

# The Science We Need for the Ocean We Want



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





*Vision*

***The science we need for the  
ocean we want***

**\*\*\***

*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.

## 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.

*Lead institution:* OceanPredict (OceanPredict.org)

*Co-Chairs:* F. Davidson, Vinayachandran P.N., E. Chassignet



# Foresea: Transformative and beyond “business as usual” of OceanPredict

## ➤ OceanPredict:

- International coordination mechanism across national centers to exchange on & improve prediction system science
- However, the impact and relevance of advances in ocean prediction towards *societal benefits* are not well quantified, evaluated, or communicated.

## ➤ ForeSea's Vision:

- Strong international community building of the ocean prediction of the future that not only:
  - advances prediction science, but also
  - increases capacity, efficacy, use, and impacts of the ocean predictions systems.
- An effective and sustainable operational oceanography ecosystem environment responsive to user needs.





# Foresea: Transformative and beyond “business as usual” of OceanPredict

- ForeSea will co-create a framework for operational oceanography enabling scientists to engage/collaborate with
  - all components of the value chain as well as
  - the UN Decade programs associated with these componentsto create an effective and sustainable operational oceanography ecosystem environment responsive to user needs.
- ForeSea will enhance communication of the impact and relevance of ocean prediction



# ForeSea will engage above and beyond national prediction center activities

- Democratize ocean information to enable more impactful engagement:
- ForeSea will collaborate with and leverage data access platform programs (e.g. DITTO) to provide inclusive
  - fit for purpose accessibility ease to ocean observations, ocean prediction outputs, and ocean system information
  - In an equitable manner enabling least developed countries and small island development states to access and benefit from ocean information.
- Engage diverse stakeholders in co-design processes via existing or emerging partnerships with UNEP, Geo Blue Planet, WOC, WMO, and IOC GOOS and with other decade programs such as CoastPredict and Marine Life 2030.
- Call for projects – building on OP TTs and new working groups.





# Capacity Development

Distributed capacity across the globe,  
generations, and genders



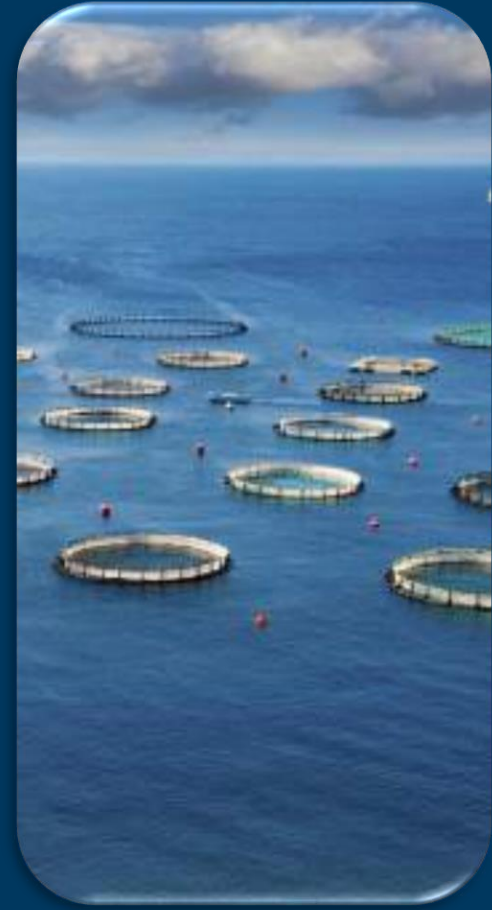
Reverse asymmetry in knowledge,  
skills and access to technology



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

# A ForeSea Objective: A Centralized Information Platform

- In addition to easy end user data access through digital twins of the marine environment, ForeSea will be the centralized international platform that assembles and advertises ocean prediction capabilities, its impact and where/how to find it.
- 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 programs 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 and CoastPredict project

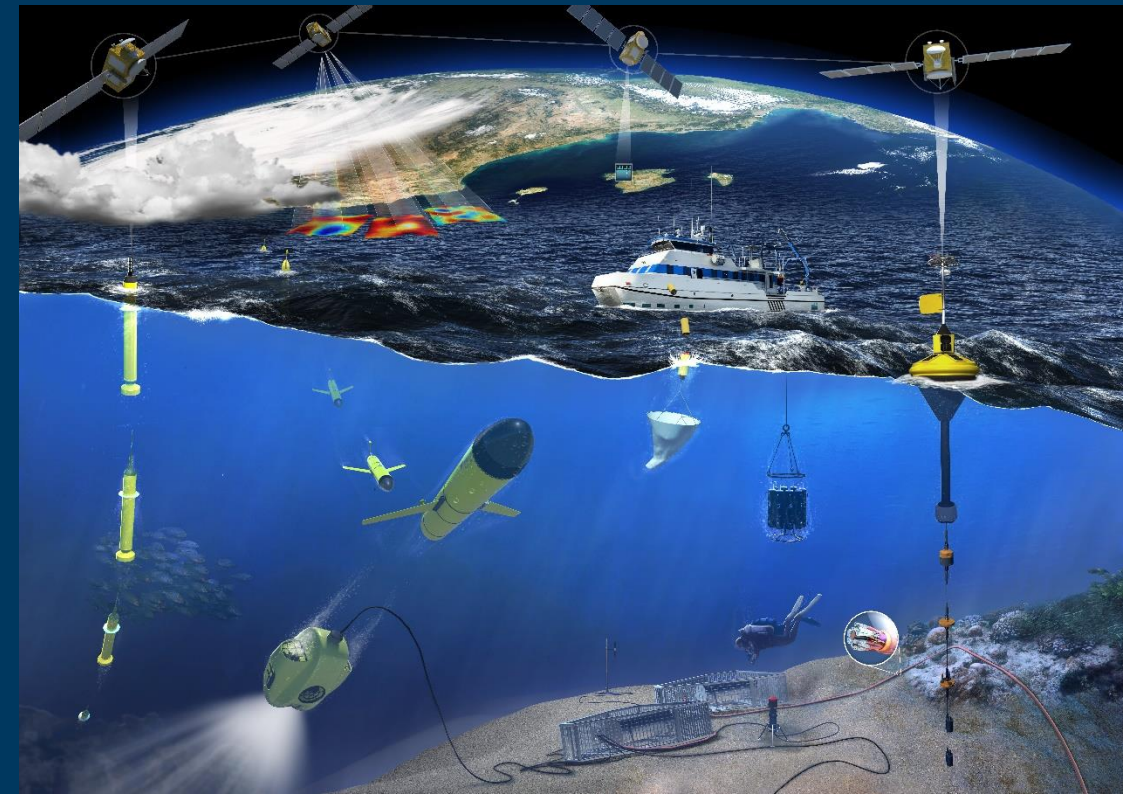
Synergistic Observing Networks for Impactful and Relevant Ocean Predictions

## *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





# ForeSea Approach: Now that it is UN Decade Endorsed

- Create a ForeSea implementation plan and communication platform leveraging OceanPredict, but also addressing financing / recruiting additional staff
  - Co-design operational oceanography framework, standards needed, identify which groups need to be part of this
  - Advancing impact of ocean prediction (communication task team?)
  - Advancing science of ocean prediction
- Work on the calls for projects – see TTs presentations
- Create a list of engagement partners along with leads (advisory panel) to support this engagement.
- Solicit national endorsement and backing for supporting ForeSea / OceanPredict coordination/secretariat