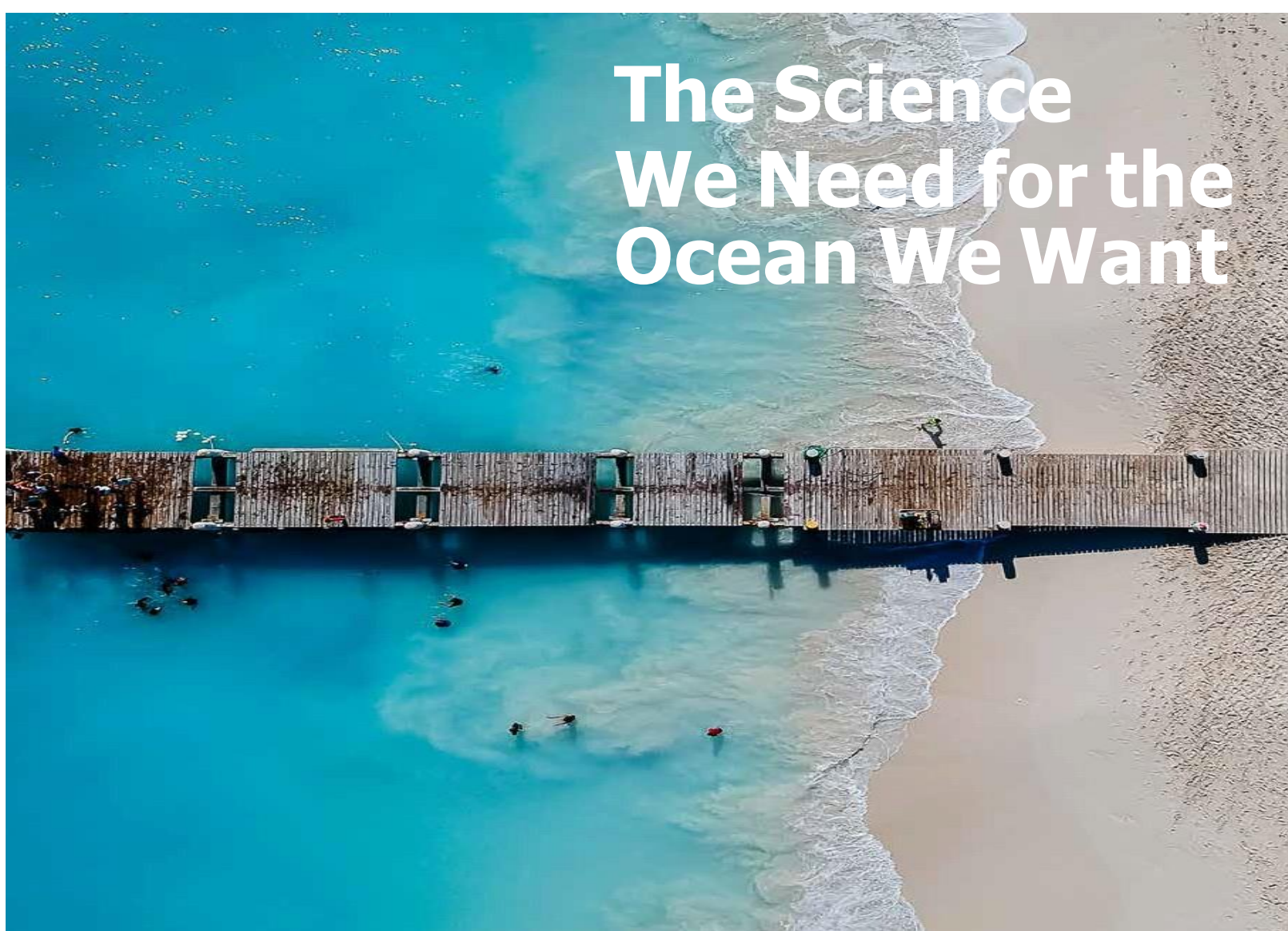# The Science We Need for the Ocean We Want

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

2021
2030 United Nations Decade
of Ocean Science
for Sustainable Development

Vision

"The science we need for the ocean we want

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Mission

To generate and use knowledge for the transformational action needed to achieve a healthy, safe, and resilient ocean for sustainable development by 2030 and beyond

Transforming from the 'Ocean we have' to the 'Ocean we want'

"The ocean we have"

"The science we need"
UN Decade of Ocean Science for Sustainable Development

Decade Scientific Objectives

"The ocean we want"

- A clean ocean
- A healthy and resilient ocean
- A predicted ocean
- A safe ocean
- A sustainably harvested and productive ocean
- A transparent and accessible ocean

Decade Action Hierarchy

Decade Programme

- Global or regional in scale

- To fulfil one or more of the Decade objectives.

- It is long-term (multi-year), interdisciplinary and typically multi-national.

Decade Project

- Discrete and focused undertaking of a shorter duration.

- It may stand alone, but will typically contribute to an identified Decade programme

Decade Activity

- In support of an outcome, objective, programme, or project.

- Typically a one-off standalone activity

- It can form part of a programme or project or can relate directly to a Decade objective.

Decade Contribution

- Supports the Decade through provision of a necessary resource

- A contribution can support implementation of a Decade Action or for coordination costs, and be in-kind or financial.

ForeSea – The Ocean Prediction Capacity of the Future

Vision: Strong international coordination and community building of the ocean prediction capacity for the future.

Lead institution: OceanPredict (OceanPredict.org)
Co-Chairs: F. Davidson, Vinayachandran P.N., E. Chassignet

Overarching goals

➢ Improve the science, capacity, efficacy, use, and impact of ocean prediction systems.

➢ Build a seamless ocean information value chain, from observations to end users, for economic and societal benefit.

These transformative goals aim to make ocean prediction science more impactful and relevant.

How does the programme goes beyond the "business as usual" of OceanPredict and represents transformative ocean science?

➢ OceanPredict provides an international coordination mechanism by which national centers can exchange on and improve the science behind the predictions systems. However the impact and relevance of advances in ocean prediction to *societal benefits* are not well quantified, evaluated, or communicated.

➢ ForeSea's vision is of a strong international community building of the ocean prediction of the future that would not only improve the science, but also increase the capacity, efficacy, use, and impacts of the ocean predictions systems. ForeSea will provide a framework by which scientists can engage with other key components of the operational oceanography value chain and with other UN Decade programs to create an effective and sustainable operational oceanography ecosystem environment responsive to user needs.

➢ Enhanced communication of the impact and relevance of ocean prediction is central to ForeSea.

Tangible example of how ForeSea will engage diverse stakeholders in co-design processes above and beyond the activities proposed within national prediction centers.

➤ Democratization of ocean information is a specific example of engagement: ForeSea will partner to leverage expertise and capacity of data access platform programmes (DITTO for example). This will ensure fit for purpose accessibility ease to ocean observations, ocean prediction outputs, and ocean system information by all, including least developed countries and small island development states.

➤ Stakeholders will be engaged via existing or emerging partnerships with UNEP, Geo Blue Planet, WOC, WMO, and IOC GOOS and with other decade programmes such as CoastPredict and Marine Life 2030.

➤ Call for projects – building on OP TTs and new working groups.

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Capacity Development

Distributed capacity across the globe, generations, and genders ➡️ Reverse asymmetry in knowledge, skills and access to technology

Focus on capacity to do the science, to understand relevance to society, and to use it for informed decisions for sustainable development

A Centralized Information Platform

➢ In addition to end user easy data access through digital twins of the marine environment, ForeSea will be the centralized international platform that assembles and advertises ocean prediction capabilities and its impact.

➢ ForeSea together with the IOC-GOOS's ETOOFS team will provide a forum for creating standards and best practices for ocean prediction products and will ensure a structured seamless information flow within the operational oceanography value chain through co-development with other UN decade programmes that focus on observing systems, data management, end user engagement, and capacity development.

➢ ForeSea will enable least developed countries and small island development states to access state of the art ocean information, in a manner that empowers them. ForeSea will also provide training and engagement opportunities by reaching out to young academics and early career ocean professionals to ensure ocean prediction literacy outreach in all countries.

SynObs: A ForeSea project
Synergistic Observing Networks for Impactful and Relevant Ocean Predictions

Main Objectives

➢ To design and adopt an optimal combination of in-situ and satellite observations in the ocean observation network with limited cost from which ocean prediction systems can draw effective information synergistically from both in-situ and satellite observations.

➢ To optimize assimilation methods to draw synergistic benefits from the combination of in-situ and satellite data.

This project aims at redesigning the ocean observation network to a more efficient one from an integrated point of view and to develop methods to use observation data effectively.

Courtesy of SOCIB