Ocean Decade Coordination Office

Ocean Observing

2021 2030 United Nations Decade of Ocean Science for Sustainable Development

Decade Coordinating Office
Ocean Observing

GOOS Steering Committee
April 15, 2024

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2021 2030 United Nations Decade of Ocean Science for Sustainable Development

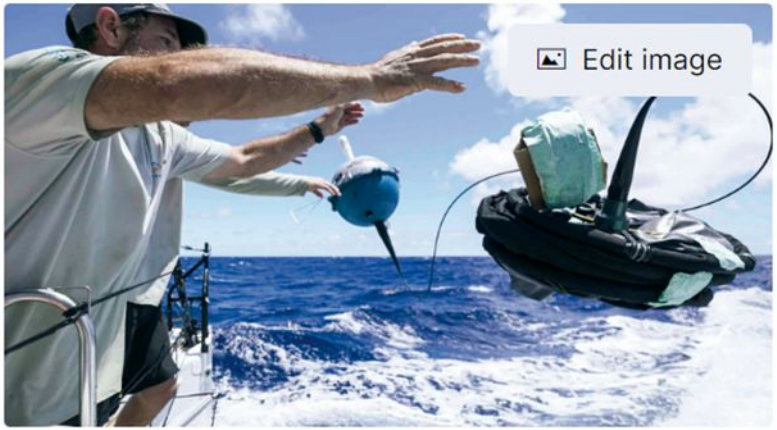
The Global Ocean Observing System GOOS

DCO – Ocean Observing

Vision & Strategy

DCO – Ocean Observing

The Data Coordination Office (DCO) for Ocean Observing unites a community of 11 Programmes and 91 Projects working collaboratively with the GOOS (the Global Ocean Observing System) to expand, revolutionise and operationalize a truly inclusive ocean observing system, where both public and private sector entities collaborate to deliver tangible societal benefits.



GOOS: At the heart of the Decade

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Ocean Observing

GOOS | At the heart of the Ocean Decade

GOOS is the global home of ocean observing expertise.

Challenge 7: Expand the 'Global Ocean Observing System' aims to ensure a sustainable ocean observing system endures well past the year 2030.

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DCO – Ocean Observing within the Decade

The DCO-Ocean Observing Community

11 OCEAN OBSERVING PROGRAMMES and 91 PROJECTS
(31% of Decade Actions)

Name	Description	Lead Institution
OneDeepOcean	Ocean network for **deep observation**	Ifremer, France
CoastPredict	Observing and predicting the **global coastal ocean**	Alma Mater Studiorum University of Bologna, Italy
Seabed 2030 Project	**Bathymetric** map of the entire ocean by 2030	Nippon Foundation-GEBCO, Monaco
ODRP-MAE	Research on the maritime **acoustic environment**	Interagency Working Group for Ocean Sound and Marine Life, US
Marine Life 2030	Global integrated **marine biodiversity information management and forecasting** system.	Marine Biodiversity Observation Network (MBON).
OBON	Ocean **biomolecular observing** network	POGO, US
OASIS	Observing **air-sea interactions** strategy	SCOR Working Group, US
DOOS	**Deep ocean** observing strategy	DOOS Working Group, US
Ocean Observing Co-Design	**Evolving ocean observing through co-design** to deliver the information nations need	GOOS, UNESCO IOC
Observing Together	Meeting stakeholder needs and **making every observation count**	GOOS, UNESCO IOC
Challenger 150	A decade to study **deep ocean sea life**	DOSI, UK

DCO – Ocean Observing Vision

Institutional strategy: Cohesive, coordinated and interoperable ocean observing systems; global, regional and national

Community Engagement: Private sector and societal participants in the Blue Economy and a healthy Ocean

Sustained Ocean financing: Innovative, long-term finance for a sustainable Global Ocean Observing system

Prioritization of societally relevant observing requirements: Geographic & Thematic.

Standardization around universally agreed EOVs, ECVs and measurement & data management best practice.

Capacity Development: Ensure equitable access to observational data and technology for all stakeholders

Technology Development: Autonomous & low-cost sensors. Complementary use of remotely sensed & in-situ data

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Ocean Observing

A global ocean observing system responsive to the needs of end users; enabling a healthy, resilient ocean and sustainable blue economies.

END-USER APPLICATIONS

Ocean Prediction

Ocean Data Sharing

DCO – Ocean Observing

Digital Ocean Data Eco-system

- The DCO – Ocean Observing will work jointly with the DCO – Ocean Data Sharing and the DCC – OceanPredict towards the implementation of a FAIR ocean data digital eco-system

  - ✔ Enable scientists to find and access data
  - ✔ Support for decision makers to make informed choices
  - ✔ Empower the “Blue Economy”

DCO – Ocean Observing

The Ocean Decade's Data & Information Strategy recognizes three key underpinning components that need to be well coordinated and interconnected to create a productive Digital Ecosystem:

- ❑ Observations and data collection,
- ❑ Data management and sharing, and
- ❑ Analytics modelling and prediction.

DCO – Ocean Observing

The Vision

A truly global ocean observing system

responsive to the needs of end users;

enabling a healthy, resilient ocean and

A sustainable Blue Economy.

DCO – Ocean Observing

What is needed

Prioritization of societally relevant observing requirements: Geographic & Thematic.

Standardization around universally agreed EOVs, ECVs and measurement & data management best practice.

Capacity Development: Ensure equitable access to observational data and technology for all stakeholders

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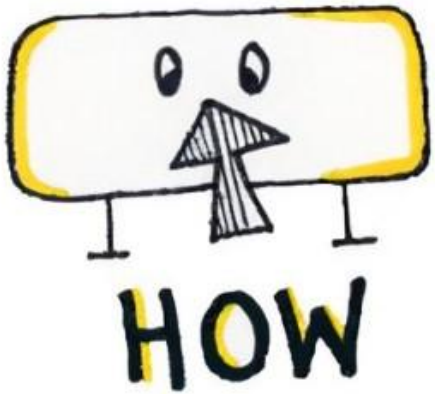
DCO – Ocean Observing

How we achieve this vision



- Work with the global community to enable truly inclusive and integrated global, regional and national ocean observing systems where public and private sector actors deliver societal benefits.
- Develop and test new ocean observation governance concepts, innovative financing mechanisms and next generation technology.
- Support the requisite capacity development and training across the full ocean observing value chain, inclusive of the entire global community, to build the work force necessary.

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DCO – Ocean Observing

Progammes & Projects Overview

The DCO-Ocean Observing Programmes Group

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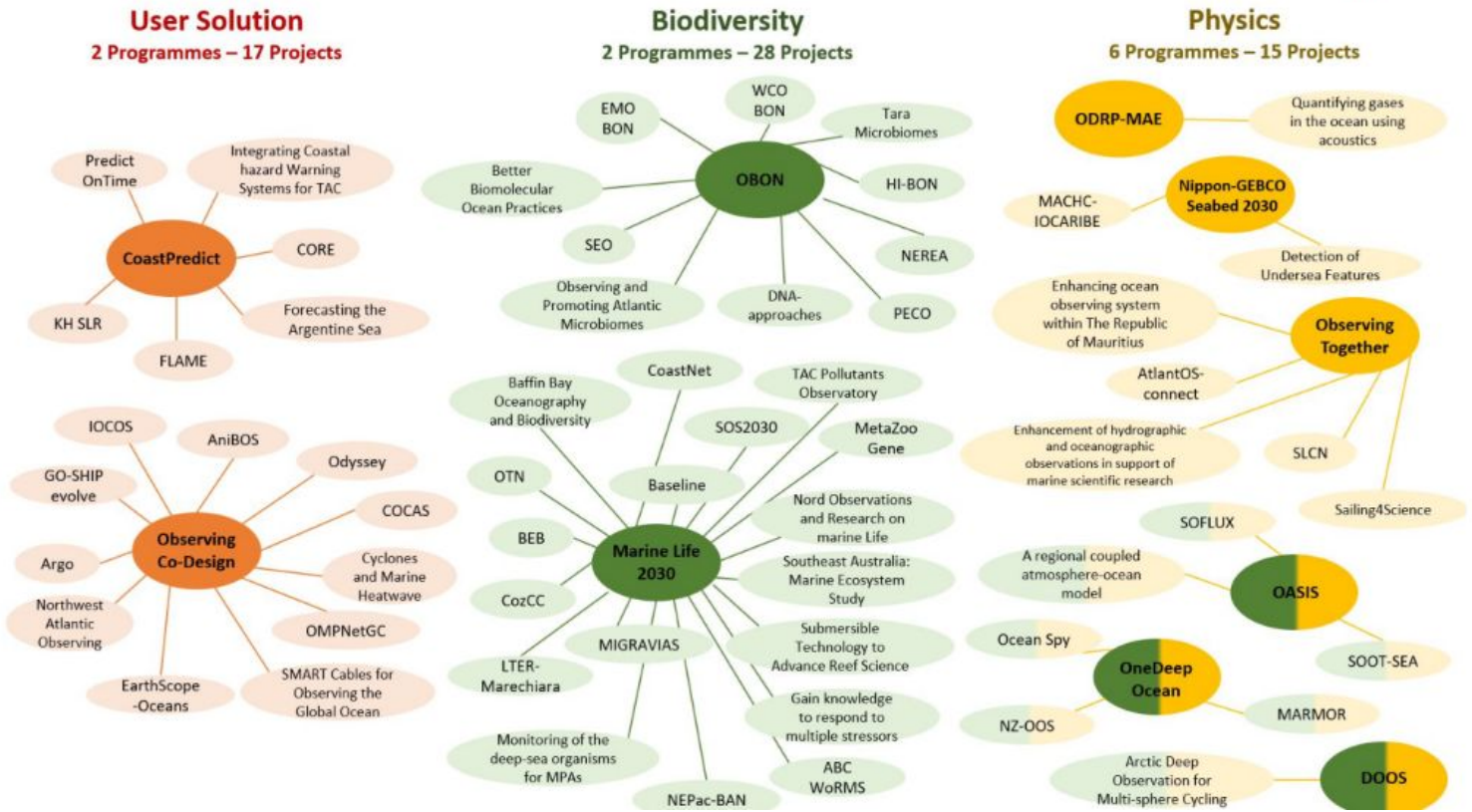
Programmes and affiliated Projects



Ocean Observing in the Decade

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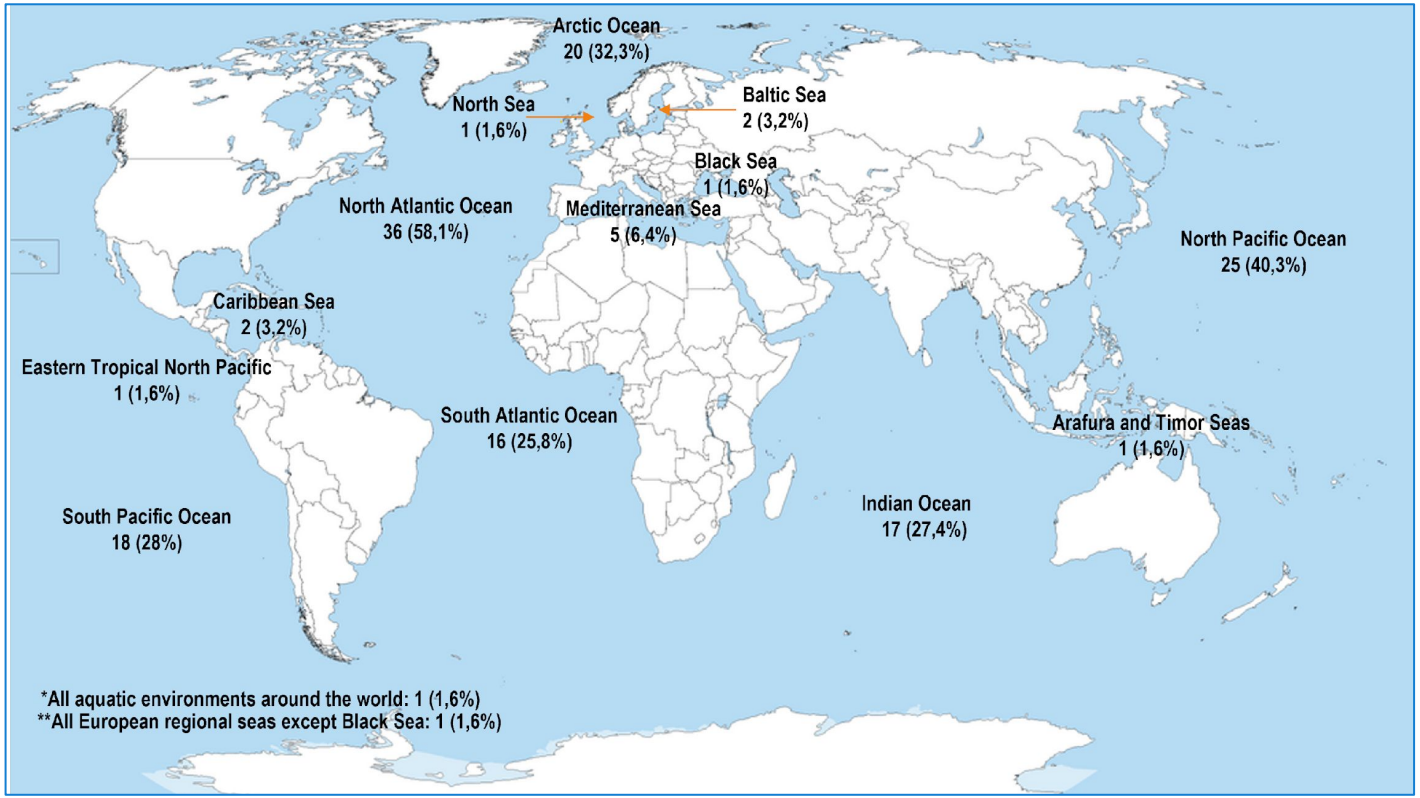
Project focus areas: Ocean Basins



Ocean Observing in the Decade

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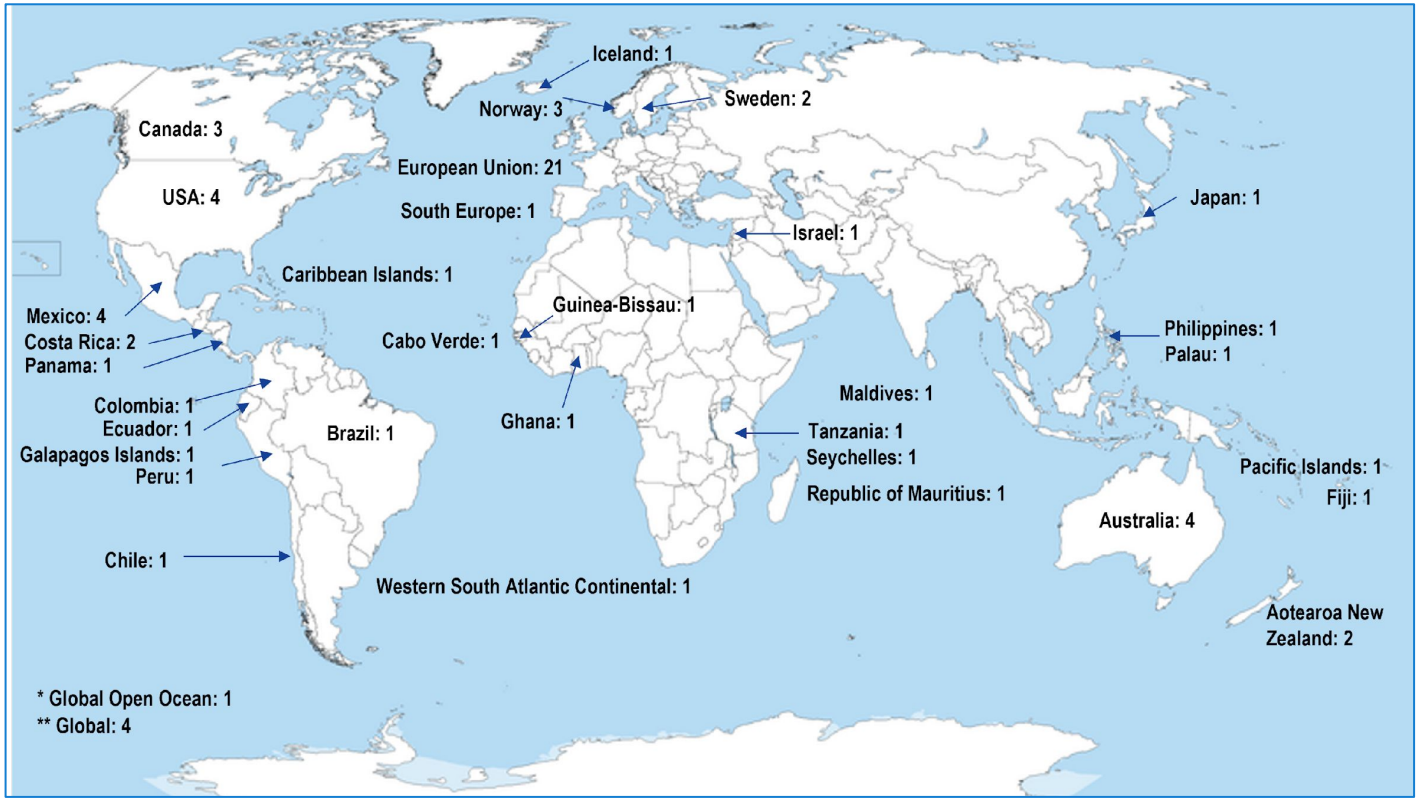
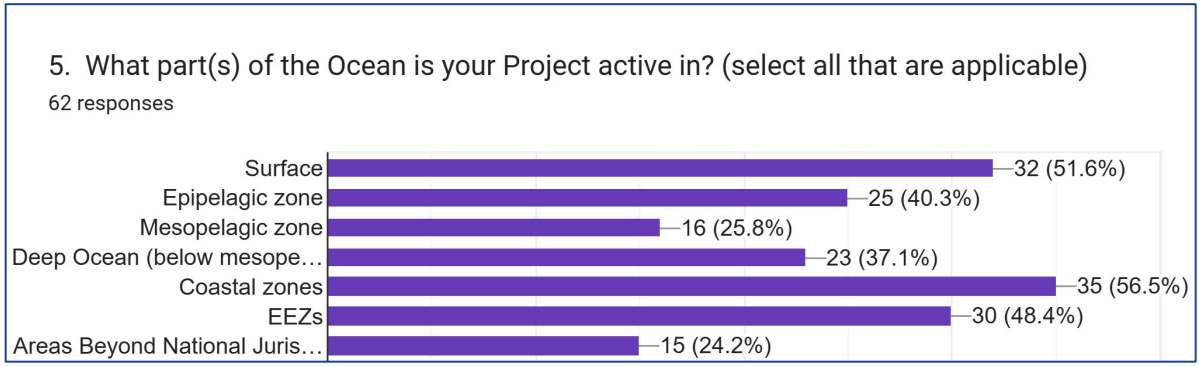
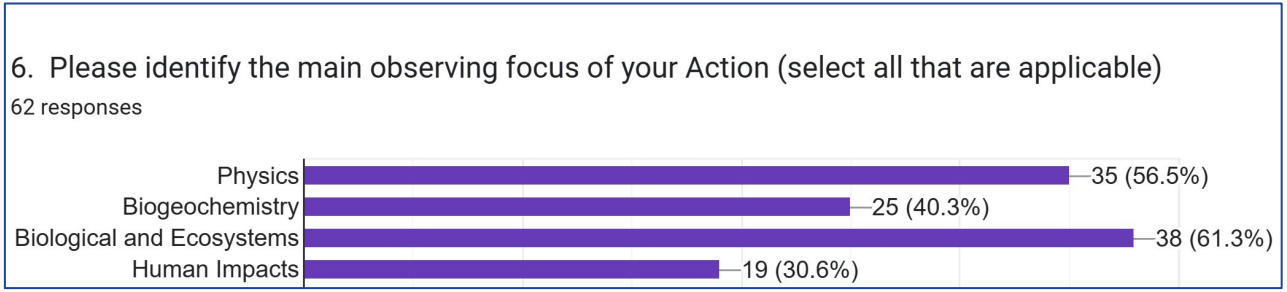
Project focus areas: EEZs



Ocean Observing in the Decade

Vertical Zones and EOVs

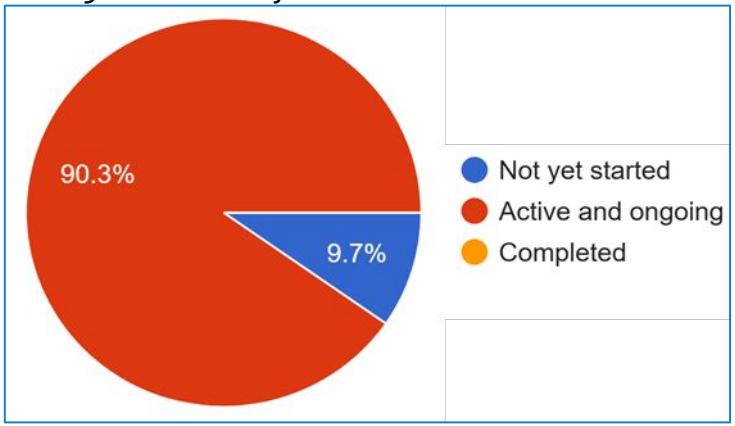




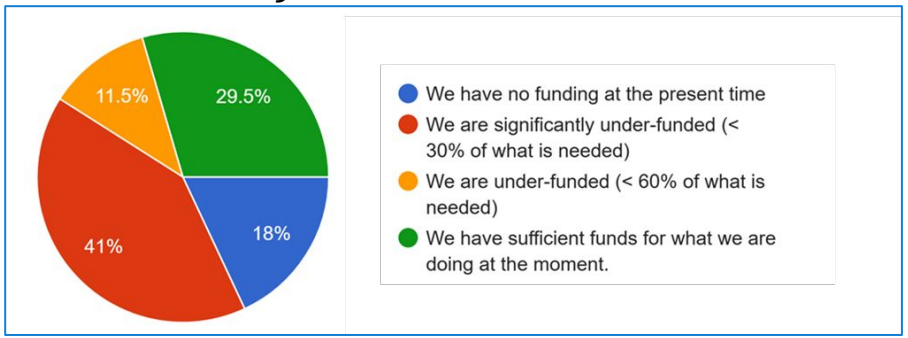
Ocean Observing in the Decade

Project status: Stage of activity, Funding, Resources

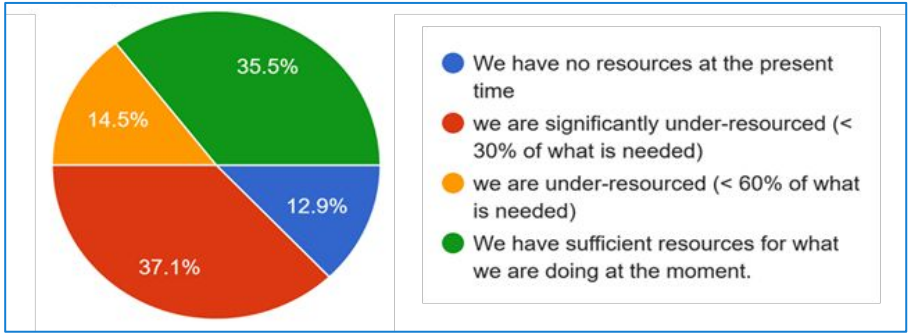
Stage of Activity



Level of Funding



Available Resources



Ocean Observing in the Decade

Comparison of Decade Challenge WGs defined needs vs. Project activity

Ocean Basins

- The North Atlantic and North Pacific oceans have the highest proportion of active Projects but is ranked lowest in importance for focus with the WGs.
- The Southern, Arctic and Indian oceans are ranked markedly higher in importance for focus by the WGs but have a low to medium proportion of the active Projects.

Area of desired impact

- Human Impacts scores the highest in indicated importance by the WGs. However, this is the most weakly represented in active Projects.
- Physics measurements is measured very low in importance with the WG but shares a strong lead in Project activity.
- Biological and Eco-systems ranks 2nd in importance from the WGs, and indeed shares the lead for current active from the Projects.

Vertical and Horizontal focus areas

- Coastal zones, followed by EEZs are ranked in that order by the WGs as having the highest importance for focus. This matches what the Projects indicate is currently underway.
- Surface waters are the highest focal interest for the WGs, matching the activity of the Projects. The activity in, and importance of, Mid-level and deep waters are generally equally distributed

Ocean Observing in the Decade

Comparison of Decade Challenge WGs defined needs vs. Project activity

Physics EOVs

- Sea surface and sub-surface temperature measurements are the largest area of activity with the Projects, followed by Sea surface and sub-surface salinity measurements.
- While these are considered of relatively high importance by the WGs, with the exception of surface temperature, they are superseded in ranking of highest importance by Sea state, Sea ice and Ocean surface heat flux.

Bio-Chemical EOVs

- The relative ranking of the importance of EOVs in the realm of Bo-chemistry by the WGs is nicely matched by the relative activity levels by the Projects.

Biological and Ecosystems EOVs

- There are two groupings of highest interest from the WGs:
  - Biomass (including Fish) distribution, and
  - Carbon Sink distribution (Mangroves, Seagrass, Macroalgal canopy coverage)

  Project activity on Biomass measurements is high but is quite low in the mapping of Carbon Sink environments.
- Mapping distributions of larger sea life is indicated to be of lower priority for the WGs but has a relatively high Project activity level.

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Discussion