

Conference Book

UNESCO Scientific Colloquium on factors
Impacting Underwater Cultural Heritage
UNESCO regional Meeting on the Protection of
the Underwater Cultural Heritage

PROGRAM

13 - 15/12/2011



United Nations
Educational, Scientific and
Cultural Organization



The Protection of
the Underwater Cultural
Heritage

COLOFON

UNESCO - SCIENTIFIC COLLOQUIUM ON FACTORS IMPACTING UNDERWATER CULTURAL HERITAGE
UNESCO REGIONAL MEETING ON THE PROTECTION OF THE UNDERWATER CULTURAL HERITAGE

Period: 13 - 14/12/2011 and 15/12/2011

Location: Royal Library of Belgium, Brussels (Belgium)
Keizerslaan 2 Boulevard de l'Empereur
1000 Brussels
(near Brussel-central railwaystation)

Organisation committee/comité d'organisation: CORNELIS C., EGGER B., GUÉRIN U., KHAKZAD S.,
MISSIAEN T., PIETERS M., REY DA SILVA A. & VAN BALEN K.

partners: UNESCO, Catholic University of Leuven/Université Catholique de Louvain,
Ghent University/Université de Gand, Flanders Heritage Agency/Agence du Patrimoine de Flandre,
Flemish UNESCO Commission/Commission Flamande de L'UNESCO



Onroerend Erfgoed



United Nations
Educational, Scientific and
Cultural Organization



WWW.VUC.BE



United Nations
Educational, Scientific and
Cultural Organization



The Protection of
the Underwater Cultural
Heritage

TUESDAY 13/12/2011

10.00 am: Registration of participants – Accueil des participants

11.00 am: Opening – Ouverture

- **ULRIKE GUÉRIN** 23
UNESCO
- **KOEN VAN BALEN**
Catholic University of Leuven, Belgium
Université Catholique de Louvain, Belgique
- **MARNIX PIETERS** 25
Flanders Heritage Agency, Belgium
Agence du Patrimoine de Flandre, Belgique

11.15 am: Introduction

- **The significance of underwater cultural heritage** 27
L'importance du patrimoine culturel subaquatique
GEOFF BAILEY
University of York, Great-Brittain
Université de York, Royaume-Uni
- **Underwater cultural heritage under pressure** 29
Le patrimoine culturel subaquatique sous pression
THIJS MAARLEVELD
ICOMOS - ICUCH and University of Southern Denmark, Denmark
ICOMOS-ICUCH et Université du Danemark du Sud, Danemark
- **The future of underwater archaeology** 30
Le futur de l'archéologie subaquatique
CONSTANTIN CHERA

President of the Scientific and Technical Advisory Body of the UNESCO
2001 Convention on the Protection of Underwater Cultural Heritage
*Président du Conseil consultatif scientifique et technique de la Convention de
2001 sur la protection du patrimoine culturel subaquatique*

12.15 pm: Refreshments – Rafrâichissements

Presentations of research posters - *Séance de présentation de chercheurs*

13.30 pm: SESSION 1: Commercial exploitation, commercial archaeological interventions and international cooperation 31

L'exploitation commerciale, les interventions archéologiques commerciales et la coopération internationale



Chair – *Coordinateur*: KATERINA DELLAPORTA

2nd Ephorate of Antiquities, Greece

2^{ème} Ephorate pour les Antiquités, Grèce

The 2001 Convention's rejection of commercial exploitation and encouragement of international collaboration 31

Le refus de l'exploitation commerciale et l'exhortation à la coopération internationale par la Convention de L'UNESCO sur la protection du patrimoine culturel subaquatique de 2001

• The extent and the prevention of pillaging on submerged archaeological sites – the French experience 34

L'étendue et la prévention du pillage des sites archéologiques immergés - l'expérience française

MICHEL L' HOUR

Department of Underwater and Undersea Archaeological Research
(DRASSM), France

*Département des recherches archéologiques subaquatiques et sous-marines
(DRASSM), France*

- **The Centenary of the Titanic and the treaty giving legal protection**
Le Centenaire du Titanic et le traité accordant une protection juridique
OLE VARMER
National Oceanic and Atmospheric Administration (NOAA), USA
Administration nationale océanique et atmosphérique (NOAA), Etats-Unis

36
- **National authorities and the prevention of commercial exploitation of underwater cultural heritage – the Spanish experience**
Les autorités nationales et la prévention du pillage - l'expérience espagnole
XAVIER NIETO
National Museum for Underwater Archaeology, Spain
Musée national d'archéologie subaquatique, Espagne

37
- **The impact and extent of looting and commercial interventions - the Portuguese experience and the planned Portuguese / Spanish collaboration on the Nuestra Señora del Rosario**
L'impact et l'ampleur des pillages et des interventions commerciales - l'expérience portugaise et la collaboration prévue entre l'Espagne et le Portugal autour l'épave Nuestra Señora del Rosario
ALEXANDRE MONTEIRO
Instituto de Arqueologia e Paleociências of the Universidade Nova de Lisboa, Portugal
Institut d'archéologie de l'université nouvelle de Lisbonne, Portugal

38
- **Outsourcing archaeological services to commercial professional services - the Dutch experience and a governmental perspective on the application of the Valletta treaty**
L'externalisation des services archéologiques aux services commerciaux professionnels - l'expérience néerlandaise et le point de vue gouvernemental sur l'application du traité de La Valette

39

MARTIJN MANDERS

Dutch Cultural Heritage Agency, Netherlands

Agence néerlandaise du patrimoine culturel, Pays-Bas

- **Professional archaeological services in the UK – an archaeological contractor’s perspective** 40

Les services professionnels archéologiques au Royaume-Uni - la perspective d'un entrepreneur archéologique

ANTONY FIRTH

Wessex Archaeology, UK

Archéologie Wessex, Royaume-Uni

03.15 pm: CoffeeBreak – Pause café

04.00 pm: Session 2: Trawling and fishing – Le chalutage et la pêche 43



Chair – Coördinateur: THIJS MAARLEVELD

President of ICUCH, Professor at the University of Southern Denmark

Président ICUCH, professeur à l'université du Danemark du sud

The compatibility of heritage protection and fishing practice 43

la compatibilité de la protection du patrimoine et des pratiques de pêche

- **Quantification of trawl damage to premodern shipwreck sites: case studies from the Aegean and Black Seas** 44

La quantification de l'impact du chalutage sur les épaves pré modernes – études de cas dans la mer Méditerrané et Égée

MICHAEL BRENNAN

University of Rhode Island, USA

Université de Rhode Island, Etats-Unis

- **Impact of trawling and fishing on underwater cultural heritage sites - the Dutch experience** 45

Impact du chalutage et de la pêche sous-marine sur les sites du patrimoine culturel - l'expérience néerlandaise

THIJS VAN KOLFSCHOTEN AND MARGOT KUITEMS

Leiden University, Netherlands

Université de Leiden, Pays-Bas

- **The perspective of the fishing industry on the impact of trawling and fishing on submerged heritage** 46

La perspective de l'industrie de la pêche sur le chalutage

PHILIP MACMULLEN

Sea Fish Industry Authority, UK

Sea Fish Industry Authority, Royaume-Uni

05.00 pm: Session 3: Construction works – Les travaux de construction 47



Chair – Coordinateur: FRIEDRICH LÜTH

Director DAI, Germany

Directeur DAI, Allemagne

The compatibility of heritage protection and construction works 47

La compatibilité de la protection du patrimoine et des travaux de construction

- **The Femarnbelt Fixed Link - the new Baltic tunnel** 48

Le nouveau tunnel Baltique

JORGEN DENCKER

Viking Ship Museum in Roskilde, Denmark

Musée des Bateaux Vikings de Roskilde, Danemark

- **The Maasvlakte 2 Extension Project (Port of Rotterdam) - a showcase of interdisciplinary research of underwater cultural heritage in the North Sea** 49

Les projets industriels – le port de Rotterdam

ANDREA OTTE

Dutch Cultural Heritage Agency, Netherlands

Agence néerlandaise pour le patrimoine Culturel, Pays-Bas

- **Coastal developments and waterfront constructions: city, dyke, dam and marina building** 50

Les développements côtiers et les constructions sur le front de mer - villes, digues, barrages et marinas

ALEXANDRE MONTEIRO

Instituto de Arqueologia e Paleociências of the Universidade Nova de Lisboa, Portugal

Institut d'archéologie de l'université nouvelle de Lisbonne, Portugal

06.00 pm: Discussion

07.00 pm: Reception – Cocktail

Presentations of research posters - *Séance de présentation de chercheurs*

WEDNESDAY 14/12/2011

08.30 am: **Session 4: Developing the seabed, resource extraction and renewable energy development at Sea** 51

la compatibilité de la protection du patrimoine et les projets de développement



Chair – *Coordinateur*: NICOLAS FLEMMING

National Oceanography Centre, Southampton, UK

Centre National Océanographique, Southampton, Royaume-Uni

The compatibility of heritage protection and development projects 51

La compatibilité de la protection du patrimoine et des travaux de construction

• **The need for marine data - European Marine Observation and Marine Spatial Planning** 52

La nécessité pour les données marines – l’observation du milieu marin et la planification de l’espace maritime en Europe

IAIN SHEPHERD

DG for Maritime Affairs and Fisheries of the European Commission

DG des Affaires Maritimes et de la Pêche de la Commission européenne

• **Energy Development on the U.S. Outer Continental Shelf: challenges in locating, studying, and protecting Underwater Cultural Heritage** 53

Les efforts pour localiser, identifier et étudier les ressources culturelles submergées lors des activités d’extraction et de développement des sources d’énergie renouvelables sur la plateforme continentale extérieure

BRIAN JORDAN

Bureau of Ocean Energy Management, USA

Bureau pour la gestion de l’énergie des océans, Etats-Unis

- **The consideration of archaeological sites in oil and gas drilling operations** 54

La prise en compte des sites archéologiques dans les opérations de forage pétrolier

AMANDA EVANS

Tesla Offshore / SHA, USA

Tesla Offshore / SHA, Etats-Unis
- **The Nord Stream Baltic pipeline and underwater cultural heritage management in the Swedish EEZ** 55

Le gazoduc Nord Stream dans la mer Baltique et la gestion du patrimoine culturel subaquatique dans la ZEE suédoise

ANDREAS OLSEN

Swedish National Maritime Museums, Sweden

Musées nationaux maritime, Suède
- **The significance and contribution of marine aggregates** 56

La Signification et la contribution des Granulats marins

ANDREW BELLAMY

British Marine Aggregate Producers Association (BMAPA), UK

Union britannique des producteurs de granulats marins, Royaume-Uni
- **Offshore renewable energy development – wind farms in the North Sea** 57

Le développement des sources d'énergie renouvelables – fermes éoliennes en mer du Nord

MARTIJN MANDERS

Dutch Cultural Heritage Agency, Netherlands

Agence néerlandaise du patrimoine culturel, Pays-Bas

ANTONY FIRTH

Wessex Archaeology, UK


Archéologie Wessex, Royaume-Uni

10.15 am: CoffeeBreak – *Pause café*

11.00 am: Session 5: Environmental impact and climate change 59

L'impact des changements environnementaux et climatiques

Chair – *Coordinateur*: KOEN VAN BALEN

 Catholic University of Leuven, Belgium
Université Catholique de Louvain, Belgique

The impact of environmental changes on the preservation of underwater cultural heritage 59

L'impact environnemental et le changement climatique sur la préservation du patrimoine culturel subaquatique

• **The spread of shipworm in the Baltic** 60

La diffusion des berniques dans la mer Baltique David Gregory

Conservation Department of the National Museum of Denmark, Denmark
Département de Conservation du Musée national du Danemark, Danemark

• **Global sea level rise and changing erosion**

La hausse globale du niveau des mers et la modification du phénomène d'érosion 61

JAN HARFF - BIRGIT HÜNICKE

Baltic Sea Research Institute and Helmholtz-Zentrum Geesthacht, Germany
Institut de Recherche de la Mer Baltique et, Helmholtz-Zentrum Geesthacht, Allemagne

Presentation by: ALAR ROSENTAU

University of Tartu, Faculty of Science and Technology, Estonia
Université de Tartu, Faculté des Sciences et Technologie, Estonie

• **The appearance of new bacteria (*titanic bacterium*) and metal corrosion** 62

L'apparition de nouvelles bactéries (bactérie du Titanic) et la corrosion des métaux

HENRIETTA MANN

Dalhousie University, Canada
Université Dalhousie, Canada

- **Environmental impact assessment and archaeological heritage** 63
Les études d'impact sur l'environnement (EIE) et le patrimoine archéologique

STEFAN WESSMAN
 National Board of Antiquities, Finland
Bureau national des antiquités, Finlande

- 12.45 pm: Lunch Break - Pause déjeuner**
 Presentations of research posters - *Séance de présentation de chercheurs*

- 14.00 am: Session 6: Tourism and the valorisation of underwater cultural heritage** 65
Tourisme et la valorisation du patrimoine culturel subaquatique

 **Chair – Coordinateur: MARNIX PIETERS**
 Flanders Heritage Agency, Belgium
Agence du Patrimoine de Flandre, Belgique

- Awareness raising for the importance of underwater cultural heritage** 65
La sensibilisation à l'importance du patrimoine culturel subaquatique

- **Opportunities arising for national economies from the valorisation of underwater cultural heritage** 66
Opportunités pour les économies nationales dérivant de la valorisation du patrimoine culturel subaquatique

JORDI TRESSERAS
 University of Barcelona, Spain
Université de Barcelone, Espagne

- **The impact on and opportunities arising from tourism to submerged sites** 67
L'impact et les possibilités dérivant du tourisme pour les sites archéologiques submergés

JIM DELGADO

NOAA/INA, USA

*Administration nationale océanique et atmosphérique (NOAA), EU***NICOLAS FLEMMING**

National Oceanography Centre Southampton, UK

Centre national d'océanographie de Southampton, Royaume-Uni

- **The valorisation and the presentation of underwater archaeological heritage The Vasa Museum** 69

*La valorisation et la présentation du patrimoine culturel subaquatique***ANDREAS OLSSON**

Swedish National Maritime Museum, Sweden

Musée national maritime, Suède

- **The Nordic experience - access through maritime dive trails and virtual simulation** 70

*L'expérience des pays nordiques - l'accès par les parcours de plongée maritime et la simulation virtuelle***SALLAMARIA TIKKANEN**

Maritime Museum, Finland

*Musée maritime, Finlande***03.15 am: CoffeeBreak – Pause café****04.00 am: Session 7: Preventive conservation and development-led-archaeology between science and pragmatism** 71*Les possibilités dérivées des projets de développement pour la recherche et la protection du patrimoine culturel subaquatique***Chair – Coordinateur: JAMES DELGADO**

NOAA, USA

NOAA, Etats-Unis

- Opportunities arising for the research and protection of underwater cultural heritage from development projects** 71
Les possibilités dérivées des projets de développement pour la recherche et la protection du patrimoine culturel subaquatique
- **The role of archaeologists in understanding and preventing the impacts of marine industries on the prehistoric environment** 72
MARTIN BATES
 University of Wales Trinity Saint David, UK
Université de Cornouailles, Trinité Saint David, Royaume-Uni
 - **Innovative, non-destructive techniques and methodologies for the survey and the exploration of submerged cultural remains on the shallow and deep seafloor** 73
Techniques et méthodologies innovantes et non-destructrices pour l'étude et l'exploration des vestiges culturels submergés sur les fonds marins situés en faible profondeur et en grande profondeur
DIMITRIS SAKELLARIOU
 Hellenic Centre of Marine Research, Greece
Centre hellénique pour la recherche maritime
 - **Preventive conservation** 74
La conservation préventive
NATHALIE HUET
 Department of Underwater and Undersea Archaeological Research (DRASSM), France
Département des recherches archéologiques subaquatiques et sous-marines (DRASSM), France

- **Setting national research agendas as a guide to mitigation** 75
*Les programmes nationaux de recherche pour guider la mitigation
l'impact des menaces*
MARK DUNKLEY
English Heritage, UK
Agence du patrimoine de l'Angleterre (English Heritage), Royaume-Uni
- **Impact mitigation in the management of submerged archaeological sites** 76
*La diminution des risques dans la gestion des sites archéologiques
subaquatiques*
MARTIN SEGSCHNEIDER
Archaeological State Office Schleswig-Holstein, Germany
Service d'archéologie de Schleswig-Holstein, Allemagne

THURSDAY 15/12/2011 – REGIONAL MEETING

08.30 am: Opening – *Ouverture*

- **Underwater Cultural Heritage in Belgium** 79

Patrimoine culturel subaquatique en Belgique

H.E. GEERT BOURGEOIS

Flemish Minister for Immovable Heritage, Belgium

Ministre flamand du patrimoine immobilier, Belgique

08.45 am:

- **The UNESCO Convention on the Protection of the Underwater Cultural Heritage (2001)** 81

La Convention de l'UNESCO pour la protection du patrimoine culturel subaquatique (2001)

ULRIKE GUÉRIN

UNESCO, Programme Specialist

UNESCO, Programme Specialist

09.10 am:

- **Integrated maritime governance and policy in the European Union** 82

Gouvernance maritime intégrée et la politique dans l' Union Européenne.

IAIN SHEPHERD

DG for Maritime Affairs and Fisheries of the European Commission

DG des Affaires Maritimes et de la Pêche de la Commission européenne

9.30 am:

- **Legal issues of the protection of underwater cultural heritage and the compatibility of the 2001 Convention with UNCLOS** 83
Les questions juridiques relatives à la protection du patrimoine culturel subaquatique en Europe et la compatibilité de la Convention de l'UNESCO pour la protection du patrimoine culturel subaquatique (2001) avec la Convention des Nations Unies sur le droit de la mer (CNUDM)

MARIANO AZNAR

Chair of Public International Law at the University Jaume I of Castellón,
Spain

*Professeur de droit international public, Université Jaume I de Castellón,
Espagne*

09.50 am:

- **Europe's interest in ratifying the 2001 UNESCO Convention** 85
L'intérêt que l'Europe porte à la ratification de la Convention de l'UNESCO pour la protection du patrimoine culturel subaquatique (2001)

MICHEL L' HOUR

Department of Underwater and Undersea Archaeological Research
(DRASSM), France

*Département des recherches archéologiques subaquatiques et sous-marines
(DRASSM), France*

10.10 am:

- **Northern Europe's interest in ratifying the 2001 UNESCO Convention** 86

L'intérêt que l'Europe du Nord porte à la ratification de la Convention de l'UNESCO pour la protection du patrimoine culturel subaquatique (2001)

ROBERT YORKE

Joint Nautical Archaeology Policy Committee, UK

*Comité collectif des politiques en matière d'archéologie nautique (JNAPC),
Royaume-Uni*

10.30 am: Coffee Break**11.15 am:**

- **The abundance of underwater cultural heritage: quantifying and qualifying submerged archaeological sites** 87

Le riche patrimoine culturel subaquatique de l'Europe : la quantification et la qualification des sites archéologiques submergés

MARK DUNKLEY

English Heritage, UK

Agence du patrimoine de l'Angleterre, Royaume-Uni

11.35 am:

- **The European submerged continental shelf** 88

Le plateau continental européen submergé

NICOLAS FLEMMING

National Oceanography Centre Southampton, UK

Centre National Oceanographique, Southampton, Royaume-Uni

11.55 am:

- **Underwater cultural heritage in Europe: threats and chances** 89
Le patrimoine culturel subaquatique en Europe : menaces et opportunités

FRIEDRICH LÜTH

German Archaeological Institute (DAI), Germany

*Institut archéologique allemand (DAI), Allemagne***12.15 pm:**

- **Opportunities arising from the valorisation of underwater cultural heritage for national economies and cultural identities** 90
Opportunités relatives à la valorisation du patrimoine culturel subaquatique pour les économies nationales et les identités culturelles

PHILIP ROBERTSON

Historic Scotland, UK

*Agence écossaise des monuments historiques, Royaume-Uni***12.35 pm:**

- **Innovative ways of presenting and disseminating knowledge about the underwater cultural heritage** 91
Procédés innovants de présentation et de diffusion du savoir relatif au patrimoine culturel subaquatique

GARRY MOMBER

Hampshire & Wight Trust for Maritime Archaeology, UK,

Hampshire & Wight Trust pour l'archéologie maritime, Royaume-Uni

12.55 pm:

- **Making a statement for heritage preservation: ratifying the 2001 Convention** 92

Faire une déclaration pour la préservation du patrimoine: la ratification de la Convention de 2001

DAVID BLACKMAN

University of Oxford, UK

Université d'Oxford, Royaume-Uni

13.15 pm: Lunch Break**02.30 pm: Country roundtable**

Abstracts posters 93

ABSTRACTS colloquium

13-14/12/2011

THE CONVENTION ON THE PROTECTION OF THE UNDERWATER CULTURAL HERITAGE

Ulrike Guérin – UNESCO

The Convention was adopted by the UNESCO General Conference on 2 November 2001. The reasons for its elaboration and adoption were among others the large scale destruction of submerged archaeological sites by commercial treasure-hunters, but also by industrial activities incidentally affecting this heritage. This produced a desire to harmonize the protection of underwater cultural heritage with that already accorded to land-based heritage.

The 2001 Convention entered into force on 2 January 2009. It has been ratified by over 40 States on the date of its tenth anniversary, on 2 November 2011. Many others already apply its guidelines in practice. Therewith it has over the years become the foremost international treaty concerning submerged heritage.

The Convention does strengthen legal protection, cooperation, awareness-raising and capacity-building and grants protection to all submerged cultural heritage. Its interest is that it achieves legal protection wherever a submerged archaeological site is located, i.e. also in international waters. Moreover it enables States Parties to adopt a common approach to preservation and ethical scientific management. States Parties will benefit from cooperation with other States Parties in practical and legal terms. Its importance for heritage professionals is however also that it provides effective professional guidelines on how to intervene with and to research underwater cultural heritage sites.

It can be expected that the Convention will over time be ratified universally and that it will put an end to the brutal treasure-hunting and destruction that is currently menacing major submerged archaeological sites. The Convention as well as its Scientific

and Technical Advisory Body can also be expected to in future strongly influence the discipline of underwater archaeology and raise the public awareness about the importance of submerged heritage.

The present scientific colloquium celebrates the anniversary of the 2001 Convention. It is hoped that it will foster its understanding and implementation.

UNDERWATER CULTURAL HERITAGE AND THE BELGIAN PART OF THE NORTH SEA

Marnix Pieters – Flanders Heritage Agency, Belgium

The Belgian part of the North Sea has a surface area of about 3500 km² which is about the size of the province of West Flanders. West Flanders is also the only Belgian province with a coastline, in total 66 km. In this small part of the North Sea a lot of commercial activity is taking place or even seems to be concentrated: wind farms, aggregate extraction, fishing, construction works,... Together with a very intensive traffic of between 200 and 300.000 ships crossing the Channel per year, this is a very busy part of the North Sea in which heritage is frequently seen merely as a complicating factor without noticing the opportunities it can offer. For the moment we know of two major types of archaeological heritage in the North Sea: lost settlements and wreck sites. Due to coastal erosion at least since the middle ages several coastal settlements are actually situated in the intertidal or even in the subtidal zone. Without systematic heritage-focused survey work already more than 300 heritage sites, mostly wreck sites are identified, most of them dating from WOI and WOII. At this moment the geology of the Belgian part of the North Sea is being more and more unravelled which is giving high hopes to identify zones of major interest in relation to palaeolithic remains. Although we have a long established maritime tradition/long maritime history with for example international medieval gateways such as Bruges and Antwerp, we seem to have rather neglected maritime archaeology. It is only from 2003 onwards that Flanders is gradually devoting research time to this specific field of study and we are very glad to have in our agency at this moment at least a few dedicated and experienced researchers participating in international maritime projects.

The UNESCO Scientific Colloquium and the Regional Meeting is of major importance to raise awareness at the level of the authorities. We hope it will give a boost to underwater archaeology in the Belgian part of the North Sea.

We ourselves are also sure to learn a lot during these days, from your interventions and discussions and we would like to benefit also from your presence to show a bit of our work first of all during the poster sessions but also via a small but devoted bookstall.

Last but not least also a warm welcome on behalf of the Flanders Heritage Agency.



THE SIGNIFICANCE OF UNDERWATER CULTURAL HERITAGE – GEOFF BAILEY, UNIVERSITY OF YORK

Geoff Bailey – University of York

The underwater cultural heritage is typically associated with the study of shipwrecks and what they can tell us about the history of ship building and maritime trade over the past five millennia. During the past decade an interest in this underwater world has been extended much further back in time, and not simply to earlier examples of underwater finds but to whole landscapes that have been drowned by sea level rise at the end of the last glacial period. In fact, for 90% of human existence on this planet, sea levels have been lower than the present, typically by about 40 m, and for shorter periods by as much as 130 m, in response to the growth and decay of the continental ice sheets. The period of high sea level that we presently enjoy was only established about 6000 years ago.

The submergence of large areas of the continental shelf by sea-level rise has long been recognised as a major factor in changing the palaeogeography of the world's coastlines. However, it is only within the past decade that there has been a clear recognition of how important is the missing data on the submerged shelf. Growing numbers of prehistoric underwater archaeological sites, ranging in age from over 300,000 years to 6,000 years ago, have been recovered, and at depths ranging from less than 10m to more than 40m, often with unusual and spectacular conditions of preservation of organic materials such as wood and fibres. There is clear evidence that substantial traces of submerged prehistoric landscapes and archaeology are preserved on the continental shelf and can be recovered. These are the areas that offered the most attractive and important landscapes and coastlines for human settlement during long periods of the Pleistocene. They are also the areas that are likely to provide the earliest and most important evidence for some of the key transformations in human social evolution,

including the early dispersal of ancient humans from Africa, the extinction of our close cousins such as the Neanderthals, the earliest development of seafaring and fishing, the early dispersal of agricultural economies, and the roots of many ancient civilizations. These are developments that took place when sea level was lower than present, and the most important evidence is likely to lie on the now-submerged landscape.

Moreover, collaborative research between archaeologists and marine geoscientists on the continental shelf is likely to provide new and more precisely dated evidence of submerged palaeoshorelines, of importance in refining models of sea level change, in showing how past societies have responded to the challenge of rising and falling sea levels, and in providing insights into the challenges that face our own society and civilization in the coming centuries.



UNDERWATER CULTURAL HERITAGE UNDER PRESSURE

Thijs Maarleveld – ICOMOS-ICUCH and University of Southern Denmark

Approaches to heritage have changed over the past 50 to 60 years, the exact period over which scientific interest in underwater heritage resources was first operationalized. The emphasis in the first and pioneering years, whether it was on the coasts of Libya or Turkey, in Swiss or Mexican inland waters, in the Caribbean or the Indian Ocean, the Baltic or the Adriatic was on excavation, on exploring and exploiting the newly available heritage resource for research or other purposes. It was through those examples that the discipline of maritime archaeology arose. Present demands, scientific and otherwise, call for more encompassing approaches than focussing on single sites, as was the practice in pioneering years. We have come to realize that the underwater world is a cornucopia that should be frugally managed in order not to fall victim of the ‘tragedy of the commons that are scavenged at will’. Since the ninety-seventies a slow and awkward process of finding common ground and common guidance on how to best manage underwater cultural heritage for the benefit of humankind has developed with Council of Europe guidance, the 1996 ICOMOS Charter, and UNESCO Convention of 2001 as major stepping stones and the extensive management plans for underwater parks and a range of World Heritage nominations as firm illustration. In 2009 the Convention entered into force, but the pressure on the heritage has continued to build up, partly because more heritage sites and landscapes are recognized as such and partly because other interests and uses of seas and inland waters have intensified as well.

THE FUTURE OF UNDERWATER ARCHAEOLOGY

*Constantin Chera – President of the Scientific and Technical Advisory Body of the
UNESCO 2001 Convention on the Protection of Underwater Cultural Heritage*



LE REJET DE L'EXPLOITATION COMMERCIALE PAR LA CONVENTION DE 2001 ET L'INCITATION À LA COOPÉRATION INTERNATIONALE

Katerina Dellaporta, 2nde Ephorie des antiquités, Grèce

Le cas du Titanic découvert en 1985 par Robert Ballard, traité depuis par nombreux articles, a permis de mettre en évidence les problèmes découlant des lacunes juridiques internationales en matière de protection du patrimoine culturel subaquatique.

La Convention sur la protection du Patrimoine Culturel Subaquatique est entrée en vigueur en 2009 ; elle vient s'inscrire parmi les autres conventions internationales importantes en matière de biens culturels que sont : La Convention de la Haye de 1954, de Paris de 1970, et la Convention d'Unidroit de 1995, complémentaire à la Convention précédente de 1970.

La Convention de 2001 est complémentaire aux Conventions susmentionnées parce qu'elle est d'une importance majeure en matière de protection des biens culturels subaquatiques. Elle contribue à changer les comportements en matière de protection, de gestion appropriée, d'application des règles et de développement durable vis à vis du patrimoine culturel subaquatique

L'absence de protection juridique engendre l'exploitation commerciale et l'appropriation des trésors et autres objets archéologiques subaquatiques par les chasseurs des trésors, parfois organisés en véritables sociétés privées, et qui sont toujours nombreux et actifs pour piller les épaves.

Le cas du Portugal des années 1993 - 1995 qui autorisait la vente des objets récupérés sur les épaves est significatif pour montrer l'impact négatif de cette action sur le patrimoine subaquatique.

Le rejet de l'exploitation commerciale du patrimoine culturel subaquatique est un principe fondamental de la Convention déjà appliqué au patrimoine terrestre.

L'UNESCO met en exergue que ce principe n'empêche pas la recherche archéologique ni l'accès du public. L'exploitation commerciale n'est donc pas totalement endiguée ; d'après l'expérience et la pratique internationale, les chasseurs des trésors, organisés en véritables sociétés privées, exploitent commercialement les épaves sous prétexte de recherches archéologiques.

On retrouve le même schéma en matière d'accès du public ; des activités organisées par des clubs de plongée touristiques à but lucratif sont menées sans autorisation sur des sites archéologiques.

Les progrès des techniques de plongée et de la technologie rendent les trésors sous-marins de plus en plus accessibles aux chasseurs de trésors qui s'intéressent uniquement à leur valeur commerciale, qui représente plusieurs billions d'euros ou de dollars, et non à leur valeur historique, archéologique et culturelle. La valeur des épaves historiques est donc perçue différemment par les archéologues et les chasseurs de trésors.

La Convention crée de nouvelles opportunités en matière de partenariat et offre aux secteurs privé et public un cadre de coopération ; archéologues, musées et sociétés privées pourraient mettre en œuvre des projets communs conformément aux règles et principes de l'Annexe afin de rechercher, étudier, documenter, conserver et gérer le patrimoine situé au fond des mers de manière effective.

La gestion durable des reliques historiques subaquatiques peut conduire à la création d'un musée subaquatique pour le grand public, sous contrôle international.

Le patrimoine immergé pourrait œuvrer de manière positive au développement et à la promotion du tourisme culturel.

Le renforcement de la coopération internationale entre les Etats parties est un point clef que l'on retrouve tout au long de la Convention. La collaboration internationale devient une nécessité à tous les stades entre les secteurs publics et privés, à condition de tenir compte des dispositions de la Convention et des législations des Etats parties intéressés relatives à la protection du patrimoine. De même, il est important de permettre au secteur privé d'œuvrer au profit de la protection du patrimoine culturel subaquatique.œ

THE EXTENT AND THE PREVENTION OF PILLAGING ON SUBMERGED ARCHAEOLOGICAL SITES – THE FRENCH EXPERIENCE.

*Michel L'Hour – Department of Underwater and Undersea Archaeological
Research (DRASSM), France*

The extent and the prevention of pillaging on submerged archaeological sites –
the French experience

Michel L'Hour, Department of Underwater and Undersea Archaeological Re-
search (DRASSM), France

La mer, chacun aujourd'hui en convient, est le plus grand musée du monde. Malheureusement, c'est aussi le seul musée qui ne dispose pas de système de sécurité renforcé ni d'un gardiennage adapté à son immensité. Le résultat est que sur tous les océans, sous toutes les mers du globe, une lutte féroce oppose les partisans d'une protection renforcée de cet héritage englouti à ceux qui persistent à ne voir dans ce dernier qu'une proie commerciale susceptible d'appartenir au premier qui s'en saisira. Pays de naissance de l'archéologie sous-marine avec la fouille dans les années 1950 des épaves du grand Congloué, la France fut aussi le premier pays au monde à se doter en 1966 d'un service officiel chargé d'assurer la protection, l'étude et la valorisation du patrimoine immergé de ses eaux territoriales, lesquelles couvrent près de 11 millions de km² de l'Atlantique au Pacifique et de l'océan Indien à la Méditerranée. Disposant d'un arsenal juridique très ancien et très structuré, dotés de moyens logistique relativement importants, inscrits au cœur d'un réseau de relations institutionnelles très dense les archéologues sous-marins français n'ont pu empêcher pourtant que de très nombreux sites archéologiques sous-marins des eaux françaises soient pillés. Il a donc fallu réagir, mettre en place des réseaux d'information et développer des enquêtes dont les résultats aujourd'hui sont très loin d'être négligeables. Des coups très durs ont

ainsi été portés ces dernières années aux trafiquants, non seulement en France mais aussi dans d'autres pays avec lesquels la France entretient des relations suivies et qu'elle épaulé dans ce combat dont l'issue est la protection du patrimoine de l'humanité. Cette communication sera l'occasion d'évoquer les modes opératoires mis en place, et d'en montrer quelques résultats. Elle vise à démontrer que le pillage et la destruction de notre patrimoine immergé n'est pas inéluctable. Le chemin est encore long certes mais le désespoir n'est plus de rigueur. Le bon droit finira par l'emporter!

THE CENTENARY OF THE TITANIC AND THE INTERNATIONAL AND US LAWS GIVING LEGAL PROTECTION

Ole Varmer – NOAA, USA

15 April 2012 will mark the 100th anniversary of the sinking of RMS *Titanic*. This presentation will discuss some of the legal implications of this anniversary as *Titanic* will then become subject to the provisions of the UNESCO Convention on the Protection of Underwater Cultural Heritage which provides blanket coverage to all shipwrecks that have been underwater for at least 100 years. What may this mean for Parties to the UNESCO Convention? What does it mean for non-parties, particularly those that negotiated the International Agreement on *Titanic*, including the United Kingdom, France, Canada and the United States? Does the 15 August 2011 Court Order that prevents the sale of the *Titanic* Collection and requires compliance with historic preservation standards including keeping the collection together for the public benefit mean that the salvage is not “commercial exploitation” under the 2001 UNESCO Convention?

NATIONAL AUTHORITIES AND THE PREVENTION OF LOOTING – THE SPANISH EXPERIENCE

Xavier Nieto – National Museum for Underwater Archaeology, Spain

THE IMPACT AND EXTENT OF LOOTING AND COMMERCIAL INTERVENTIONS - THE PORTUGUESE EXPERIENCE AND THE PLANNED PORTUGUESE / SPANISH COLLABORATION ON THE NUESTRA SEÑORA DEL ROSARIO

Alexandre Monteiro – Instituto de Arqueologia e Paleociências of the Universidade Nova de Lisboa, Portugal and Veronica Walker Vadillo, Oxford’s School of Archaeology, Spain/UK

In May 2007, the largest and most valuable shipwreck treasure in history - a seventeen-ton haul of 500 thousand gold and silver coins, copper and tin ingots, and other commercially valuable objects - was raised by the US Company Odyssey Marine Exploration from the bottom of the sea of the Portuguese Contiguous Zone. The cargo was later found out to have been recovered from the wreck site of the Spanish frigate Nuestra Señora de las Mercedes, sunk by the British in 1804.

The Black Swan case, as this affair became known in the media, is a good example of how a thin slice of Humankind’s maritime history, no larger than 300 years, is targeted by commercial companies - with Iberian ships being the main targets for plunder and destruction. As such, the decades-old archaeological adage that states that “we now know more about Roman shipbuilding than we do about the ships of Discoveries” still rings true.

In an age where public perception is everything, the lack of an appropriate and coordinated management plan of the Iberian underwater cultural heritage sunk in Portugal and Spain coastline, hinders nautical archaeologists efforts for archaeological research, conservation and dissemination of knowledge. As such, the authors will bring insight into the formulation of an Iberian co-directed project that aims, amidst other scientific objectives, for the first archaeologically controlled survey of a treasure ship – in this case, a Spanish nao lost in Portuguese waters.

OUTSOURCING ARCHAEOLOGICAL SERVICES TO COMMERCIAL PROFESSIONAL SERVICES - THE DUTCH EXPERIENCE AND A GOVERNMENTAL PERSPECTIVE ON THE APPLICATION OF THE VALLETTA TREATY

Martijn Manders – Dutch Cultural Heritage Agency, Netherlands

The *Convention on the Protection of the Archaeological heritage of Europe*, usually referred to as the **Valletta Treaty** or **Malta Convention**, was signed in 1992 but it took until 2007 before it was implemented into the Dutch Monuments law. In the meantime works were already executed according to the Malta Convention and some standards were set. Prior to the legal implementation also, the commercial market has developed. This year the implementation of the Treaty of Valletta Convention in the Netherlands is being evaluated.

In this presentation some of the issues that came out of this evaluation and have implication on the management of the underwater cultural heritage will be presented and discussed.

PROFESSIONAL ARCHAEOLOGICAL SERVICES IN THE UK: AN ARCHAEOLOGICAL CONTRACTOR'S PERSPECTIVE

Antony Firth – Wessex Archaeology UK

Throughout the history of archaeology in the UK, it has been commonplace for a wide range of individuals and organisations to carry out archaeological investigations. Archaeology has always been an 'open' practice. Except in the case of specific monuments that have statutory protection, it has not been necessary for people to have a specific archaeological authorisation or licence to be able to carry out investigations.

Against this backdrop of relatively 'open' provision of archaeological services, in the 1980s the UK Government introduced two far-reaching policies. First, central government stopped paying for 'rescue' archaeology prompted by development, requiring instead that developers should fund the archaeological work caused by their schemes on the basis of the 'polluter pays' principle. Second – in common with many other public services – archaeological services were split between regulators and providers: regulators stayed within the public sector, but providers were expected to arise from the private sector. This was accompanied by a third 1980s idea, the introduction of compulsory competitive tendering for public contracts. In combination this resulted in 'contract archaeology' whereby archaeological investigations are carried out on the basis of fixed-term contracts for specific projects. Contracts often have to be won by competitive tender. This applied to service contracts offered by Government, and to planning-related contracts offered by developers.

Remembering the 'open' character of archaeological practice, archaeological service providers in the UK are actually drawn from the public sector, the private sector and the third sector (private not-for-profit organisations). Hence archae-

ological contractors are not necessarily private companies. However, no organisation can survive in contract archaeology unless it can win sufficient projects whilst ensuring that its contracts earn more income than they cost in expenditure to complete. Consequently, all archaeological contractors are 'commercial' whether they are public, private or third sector. Balance between archaeological ethics and standards on the one hand, and commercialisation on the other, is achieved through a variety of mechanisms, including the contracts themselves, the planning/development process, and professionalism.

Marine archaeology in the UK has been exposed to the same pressures since the 1980s and shares the same balancing mechanisms. In consequence, much UK marine archaeology falls within the sphere of Rule 2(a) of the Annex, conforming to the UNESCO Convention whilst being commercial in character. In this presentation I will outline how the key balancing mechanisms operate, highlighting some of the pitfalls and 'market failures' of the UK approach, but also some of the advantages and successes.



THE COMPATIBILITY OF HERITAGE PROTECTION AND FISHING PRACTICE

Thijs Maarleveld – ICOMOS and University of Southern Denmark, Denmark

Fishing has been one of the major reasons for humanity to roam the coasts and venture at sea. Fishing sites are important archaeological sites and all other sites at sea have been impacted by fishing through the ages. Net weights and fishing hooks from all periods following a site's formation are the typical add-on to any assemblage and a telling source of knowledge both on fishing and on the site in question. Fishing is therefore an inseparable part of maritime archaeology. However, the relationship of present-day archaeologists with modern fishermen is a bit more ambiguous than with their forebears. There is a very positive side to it. Fishermen have local knowledge which is indispensable for maritime archaeologists. Moreover, they are the prime discoverers of sites, or at least they have been until swath bathymetry and integration of geophysical databases became available and fishing techniques were adapted to consume less fuel and thus to impact the sea bottom less. But the impact of bottom fisheries on the seabed has been an undeniable factor long before heritage protection was considered a serious issue, and continues to be so now that it is. It is a situation with uncomfortable side effects, as it is used as an excuse for less than responsible heritage approaches. And more often than not, there is little communication and understanding between fishermen and archaeologists working in the same area. Harsh reproaches are sometimes the result, whereas an open dialogue and relationship of heritage professionals and professionals in the fishing industry would be more helpful.

QUANTIFICATION OF TRAWL DAMAGE TO PRE-MODERN SHIPWRECK SITES: CASE STUDIES FROM THE AEGEAN AND BLACK SEAS

Michael Brennan – University of Rhode Island, USA

The past four years of exploration by the E/V Nautilus off the Aegean and Black Sea coasts of Turkey have located 40 pre-modern shipwrecks, ranging from Archaic Greek to early 19th century. More importantly, these wrecks also range in their state of preservation, due in a large part to the amount each site has been damaged by bottom trawling activities. Analysis was conducted of the damage reflected by each wreck site, the extent and intensity of trawl scars visible in side-scan sonar mapping, and the proximity of each site to the coast and other areas of fishing restrictions. In the Black Sea, these results are correlated with evidence of anoxic events caused by internal wave activity at the oxic/anoxic interface, reflected by the preservation of wooden shipwrecks. These data show areas of the Turkish coast where sites are more severely threatened or where they may have already been eradicated. Damage reflected by the dispersal of wooden timbers or by broken ceramic cargos indicates areas that may be aided by additional establishment and enforcement of marine protected areas.

THE DUTCH EXPERIENCE

Thijs van Kolfschoten and Margot Kuitens – Leiden University, Netherlands

Since the fishery fleet was modernized in the fifties of the last century, the amount of fossil material collected from the bottom of the North Sea increased considerably and thousands of fossil terrestrial mammalian remains as well as hundreds of Palaeolithic and Mesolithic artefacts have been collected. The southern part of the North Sea, in particular, is rich in mammal fossils. Analyses indicated the occurrence of at least four faunal assemblages that differ in composition and age. The oldest assemblage dates from the Early Pleistocene. A second assemblage dates from the late Early Pleistocene or early Middle Pleistocene. Most numerous are the finds with a Late Pleistocene age and the most recent faunal assemblage dates from the early Holocene. Archaeological sites e.g. in England, located at the western edge of the North Sea basin indicate that the North Sea faunal associations except for the oldest one, date from a period that hominids were present in the region. However, the context of the zoological record and the Palaeolithic and Mesolithic artefacts collected by trawling and fishing, is unknown. Still these finds should be regarded as an important part of our Archaeological Heritage and we should invest in methods to increase our knowledge about the context.

THE PERSPECTIVE OF THE FISHING INDUSTRY

Philip MacMullen – Sea Fish Industry Authority, UK*

In UK waters, as well as in the rest of Europe, the fishing industry is having to come to terms with spatial planning. Awareness of underwater cultural heritage issues hitherto has generally been quite low. The southern North Sea has regularly yielded Ice Age- or land bridge-related artefacts but there has been no real perception of the existence of heritage sites per se; if recovered objects have received any sort of media coverage it has been on a par with recovered mines or other 20th century ordnance. The occasional reports of wreck-related ‘catches’ have been in the same category.

Seafish has operated its Kingfisher Charts department for over 50 years and has built up a huge database of seabed obstructions or ‘fasteners’. Virtually the entire fleet co-operates in this endeavour with the result that ‘coming fast’ is now quite an unusual occurrence.

Spatial planning, increasing recognition of the importance of heritage sites, dramatic advances in vessel monitoring systems (VMS), and moves to codify good practice in fishing all now offer the potential for a more systematic approach to marine heritage protection. This presentation outlines this potential and the means by which it could be achieved.

**note: Seafish provides support to, but does not represent, the UK seafood industry*



THE COMPATIBILITY OF HERITAGE PROTECTION AND CONSTRUCTION WORKS

Friedrich Lüth – Director, DAI, Germany

THE FEMARNBELT FIXED LINK - THE NEW BALTIC TUNNEL

Jorgen Dencker – Roskilde Museum, Denmark

In connection to a huge construction work of a 18 kilometer long tunnel between Germany and Denmark crossing Femarnbelt the Danish Viking Ship Museum, Roskilde and the German Archaeological State Office Schleswig–Holstein have been closely cooperating on the underwater cultural heritage.

The two institutions were involved in this construction work at a very early stage in the process because Femern A/S who is the construction company wanted all cultural heritage aspects mapped and analyzed in good time before the start of the building process.

Even if the two involved countries had different marine archaeological traditions and experience the Femern A/S wanted the project carried out as a coast-to-coast project with the highest marine archaeological standards.

Since 2008 an ambitious marine archaeological work has been carried out to detect any trace of cultural heritage which could be affected of the construction work: 1) archival studies; 2) a complete overview of the building area by means of Multi beam echo sounder, Side scan sonar, Magnetometer and Sub bottom profiler; 3) checking the anomalies on deeper water with ROV and if something was of a certain cultural value checking by divers; 4) checking the anomalies on shallow water by divers.

Until now we have found submerged landscapes including stumps and trunks on different water depths, sediments from a former fresh water lake, two wrecks from 1930ties and two wrecks from 17th Century.

THE MAASVLAKTE 2 EXTENSION PROJECT (PORT OF ROTTERDAM) - A SHOWCASE OF INTERDISCIPLINARY RESEARCH OF UNDERWATER CULTURAL HERITAGE IN THE NORTH SEA

Andrea Otte – Dutch Cultural Heritage Agency, Netherlands

The Port of Rotterdam is presently expanding the Rotterdam harbour to the west into the North Sea. About 240 million m³ sand is dredged from the North Sea floor several kilometres offshore to build the harbour. It was recognized in an early stage that a project of this kind and size might have a substantial impact on the cultural heritage values present. Historic shipwrecks and prehistoric landscapes would be destroyed in the process of dredging and digging. This awareness led to intensive contact between the Rotterdam Port Authority and the Dutch Cultural Heritage Agency about the archaeological work that had to be done and the way this could be conducted without delays to the project. A true challenge has been the development of a research method for the prehistoric drowned landscape in the sand extraction area and deeply buried under the harbour itself. Hence, a consortium of research institutions, museums and universities has been invited to formulate a research programme. This research programme serves as a test-case to develop new methods and techniques which can be applied in a more systematic way to offshore research in the future.

COASTAL DEVELOPMENTS AND WATERFRONT CONSTRUCTIONS: CITY, DYKE, DAM AND MARINA BUILDING

Alexandre Monteiro – Instituto de Arqueologia e Paleociências of the Universidade Nova de Lisboa, Portugal

Angra bay - the Azorean harbour that served Angra city, a UNESCO World Heritage Site renowned since the Age of Discoveries – is no larger than 10 soccer fields. In spite of having such a humble area, between 1522 and 1998 at least 96 shipwrecks have occurred there - the majority of them Portuguese and Spanish ships coming back from the India or the New World.

Plundered by treasure hunters in 1972, threatened by commercial salvage activities between 1993 and 1996, mutilated by the construction of a marina in 1998, Angra bay was turned into a classified underwater archaeological preserve in 2005. In spite of that, the bay is now designated to be the location of a Transatlantic Cruising Ship Pier. This move will impact the scores of historical wrecks still to be discovered under its sandy bottom way beyond any mitigation measures that might be taken.

The case of Angra bay, as well as several others that will be quoted, is a fine example of how the fundamental protection of underwater cultural heritage is not carved in stone and how nautical archaeologists must have their voices heard in the discussion on “what development?”, “where?” and “at what cost?”.



THE COMPATIBILITY OF HERITAGE PROTECTION AND DEVELOPMENT PROJECTS

Nicolas Flemming – National Oceanography Centre, Southampton, UK

The global marine environment and seabed are increasingly exploited to gain materials, food, and services, and at the same time they are subject to increasing regulation, control, and research. Primary amongst the extractive industries are hydrocarbons, aggregates, and their supporting industries and contractors. Many countries are creating integrated regulatory frameworks which extend through the coastal zone, the intertidal waters, and offshore into the EEZ so as to control licensing and enforcement. The planning and resolution of potential conflicts between numerous interests requires a greatly increased flow of accurate data for decision-making. For several decades the need to protect submerged cultural heritage, whether shipwrecks or submerged occupied sites, has been partially recognised, but enforcement has been very patchy. The extractive industries share the common factor of disturbing or extracting substantial parts of the seabed substrate. It is increasingly recognised that the grant of licenses should be conditional upon pre-disturbance surveys, the avoidance of highly prospective archaeological targets or sectors, and a graduated reporting and monitoring system so that accidental finds are reported immediately to the cultural heritage authorities. While shipwrecks and historic buildings are usually detectable acoustically by their surface expression on the seabed, submerged prehistoric sites are often not detected in advance, and therefore academic collaboration with industry is essential.

THE NEED FOR MARINE DATA - EUROPEAN MARINE OBSERVATION AND MARINE SPATIAL PLANNING

Iain Shepherd – DG for Maritime Affairs and Fisheries of the European Commission

In planning activities on the sea – cabling, dredging, fish farming, gravel extracting, petroleum exploring, pipeline laying, renewable energy platform building – we need to know what lies underneath the waves. And we need this information quickly if the planning or licensing process is not to take too long and if we are to avoid irreversible harm to submerged landscape features or artefacts buried in the sediment. Consortia working under the European Union’s “marine knowledge 2020” initiative have contributed to this objective by creating gateways to observations held by hundreds of institutions. The data, metadata and data products are delivered to uniform standards and tagged with quality labels. The first phase of the project has been successful in delivering data products covering a selected number of European sea-basins. Challenges included persuading data holders to allow public access to low resolution bathymetry, finding a common classification for sediment data, determining distribution of chemical pollution from sparse measurements and estimating species abundance and diversity from surveys that had used different sampling methods. In 2012 work will begin on delivering complete coverage of European waters of these parameters.

ENERGY DEVELOPMENT ON THE U.S. OUTER CONTINENTAL SHELF: CHALLENGES IN LOCATING, STUDYING, AND PROTECTING UNDERWATER CULTURAL HERITAGE

Brian Jordan – Bureau of Ocean Energy Management, USA

The Bureau of Ocean Energy Management (BOEM) is charged with the environmentally responsible and safe development of energy and mineral resources on the Outer Continental Shelf (OCS) of the United States. To assist in fulfilling this mandate, BOEM's Environmental Studies Program funds research and synthesizes available environmental and social and economic science information to support decision-making related to development of offshore energy and mineral resources. Studies focused on underwater cultural heritage are an essential part of BOEM's on-going research. BOEM has funded several studies in recent years to assist the bureau in characterizing where cultural and archaeological resources are located on the OCS and how they might be affected by offshore oil and gas, wind energy, and mineral development. The results from these peer-reviewed studies, in conjunction with required archaeological assessments for specific development projects, provide critical information necessary to inform decision-making processes for the siting of energy development projects, as well as developing the appropriate mitigation and compliance to ensure that significant cultural and archaeological resources remained unharmed.

THE CONSIDERATION OF ARCHAEOLOGICAL SITES IN OIL AND GAS DRILLING OPERATIONS

Amanda Evans – Tesla Offshore / SHA, USA

In the United States, Gulf of Mexico, oil and gas industry operators are required by the Bureau of Ocean Energy Management to provide archaeological assessments of potential resources in their project area as a condition of the permit application process. Permit approval may depend on the investigation, mitigation, or avoidance of a submerged archaeological resource. All reasonable types of submerged cultural resources must be addressed in the assessment, and in shallow waters includes both historic shipwrecks and late Pleistocene/early Holocene occupation areas. All areas available for lease by oil and gas operators require an archaeological assessment, including the ever-increasing depths of deepwater exploration. The area of impact, as defined in the permit approval process, includes any ground disturbing activity. During construction activities this may include a drilling site for well installation, pipeline trench, or anchor spread. Ancillary impacts may include drilling splay, or temporary ground installations such as mud mats or acoustic positioning beacons. This presentation will introduce common methods used in assessing the potential presence of submerged archaeological resources, as well as oil and gas industry activities that have the potential to impact or damage submerged cultural resources.

THE NORD STREAM BALTIC PIPELINE AND UNDERWATER CULTURAL HERITAGE MANAGEMENT IN THE SWEDISH EEZ

Andreas Olsson – Swedish National Maritime Museums, Sweden

A decade ago, few monuments were known in Swedish Exclusive Economic Zone (EEZ) of the Baltic Sea. Since then, we have experienced a trend towards more activity in this zone. Development projects are more common and technical development has made it possible for anybody to search for, and to dive on, deeply located shipwrecks. The result is an increasing number of very well preserved shipwrecks in the EEZ.

However, monuments in the Swedish EEZ don't have the same strong legislative protection as monuments in territorial waters.

There is a general public support, also among policy makers, for a stronger protection of the cultural heritage of the Swedish EEZ, especially since many shipwrecks has proven stunningly well preserved and scientifically valuable. This, in combination with the unclear legal scope of heritage protection within the EEZ, and activities that may threaten the cultural heritage has resulted in management practices that are new and different to practices in the Swedish territorial waters. This paper aims to discuss the development of cultural heritage management in the Swedish EEZ through the example of the Nord Stream gas pipe.

THE SIGNIFICANCE AND CONTRIBUTION OF MARINE AGGREGATES

Andrew Bellamy – British Marine Aggregate Producers Association (BMAPA), UK

Marine aggregates off southern Britain commonly originated in fluvial environments during phases of lower than present sea level in the Quaternary Period. Aggregate extraction from such fluvial terrace and channel infill deposits has revealed evidence for low sea levels, including faunal remains, peat deposits and, most significantly, flint hand axes. In addition, more recent maritime and aviation remains are occasionally recovered in aggregate cargoes, including timbers, cannon balls and wartime aircraft parts. Artefacts found either in dredged cargoes or at the receiving wharf or other landing point are recorded through a reporting protocol agreed between BMAPA and English Heritage (EH). This involves the participation of dredger crews, wharf and processing plant staff, industry management, archaeological specialists and officials in English Heritage. The protocol, underpinned by a partnership between BMAPA and EH, a joint Guidance Note and a high standard of archaeological investigation and feedback on finds, has been and continues to be a great success.

OFFSHORE RENEWABLE ENERGY DEVELOPMENT – WIND FARMS IN THE NORTH SEA,

*Martijn Manders – Dutch Cultural Heritage Agency, Netherlands and
Antony Firth – Wessex Archaeology, UK*

Many countries are looking at marine renewables as a means of reducing their reliance on fossil fuels for large-scale energy generation. Technologies intended to harness waves and tidal currents are being developed, but the main focus of effort in the short to medium term is on the installation of very large wind turbines offshore, often in extensive ‘parks’ or ‘farms’.

Wind farms present particular challenges to underwater cultural heritage. The turbines themselves require foundations that may be relatively extensive or penetrate deep below the seabed. Large amounts of cabling are required between the turbines and sub-stations out at sea. Very long export cables have to be installed between the farms and their landfalls. Excavation at the landfall and onshore where connections are made to national power transmission networks can threaten coastal and on-land cultural heritage. The turbines may have visual impacts on coastal monuments, and on appreciation of historic landscapes and seascapes. There can also be diverse indirect and secondary impacts on cultural heritage from the planning and construction of such massive engineering works. This presentation will outline the plans and political processes involved in proposed development of offshore wind farms in the Dutch sector of the North Sea, and present the experiences of almost a decade of close working between archaeologists and wind farm developers in the UK sector.



THE IMPACT OF ENVIRONMENTAL CHANGES ON THE PRESERVATION OF UNDERWATER CULTURAL HERITAGE

Chair Koen van Balen – Catholic University of Leuven, Belgium

THE SPREAD OF SHIPWORM IN THE BALTIC

*David John Gregory – Conservation department at the
National museum of Denmark, Denmark*

Wooden historical shipwrecks are subject to biological degradation in marine environments. Specialized fungi and bacteria are able to degrade the lignocellolytic material present in the wood cell walls but this degradation is, however, very slow compared to the aggressive behaviour of the marine borers such as shipworm. In the Baltic sea, preservation conditions for shipwrecks has been unique due to the absence of marine borers. The low salinity of this water has excluded the marine borers and today the Baltic contains a unique collection of well preserved historical shipwreck and other ancient wooden constructions from the past. However, there have recently been indications of a spread of marine borers (*Teredo navalis*) into the Baltic, and climatic changes could be one of the reasons. A recently completed EU project, Wreck Protect, aimed to identify and understand if this was real and could be caused by changing environmental conditions in the Baltic. The project also sought to identify best practice methods for preserving wooden UCH in situ. A summary of the project results will be presented.

GLOBAL SEA LEVEL RISE AND CHANGING EROSION

*Jan Harff – Baltic Sea Research Institute, Germany and
Birgit Hünicke – Helmholtz-Zentrum Geesthacht, Germany*

Changes in earth's climate during the late Pleistocene led to melting continental ice shields marking the end of the last glaciation. Due to the redistribution of water from the continents to the oceans and thermal expansion of sea water the eustatic sea level began to rise continuously. Along the continental margins the rising sea level interferes with the vertical displacement of the earth's crust: the indirectly climatically forced glacioisostatic adjustment. Where the land is subsiding or the rate of eustatic sea level rise exceeds the crustal uplift, the continental shelf and its paleolandscapes are continuously inundated. Here, the migrating highly dynamic shoreline reworks the surface of the paleolandscape. For times of relative rapid sea level rise – as during the late Pleistocene and early Holocene paleolandscapes are rather drawn preserving their former shape than in periods of slow sea level rise (late Holocene) when locally more stable hydrographic forcing reworks intensely the substrate of the coastal zone destroying also eventually archaeological sites. Integrated modelling approaches of climate and glacioisostasy can provide favourable conditions for the preservation of paleolandscapes. These approaches may provide valuable prerequisites for planning and executing of archaeological surveys on the continental shelf.

THE APPEARANCE OF NEW BACTERIA AND METAL CORROSION: NEW BACTERIUM SPECIES DISCOVERED ON RMS TITANIC RUSTICLES

Henrietta Mann – Dalhousie University, Canada

The Titanic sinking in 1912 resulted in global consequences. Some of the important consequences resulted in marine research and the development of submersible technology. After the discovery of the wreck in 1985, scientific research reached a new high due to interest in the well know tragedy.

The rusticle samples were obtained from the 1991 expedition to the wreck. In the years following the attempt to isolate different bacteria which reside in and form the rusticles was undertaken. Due to different mini environmental niches which exist in the rusticles one species was isolated and identified as *Halomonas titanicae*. This species is characterized as holo-philic and gram negative. They also have polar and lateral points of origin of flagella indicating they are peritrichous and motile. It adheres to iron surfaces forming knob-like mounds. The rusticles are highly porous and support a complex variety of microorganisms.

This species can affect marine industry by corroding structures like oil rigs, oil and gas pipelines etc. It can also be used to dispose of old merchant and naval ships and oil rigs in the ocean after they have been cleaned of toxins and oil based products.

ENVIRONMENTAL IMPACT ASSESSMENT AND ARCHAEOLOGICAL HERITAGE

Stefan Wessman – National Board of Antiquities, Finland

Today Environmental Impact Assessment is one of the most important tools for decision makers when it comes to assessment of the possible positive or negative impact that a proposed may have on the environment. The regulations for which type of projects needs an EIA vary from nation to nation, but usually the environment consists of natural, social and economic aspects. In many cases, the assessment of the impact on the cultural heritage seems to be questioned or even regarded unnecessary. During the planning process for the Nord Stream – natural gas pipeline through the Finnish EEZ, the underwater cultural heritage turned out to be one of the key issues when among other finds circa 50 previously unknown shipwrecks were found.



AWARENESS RAISING FOR THE IMPORTANCE OF UNDERWATER CULTURAL HERITAGE - UNDERWATER CULTURAL HERITAGE, CRASHED HARD DISKS AND UNREADABLE MEMORY STICKS

Marnix Pieters – Flemish heritage Agency

‘What did you find and what’s the (monetary) value of the objects you have found?’ are two of the most frequently heard questions people ask when they happen to interview an archaeologist.

Archaeology is, as we all know, much more than finding objects. But that’s unfortunately enough the idea non-archaeologists in general have about archaeology. Through this viewpoint, through this approach archaeologists are in fact reduced to a role that can best be described as taking care of (previously) lost objects. In medieval Europe we had a holy man for that, namely Antony of Padua.

I believe that this approach to archaeology, by the majority of the public at large, is in a way a major factor denying to archaeology and to underwater cultural heritage more specific an important role in our present-day society.

I think we urgently need to talk about archaeology in terms of ‘archives of the soil’ or in maritime contexts about ‘archives of the seas’ to stress the fact that these objects we indeed take care of are in fact nothing else than documents containing a lot of evidence a lot of information about former societies. In a way the objects can be compared to crashed hard disks or partly unreadable memory sticks. The evidence present in the material archival record is indeed mostly written in a language we don’t understand fully yet, implying that we have still to learn a lot about this language. A better communication to the public at large about what’s really at stake in relation to underwater cultural heritage, can contribute substantially to the valorisation of underwater cultural heritage through raising awareness and increasing public support.

OPPORTUNITIES ARISING FOR NATIONAL ECONOMIES FROM THE VALORISATION OF UNDERWATER CULTURAL HERITAGE THROUGH A SUSTAINABLE DEVELOPMENT STRATEGY

*Jordi Tresseras – University of Barcelona and Pere Izquierdo,
Council of Barcelona, Spain*

Underwater archaeological sites preserved in situ could create important specialized clusters associated with conservation, research and specialised training programs, education, interpretation and museology as well as sustainable tourism (with special attention to the diving tourism niche) involving local community. Common actions with sites included in other heritage networking strategies will also be considered, as the UNESCO List of World Heritage Sites, the UNESCO Routes of Intercultural Dialogue or the European Cultural Routes, promoted by the Council of Europe and the European Commission through a partial agreement. We analyse strategies and some case-studies in order to have a preliminary approach to a competitive cultural and creative clusters using the mechanisms of the UNESCO Underwater Cultural Heritage Convention associated to the tourism destination brand, promoting creativity and empowering stakeholders. The entire local tourism supply chain and sustainable development from a cultural, economic, social and environmental perspective will be also evaluated.

THE IMPACT ON AND OPPORTUNITIES ARISING FROM TOURISM TO SUBMERGED SITES

Jim Delgado – NOAA/INA, USA

Access to the underwater cultural heritage by tourists poses both a potential threat and also an opportunity for archaeologists to present heritage and archaeological work for better appreciation and understanding. The concept of in-situ preservation raises the need to consider UCH as a “museum IN the sea” as much as a submerged “museum OF the sea” compels us to examine strategies for appropriate tourist access to the UCH. This presentation examines the approach to shipwrecks undertaken by the U.S. National Oceanic and Atmospheric Administration and the National Park Service, and concludes with comments on appropriate tourist access to sites such as Titanic.

Nicolas Flemming – National Oceanography Centre Southampton, UK

Submerged human occupation sites, historical buildings, classical Roman and Greek structures on the Mediterranean coast aged around 2500-1900 years old, and prehistoric settlements or caves dating from 4000 to 1 million years old can sometimes survive in coastal waters and on the seafloor out to a maximum depth of about 150m. The distribution is potentially global, though the variation in regional cultures and constructional styles results in variable rates of survival and preservation under the sea.

Commercial tourism is prevalent and has the greatest impact in the Baltic, Mediterranean and Caribbean, since these regions combine a rich coastal history and intensive modern tourism. The same fraught combination applies to the coast of Japan, and as the standard of living increases to many other parts of Asia

and South America. The impact arises from the construction of yacht marinas, coastal building of hotels, water sports resorts, touristic scuba diving, and the collection and sale of souvenirs. Examples of threatened sites will be given. There are very few examples of submerged occupation sites which have been studied, protected, and then managed for controlled tourism. Caesarea in Israel is a clear example, and tourist boat organisers and recreational divers are well aware of the submerged Lycian cities on the SW coast of Turkey. The submerged towns near Alexandria have also been considered for touristic exploitation.

THE VALORISATION AND THE PRESENTATION OF UNDERWATER ARCHAEOLOGICAL HERITAGE: THE VASA MUSEUM

Andreas Olsson – Swedish National Maritime Museum, Sweden

This paper aims to present the Vasa shipwreck and the Vasa museum in Stockholm. The Vasa museum is one of the most visited maritime museums in the world. How can we understand the success of the museum and the fascination of its content? And how does this fascination relate to all other well-preserved Baltic Sea shipwrecks still in situ?

The success story of the Vasa museum gives us inspiration, but also challenges us. Since the salvage of the Vasa in the late 1950s, many shipwrecks have been salvaged around the world. Very few grew to become world famous tourist attractions. Despite high scientific values and strong narratives, most salvaged shipwrecks end up in museums collections, inaccessible to the public.

In an ordinary well preserved Baltic Sea shipwreck the structure of the ship is more or less undamaged and the objects are still in place as they were when the ship was foundered. In a comparison between a well-preserved Baltic Sea shipwreck and the Vasa, the Vasa actually almost seem arranged and reconstructed. This paper will argue that we need to take on the challenge of using the same fascination that attracts million of peoples to the Vasa museum, to create a public understanding for the ambition to preserve shipwrecks in situ.

THE VALORISATION AND THE PRESENTATION OF UNDERWATER ARCHAEOLOGICAL HERITAGE: THE NORDIC EXPERIENCE - ACCESS THROUGH MARITIME DIVE TRAILS AND VIRTUAL SIMULATION

Sallamaria Tikkanen – Maritime Museum, Finland

This presentation introduces two projects using different methods to make underwater cultural heritage sites more accessible in the Nordic and in the Baltic Sea Region. First of the cases describes an international project called Nordic Blue Parks. The second project is called Vrouw Maria Underwater Project.

Nordic Blue Parks Project was an innovating one year pilot project creating a new concept combining – for the first time – natural and cultural heritage and recreation at underwater trail and park sites. It aimed to formulate criteria and guidelines for sustainable trails and to set up new trails and to improve old ones. During the project three new underwater parks were opened and two old ones were improved.

Vrouw Maria Underwater Project aims to make this Dutch shipwreck - sunk in 1771 off coast of Finland - more accessible through a blog site, a virtual simulation and an exhibition. The interactive, real-time, virtual reality simulation gives for a visitor a feeling of being there at the actual site and a possibility to experience the wreck, the underwater landscape and the soundscape. This is especially important for a site located in an area where sport diving is prohibited. The exhibition introduces also ideas and feelings of those few divers who have visited the site bringing alive the idea that a heritage is combination of the site and the people who uses it.



OPPORTUNITIES ARISING FOR THE RESEARCH AND PROTECTION OF UNDERWATER CULTURAL HERITAGE FROM DEVELOPMENT PROJECTS

Chair James Delgado – NOAA, USA

Discoveries of the underwater cultural heritage often occur as the result of nearshore and offshore development projects, and in a number of cases, from onshore development projects on what was once submerged land. These include the placement of undersea cables and pipelines, harbour development projects, dredging, and coastal construction, to name a few examples. The types of resources encountered range from prehistoric sites, submerged settlements, maritime infrastructure from the past such as weirs, docks, shipyards, shoreside ship graveyards to shipwrecks. While there is a potential threat to resources as a result of development, strategies for maximising benefit include legal requirements for predevelopment surveys, archaeological mitigation, and in exceptional circumstances extensive projects that appropriately respond through detailed programmes of excavation, conservation, study and public presentation. This session examines the pragmatic role of development-led archaeology, the role of archaeologists and government, and mitigative strategies.

THE ROLE OF ARCHAEOLOGISTS IN UNDERSTANDING AND PREVENTING THE IMPACTS OF MARINE INDUSTRIES ON THE PREHISTORIC ENVIRONMENT

Martin Bates – University of Wales Trinity Saint David, UK

A wide range of impacts are caused by marine industries on the seabed and in some instances these impacts may affect archaeological remains associated with the seabed or buried in sediments beneath the seabed. Where we understand something of the nature of the submerged landscapes (such as the southern North Sea) these impacts can be mitigated through a range of approaches. In other areas deemed to be ‘unknown’ or of low archaeological potential it is very difficult to develop an approach to the seabed prehistory because of a set of pre-conceptions about the nature of the seabed.

In order to help educate and inform maritime industries about the nature of the archaeological problems of submerged prehistory it is important that as an industry we are clear about what our aims and objectives are when considering developing projects in the marine sector. Too often we only have vague notions of what we mean when we discuss the prehistoric record and there is little consideration for example that approaches to late Palaeolithic/Holocene prehistories require different strategies to those dealing with the lower and middle Palaeolithic.

THE DEVELOPMENT OF MEASURES TO MITIGATE IMPACT ON THE UNDERWATER CULTURAL HERITAGE: INNOVATIVE, NON-DESTRUCTIVE TECHNIQUES AND METHODOLOGIES FOR THE SURVEY AND THE EXPLORATION OF SUBMERGED CULTURAL REMAINS ON THE SHALLOW AND DEEP SEAFLOOR

Dimitris Sakellariou, – Hellenic Centre of Marine Research, Greece

Remote sensing techniques have found wide application in underwater archaeological surveys, particularly in deep waters and self areas. With their use large areas of the seafloor can be surveyed in detail at almost any depth and in very short time. Spectacular discoveries of ancient shipwrecks in deep waters have been possible with the use of advanced marine geophysical techniques and sophisticated underwater vehicles (HOVs, ROVs, AUVs) operating from big oceanographic vessels

Opposite to the deep water research, very few archaeological surveys in the shallow coastal zone have incorporated remote sensing techniques for the mapping or detection of archaeological remains. A main reason is that marine survey techniques are predominantly designed for use in deep waters and their application in shallow water surveys is logistically complicated: requirements for sufficient power supply and relatively large space on the survey vessel for the installation of the various devises make their use inconsistent to the concept of low-budget, shallow-water, archaeological or prehistoric landscape surveys from small vessels.

The development of user-friendly, purpose-designed techniques for the high resolution survey, early detection and mapping of archaeological sites and prehistoric landscapes in shallow waters is a major challenge for the broad marine geoarchaeological and marine technology community.

THE DEVELOPMENT OF MEASURES TO MITIGATE IMPACT ON THE UNDERWATER CULTURAL HERITAGE: PREVENTIVE CONSERVATION

Nathalie Huet – Department of Underwater and Undersea Archaeological Research (DRASSM), France

Le développement durable est une notion omniprésente dans notre quotidien. L'archéologie sous-marine, et en particulier les actes de conservation, peuvent pleinement être appréhendés selon ce concept d'intérêt public. Ainsi, l'approche environnementale est prise en compte au travers différentes actions : impact des opérations archéologiques sur la biodiversité (Natura 2000), risques liés aux épaves polluantes, limitation des déplacements des artefacts découverts... La notion de pérennité pour les générations futures est également au cœur des missions de l'archéologie sous-marine : conservation in-situ totale ou partielle des sites, gestion des collections archéologiques (inventaire, conservation préventive, étude et restauration), administration des archives, transmission des savoirs par la formation... L'aspect social est incontestable puisqu'au delà de la sensibilisation des publics à leur environnement et leur histoire, le fonctionnement de l'archéologie sous-marine se base sur un système de réseaux, que ce soit au niveau professionnel, les connaissances historiques et techniques étant partagées internationalement, comme au niveau des passionnées (plongeurs amateurs, pêcheurs...) qui sont les premiers pourvoyeurs d'informations sur la détection de biens culturels maritimes. Toutes ces actions génèrent une activité économique non négligeable dans les domaines du loisir sportif et du tourisme.

THE DEVELOPMENT OF MEASURES TO MITIGATE IMPACT ON THE UNDERWATER CULTURAL HERITAGE: SETTING NATIONAL RESEARCH AGENDAS AS A GUIDE TO MITIGATION

Mark Dunkley – English Heritage

Research frameworks may be seen as vital research tools for guiding, facilitating and integrating research by individuals and groups that can collectively contribute to a deeper understanding of marine and coastal archaeology. The fundamental relationship of archaeological activity to its research base is strongly endorsed by English Heritage; the development of frameworks is advised to give researchers a yardstick against which to formulate ideas, collate their data, and measure results.

The Maritime, Marine and Coastal Historic Environment Research Framework of England, coordinated by the University of Southampton, has developed a Resource Assessment and Research Agenda through thematic working groups.

This paper will show how gaps in knowledge identified through the Research Agenda are driving Research Strategies that will be delivered through English Heritage's National Heritage Protection Plan (NHPP). Implemented from April 2011, the NHPP is a statement that sets out priorities to deliver heritage protection over the next four years by making the best use of resources so that England's vulnerable historic environment is safeguarded in the most cost-effective way at a time of massive social, environmental, economic and technological change.

**THE DEVELOPMENT OF MEASURES TO MITIGATE
IMPACT ON THE UNDERWATER CULTURAL
HERITAGE: IMPACT MITIGATION IN THE
MANAGEMENT SUBMERGED ARCHAEOLOGICAL SITES**

Martin Segschneider – Archaeological State Office Schleswig-Holstein, Germany

ABSTRACTS regional Meeting

15/12/2011

UNDERWATER CULTURAL HERITAGE IN BELGIUM

Geert Bourgeois – Flemish Minister for Immovable Heritage, Belgium

Representatives of EU member states and candidate EU membership states,
Underwater heritage experts,
Honoured guests,

As the Flemish minister responsible for immovable heritage, it is my pleasure to welcome you on behalf of my country to the Unesco Regional Meeting for Europe on the protection of the underwater cultural heritage.

This meeting is a follow-up after the Unesco Scientific Colloquium on factors impacting underwater cultural heritage, which took place on Tuesday and Wednesday. Those two meetings will contribute greatly to raising worldwide awareness of this highly vulnerable heritage. I am therefore delighted that over two hundred experts from across the globe have come to Brussels – evidence of how important you all, , consider these two gatherings to be and rightly so.

For the UNESCO Convention on the protection of underwater cultural heritage, the year that is now drawing to a close is an important one: it is ten years ago this year that the Convention was signed in Paris. Today, it is ratified by forty states. I hope that more and more countries will be ratifying this important convention. As far as my own country is concerned, I will continue to work towards making ratification a reality.

As you are aware, Belgium is a federal nation. It consists of three Communities: the Flemish Community, the French Community and the German-speaking Community. Furthermore, it has three Regions: the Flemish Region, the Walloon Region and the Brussels-Capital Region. The Flemish Community and the Flemish Region have fused into one region, with one parliament, one govern-

ment and one administrative system, so that we now commonly refer to it as Flanders and the Flemish government.

Immovable heritage management, including archaeological heritage, is the responsibility of the Regions.. Within the Flemish administrative system, this responsibility is assumed by the Flanders Heritage agency. Although it borders only the Flemish Region, , the North Sea is however largely dealt with by the federal government. As a result, the danger exists that the North Sea heritage does not receive the care and attention it merits. In order to avert that danger, Flanders has been taking a range of initiatives since 2004.

Flanders has a rich maritime archaeological heritage. There are hundreds of shipwrecks in the North Sea, most of which date to the period of the two world wars. We are particularly proud of the wreck of a medieval cog. This ship was discovered in autumn 2000 in the village of Doel, during excavation works in advance of the construction of a new dockyard for the port of Antwerp.

I hope that ratification by Belgium will contribute to a better representation of North-West Europe in the UNESCO Convention on the protection of underwater cultural heritage. Currently this part of the world is conspicuous in its absence among the countries that have ratified this convention.

If ratification is the necessary first step, the subsequent implementation of the convention is even more important. In order to ensure smooth implementation, much research needs to be carried out first. I'm thinking in particular of an efficient assessment methodology for the underwater heritage, and of embedding heritage in planning procedures, in the way this happens for heritage situated on land.

Ladies and Gentlemen,

THE UNESCO CONVENTION ON THE PROTECTION OF THE UNDERWATER CULTURAL HERITAGE (2001)

Ulrike Guerin – UNESCO

The UNESCO Convention on the Protection of the Underwater Cultural Heritage, adopted by the UNESCO Member States in 2001, is at present the foremost international legal reference to improve the protection of underwater heritage. It was in fact the extent of pillage and commercial exploitation and the persisting lack of legal protection that had caused States to call for an international instrument. It was drafted to regulate cooperation among States and coordinate the protection of underwater archaeological sites in all maritime zones. The 2001 Convention has from the first day of its existence enjoyed the fervent support of underwater archaeologists, as its regulations finally harmonize the protection of submerged sites with the protection already accorded to cultural heritage on land. The Convention sets basic protection principles for underwater heritage to be applied by all its Parties. Among them feature the obligation to preserve underwater heritage, the denial of commercial interventions, the recommendation of in-situ conservation in the absence of a scientific reason for recovery, and the encouragement of training and information sharing. It serves through a State cooperation mechanism to curtail the growing illicit trade by looters, and guides underwater archaeology through the Rules for interventions contained in its Annex. The Convention does not regulate the ownership of submerged sites, but focuses on standards for safeguarding. It furthermore strongly embraces the concept that heritage is a common asset explicitly encouraging responsible public access, knowledge sharing and public enjoyment. Altogether the Convention creates common criteria and best practice standards for the protection of underwater cultural heritage to promote its safeguarding. The author illustrates the operational context, addresses sensitive issues and gives an overview of the current status of the Convention and its organs. She also describes the tasks UNESCO's Secretariat sees for the future of the Convention and underwater archaeology in general.

INTEGRATED MARITIME GOVERNANCE AND POLICY IN THE EUROPEAN UNION

Iain Shepherd – DG for Maritime Affairs and Fisheries of the European Commission

The Treaty on European Union stipulates that the European Union shall respect its rich cultural and linguistic diversity, and shall ensure that Europe's cultural heritage is safeguarded and enhanced. The cultural aspect of the maritime policy may not have been emphasised so much as its environmental aspect but it is clear that with the growing pressure on sea space, the pressure on our underwater heritage is increasing. And ecological systems can be reconstructed but once archaeological remains are destroyed they are gone forever.

The maritime policy helps preserve underwater cultural heritage in two ways. Firstly by ensuring a better access to marine data, it allows public researchers, public authorities and business to identify where the sites are. Secondly, by promoting spatial planning, it creates a framework to define the marine management rules that allows these sites to be protected.

Furthermore better knowledge of underwater culture heritage can contribute to the identity of coastal communities and attract the discerning all-year-round tourism that can create jobs. Indeed it is explicitly mentioned as such in the recently adopted Communication from the European Commission on an Atlantic strategy.

LEGAL ISSUES OF THE PROTECTION OF UNDERWATER CULTURAL HERITAGE IN EUROPE AND THE COMPATIBILITY OF THE 2001 CONVENTION WITH UNCLOS (LOSC)

Mariano Aznar – Spain

Only 8 out of 27 EU States Members are parties to the 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage (Bulgaria, Italy, Lithuania, Portugal, Romania, Slovakia, Slovenia and Spain). France has declared it will ratify the Convention in the near future. Belgium, Denmark or Ireland, for example, voted in favour at the UNESCO. The United Kingdom has, on the contrary, abstained and has already declared that will not ratify the Convention. Other members as Greece, Germany, the Netherlands or Sweden have hesitant position, with serious concerns in some cases. Out the EU, Norway opposed the Convention. However, all of them have publicly manifested their commitment to the principles enshrined in the Convention and, particularly, have adopted the Annex as best archaeological practices. Some of the concerns relate to the particular relation between the Convention and the 1982 UN Convention on the Law of the Sea (LOSC), to which all Europeans countries —and also the EU itself— are parties except Andorra, the Holy See, Liechtenstein and San Marino. LOSC only imposes limited obligations with regard UCH in articles 149 and 303; and the UNESCO Convention refers specifically to LOSC in several articles, being paramount the subordination made in article 3. However, this could suppose a caveat since the references are made not only to LOSC but to general international law as well. How may principles and rules of general international law, some of them codified in LOSC, deal with the 2001 UNESCO Convention? How may these different rules —customary and conventional—, along with some other

particularly European rules (like the 1992 Valletta Convention or the Barcelona Convention protocols) protect UCH in Europe against similar threats? How might the EU and the Council of Europe foster a better protection for a shared heritage of all Europeans, as symbols of the heritage of the entire mankind? The extent and the prevention of pillaging on submerged archaeological sites – the French experience.

EUROPE'S INTEREST IN RATIFYING THE 2001 UNESCO CONVENTION

Michel L'Hour – DRASSM, France

Bien que la France se soit abstenue lors du vote de la Convention de 2001 sur la protection du patrimoine culturel subaquatique, elle ne pouvait que faire sienne la majeure partie des recommandations affichées par ce document puisque ce dernier reprend pour l'essentiel les mêmes principes qui régissent depuis plusieurs décennies la gestion française du patrimoine subaquatique. Si la France s'est initialement abstenue c'est d'abord pour des motivations juridiques, parce que le texte de la Convention ne protégeait pas suffisamment à ses yeux le droit du Pavillon qui fonde l'immunité souveraine attachée aux navires d'Etat. Or, le droit du Pavillon est un principe juridique auquel la France est pour sa part extrêmement attachée. Il demeure que l'évolution des mentalités et la sensibilisation accrue de nombre de pays à l'importance du patrimoine sous-marin démontre que ceux-là mêmes qui contestaient voici 10 ans le droit du Pavillon en admettent aujourd'hui bien souvent la validité. La France a ainsi ratifié ou négocié ces dernières années plusieurs accords internationaux pour faire reconnaître ses droits de propriétés sur des épaves françaises perdues en eaux étrangères ou reconnaître ceux d'un autre pays sur des épaves immergées dans ses propres eaux. Les préventions de la France à l'égard du texte de la Convention sont donc sensiblement moins fortes aujourd'hui qu'elles ne l'étaient il y a 10 ans. D'autre part, le texte de la convention prévoit l'extension à l'ensemble de la Zone Economique Exclusive de la protection attachée au patrimoine sous-marin. Or, il apparaît bien que c'est dans la ZEE que les menaces sont aujourd'hui les plus fortes. La France se propose donc aujourd'hui de ratifier la Convention afin de disposer d'un protocole juridique international qui lui permette d'étendre à l'ensemble de sa ZEE, la 2e du monde par sa superficie, sa protection sur le patrimoine immergé.

NORTHERN EUROPE'S INTEREST IN RATIFYING THE 2001 UNESCO CONVENTION

Robert Yorke – Joint Nautical Archaeology Policy Committee, UK

The threat to underwater cultural heritage (UCH) from commercial salvage in the international waters of the countries of northern Europe, particularly those around the North Sea, continues to grow. The 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage (the Convention) presently offers the only comprehensive framework that could help to address this problem. Very few of the countries in northern Europe have ratified the Convention and the UK is no exception. The UK has chosen not to ratify because its interpretation of the Convention suggests the potential loss of protection for its sovereign immune warships in the waters of other countries, and it also believes there is the need to designate and protect up to 10,000 historic wreck sites in its own territorial seas. However there are new interpretations to these objections, showing an alternative view, which the paper will explore. There are also potential benefits for the protection of UCH for all countries in North Europe from the cluster effect of regional ratification. This is particularly important for historic wrecks from the First World War which will start to become eligible for protection under the Convention in the next three years.

EUROPE'S ABUNDANT UNDERWATER CULTURAL HERITAGE: QUANTIFYING AND QUALIFYING SUBMERGED ARCHAEOLOGICAL SITES

Mark Dunkley – English Heritage, UK

Our understanding of north-west Europe's underwater cultural heritage is increasing all the time: material ranging from undisturbed Palaeolithic deposits laid down during the Devensian Ice Age coupled with some 44,000 shipwrecks and crashed aircraft recorded in Western Europe provide a baseline Resource Assessment. For England's territorial waters, more accurate data on the resource is available: 9000 archaeological sites and finds are recorded alongside some 3200 known and dated wreck sites. Offshore, within UK Controlled Waters adjacent to England, the data is even more surprising: known wrecks comprise just 12% of all recorded seabed features. Ongoing enhancement of data collated through diver investigation, offshore construction mitigation and targeted research assists in qualifying the range of site-types, or heritage assets, present on the seabed. However, information on the cultural significance of individual marine heritage assets is not readily available. This paper will show how English Heritage is working towards a programme of increased protection for underwater cultural heritage by setting out agenda's to assist understanding, valuing, caring for and enjoying the most important elements of our collective past.

THE EUROPEAN SUBMERGED CONTINENTAL SHELF

Nicolas Flemming – National Oceanography Centre Southampton, UK

UNDERWATER CULTURAL HERITAGE IN EUROPE: THREATS AND CHANCES

*Friedrich Lüth – German Archaeological Institute (DAI) -
Roman-Germanic Commission (RGK), Germany*

OPPORTUNITIES ARISING FROM THE VALORISATION OF UNDERWATER CULTURAL HERITAGE FOR NATIONAL ECONOMIES AND CULTURAL IDENTITIES

Philip Robertson – Historic Scotland, UK

In Scotland, consideration of the underwater cultural heritage is being integrated within new marine planning, licensing and environmental protection systems, introduced in the Marine (Scotland) Act 2010. These aim to help deliver the Scottish Government's marine vision for 'clean, healthy, safe, productive, biologically diverse coasts and seas managed to meet the long term needs of people and nature'.

Cultural heritage is closely linked with the notion of 'productive seas', for example by contributing to the economy by attracting visitors to Scotland, enhancing the distinctiveness of coastal areas and creating a sense of place, wellbeing and identity. Assessments of 'productivity', published in Scotland's Marine Atlas and the Scottish Historic Environment Audit, provide an evidence base for Historic Scotland's contribution to the Scottish Government's National Marine Plan, a document which will set out policies for the sustainable development of Scotland's seas. These policies will help to address objectives for cultural heritage, encouraging enhancement of our records of underwater cultural heritage and dissemination of this information, supporting establishment of a group of well managed Historic Marine Protected Areas to protect sites of national importance, ensuring that developments at sea take account of the historic environment as a whole, and securing greater understanding and enjoyment from key coastal and marine heritage tourism resources.

INNOVATIVE WAYS OF PRESENTING AND DISSEMINATING KNOWLEDGE ABOUT THE UNDERWATER CULTURAL HERITAGE

Garry Momber – Hampshire & Wight Trust for Maritime Archaeology, UK

Access to the Underwater Cultural Heritage (UCH) has always been challenging. Over the past 20 years the HWTMA have been developing methods to get divers to archaeological sites on the seabed and to provide windows for the wider public to see this incredible resource. This experience has been used on a European platform with the Archaeological Atlas of the Two Seas project (A2S). It is a venture between France, Belgium and England that is raising awareness and understanding of the UCH by recording archaeology in common waters. It is supported by the European Regional Development Fund, INTERREG IVA 2 Seas Programme. Data, which is being gathered to common standards, will be accessible through an online database via a trilingual geo-portal. A further objective is to involve a wider community of non-specialists. Volunteer, terrestrial researchers and diving enthusiasts are being encouraged to contribute to the international web site through and participate in fieldwork activities. The inclusive nature of the project means it is increasing the skill sets for a cross section of people who can help enhance our itinerary of UCH assets. The A2S project is showing how involvement, education and technology can be combined effectively to help manage our UCH. This is a model that is applicable across the globe.

MAKING A STATEMENT FOR HERITAGE PRESERVATION: RATIFYING THE 2001 CONVENTION

David Blackman – University of Oxford, UK

UNESCO's Conventions for the protection of the cultural heritage on land have gradually been ratified by Member States; it is important to emphasize that the protection of the underwater cultural heritage is equally important. It is not enough for Member States to say "We will respect the Annex to the Convention, and that is enough." Of course such undertakings must be rigorously checked; but this is not enough. Too much concentration on the Annex could, it may be argued, prove a distraction from the obligation on Member States to proceed to full ratification, and full participation in the working of the Convention. Only when the major maritime states have thrown their full weight behind the undertaking will it be able to function in the way which we all desire. The quiet opposition by some can be used as a cover by others.

ABSTRACTS Posters

13 - 15/12/2011

L'ATLAS ARCHÉOLOGIQUE DES 2 MERS (A2S) – LE PROJET

Alexandre Poudret-Barré¹, Ine Demerre², Garry Momber³

Ce projet de quatre ans a pour objectif majeur de réaliser une cartographie des sites archéologiques sous-marins répartis sur un territoire maritime partagé entre la France, l'Angleterre et la Belgique et de réunir la documentation afférente. Reliés par un espace maritime transfrontalier, la Manche et la partie sud de la Mer du Nord, ces trois pays partagent un riche patrimoine associé à une histoire maritime commune.

L'Europe s'est construite au fil des échanges commerciaux, des guerres et des alliances. Tandis que les naufrages témoignent souvent de l'instabilité des allégeances, les paysages archéologiques sous-marins eux, illustrent une histoire vieille de plusieurs milliers d'années. L'aire géographique concernée constitue dès lors un véritable trait d'union entre les différentes nations du nord de l'Europe en s'appuyant sur un patrimoine culturel commun.

Malgré cet héritage commun, le traitement des données documentaires et archéologiques ne fait à ce jour que l'objet d'études nationales, voire locales et c'est de ce déficit d'échanges qu'est né le projet A2S. Son objectif est de regrouper l'ensemble des connaissances et des informations relatives à l'archéologie sous-marine dans les zones maritimes communes. Il permettra à chaque pays d'accéder ainsi à son histoire de manière globale, au delà des simples indices observables à l'échelle de son territoire.

1 Association pour le Développement de la Recherche en Archéologie Maritime

2 Agence du Patrimoine de Flandre

3 Hampshire & Wight Trust for Maritime Archaeology

Il est par exemple très souvent regrettable de ne pouvoir prolonger dans les archives britanniques l'étude d'un bateau anglais dont l'épave gît dans les eaux territoriales françaises ou belges. C'est précisément à ce manque que ce projet international souhaiterait pallier.

Peu à peu une nouvelle approche dans la compréhension de notre histoire maritime commune émerge. Elle repose désormais sur l'association des compétences d'archéologues français, anglais et belges.

Ces trois partenaires sont: pour la France, L'ADRAMAR (Association pour le Développement de la Recherche en Archéologie Maritime), chef de file du projet, et le DRASSM (Département des Recherches Archéologiques Subaquatiques et Sous-Marines), le HWTMA (Hampshire and Wight Trust for Maritime Archaeology) pour l'Angleterre, et l'agence du Patrimoine de Flandre pour la Belgique. Depuis plusieurs années, ces trois pays cartographient et enregistrent de nombreuses données relatives aux sites archéologiques appartenant à leurs territoires respectifs.

L'une des premières étapes du projet A2S consiste à regrouper les informations scientifiques afin d'élaborer une vision d'ensemble du paysage archéologique sous-marin intégrant le repérage géographique des sites archéologiques connus et notamment des épaves. Conçu pour s'étoffer au fil des années, cet inventaire aboutira à la mise en ligne d'un géoportail destinée aux chercheurs, aux étudiants ainsi qu'au grand public. Il sera également voué à alimenter les outils des différents organismes gestionnaires du patrimoine des pays partenaires.

En complément de ce projet, les équipes d'archéologues des trois pays partenaires se déploient en alternance sur les différentes zones côtières pour des campagnes de prospections géophysiques et archéologiques. Parmi les naufrages à l'étude, certains participent à un héritage maritime commun entre les différents partenaires. C'est le cas par exemple du SS Meknès, navire français qui, ramenant ses

troupes au pays en juillet 1940 peu après l'armistice franco-allemand, fut malgré tout coulé par une vedette lance-torpille allemande et repose à présent dans les eaux anglaises.

D'ici à la fin du projet, l'inventaire, mis en œuvre par cette équipe internationale, offrira un large panorama de sujets de recherches ayant trait à l'architecture navale, l'évolution de l'armement, l'étude des voies commerciales ou des objets témoins de la vie quotidienne des marins.

L'ATLAS ARCHÉOLOGIQUE DES 2 MERS (A2S) – LES PARTENAIRES

Alexandre Poudret-Barré⁴, Ine Demerre⁵, Garry Momber⁶

L'ADRAMAR, créée en 1993 par des archéologues professionnels afin de promouvoir la recherche archéologique maritime en France comme à l'étranger, a participé à de prestigieuses campagnes de fouilles : les épaves de la Hougue (Saint-Vaast la Hougue, 1692), les épaves de la Natière (St-Malo, XVIIIe s.), la jonque de Brunei (Île de Bornéo, XVe-XVIe s.), l'expédition Lapérouse (Îles Salomon, 1788),...

L'ADRAMAR collabore avec le DRASSM, service à compétence nationale du Ministère de la Culture et de la Communication chargé de gérer, protéger et étudier les biens culturels sur l'ensemble du territoire maritime français.

Depuis 2005, l'association mène le projet Atlas archéologique des biens culturels maritimes de l'Arc atlantique grâce aux soutiens financiers de partenaires publics. Ce projet œuvre à la valorisation des sites archéologiques immergés au large des côtes ponantaises et a très largement inspiré le programme A2S dont L'ADRAMAR est chef de file.

Les mandats de l'association se déclinent comme suit:

- étude, protection et mise en valeur des sites archéologiques;
- aide et formation aux fouilles archéologiques sous-marines;
- organisation de réunions scientifiques, de conférences et d'expositions;
- publication de monographies et de guides archéologiques;
- Concertation avec les instances publiques, les collectivités et les associations;
- information et sensibilisation du public.

4 Association pour le Développement de la Recherche en Archéologie Maritime

5 Agence du Patrimoine de Flandre

6 Hampshire & Wight Trust for Maritime Archaeology

Le HWTMA a été fondé dans le but de susciter l'intérêt, de promouvoir la recherche et de développer les connaissances dans le domaine de l'archéologie sous-marine et du patrimoine du Royaume-Uni. Son programme comprend la recherche archéologique et l'enseignement à l'échelle locale, nationale et internationale.

Les principaux objectifs du HWTMA incluent:

- la recherche et l'étude en archéologie maritime;
- la préservation et la gestion des sites archéologiques;
- la sensibilisation et la contribution du public;
- promouvoir chez les plongeurs : intérêt et compétences archéologiques;
- le développement d'une base de données des sites régionaux;
- les études et les publications des résultats de fouilles et de recherches;
- la relation entre les organisations locales, régionales et nationales.

Afin d'atteindre ces objectifs, le HWTMA mène un programme de recherches faisant intervenir des archéologues professionnels, des bénévoles et des étudiants. L'étude des naufrages, des territoires submergés et des zones de l'estran est rapportée aux écoles et aux enseignants par l'intermédiaire d'initiatives éducatives tels que des conférences, des publications et autres manifestations visant à promouvoir l'archéologie sous-marine.

Les objectifs du HWTMA répondent aux actions du projet A2S en facilitant une coopération d'envergure européenne dans la recherche des épaves et des sites submergés internationalement significatifs.

Le HWTMA est convaincu que des liens transnationaux sont vitaux pour pouvoir pleinement analyser et diffuser notre héritage commun.

L'Agence du Patrimoine de Flandre est un agencee du gouvernement Flamand. Elle est chargée d'étudier le patrimoine, d'en faire l'inventaire, la protection et

la gestion et d'en promouvoir les aspects scientifiques. Ce patrimoine peut être architectural, archéologique, rural ou maritime.

- Cette agence fournit l'information nécessaire à la politique du gouvernement Flamand dans la résolution des questions ou des problèmes concrets liés à son patrimoine;
- L'agence gère de grands inventaires tels que les patrimoines architecturaux, archéologiques et paysagers ainsi qu'une base de données nationale du patrimoine archéologique maritime: www.archeologie-maritime.be;
- Les résultats des recherches sont publiés dans des revues nationales et internationales (comme *Relicta*, la revue de l'agence). Le public est également informé par des expositions, des journées d'étude et autres manifestations éducatives;
- Pour ces tâches, l'agence du Patrimoine de Flandre collabore avec les universités et d'autres partenaires des services du patrimoine telle que la province de Flandre occidentale.

L'Agence du Patrimoine de Flandre est le partenaire le plus jeune dans le projet A2S. À travers ce projet, elle souhaite se développer en tant qu'acteur majeur dans le domaine de la recherche du patrimoine maritime. Il vise à apporter ses connaissances et son expertise dans la collecte des informations par l'utilisation des techniques de prospections et d'enregistrements appliquées à une sélection de sites choisis par l'A2S, tout en collaborant étroitement avec les partenaires du projet.

L'ATLAS ARCHÉOLOGIQUE DES BIENS CULTURELS MARITIMES DE L'ARC ATLANTIQUE

Alexandre Poudret-Barré, Django Guyon⁷, Charlotte Le Noac'h⁷, Yann Gaonac'h⁷

Le programme Atlas archéologique des biens culturels maritimes de l'Arc atlantique est soutenu par le Ministère de la Culture et de la Communication, la Région Bretagne, les départements de l'Ille-et-Vilaine et du Morbihan. Il vise à réaliser l'inventaire méthodique et critique du patrimoine archéologique sous-marin (toutes périodes chronologiques comprises) des côtes ouest et nord-ouest de la France. L'Association pour le Développement de la Recherche en Archéologie Maritime (Adramar) en assure la maîtrise d'œuvre depuis 2005 et travaille en étroite collaboration avec le Département des Recherches Archéologiques Subaquatiques et Sous-Marines (Drassm), service centralisé du Ministère de la Culture responsable de la gestion, de l'étude et de la mise en valeur des Biens Culturels Maritimes de l'ensemble des eaux territoriales françaises.

Le point de départ

Né d'une réflexion engagée en France dès le début des années 1980, le projet Atlas est le fruit d'une longue collaboration entre le monde de la recherche archéologique sous-marine et celui de la pêche et de la plongée. Le développement de la plongée autonome a favorisé depuis les années 1950 la multiplication des découvertes d'épaves historiques. Corollaire de cette évolution, de nombreuses associations se sont structurées regroupant des plongeurs passionnés de recherches historiques et archéologiques. L'ensemble de ces intervenants a joué, ce faisant, un rôle majeur dans la collecte d'informations de terrain.

7 Association pour le Développement de la Recherche en Archéologie Maritime

Un traitement de la documentation conséquent

Confrontée à la somme d'informations ainsi récolées (plus de 10 000 naufrages sont recensés sur les côtes ponantaises), la nécessité de centraliser et de hiérarchiser l'ensemble des données scientifiques s'est naturellement très vite imposée, mais ce sont essentiellement les progrès de l'outil informatique qui ont permis de trouver à cette exigence des solutions efficaces.

Pour donner aux informations recueillies et diffusées la valeur d'un véritable label, le programme Atlas s'est fixé pour règle impérative de veiller à la pertinence et à la fiabilité des données collectées. Ainsi, au fil de l'enquête, des vérifications scrupuleuses des sources comme des contenus ont été opérées.

C'est ainsi que progressivement, des dossiers d'épaves (regroupant des milliers de documents d'archives, de cartes postales de navires, de peintures, de cartes anciennes, d'objets archéologiques issus d'épaves, de photographies sous-marines, d'imageries géophysiques, etc.) ont été constitués afin d'être recensés dans un système informatique de traitement destiné à être consulté par tous les publics : grand public, étudiants, chercheurs, historiens et archéologues.

L'outil cartographique

L'outil cartographique présente une carte satellite qui provient de serveur WMS (Web Map Service). Ces serveurs mettent à disposition des cartes géo-référencées. En plus des cartes WMS, des cartes raster sont offertes à la consultation. Il s'agit de cartes anciennes qui ont été géo-référencées par l'équipe Atlas et dont l'affichage permet notamment des études toponymiques.

Différents modes de recherches

Lors de la consultation de la base Atlas, une recherche rapide est proposée. De plus, une recherche avancée est également disponible. Cette dernière permet d'appliquer des filtres sur une ou plusieurs tables de requête. On a donc la possibilité d'une recherche croisée à travers la documentation disponible.

La recherche peut également être effectuée via l'interface cartographique. Il s'agit alors d'une recherche géographique. Une couche géographique est alors créée et expose le résultat de la recherche. Un retour aux fiches est ensuite possible pour une consultation des caractéristiques des navires concernés.

La synthèse des données présentée dans la base Atlas devrait ainsi mener à la définition de nouveaux programmes de recherches dans des domaines aussi diversifiés que l'inventaire et l'expertise de cibles archéologiques encore non explorées ou la programmation de nouvelles investigations en archives.

Au regard de ses objectifs, le programme s'inscrit nécessairement dans une stratégie de long terme mais nul ne doute que l'Atlas s'imposera comme un outil indispensable à la protection et à la mise en valeur du patrimoine sous-marin du Grand Ouest français.

ABSTRACT

Barry J. Bleichner – PhD student East Carolina University, USA

The waters surrounding the countries of Panama and Dominican Republic are home to a considerable number of colonial-era wrecks. Several of these are significant, as witnessed by the recent media attention garnered by the discovery of the alleged wrecks of Captain Kidd (Dominican Republic) and Henry Morgan (Panama). Not surprisingly, both countries have also experienced extensive salvage activity – frequently with the support of the local government. Signaling a change in policy towards the management of their underwater cultural heritage, Panama became the first country to ratify the UNESCO Convention on the Protection of the Underwater Cultural Heritage in 2003. Similarly, in 1999, the Dominican Republic issued Executive Order No. 289/99, which established the Oficina Nacional de Patrimonio Cultural Subacuático and prohibits the exploitation of underwater cultural heritage that is of a strictly commercial nature. The Dominican Republic has yet to ratify the UNESCO Convention, however. The proposed research will compare the management strategies and practices of the two countries – one as a UNESCO state party and one not. Considering the similarities in their historic approaches to UCH management, the research hopes to identify the factors that influence ratification and the advantages of becoming a state party. The study will further explore the use of environmental laws to supplement cultural resource legislation as a method to limit destructive salvage practices in environmentally-sensitive locations. Lastly, the research will address the geomorphological attributes present at two selected wreck sites to assess the feasibility of *in situ* preservation in nearshore environments.

ON THE PLANNING OF IN SITU CONSERVATION OF UNDERWATER ARCHAEOLOGICAL ARTEFACTS

*Crisci G. M., La Russa M.F.¹, Ruffolo S.A.¹, Bruno F.², Luchi M.L.²,
Muzzupappa M.², Davidde B.³, Petriaggi R.⁴, Ricci S.³*

This paper describes the activities planned in a project supported by the Italian Research Ministry and titled: Planned Conservation, “in situ”, of underwater archaeological artefacts (COMAS-COnservazione programmata **Manufatti Ar**-cheologici **Sommersi**).

The project is focused on the study of new materials, techniques and methodologies for the conservation and restoration of submarine sites.

Baiae underwater archaeological area (Naples -Southern Italy) has been chosen as case study. In particular, we intend to focus on degradation processes and methods for the cleaning, conservation and restoration of natural and artificial archaeological stone artefacts which are degraded or at risk related to the marine environment.

To achieve these objectives, the key points of the project will cover:

a) Development of new products for protection and consolidation of underwater artefacts

In particular, the research will focus on developing new formulations, based on the use of nano-materials, for the conservation of natural and artificial stone materials located in the marine environment, especially considering the degrading effects of actions related to the biological component.

-
- 1 Department Geological Science, University of Calabria, Via Pietro Bucci cubo 12b Arcavacata di Rende, Cosenza
 - 2 Department , University of Calabria, Via Pietro Bucci, Arcavacata di Rende, Cosenza
 - 3 Superior Institute for Conservation and Restauration, Rome
 - 4 Advisor of UNICAL

Moreover, the identification of new, not invasive, cleaning techniques will be carried out.

b) Experiments on immersed specimens

In order to test these products, an intense experimental activity will be developed consisting in the construction of two sets of test compounds with different lithotypes (rocks, mortars, tiles): the first series will consist of samples that will be kept untreated, while the second series will consist of samples treated with product previously formulated. The aim is to experimentally test the quality and consistency of the pathologies by observing the effects of degrading actions on the treated materials and evaluate the efficiency of the protection/consolidation treatment. For the purposes, the specimens will be immersed and hold at different depths and recovered at predetermined time intervals.

c) Creation of innovative electromechanical devices to operate in marine environments

For the application of the new materials and for the development of innovative restoration and protection methods, a number of suitable electro-mechanical devices will be designed. Some of these new tools will allow an easier and faster work for the personnel specialized in underwater archaeological restoration. Other tools will be designed to be mounted on a Remotely Operated Vehicle (ROV) in order to partially automate routine cleaning operation thus reducing the maintenance costs for the conservation of underwater archaeological sites. Some of the tools operating on the ROV are addressed to preserve artefacts present in risk situations and in areas that are not directly accessible to the operators (non-operational areas, medium and high depth, etc.).

THE “GIS OF UNDERWATER BAIÆ” WITH 3D DOCUMENTATION: A USEFUL TOOL TO RECORD THE STATE OF CONSERVATION OF A ROMAN SUBMERGED TOWN.

Barbara Davidde¹, Roberto Petriaggi², Gabriele Gomez de Ayala³

In 2001 the Superior Institute for Conservation and Restoration (ISCR) launched the project *Restoring Underwater* to study and test the most appropriate methods and instruments for the conservation of ancient underwater structures, focusing particular attention on control of biological infestation, cleaning surfaces and recovery of archaeological architecture.

Since 2003 the experimentations were carried out in the Underwater Park of Baiae. This park, a submerged area of about 176.6 hectares, not only safeguards the archaeological remains of the Roman town of Baiae and infrastructures of Portus Iulius, but also represents an underwater area of great environmental value.

In order to provide a cognitive picture of the general state of conservation of the underwater archaeological structures and of the seriousness of the deterioration in progress, a data recording system, called SAMAS (Scheda Analitica Manufatti Archeologici Sommersi), was devised. It was composed by the Analytical Data Card of underwater archaeological finds (SAMAS Data Card) which is linked to the SAMAS Bio Data Card, and the SAMAS Second Level Bio Data Card, where phenomena of chemical and physical decay caused by the growth of benthonic

-
- 1 Istituto Superiore per la Conservazione ed il Restauro (ISCR). Via di San Michele 23, Rome - Italy. Director of the Underwater Archaeology Operations Unit (NIAS)
Adjunct professor of Underwater Archaeology – Università degli Studi Roma Tre (Rome - Italy).
e-mail: barbara.davidde@beniculturali.it
 - 2 Former Director of NIAS- ISCR, e-mail: r.petriaggi@tiscali.it
 - 3 e-mail: info@naumacos.com

organisms are recorded. These data records are now insert in the ISCRS GIS di Baia Sommersa (ISCRS GIS of Underwater Baiae).

The adoption of such a data recording system during the phases, prior and after restoration, in our opinion, proves useful for determining the conservation treatments as well as any structural restoration operations. The documentation gathered can furthermore provide valuable indications for the organisations appointed to protect and manage the underwater site.

The specifically archaeological data that emerges during this work, through careful examination of construction techniques, also represent a decisive factor by that point of view. Comprehensive surveys and detailed photographic and video documentation have been carried out, which enable us to understand the architectonic plans of monuments or sectors of the underwater town, which have not yet been published nor have hardly been studied. Furthermore, the in-depth biological study represented by the Bio Data Cards, assists the conservator in the identification of correct methods of controlling post-restoration biological growth.

Recently a new type of relief was carried out to document a room paved with opus sectile situated in the Underwater Park of Baiae, not far from the Nymphaeum of Punta Epitaffio (-5 m), using Naumacos L1 scanner laser. Naumacos L1 system has been created specifically for the archeological research and for the stratigraphic survey during the underwater excavation. The L1 system generates a cloud of dots to create a photographic textured model, that is accurate within a millimetre. L1 system can scan big areas and automatically merge them into a mosaic, getting to an improved submillimetric level of precision, which means that it's possible to obtain an archeological survey of smaller details.

This method of 3D documentation shows better the state of conservation of the monuments, and increase the value of scientific dissemination.

IBERIAN SHIPS – A SNAPSHOT OF THEIR WORLDWIDE STATUS VIS-À-VIS THEIR PRESERVATION AND IMPENDING THREATS.

*Margarida Génio – Institute of Archaeology and Paleosciences
of the New University of Lisbon and University of Algarve*

As responsible for the first contact of Europe with Africa and Asia via maritime routes, Portugal and Spain have left traces of their ships all around the 5 continents and the 7 seas, in a period of c. 300 years.

For the last 50 year, this thin slice of Humankind's maritime history - corresponding to a time when Iberian ships transported gold, silver, Chinese porcelain and precious gems - has been under attack by commercial activities directed specifically at this underwater cultural heritage (UCH).

This threat - as well as hard-learned lessons acquired from the examination of treasure hunting activities impacts – has led both Iberian countries to be some of the first States to ratify the UNESCO Convention regarding the protection of the UCH.

In this poster, we intend to have a look at the present situation of the UCH of Iberian origin, not only in the territorial waters of Portugal and Spain but also in their former colonies: Central and South America, Angola, Cape Verde, Mozambique, Guinea, Timor, Indian Ocean and Macao.

MARITIME HERITAGE ON LAND: EXPLORING WAYS TO STUDY AND SHOWCASE SHIPWRECKS AND BOATS ABOVE WATER.

*Lynn B. Harris, Ph.D. – Assistant Professor, Program in Maritime Studies,
East Carolina University
Admiral Ernest M. Eller House #200
Greenville, NC 27858-4353
Office: 252-328-1967
harrisly@ecu.edu
Web: www.ecu.edu/maritime*

Shipwrecks stranded on a beach, old boats embedded in marshes, and living maritime communities are often neglected comparative archaeological assets or logical extensions of scholarly research underwater. Case studies of sites on the Skeleton Coast of Namibia, the shoreline of South Africa and riverine communities of the Carolinas in USA may complement academic research and management of underwater cultural heritage in a multitude of ways. Cultural resource managers might consider utilizing these shipwrecks as ideal field training opportunities for terrestrial and underwater archaeology students, war memorials, wildlife habitats for eco-tourism, and as in-situ centerpieces or cultural icons with diverse historical connections to local, regional and international communities and events. Small watercraft and traditional boat building communities have potential to provide pertinent information enhancing the depth and scope of counterpart vernacular boat studies of the inland underwater environment. This poster topic will draw upon past projects and work in progress of the Program of Maritime Studies at East Carolina University in the USA.

EVALUATING UNDERWATER CULTURAL HERITAGE IN THE LIGHT OF CONVENTIONS AND GUIDELINES

Sorna Khakzad – PhD researcher, K.U.Leuven, Belgium

The poster aims at offering a methodical evaluation system for underwater sites. It also aims at highlighting various issues which should be considered as crucial factors while discussing and deciding about under water cultural heritage sites. An evaluation system is proposed in the form of tables which have been developed according to different values and significances of submerged sites which have been highlighted in the conventions and guidelines. These tables have been shaped according to the theoretical documents, also considering the issues which might occur during projects executions. Different scenarios have been studied and a combination of different factors such as the impact of industry, development, economy, education and training, politics and so on, have been assumed to be crucial in every case.

Based on an analysis of evaluation and management systems used in different countries, the poster brings together all the possible results of those tools and creates a more consistent system. This homogeneous system makes it possible to have a common understanding of the different sites world-wide. The poster also aims at opening a platform in order to discuss and evaluate the practical use of theoretical documents when projects are being implemented.

The history of dealing with underwater cultural heritage at the international level is sketched. An overview of international guiding documents and legislation on the field is summarized.

Using similar guiding documents and publications used in the field of cultural heritage, mainly in the field of monuments and sites, and for cultural landscapes, the debate can be widened and concepts used in the 2001 UNESCO Convention on Protection of Underwater Cultural Heritage can be questioned and updated to improve Underwater Cultural Heritage management.

THE COGS FROM DOEL (BELGIUM)

*T. Lenaerts, J. Vermeersch, L. Poelmans, K. Haneca, K. Deforce, L. Allemeersch,
Johan Van Laecke, Leentje Linders – Flanders Heritage Agency*

During the construction of a new dock in the harbour of Antwerp in 2000, the remains of a well preserved shipwreck came to light. Maritime archaeologists from the former NISA identified the remains as a cog. Only two years later and 50 m further from the first wreck, remains of a second cog were found. Due to the limited time on site, the ship was disassembled and all timbers were numbered and stored in containers until research on both ships could start. In the summer of 2010 the multidisciplinary study on the timbers could finally begin. By the end of 2013 the research on the remains should be finished. Parallel to this research, the conservation phase is now getting started. This will result into a reassembly of the wrecks and a permanent exhibition of both ships.

THE PROJECT GROTTA AZZURRA - OVER THE BLUE: HYPOTHESIS OF VALORISATION AND STUDY OF THE STATE OF CONSERVATION OF THE MARBLE STATUES

Ricci S.¹, Lucci F.², Davidde B.¹

The project started due to the cultural need to investigate, know and understand the most famous natural cavity in the world and absolutely the less known in terms of study. The cave used by Emperor Tiberius as Nymphaeum has been observed only in December 1975 and January 1976 on the occasion of the re-sounding recovery of the statues lying on the seabed. The statues were part of the sculptural furniture and among them there was probably an underwater Thyasos.

The project Grotta Azzurra in itself is the study of the cavity-monument in its own different value and peculiarity:

1. architectural-urban because the Nymphaeum is correlated to the sea area of the imperial maritime villa,
2. archaeological-statuesque because of the interpretation of the political and religious message within the statuesque furnishing.
3. Biological through the study of the damage on the artefacts due to a typical cave environment.

¹ Istituto Superiore per la Conservazione e il Restauro, Via di San Michele 23, 00153 Roma
e-mail: barbara.davidde@beniculturali.it
e-mail: sandra.ricci@beniculturali.it

² Architect specializing in restoration of monuments and landscapes, Bacoli (Napoli)
e-mail: luccifilomena@tiscali.it

4. Geological through the understanding of the phases of the cavity submersion via the observation of wave erosion and possible spring waters that could carry water to the Nymphaeum.

The multidisciplinary project includes the study of the state of conservation of the marble statues recovered underwater in the 60's from the Grotta Azzurra. The research is focused on the characterization of the various forms of degradation, using different analytical methods. The examined submerged artefacts showed various degrees of damage to very serious alterations caused by the direct action of epilithic, chasmolithic and euendolithic organisms. Euendolithic organisms are the most dangerous because they dig cavities or tunnels into the rock through chemical and physical mechanisms. The most frequent type of bioerosion is the pitting, caused by different species of endolithic sponges which create galleries and chambers. Another important role in the bioerosion phenomena is played by endolithic eukaryote and prokaryote micro organisms which produce micro-galleries through biochemical dissolution due to the production of acidic or chelating substances. The embedding-casting method was used to identify some microbial taxa. Bivalve molluscs play an essential role in the bioerosion process creating cavities of various length and width, according to the shell or body size.

This bioerosion is very significant because the artefacts were exposed to the biological agents in the same position for a long period of time, and it was verified that the combined action of sponges and bivalves can lead, over time, to the destruction of large portions of the artefacts.

CONVENTION ON THE PROTECTION OF UNDERWATER CULTURAL HERITAGE IN THE ISLAMIC REPUBLIC OF IRAN

*Sadriyeh Sharifi – Programme Specialist of Culture Section,
Iranian National Commission (INC) for UNESCO*

Due to its location in a special geographical and climate zone and the diversity and special natural characteristics it enjoys as well as the continuous challenges she is confronted with in her lands, Iran has been through an uneven past, as a result of which she now boasts a rich culture and a grand civilization. The rich Iranian culture, her national and regional identity and her role in the continuation and development of human culture has made the search for and safeguarding of cultural heritage a widely undertaken activity by archeologists, anthropologists, specialists in restoration and protection and other people and researchers active in the relevant fields. In this trend the role of the archeologists and protection and restoration specialists has been most prominent. The special geographical condition of Iran has thus offered her the opportunity of better viewing the remains of her cultural heritage. The long shores of her two southern seas (Oman Sea and the Persian Gulf), the biggest closed body of water on her northern borders (the Caspian Sea), various internal lakes (most of which are now dry) as well as seasonal and permanent rivers and her long cultural and civilisational precedence has brought her ancient and historical fame not only on the land, but in her waters also. In view of the above and in her capacity as a member to the international community, Iran has long been after drafting and adopting an appropriate plan for the identification, restoration and management of this heritage as well as becoming signatory to the UNESCO's Convention on the Protection of Underwater Cultural Heritage. Considering that Iran is located in South-west Asia and at the

heart of the ancient world; knowledgeable that Iran was located in the pathway of trade routes and cultural exchanges as well as the route for migrations between the East and the West, in the past; bearing on the long precedence of human residents along internal waters and on the shores of big seas from the pre-historic era to the present; and with a view to national and international requirements, Iran boasts a history of seafaring, sea trade and martial naval activities in its own and in international waters. National construction and development activities, especially those along river and sea lines, setting up of huge sea constructs such as ports and jetties, development of coastal cities, construction of martial structures, development and excavation of oil and gas fields as well as developing facilities for fisheries and the effects of cultural tourism.

In this article we will describe some important activities and achievements of Iran as well as needs, priorities and our responsibilities in the area of culture and in due regard of Iran's membership in the Convention for the Protection of Underwater Cultural Heritage.



United Nations
Educational, Scientific and
Cultural Organization



WWW.VUC.BE



United Nations
Educational, Scientific and
Cultural Organization



The Protection of
the Underwater Cultural
Heritage



Onroerend Erfgoed