Outcomes:

- A new generation of observing technologies for the ocean expanded to include more biochemical, biological, biodiversity and ecosystem related parameters, in support of ecosystem-based management;
- Use of new generation modelling tools for prediction of ocean conditions, including biological and biochemical parameters such as oxygen and pH, going beyond the existing abilities to describe the physical state of the ocean;
- Complete mapping of the ocean conditions, bathymetry, subduction zones and hot vents, functions and roles of biodiversity in areas beyond national jurisdiction, and an update of the Census of Marine life;
- More transdisciplinary and integrating oceanographic research, with prospects for much improved delivery of the science and technological results and data, with knowledge that is applicable for achieving sustainable development and supporting related adaptive management;
- Strengthened and directed capacity building linked to technology transfer, including new technologies, and sustained observations with related training through research;
- An information portal maintained by IOC-UNESCO addressing the new role of science in the communication and use of scientific results, regularly providing and updating information on the state of the ocean to all stakeholders, through available new communication and data assimilation technologies.

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;
- Expanding use of knowledge about the ocean conditions including data management, data gathering, modeling, 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).

How can we make it happen?

For the Decade to be successful, a definite set of themes and programmes will need to be determined, on the basis of agreed criteria and indicators of progress. Partnerships must also be established to fund and execute the programmes.

The Intergovernmental Oceanographic Commission of UNESCO is now working to develop the proposed International Decade of Ocean Science for Sustainable Development into a plan of action with shared goals and responsibilities.

With the broad overall goal to achieve and maintain a healthy life-supporting ocean, the Decade will provide a new collaborative, cross-sectoral and coordinated framework for a range of institutions to work together on critical ocean science issues. A coordination mechanism will need to be put in place with the task of developing an international programme and a plan to be monitored between now and 2030.

For more information, please visit this dedicated webpage: http://en.unesco.org/2k60cTf

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One Planet, One Ocean

An International Decade of Ocean Science for Sustainable Development (2021-2030)
Why do we need an 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. This Decade of Ocean Science would provide a framework for concerted action to achieve the Sustainable Development Goal 14 to “conserve and sustainably use the oceans, seas and marine resources for sustainable development”.

Key objectives:

- Build an inventory of marine resources and identify opportunities to manage these resources in a sustainable manner;
- Gain a better quantitative knowledge of the ocean bottom and water column ecosystems;
- Understand the impacts of cumulative stressors on the ocean and recommend specific actions to obtain more benefit from the ocean;
- Share knowledge and enhance capacities through the transfer of marine technology, leading to economic benefits for SIDS and Least Developed Countries.

The Decade of Ocean Science would help to increase public awareness about the urgent need for new science and use of existing science to increase our understanding of the cumulative impacts affecting our oceans. The First World Ocean Assessment found that much of the ocean is now seriously degraded and many fear there has been a global failure to integrate scientific evidence into the sustainable management of our oceans. 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 we currently derive from the ocean.

The International Decade of Ocean Science would stimulate the development of new observation technologies which could help to address many of our remaining information gaps, such as the mapping of the ocean space and its sub-soil in three dimensions. The entire process of developing and implementing the Decade could also help to build stronger cooperation between the different bodies responsible for ocean science while facilitating a faster and more effective delivery of knowledge to policy and decision-makers.

Ocean Facts & Knowledge Gaps

- Basic biodiversity knowledge is non-existent for 99% of habitable marine areas.
- 103 million square miles of “deep sea” exists in perpetual darkness.
- Science cannot yet reliably measure the cumulative impacts of climate change, marine pollution and biodiversity loss on the global ocean.
- Only 5% of the ocean has been mapped and less than 0.05% of the ocean floor has been mapped at high resolution.
- Only 3 humans have explored the deepest known point of the ocean.
- There is no internationally-agreed methodology for estimating the value of the ocean and the services it provides.
- Up to a million marine species could still be unknown to science.

The International Decade of Ocean Science would provide a partnerships framework in support of the ocean-related aspects of the United Nations 2030 Agenda for Sustainable Development. It could help to overcome the slow progress in the implementation of international ocean agreements by strengthening the interaction, cooperation and exchange of information between institutions, scientific disciplines, and private enterprises. An increase in trust between the different parties could lead to more coherence and less fragmentation in ocean governance and management.

The Rio+20 Outcome Document, “The Future We Want”, recognises the importance of building capacity in countries such as Small Island Developing States (SIDS) to enable them to benefit from the conservation and sustainable use of oceans and their resources. The Decade will aim to strengthen the capacity of all States in marine scientific research, policy making, governance education and the effective management of marine resources from communities to national agencies.

“Innovative Technologies for Sustainable Development

The International Decade of Ocean Science for Sustainable Development could boost efforts to develop new technologies for monitoring the ocean. For example, submarine telecommunication cables could turn into a global network for monitoring earthquakes, tsunamis and physical conditions on the seafloor. The global Internet is based on this network of submarine cables. While our satellite systems and tallest buildings have embedded sensors that help to monitor their external environment, these undersea cables do not currently monitor their ocean environment.

Gaining access to the seafloor for fundamental oceanographic measurements could enable scientists to quantify and respond to a range of environmental threats, from tsunamis to climate change. Technological advances have now made it possible to integrate basic sensors with repeaters on submarine telecommunication cables at intervals of about 50-70 km, at an estimated installation cost of 5-10% of the total cost of system deployment. Since 2011 a Joint Task Force (JTF) of three United Nations agencies have been working to support a new Green Cable concept that will support the potential integration of environmental sensors into new commercial cable systems. Ideally, future cable systems will incorporate ports for a broader variety of sensing systems that could transform our knowledge of the ocean.

This International Decade of Ocean Science for Sustainable Development would help IOC to mobilize the entire global ocean science community towards strongly contributing to Agenda 2030 and achieving the SDG14.”

Dr Vladimir Ryabinin, Executive Secretary of the Intergovernmental Oceanographic Commission of UNESCO