaboration and development and implementation of appropriate strategies nationally and, as possible, internationally;
5. Also commends the State Party on the development of a consultation process between the Monument Management Board and the Department of Defense, also encourages the State Party to further investigate opportunities for improved information sharing and coordination with the military in support of management efforts and urges the State Party to ensure that the military presence will not in any way affect the Outstanding Universal Value and the integrity of the property;
6. Recommends that research and awareness-raising should consider the geological linkages with the Hawaii Volcanoes National Park and World Heritage property;
7. Also recommends that the State Party, through the co-trustee agencies and the Monument Management Board and in consultation and collaboration with relevant institutions and stakeholder groups, develop a response plans for the property related to climate change, in order to harmonize existing agency plans and activities in a coherent framework that can further strengthen conservation and management efforts as well as generate information of importance beyond the property itself;
8. Welcomes the sister site agreement between the Governments of the United States of America and Kiribati on the management of Papahānaumokuākea and Phoenix Islands Protected Area

respectively, and encourages State Parties to continue and, as possible, expand on this collaboration;

9. Further recommends that the State Party give consideration to the following points:
- a) Ensure the management system achieves an equitable balance between the protection of cultural and natural attributes with the support of a cultural heritage specialist;
  - b) In order to address the fragility of, and disruption to, the archaeological remains from plant and animals, put in place deterrents to ensure archaeological sites are not disturbed by burrowing animals of plants;
  - c) Develop monitoring arrangements to monitor the impact of natural processes on the archaeological resources;
  - d) Provide clear documentation of the physical cultural resources based on the outcomes of the current archaeological investigations;
  - e) Ensure no military training activities take place on Nihoa and Mokumanamana islands.

**Surface and coordinates of the property inscribed on the World Heritage List by the 34th session of the World Heritage Committee (Brasilia, 2010) in accordance with the *Operational Guidelines*.**

State Party	Name	ID N	Area	Buffer Zone	Centre points Coordinates
United States of America	Papahānaumokuākea	1326	36207499 ha	--	N25 20 56.652 W170 08 44.952

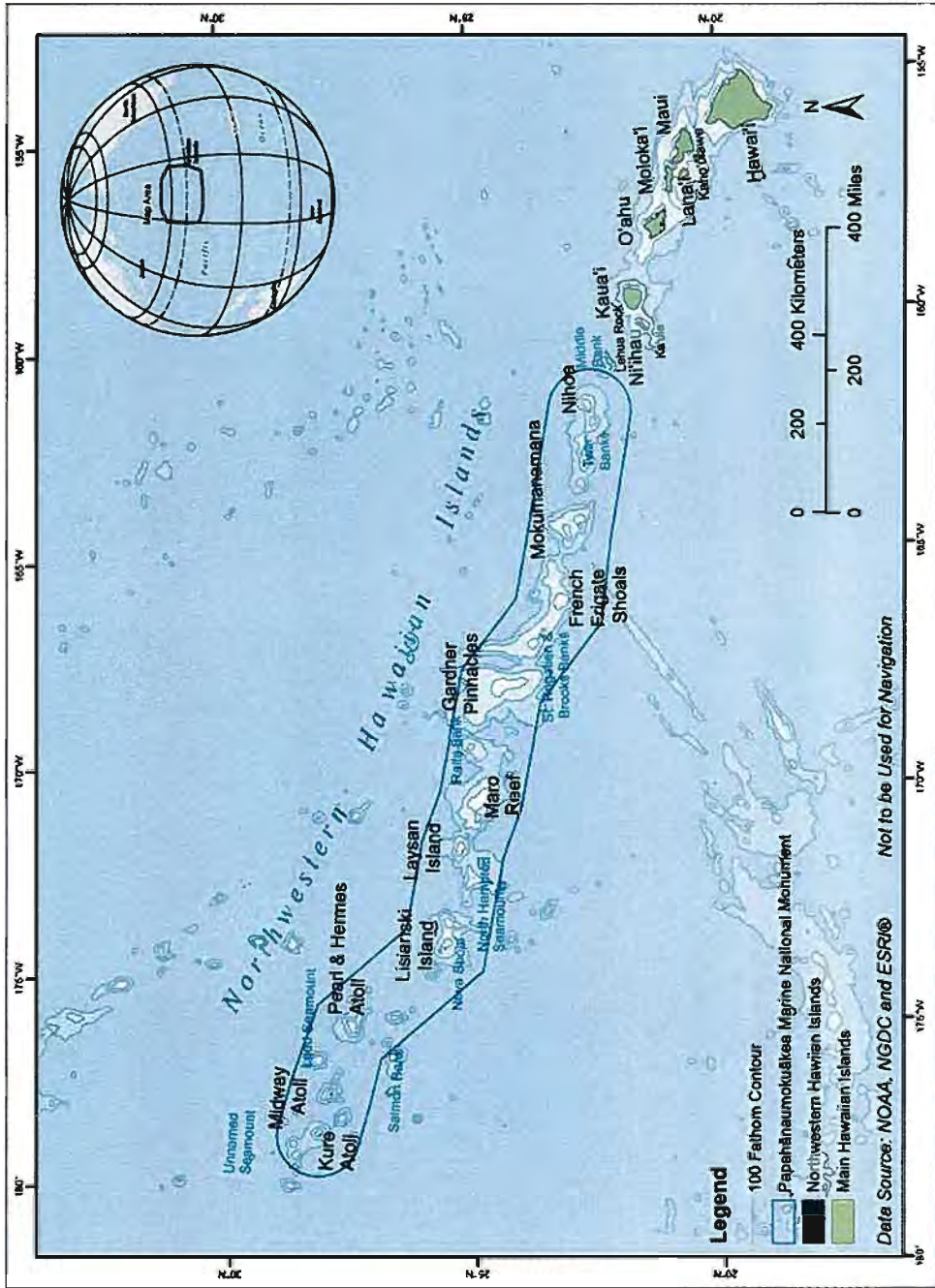


Figure 1.2. Proposed Hawaiian Archipelago Management Plan: National Monument

Date Source: NOAA, NGDC and ESR® Not to be Used for Navigation



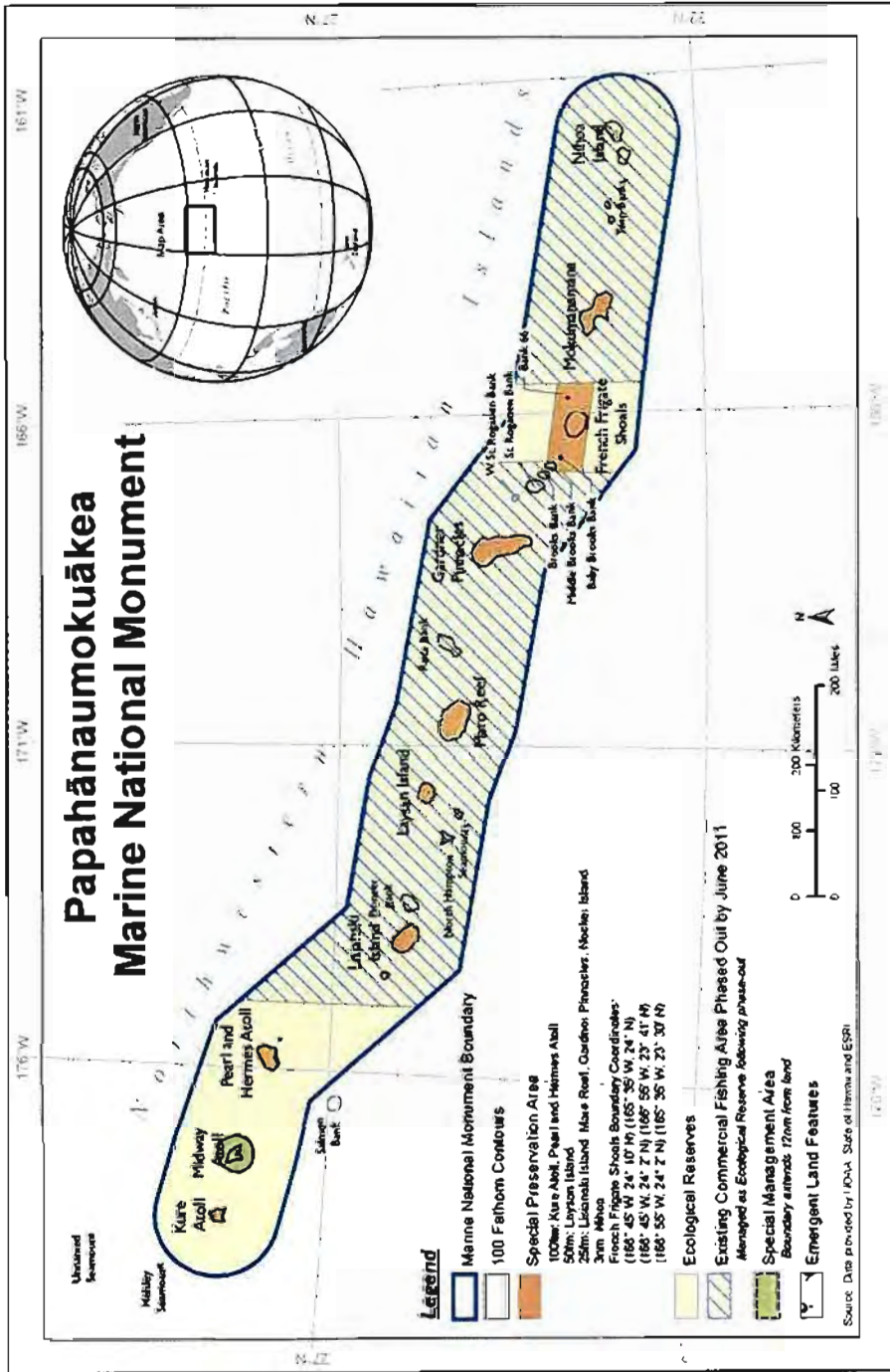


Figure 2.1 Map of the Papahānaumokuākea Marine National Monument and Zones.