The Ocean We Need for the Future We Want

Proposal for an International Decade of Ocean Science for Sustainable Development
(2021-2030)

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

Sustainable Development Goals

One Planet, One Ocean

"An International Decade of Ocean Science could help to build an open ocean information science-based on trustworthy, science based data, from all parts of the world's ocean."

Professor Peter M. Haugan

Chair of the Intergovernmental Oceanographic Commission of UNESCO

Why International Decade of Ocean Science?

The Intergovernmental Oceanographic Commission of UNESCO (IOC) and its partners are calling for 2021-2030 to become the International Decade of Ocean Science for Sustainable Development.

Achieving the targets of the Sustainable Development Goal 14 to "conserve and sustainably use the oceans, seas and marine resources for sustainable development" requires novel science-based solutions and their systematic transformation into informed policies and decisions.

The proposed International Decade of Ocean Science for Sustainable Development could provide Member States with a framework for coordinating and consolidating the observations and research needed to achieve SDG14.

An urgent need for scientific solutions:

The First World Ocean Assessment found that much of the ocean is now seriously degraded. A continued failure to address these problems is likely to create a destructive cycle of degradation that will ultimately deprive society of many of the benefits currently derived from the ocean.

Innovative Technologies for Sustainable Development

The global internet is based on an interconnected network of submarine cables that sit on the seafloor. Our satellite systems, aircraft and tallest buildings have embedded sensors that help to monitor their external environment, but these undersea cables do not yet contribute to monitoring of the ocean. The International Decade of Ocean Science for Sustainable Development could boost efforts to integrate new ocean monitoring technologies into this existing marine infrastructure.

Recent advances in technology have now made it possible to integrate basic sensors on submarine telecommunication cables at intervals of about 50-70 km, at an estimated 5-10% of total installation costs. These advances could now make it possible to turn submarine telecommunication cables into a global network for monitoring earthquakes, detecting tsunamis and observing physical conditions on the seafloor.

The Intergovernmental Oceanographic Commission of UNESCO (IOC), the World Meteorological Organization (WMO), and the International Telecommunication Union (ITU), are now collaborating with the telecommunications industry, governments and the international scientific community on this exciting new initiative.

Since 2011 a Joint Task Force (JTF) of these three United Nations agencies has been working to support a new SMART Cable concept that will support the potential integration of environmental sensors into new commercial cable systems.

How to make it happen?

The Intergovernmental Oceanographic Commission of UNESCO is inviting interested parties to collaborate on the concept of the International Decade of Ocean Science for Sustainable Development to help turn these initial ideas into a broad plan of concerted actions with shared goals and responsibilities. The Ocean Decade concept will be offered for consideration at the United Nations Ocean Conference (UN Headquarters, New York, USA, 5-9 June 2017).

"The International Decade of Ocean Science for Sustainable Development is a unique opportunity to engage the ocean science community in achieving SDG14 - globally, regionally, and locally."

Dr Vladimir Ryabinin

Executive Secretary of the Intergovernmental Oceanographic Commission of UNESCO

IOC-UNESCO

7, Place de Fontenoy
F-75352 PARIS 07 SP
France

www.ioc.unesco.org
Facebook.com/IocUnesco
Twitter: @IocUnesco

For more information, please visit this dedicated webpage: **http://on.unesco.org/2kO0cTf**

IOC Brochure 2017-3 (IOC/BRO/2017/3)

Potential Objectives:

- Stimulate a global partnership on the marine science requirements needed to support implementation of Agenda 2030;
- Understand the impacts of cumulative stressors and seek sustainable solutions for sustaining benefits from the ocean;
- Share knowledge and enhance interdisciplinary marine research capacities through the transfer of marine technology, leading to economic benefits for all Member States, particularly for Small Island Developing States (SIDS) and Least Developed Countries;
- Gain a better quantitative knowledge of ocean ecosystems and their contribution to society, through the whole ocean column, from the surface to the bottom;
- Map the ocean floor and its resources to support their sustainable management.

Potential Themes:

- Enhancing sustainable use of ocean and marine resources including a focus on: making an inventory of ocean resources and ecosystem services; understanding and quantifying biogeographical zones and the potential role of marine protected areas;
- The expanding use of knowledge about ocean conditions including: data management; data gathering; modelling; forecasting ocean food productivity and evaluating its capacity to meet growing demands;
- Development of the ocean economy including analyses of economic and social benefits from the sustainable use of marine resources and science-based management;
- Sustainable management of coastal ecosystems including: ecosystem resilience and marine spatial planning to minimize impacts of sea-level rise, extreme weather events, flooding and erosion; improvements of baselines on environmental conditions; and public perceptions;
- Increasing scientific knowledge about the impacts of cumulative interacting stressors such as warming, acidification and habitat destruction;
- Achieving integrated observations and data sharing, including the use of satellites, fixed and moving observing platforms, all feeding into common data management and the Global Ocean Observing System (GOOS);
- Creating an information portal, regularly providing and updating authoritative quality-controlled information on the state of the ocean to all stakeholders, through available new communication and data assimilation technologies.

Potential Outcomes:

- **Help to increase awareness about the state of the ocean based on the most reliable data and information;**
- **Provide a framework for addressing gaps in knowledge, such as the cumulative impacts affecting ocean health;**
- **Stimulate the development of new observation technologies to help address information gaps such as:**
  - Mapping ocean space and its sub-soil in three dimensions;
  - Subduction zones and hot vents;
  - Observations of marine biological, biogeochemical and ecosystem variables;
- **Provide data on ocean pollution issues, such as plastics and microplastics;**
- **Create scientific collaboration across disciplines, communities and approaches to address the impacts of ocean acidification;**
- **Provide a scientific and normative basis for the improved management of coastal and marine ecosystems, fisheries and aquaculture;**
- **Support the designation and management of marine protected areas and habitats;**
- **Develop the capacity to predict ocean conditions, using a combination of observations and modelling to facilitate adaptive management;**
- **Create service delivery mechanisms that would capitalise on observations, research and development, in order to meet the needs of multiple stakeholders;**
- **Facilitate science/policy platforms to support marine policies based on the United Nations Convention on the Law of the Sea and other international agreements;**
- **Provide science support towards the conservation and sustainable use of biodiversity in Areas Beyond National Jurisdiction (ABNJ);**
- **Build stronger cooperation and partnership between the stakeholders responsible for ocean science while facilitating a faster and more effective delivery of knowledge to policy and decision-makers;**
- **Create capacities in marine observations and research and facilitate transfer of related technologies to developing countries, especially Small Island Developing States (SIDS) and Least Developed Countries (LDCs);**
- **Facilitate the sustainable growth of the ocean economy.**

There is no internationally-agreed methodology for estimating the economic value of services the ocean provides to humankind.

Science cannot yet meaningfully evaluate the cumulative impacts of climate change, marine pollution and other anthropogenic stresses on the health of the ocean ecosystem.

For 99% of habitable marine areas we lack the basic biodiversity knowledge we require for effective management.

Ocean Facts & Knowledge Gaps

Only 5% of the ocean floor has been mapped and only 1% of this mapped area has been gridded at high resolution.

103 million square miles of the deep sea exists in perpetual darkness and up to a million marine species could still be unknown to science.

Only 3 humans have explored the deepest known point of the ocean.