

The Science We Need for the Ocean We Want



The United Nations
Decade of Ocean Science
for Sustainable Development
(2021-2030)



2021 United Nations Decade
2030 of Ocean Science
for Sustainable Development



**THE DECADE WILL PROVIDE A
'ONCE IN A LIFETIME' OPPORTUNITY
FOR NATIONS TO WORK TOGETHER
TO GENERATE THE GLOBAL OCEAN
SCIENCE NEEDED TO SUPPORT THE
SUSTAINABLE DEVELOPMENT OF
OUR SHARED OCEAN.**

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WHAT IS THE UNITED NATIONS DECADE OF OCEAN SCIENCE FOR SUSTAINABLE DEVELOPMENT?

On 5 December 2017, the United Nations declared that a Decade of Ocean Science for Sustainable Development would be held from 2021 to 2030. This Decade will provide a common framework to ensure that ocean science can fully support countries to achieve the 2030 Agenda for Sustainable Development.

The Decade will provide a 'once in a lifetime' opportunity to create a new foundation, across the science-policy interface, to strengthen the management of our oceans and coasts for the benefit of humanity.

The Decade will strengthen the international cooperation needed to develop the scientific research and innovative technologies that can connect ocean science with the needs of society. It will also contribute to the UN processes protecting the ocean and its resources, such as the Aichi Biodiversity targets, the SAMOA Pathway, the United Nations Convention for the Law of the Sea and the Sendai Framework for Disaster Risk Reduction.

The Decade will require the engagement of many different stakeholders to create new ideas, solutions, partnerships and applications, these include: scientists, governments, academics, policy makers, business, industry and civil society.

The Intergovernmental Oceanographic Commission (IOC) of UNESCO has now been tasked by the UN General Assembly to work with all interested stakeholders to design a Decade of ocean science that will help us to deliver **the ocean we need for the future we want.**



THE GLOBAL GOALS
For Sustainable Development

The Decade will support the entire 2030 Agenda for Sustainable Development.

The Decade proposal was first registered as a voluntary commitment to the 2017 UN Ocean Conference by the Intergovernmental Oceanographic Commission.



What is the Intergovernmental Oceanographic Commission of UNESCO (IOC)?

The IOC of UNESCO is the United Nations body responsible for supporting global ocean science and services. This organisation enables its 149 Member States to work together to protect the health of our shared ocean by coordinating programmes in ocean observations, hazard mitigation, tsunami warnings and marine spatial planning.

The IOC also provides a focus for other UN organizations and agencies with regard to ocean science, observations and data exchange. A primary focus of the IOC is to enable its Member States to build the scientific and institutional capacity needed to achieve the United Nations Sustainable Development Goal 14 to conserve and sustainably manage ocean and marine resources by 2030.

“More than ever protecting the Ocean requires us to think globally and collectively. We must join our forces, share our knowledge and embrace the cause of the Ocean to shape a future where humankind and seas benefit from each other. It’s our responsibility



to give new generations a chance to live in a sustainable world.”

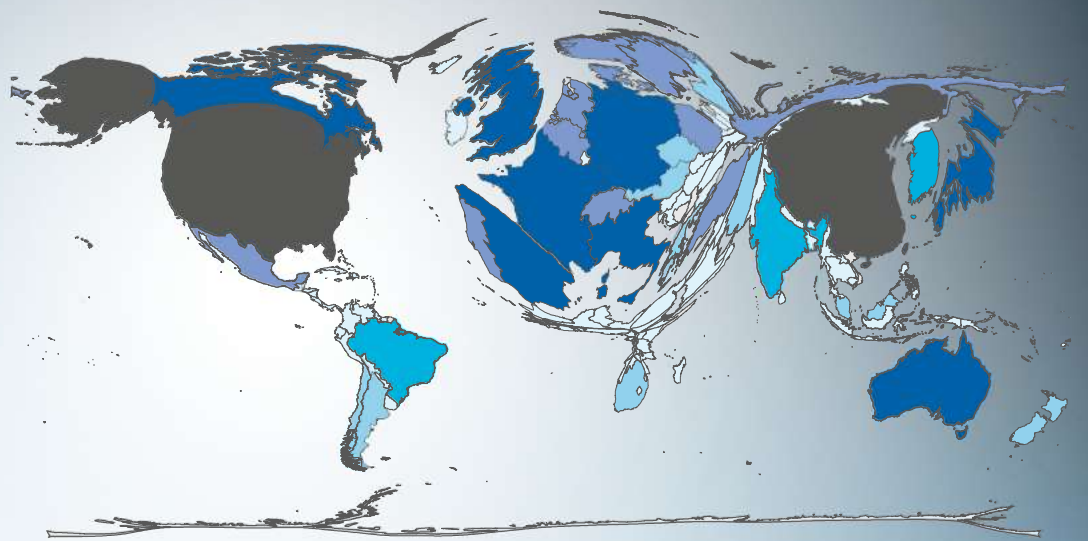
HSH Prince Albert II of Monaco

WHY A DECADE OF OCEAN SCIENCE

Global ocean science capacities are unenvenly distributed

Science-Metrix no. papers

- No info
- 1 - 2,500
- 2,500 - 5,000
- 5,000 - 10,000
- 10,000 - 15,000
- 15,000 - 30,000
- 30,000 - 100,000



Publication map of the world. The area of each country is scaled and resized according to the number of ocean science publications. Different colours indicate a different number of publications.

The Decade will enable action at all levels

The Decade will provide a unifying framework across the UN system to enable countries to achieve all of their ocean-related Agenda 2030 priorities. For example, the Decade will help strengthen the development and implementation of science-based solutions for fisheries management. This alone will have a significant impact on helping many countries to achieve the Sustainable Development Goals needed to support the health and wellbeing of their communities and to achieve food security.

The Decade will provide a responsible global pathway for development

The Ocean is our planet's largest ecosystem. It stabilizes climate, stores carbon, produces oxygen, nurtures unimaginable biodiversity, and directly supports human well-being through food, mineral, and energy resources as well as provides cultural and recreational services.

Unfortunately, despite improved management and conservation actions, the United Nations First World Ocean Assessment found that much of the Ocean is now seriously degraded. As the world population will reach an estimated 9 billion people by 2050, impacts on the ocean associated with human activities will increase.

Action can only be effective if it is based on sound knowledge informed by science. There is an increasingly need to find scientific solutions that allow us to understand the changes taking place in our ocean, and to reverse its declining health.

Ocean science has made great progress over the last century in exploring, describing, understanding, and enhancing our ability to predict changes in the ocean system.

In the coming decade, we have a tremendous opportunity to harness interdisciplinary advances in ocean science to achieve a better understanding of the ocean system. This will enable the delivery of timely information about the state of the Ocean and this will allow to articulate interconnected scenarios and pathway for sustainable development.

Ocean science can help us to address impacts from climate change, marine pollution, ocean acidification, the loss of marine species and degradation of marine and coastal environments. To achieve sustainable development, good science is needed to inform policies and raise the knowledge bar of all stakeholders.

Supporting Ocean science that is fit for purpose

The Global Ocean Science Report found that ocean science accounts for only between 0.04% and 4% of total research and development expenditures worldwide. The Decade of Ocean Science will help to mobilize partnerships and increase investment in priority areas where action is urgently needed.

The Decade will build on existing partnerships and technologies and create new ones to enhance and expand the global scientific capacity required to quickly collect issue-specific information to meet the constantly-evolving needs of ocean and coastal zone managers and a rapidly developing blue economy.

While many countries benefit from sophisticated, cutting-edge scientific infrastructure, technology, and human capacity for science and innovation, the Global Ocean Science Report concluded that major disparities exist in the capacity around the world to undertake marine scientific research.

A core objective of the Decade will be to improve the scientific knowledge base through capacity development to regions and groups that are presently limited in capacity and capability, especially Small Island Developing States and the Least Developed Countries.

“Ocean science, supported by capacity development, is essential not only to inform SDG 14 but also other SDGs that have an ocean dimension”



Peter Thomson
UN Special Envoy for the Ocean

A VISION FOR THE DECADE

The Decade will harness, stimulate and coordinate **interdisciplinary** research efforts at all levels, in order to support delivery of the information, action and solutions needed to achieve the 2030 Agenda for Sustainable Development.

Mobilize scientists on critical ocean priorities for the 2030 Agenda

Synthesise existing research and define trends, knowledge gaps and priorities for future research

New research strategies co-designed with ocean stakeholders

Bridge science, policy and societal dialogues via: access to data, information and communication.

Synthesise results and develop user driven solutions

Foster new joint research and co-operation within and across ocean basins

THE VISION:
TO DEVELOP SCIENTIFIC KNOWLEDGE, BUILD INFRASTRUCTURE AND FOSTER PARTNERSHIPS FOR A SUSTAINABLE AND HEALTHY OCEAN

THE GOALS

- To provide ocean science, data and information to inform policy for a well-functioning ocean in support of all sustainable development goals of the Agenda 2030
- To generate scientific knowledge and underpinning infrastructure and partnerships



“The United Nations Decade of Ocean Science for Sustainable Development is a unique opportunity to engage the ocean science community in achieving the Sustainable Development Goals - globally, regionally and locally.”



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

WHAT WILL THE DECADE ACHIEVE?

The Decade will mobilise resources and technological innovation in ocean science needed to deliver key societal outcomes:



• **A clean ocean** where sources of pollution are identified and removed



• **A healthy and resilient ocean** where marine ecosystems are mapped and protected



• **A predictable ocean** where society has the capacity to understand current and future ocean conditions



• **A safe ocean** where people are protected from ocean hazards



• **A sustainably harvested and productive ocean** ensuring the provision of food supply



• **A transparent ocean** with open access to data, information and technologies

“The oceans are critical drivers of global climate and weather-related natural hazards. Deeper insights on ocean science, powered by enhanced ocean observing and data sharing systems, will dramatically advance understanding and modelling of the whole earth system and benefit all people, everywhere.”



Dr Sue Barrell

Australia's Bureau of Meteorology Chief Scientist

THE DECADE WILL ALSO SUPPORT KEY APPLICATIONS FOR SOCIETY INCLUDING:



Coastal zone management and adaptation



Marine spatial planning/blue economy



Establishment of marine protected areas



Fisheries management



Ocean-related Nationally determined contributions to UNFCCC



Development of national ocean policies



Development of national R & D strategies



Regional and national capacity development planning



Early warning systems

The Decade will focus on key priority areas, such as:

1

Comprehensive digital atlas of the ocean

2

Comprehensive ocean observing system for all major basins

3

Quantitative and qualitative understanding of ocean ecosystems and their functioning as the basis for their management and adaptation

4

Ocean data and information portal

5

Integrated multihazard warning system

6

Ocean in earth-system observation, research and prediction, supported by social and human sciences and economic valuation

7

Capacity development and accelerated technology transfer, training and education, Ocean literacy

“A United Nations Decade of Ocean Science will help to build a shared information system, based on



trustworthy, science-based data, from all parts of the world’s ocean.”

Peter Haugan
Chair, IOC



WHAT IS THE PROCESS?

Participative & Transformative

The Decade is embracing a participative and transformative process so that scientists, policy makers, managers, and service users can work together to ensure that ocean science delivers greater benefits for both the ocean ecosystem and for society.

This Decade will be designed to facilitate global communication and mutual learning across research and stakeholder communities. It will work to meet the needs of scientists, policy makers, industry, civil society and the wider public, but it will also support new, collaborative partnerships that can deliver more effective science-based management of our ocean space and resources.

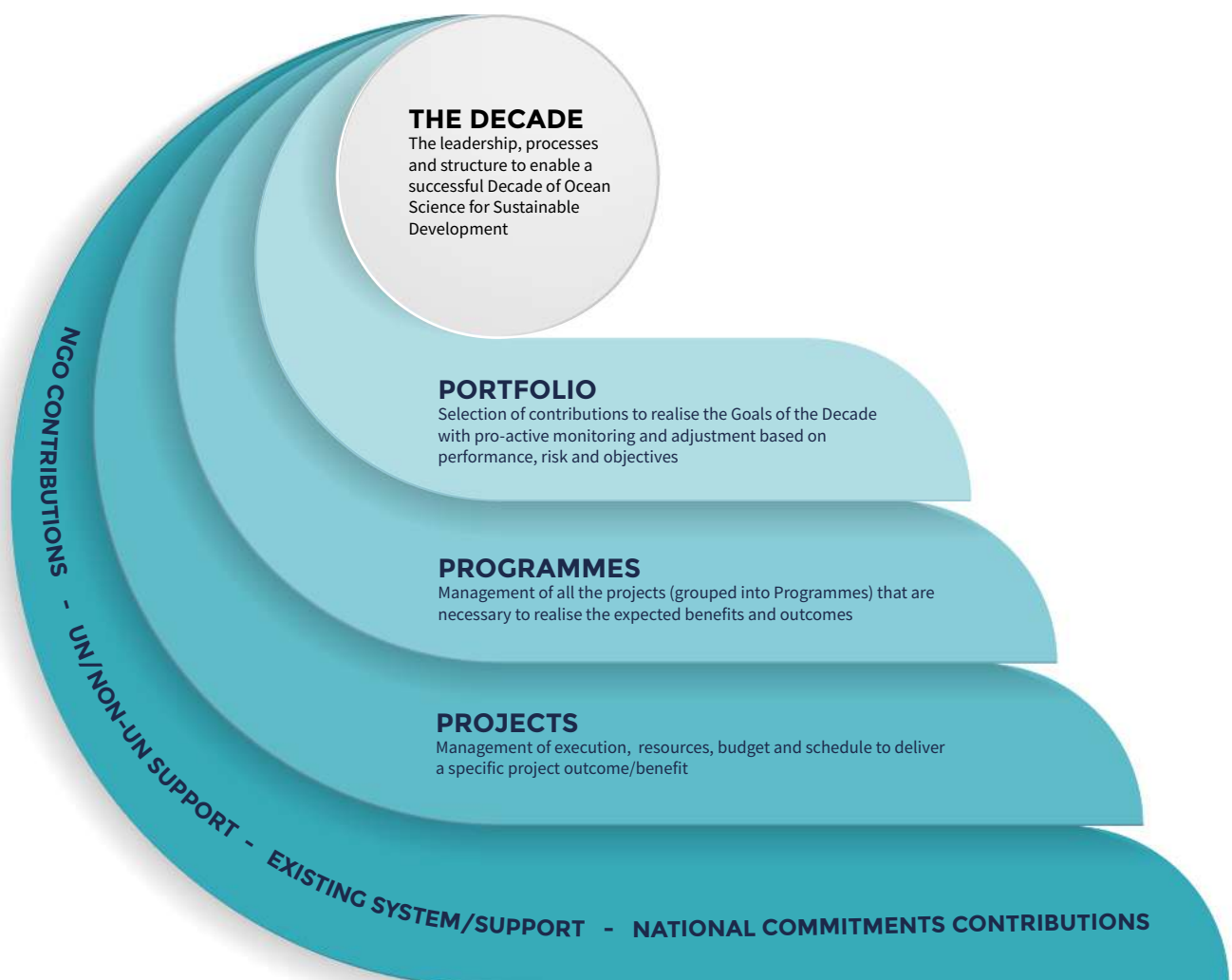
New knowledge on the current state of ocean science will be made available to communities and governments. This knowledge will be supported through capacity development activities that will provide the tools to conduct marine science and the ability to use this knowledge to inform policy makers and wider society.

A Two-Way Process

The Decade is a two way process (top down and bottom-up approach): the objectives and outcomes would be agreed globally and every group and region of the world would support these. A bottom-up process would be established so as to allow for the regional or even local definition of these outcomes and objectives, with the formulation of scientific products, activities and partnerships that could be proposed in the context of the Decade.

A Participative and Transformative Process is being designed for the Decade in order to:

- Facilitate mutual learning across research and stakeholder communities;
- Ensure robust communication across stakeholder communities;
- Create stronger connections between scientists, policy makers, managers, and service users, so that ocean science delivers greater benefits for the ocean ecosystem and for society.



WHAT DOES THE DECADE MEAN FOR YOU?

The success of the Decade will rely on the contributions of many different stakeholders including scientists, policy-makers, civil society, funders and the private sector. It will also benefit these different groups in the following key ways:

OCEAN SCIENCE & TECHNOLOGY

Contribution: Scientists will improve knowledge and develop new technologies in alignment with sustainable development priorities.

Benefit: The Decade will provide an opportunity for ocean scientists to develop multidisciplinary approaches, demonstrate the value of their work to society, mobilizing greater investment in R&D.

OCEAN POLICY & SUSTAINABLE DEVELOPMENT

Contribution: Policy-makers will connect ocean science activities with the 2030 Sustainable Development Agenda.

Benefit: The Decade will provide policy-makers with the best available knowledge and decision-making scenarios to address ocean sustainability challenges.

BUSINESS & INDUSTRY

Contribution: The private sector will develop and share new technologies needed to achieve key Decade objectives.

Benefit: The Decade will open up access to tools, information and investment needed to create solutions for ocean sustainability and the blue economy.

PUBLIC

Contributions: Citizen scientists will contribute to the Decade objectives through data collection, information sharing, and community mobilization.

Benefits: Communities worldwide will benefit directly through improved management of coastal resources, reduction of hazards and improved livelihoods.

DONORS & FOUNDATIONS

Contributions: Donors will support developments in ocean science to ensure it meets the needs of society.

Benefits: The Decade will improve alignment between investments and high impact global ocean research.

CIVIL SOCIETY /NGOS

Contribution: Civil society will mobilize coastal communities and other ocean stakeholders to define social needs and priorities for ocean science.

Benefit: The Decade will support a new cooperative framework to ensure that global ocean science provides greater benefits for ocean ecosystems and wider society.



OCEAN SCIENCE & TECHNOLOGY



Prof Dr Martin Visbeck | GEOMAR Helmholtz Center for Ocean Research, Kiel University, Germany

The Decade will provide motivation to grow a global, inclusive and vibrant ocean science community with access to free and open ocean information and the supporting

infrastructure and technology. It should also help to generate the political will to support more integrated and more sustainable ocean observing globally, to grow networking and resources to tackle ocean science challenges, such as climate stability, sustainable food from the ocean, hazard mitigation strategies and a more fully understood ocean system.

I'm now working to help mobilize the ocean and climate science community to engage with, and contribute to, the science plan for the Decade. This includes the World Climate Research Programme with its CLIVAR core project, Future Earth with the emerging Ocean Knowledge Action Network and several ocean research projects (IMBeR, FutureEarthCoast, SOLAS, Global Carbon Project, etc.) as well as the Scientific Committee for Ocean Research (SCOR) of the International Science Council.



**Susan Wijffels
Research Oceanographer
CSIRO Oceans & Atmosphere
Australia**

The Decade of Ocean Science for Sustainable Development will draw attention to how essential the ocean is to earth's climate and society.

I hope it will build support to intensify the race to understand and better predict the future of our changing oceans. Our work focuses on tracking and understanding global scale ocean variability and change, and its role in climate.

As part of the Decade I plan to contribute to improving the design and implementation of the global ocean observing system. Through strong engagement with the global ocean observing community, I hope the Decade will enable us to reach out to new partners and users. Although we have made tremendous progress, we still have major challenges around access to the global ocean and open data sharing, and more needs to be done to realise the benefits for all nations of an open and freely available global ocean information system.



**Dr Kim Currie
National Institute of Water and
Atmosphere (NIWA)
New Zealand**

My work focuses on understanding how the chemistry of the ocean responds to the changing carbon cycle, particularly the increasing

carbon dioxide concentration in the atmosphere, and how this impacts on marine ecosystems. One of the big impacts of the changing carbon chemistry in the ocean is the impact on organisms that form calcium carbonate shells, such as mussels and oysters. This has economic consequences for the aquaculture industry, social and cultural impacts for local communities, and environmental consequences through the changing of ecosystems.

As part of the Decade I am looking forward to working with colleagues in the Pacific Islands to enhance carbonate chemistry observations in this important area of the ocean. The Decade will help ocean observations made by various institutes and programmes in New Zealand to become more cooperative and integrated. This will contribute towards international global ocean observation programmes as well as enhancing the usability of this data at a national level.



**Dr Somkiat Khokiattiwong
Head of the Oceanography and
Marine Environment Unit
Phuket Marine Biological Center
Thailand**

The Decade will help scientists to inform their governments about the current status of the ocean and threats from the anthropogenic

activities and climate change. The Decade will also help to improve the communication at national, regional and global levels that is needed for the ocean science community to help the governments take specific measures to address ocean health as part of Sustainable Development Goal 14. The UN Ocean Science Decade is a tool that will enable all governments around the globe to create the synergy needed to support the scientific activities to generate data, information and technology to achieve SDG-14.



Craig McLean
Acting Chief Scientist
National Oceanic and Atmospheric
Administration (NOAA)
United States of America

I am responsible for the research portfolio in NOAA that underpins our missions in ocean science, coastal science, weather, and climate. The Decade may last for ten years, but this opportunity comes along only once in a working lifetime. The ocean, or what we call inner space, is thrilling, and relates directly to our quality of life on Earth. The Decade is important as a purposeful undertaking to finally define a knowledge basis of this planet, so that decision makers will have complete information upon which to make better informed choices for our global society. I want my grandchildren to remember me with appreciation, and not ask why I didn't do a better job with their ocean.



José H Muelbert
Professor
Instituto de Oceanografia,
Universidade Federal do Rio
Grande (IO-FURG), Brazil

I teach Biological Oceanography to undergraduate and graduate students and conduct most of my research on the ecology of early life stages of fish and marine conservation. This implies that I am in direct contact with capacity development and research infrastructure needs. We can not study or manage what we don't observe. And, we are currently not observing the oceans well enough, particularly in developing countries and seas that make up most of the planets' coastal environments. For me, a Decade dedicated to the study of the oceans is a unique opportunity to change this current scenario. The Decade Roadmap encourages "policy makers to think beyond business as usual and aspire for real change". I agree, if policy makers don't change governance of how we observe and study the oceans worldwide, real changes will not occur despite state-of-the-art science conducted in few centers of excellence. This changes are the only way we can tackle the immense challenges that face humanity survival in year to come.

"The Decade of Ocean Science will help researchers from around the world work together to address scientific challenges like ocean oxygen decline. Because the Decade will highlight the importance of ocean research, it will also help researchers work with policy makers and resource managers to ensure that policy and regulations are based on a firm scientific foundation."



Denise Breitburg
Senior Scientist, Smithsonian Environmental Research Center
Co-Chair, IOC-UNESCO Global Ocean Oxygen Network, United States of America

DONORS & FOUNDATIONS



Dr Maria Uhle
Belmont Forum
United States

The Decade will provide a much-needed opportunity to broaden our understanding of the ocean's impact on societies and the affect that human behaviors have on the ocean

to help develop innovative solutions to accelerate sustainable use of our ocean and minimize the effects of global change for a sustainable future for all.

In late 2018 to early 2019, the Belmont Forum anticipates launching a collaborative research action focusing on transdisciplinary research approaches for Ocean Sustainability. Through this call, Belmont Forum will seek to support projects that bring together natural and social sciences, and stakeholders such as policymakers, resource managers, industries, citizens and other societal partner from across the globe to develop innovative solutions and approaches to accelerate sustainable use of our oceans.

CIVIL SOCIETY



Dr Jacqueline Uku, President,
Western Indian Ocean Marine
Science Association (WIOMSA)

As part of the Decade the countries of the Western Indian Ocean Region have an opportunity to contribute towards the creation of a robust knowledge base that focuses on

their unique marine and coastal resources. The countries in the Western Indian Ocean Region share a common ocean and investment in ocean science requires shared resources and shared learning for shared prosperity.

It is my deep hope that the Decade of Ocean Science will help us develop strong partnerships and collaborations both regionally and globally and that these partnerships create opportunities for new learning. I hope to contribute to the preparations for the Decade by ensuring that there is sharing of information and knowledge from the Western Indian Ocean (WIO) Region which can form a platform for the intended collaborations and partnerships. I also hope to contribute towards the enhancement of Ocean Literacy by ensuring that we tell the good story from the ocean in our region.

OCEAN POLICY



Cameron Diver,
Deputy Director-General at the
Pacific Community (SPC)
New Caledonia

Pacific peoples see themselves not as owners but as custodians of the vast ocean space that surrounds their islands. A Palauan proverb

says, "Tekoi a ua edesaoch" or "Like the waves of the ocean, knowledge of the sea comes in various sizes and shapes, each headed to the same destination, but never will one wave overcome another". The Decade of Ocean Science is a vector for ensuring better knowledge and understanding of the sea, more sustainable management of the oceans, and preservation of the incredibly rich biodiversity that hides beneath the surface.

The Decade campaign aims to halt the negative impact of human activity on oceans, to ensure future generations are left with more than mere memories of once precious resources. The Pacific Community (SPC) will continue to advocate actively alongside its member states, to ensure that the issue of oceans and the contribution of science in this field is taken into account as an essential aspect of ongoing work on climate change mitigation and adaptation, as well as in global and regional efforts to further sustainable development for Pacific Small Island States, which are among the world's largest ocean states.



BUSINESS & INDUSTRY

“Ocean protection starts on land! Urgent action is required to reduce land-based pollution at the source. Industry and businesses are key players to transform scientific knowledge into innovative solutions enabling local authorities, coastal territories and cities to achieve the 2030 Sustainable Development Goals.”



Frédérique Raoult

Vice-President, Director of Communications and Sustainable Development, SUEZ

PREPARING FOR THE DECADE

Draft Implementation Plan

During the Preparatory Phase between 2018 and 2020, the United Nations General Assembly has tasked the IOC with preparing and coordinating the development of an Implementation Plan for the Decade which includes:

- **A Science Plan** to identify key issues, priority scientific questions of high relevance to sustainable development (2030 Agenda) and propose scientific themes and outcomes to structure the implementation of the Decade.
- **A Capacity Development Plan** to improve the scientific knowledge base, transfer of marine technology, and education in regions and for groups that are presently limited in capacity and capability, especially Small Island Developing States and Least Developed Countries.. The Plan will provide details on the strategy and actions needed to significantly enhance the opportunities and equitable access to economic benefits arising from marine resources and technology, including from areas beyond national jurisdiction;
- **A Resource Mobilisation Plan** to define the specific financial mechanisms critical to the success of the Decade;
- **A Communications & Engagement Plan** to define the networking, engagement and communications tools required to involve key stakeholders and demonstrate the value the Decade will provide for society.

Consult and Engage Decade Stakeholders

The overall formulation of the Decade's Implementation Plan will be supported through a comprehensive consultation process:

- **Global Planning Meetings** will aim to assess the status of ocean research vis-a-vis the 2030 Agenda requirements and to consolidate inputs from various consultations (including the regional workshops).
- **Regional workshops** will communicate the purpose and expected results of the Decade to all stakeholders and will also be an opportunity to engage and consult with them, enriching EPG and stakeholder debates.

Member States, through IOC Governing Bodies, will review progress and consider the Implementation Plan in 2020, prior to its submission to the UN General Assembly.

ADVISING THE DECADE PREPARATORY PHASE: EXECUTIVE PLANNING GROUP (2018-2020)



An Executive Planning Group (EPG) is composed of appointed experts, serving as an expert advisory body to the IOC governing bodies to support the development of the Decade's Implementation Plan.

PREPARATORY PHASE

2017	<p>5th December: UN General Assembly Resolution (A/RES/72/73) proclaiming the UN Decade and mandating IOC/UNESCO to prepare an implementation plan</p>	UNGA 72
2018	<p>March: Interim Planning Group (IPG) established March: UN-Oceans meeting at IOC/UNESCO HQ, Paris, inviting its members to co-design the Decade July: IOC Executive Council (51st session) Resolution on the Decade (Executive Planning Group Terms of Reference approved and Member States invited to support the consultative process) Nov: Executive Planning Group (EPG) established Dec: 1st Meeting of the EPG</p>	UNGA 73
2019	<p>February: UN-Oceans meeting establishing a Task Group on the Decade May : First Global Planning Meeting, Copenhagen, Denmark June/July: Interim report to the 30th IOC Assembly July to December: Regional workshops</p>	UNGA 74
2020	<p>January: 2nd meeting of the EPG May: 2nd Global Planning Meeting June: Review of the Implementation Plan by the IOC Executive Council 52nd November: UN General Assembly consideration of the Decade Implementation Plan</p>	UNGA 75
2021	<p>Official start of the Decade: kick-off conference</p>	UNGA 75

Preparing the UN Decade of Ocean Science: Regional Workshops

Arctic Consultation



HOW CAN YOU HELP?



Participate in the Preparatory Process

Submit ideas or take part in Decade dedicated workshops and planning meetings.



Activate your networks

Consult stakeholders, communicate about the Decade and identify opportunities for investment and resource mobilization.



Join the Decade

Register your organization as a Decade partner on <http://oceandecade.org> and drive discussions on the website's Online Stakeholder Forum.

GET IN TOUCH

Write to us at: oceandecade@unesco.org

Join the Decade: <http://oceandecade.org>

Follow the #OceanDecade hashtag on social media



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