



**2021** United Nations Decade  
of Ocean Science  
**2030** for Sustainable Development



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# **The Ocean Decade Data & Information Strategy & The Decade Coordination Office (DCO) for Data Sharing**

*Towards a global digital transformation of marine knowledge management and use  
in support of sustainable ocean management and blue growth*

**SEA-EU Marine Data Literacy course, 24 October 2023**

**Jan-Bart Calewaert, Lead Decade Coordination Office for Data Sharing, IOC-UNESCO**

# Why an Ocean Decade?



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2021 United Nations Decade  
2030 of Ocean Science  
for Sustainable Development



**Ocean Decade Implementation Plan  
adopted by the UN General Assembly  
December 2020**

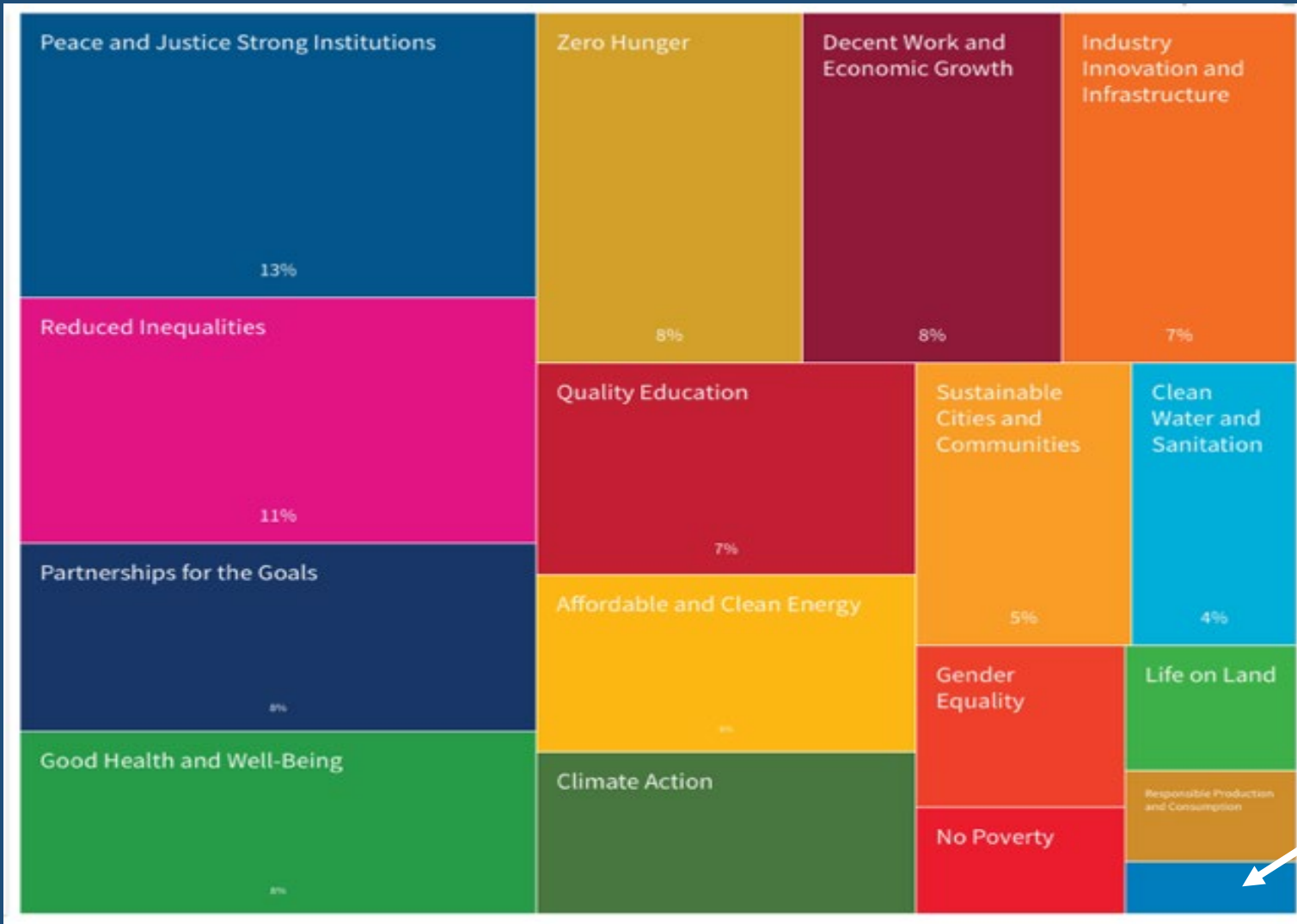


**Implementation  
Plan**

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



# Work in the ocean is an uphill battle: expenditures on SDGs



# The science we need, for the ocean we want



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2030 AGENDA & REGIONAL  
AND GLOBAL POLICY  
FRAMEWORKS

DECADE OUTCOMES

"THE OCEAN  
WE WANT"



## OCEAN DECADE CHALLENGES

The most immediate and pressing needs of the Decade, Challenges may evolve throughout the Decade and new Challenges will be added. Each Challenge contributes to one or more Decade outcomes.



## DECADE OBJECTIVES

The steps in the process from the ocean we have to the ocean we want. Objectives are relevant to all Challenges. Prioritisation and translation of objectives into Actions will vary depending on context.



## DECADE ACTIONS

The tangible initiatives and endeavours that will be implemented by a wide range of Decade stakeholders to fulfil the objectives and thus achieve the Challenges.



Understand and map land and sea-based sources of pollutants and contaminants and their potential impacts on human health and ocean ecosystems, and develop solutions to remove or mitigate them.



Understand the effects of multiple stressors on ocean ecosystems, and develop solutions to monitor, protect, manage and restore ecosystems and their biodiversity under changing environmental, social and climate conditions.



Generate knowledge, support innovation, and develop solutions to optimise the role of the ocean in sustainably feeding the world's population under changing environmental, social and climate conditions.



Generate knowledge, support innovation, and develop solutions for equitable and sustainable development of the ocean economy under changing environmental, social and climate conditions.



Enhance understanding of the ocean-climate nexus and generate knowledge and solutions to mitigate, adapt and build resilience to the effects of climate change across all geographies and at all scales, and to improve services including predictions for the ocean, climate and weather.



Enhance multi-hazard early warning services for all geophysical, ecological, biological, weather, climate and anthropogenic related ocean and coastal hazards, and mainstream community preparedness and resilience.



Ensure a sustainable ocean observing system across all ocean basins that delivers accessible, timely, and actionable data and information to all users.



Through multi-stakeholder collaboration, develop a comprehensive digital representation of the ocean, including a dynamic ocean map, which provides free and open access for exploring, discovering, and visualizing past, current, and future ocean conditions in a manner relevant to diverse stakeholders.



Ensure comprehensive capacity development and equitable access to data, information, knowledge and technology across all aspects of ocean science and for all stakeholders.

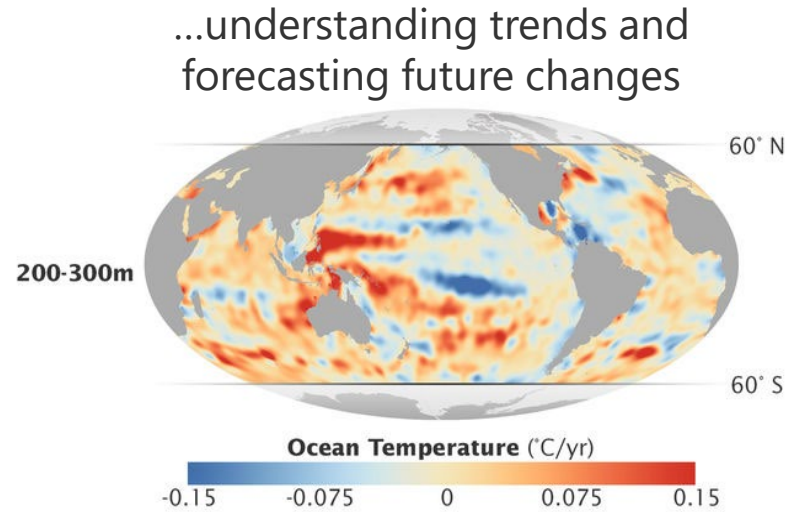


Ensure that the multiple values and services of the ocean for human wellbeing, culture, and sustainable development are widely understood, and identify and overcome barriers to behaviour change required for a step change in humanity's relationship with the ocean.

# Access to reliable and quality marine data is vital for...



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# OCEAN DECADE

## 2022-2023 snapshot

### ENDORSED OCEAN DECADE ACTIONS



**48** PROGRAMMES  
**276** PROJECTS  
**84** CONTRIBUTIONS  
**518** ACTIVITIES

*As at June 2023*



DECADE ACTIONS LED  
BY PARTNERS FROM  
**60**  
COUNTRIES

### DECADE ADVISORY BOARD

**15** MEMBERS  
**14** COUNTRIES  
**8** WOMEN  
**7** MEN  
**5** MEETINGS



### REGIONAL AND NATIONAL COORDINATION

**7**

REGIONAL  
TASKFORCES  
AND PROGRAMMES

**12**

DECADE  
IMPLEMENTING  
PARTNERS



**35**

NATIONAL  
DECADE  
COMMITTEES

**10**

DECADE  
COLLABORATIVE CENTRES/  
COORDINATION OFFICES

### ENGAGEMENT AND OUTREACH



**1+ MILLION**  
REACH

**10** PATRONS AND  
**18** INSTITUTIONAL  
MEMBERS OF THE  
OCEAN DECADE  
ALLIANCE



**5** INFORMAL  
WORKING GROUPS

OVER **20**  
MEMBERS  
OF THE  
FOUNDATIONS  
DIALOGUE



**6,500**  
MEMBERS ON THE  
OCEAN DECADE NETWORK



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2030 of Ocean Science  
for Sustainable Development

[OCEANDECADE.ORG](https://oceandecade.org)

@UNOceanDecade  
 @un-ocean-decade

# Data, information & knowledge: cornerstones of the Decade's success



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1. Understand and beat marine pollution
2. Protect and restore ecosystems and biodiversity
3. Sustainably feed the global population
4. Develop a sustainable and equitable ocean economy
5. Unlock ocean-based solutions to climate change
6. Increase community resilience to ocean hazards
7. Expand the Global Ocean Observing System
8. Create a digital representation of the Ocean
9. Skills, knowledge and technology for all
10. Change humanity's relationship with the ocean



# Ocean Decade Data Coordination Group



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Kate Wing



Jan-Bart Calewaert



Joana Akrofi



Edward Armstrong



Jerome Aucan



Udaya Bhaskar



Ute Brönnert



Pier Luigi Buttigieg



Taco de Bruin



Steve Diggs



Marco Filippone



Evert Flier



Jeanette Gann



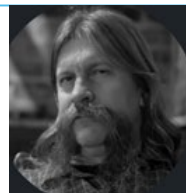
Hernan Garcia



Katy Hill



Neil Holdsworth



Kirk Larsen



Kevin O'Brien



Nicolas Segebarth



Rishi Sharma



Gry Ulverud



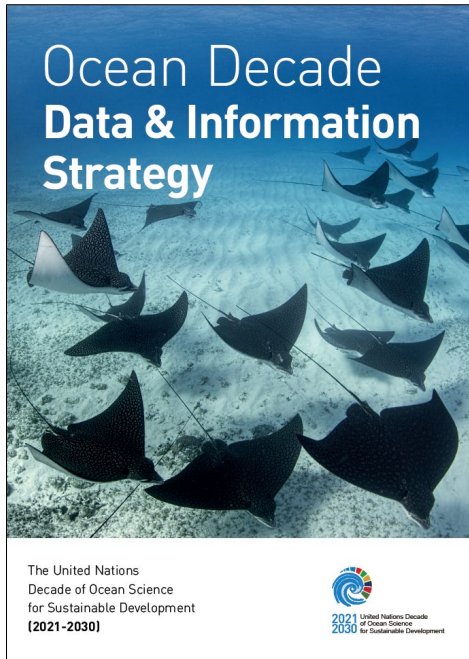
# A globally distributed, trusted, inclusive, and interconnected ocean data and information ecosystem



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**Data Coordination Group**  
*Develop a data & information strategy*



Download here:

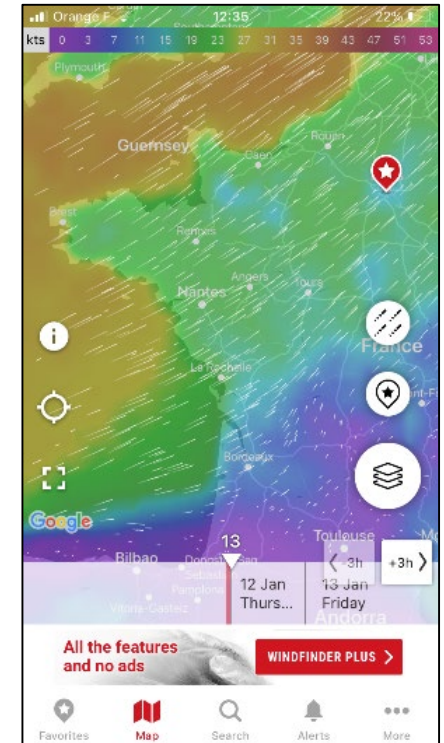
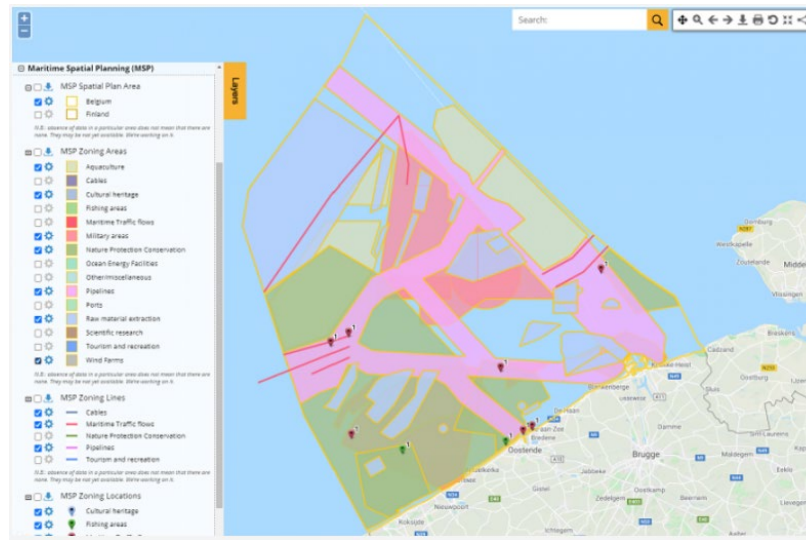
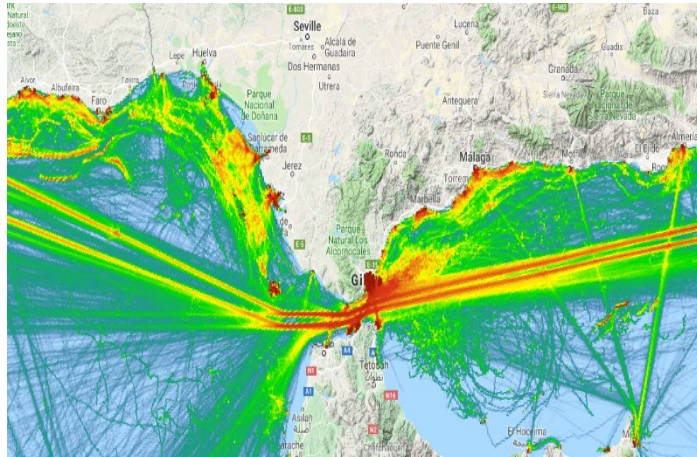


# The top of the digital knowledge ecosystem: Applications & solutions for decision making in policy, management & business

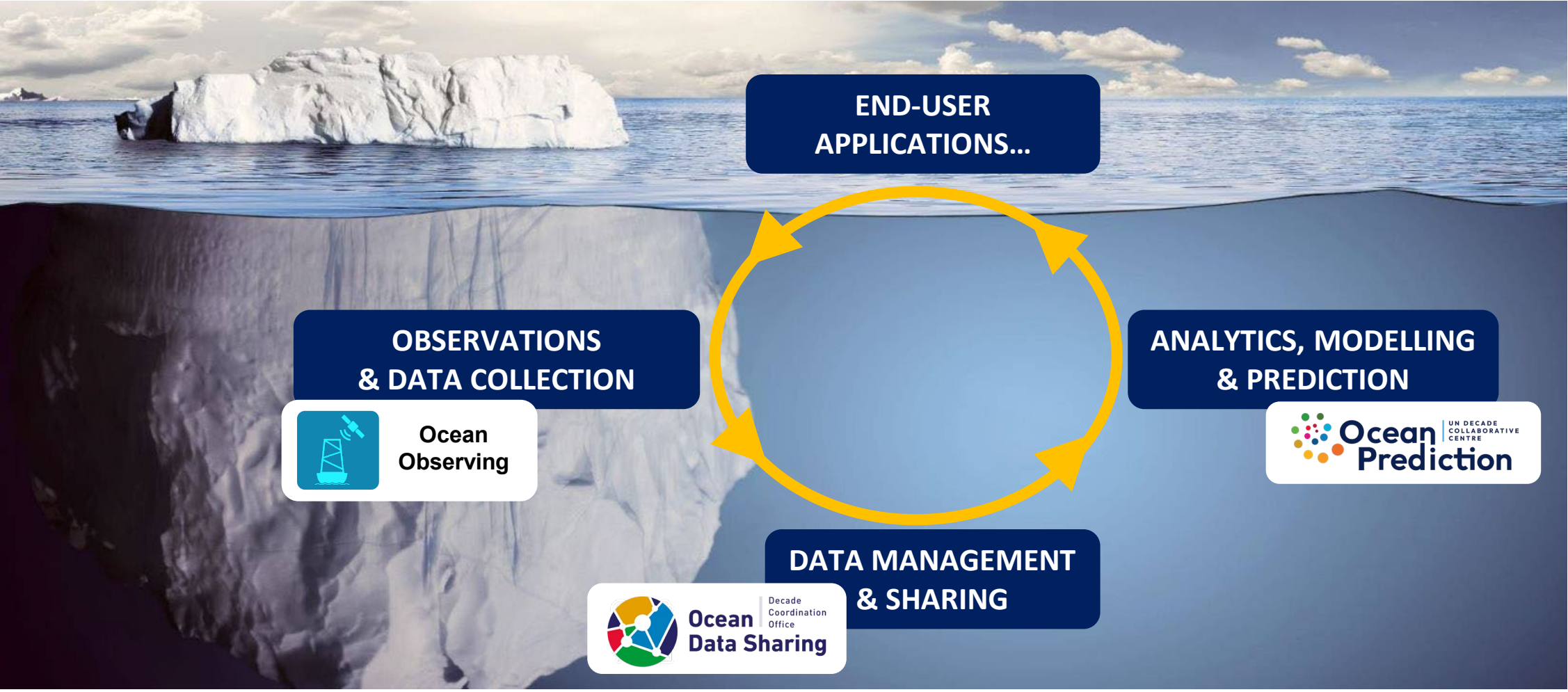


END-USER  
APPLICATION

The **end-user application** is the very visible part of the whole digital eco-system and data flow.

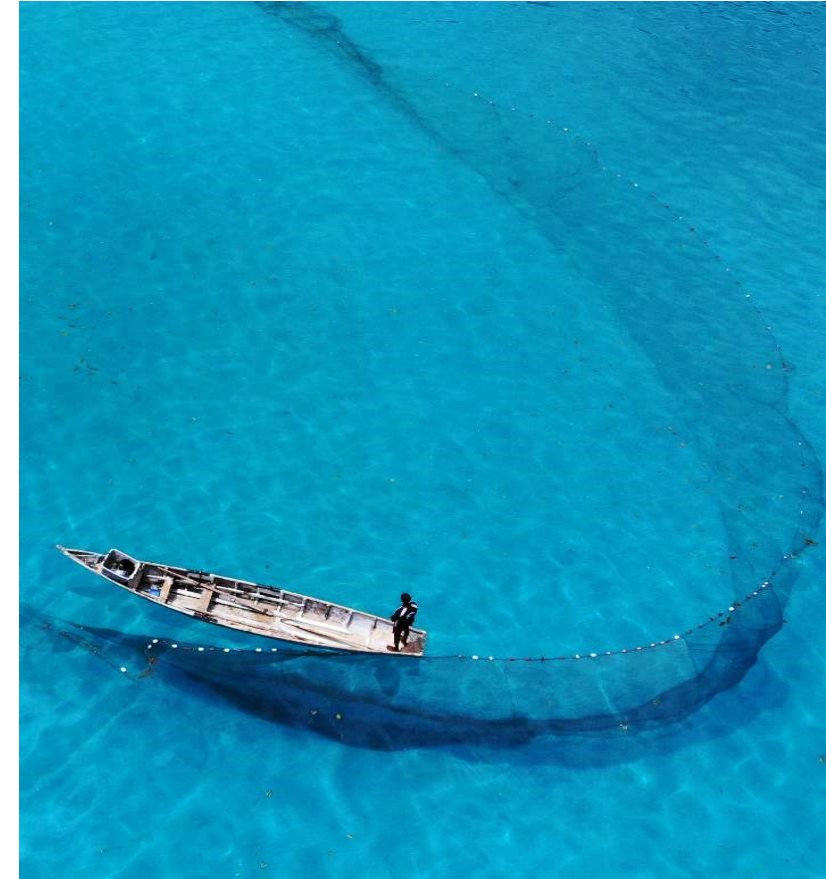


# Lifting up the critical components of the global digital ecosystem, from observation to the end-users



# What will the Coordinating Offices do?

- Support links and information flow
- Avoid duplication of effort
- Enable cross-disciplinary co-design
- Provide strategic advice
- Encourage the development of technical and scientific capacities
- Address data gaps and infrastructure needs
- Raise awareness of ocean observing and data literacy
- Develop partnerships
- Communicate successes



# DCO for Ocean Data Sharing

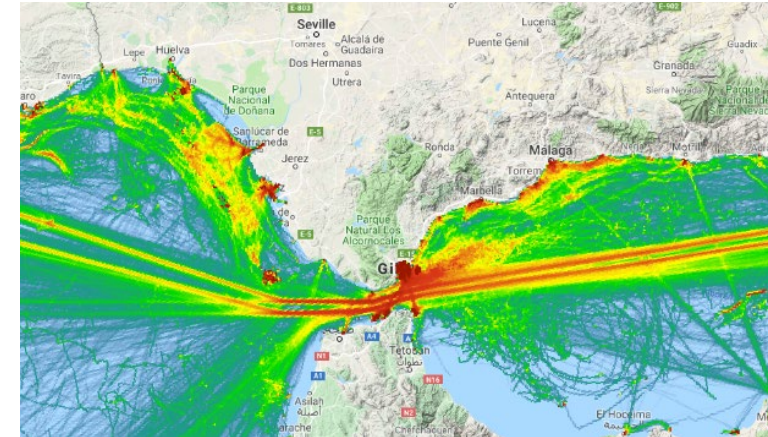
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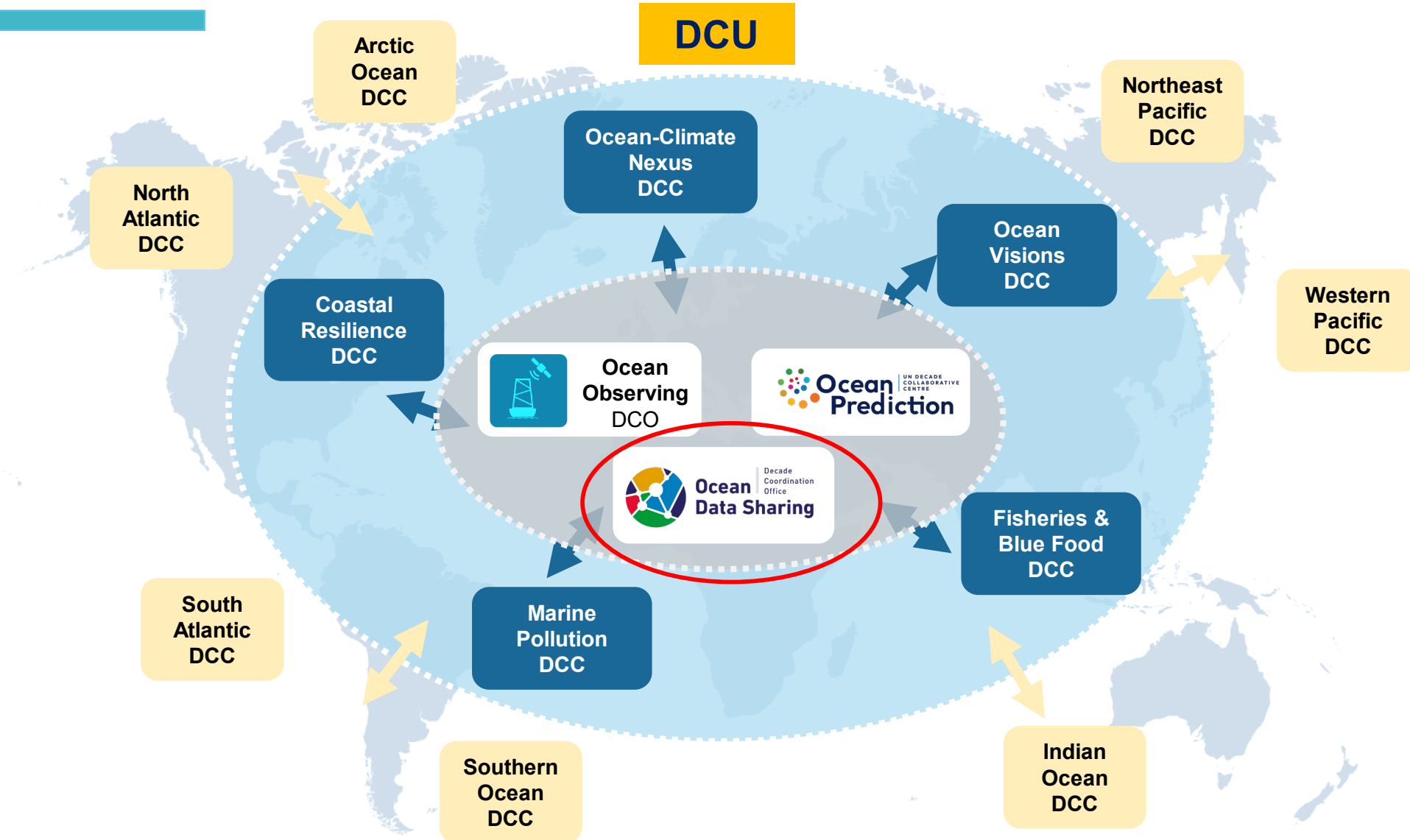
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Coordination  
Office  
**Ocean  
Data Sharing**



- **Coordinate the data-sharing component of the digital ecosystem for the Ocean Decade**
- **Develop data literacy and capacity equitably among all IOC Member States.**
- **Assist Decade collaborators with data sharing guidance to achieve the highest possible data quality and adherence to FAIR and CARE principles.**



# Working alongside other Coordinating Offices across disciplines





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**Data Sharing**

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Office

# Year 1 Priorities



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1. **Establish the DCO for Ocean Data Sharing** (work plan, staff, reporting)
2. Stakeholder engagement at three levels:
  - Decade coordination bodies: to ↑ synergies & ↓ duplication of efforts
  - Decade Actions to: support data-sharing and promote best practices
  - Wider stakeholders: year 1 prioritise potential funders
3. **Support and facilitate the Challenge 8 Expert Working Group** in the Vision 2030 process
4. Raise visibility and awareness of the DCO for Ocean Data Sharing
5. **Mobilise resources for continuation beyond 2024**



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**Data Sharing**

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# Status Update



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## 1. Establish the DCO for Ocean Data Sharing (work plan, staff, reporting)

- Ocean Data Sharing DCO **launched in June 2023** and now operational
- Resourced for 11 months (April 2024)
- Hosted by IOC of IODE
- Lead and 2 support staff (=1.5 FTE, more staff needed)
- Year 1 work plan prepared, monitoring and reporting ongoing





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# Status Update

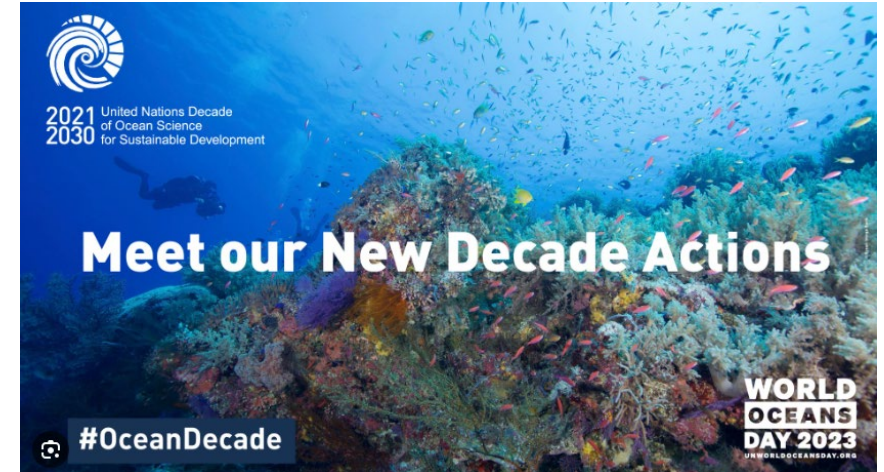


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## 2. Stakeholder engagement: Support Decade Actions

- Mapping Decade actions to identify data-relevant Actions
- Compiling a suite of data management resources
- Provide support to Decade actions with data management resources
- Exploring the need for & potential of an online Actions Database
- Contact initiated & meetings held with **4 Primary Attached Actions**
  - **Ocean Data and Information System** (Programme, Lead: IODE)
  - **Digital innovation Hand-in-Hand with fisheries and ecosystems scientific monitoring** (Programme, Lead: FAO)
  - **World Ocean Database Programme (WODP)**: (Contribution, Lead: NOAA)
  - **GEOTRACES** (Contribution, Lead: U.S. National Science Foundation on behalf of international GEOTRACES partners)





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## 3. Support and facilitate the Challenge 8 Expert Working Group in the Vision 2030 process

<https://oceandecade.org/vision-2030/>

A strategic ambition-setting process to identify what success looks like for Challenge 8: “**Create a digital representation of the ocean**”

- Co-chairs appointed (XX) and members invited in June 2023
- Organised and facilitated three WG8 meetings (July, August & Sept) and two drafting group sessions (Sept)
- Developed a narrative for the White Paper
- Towards presenting the Draft White Paper at the UN Ocean Decade Conference in Barcelona, April 2023





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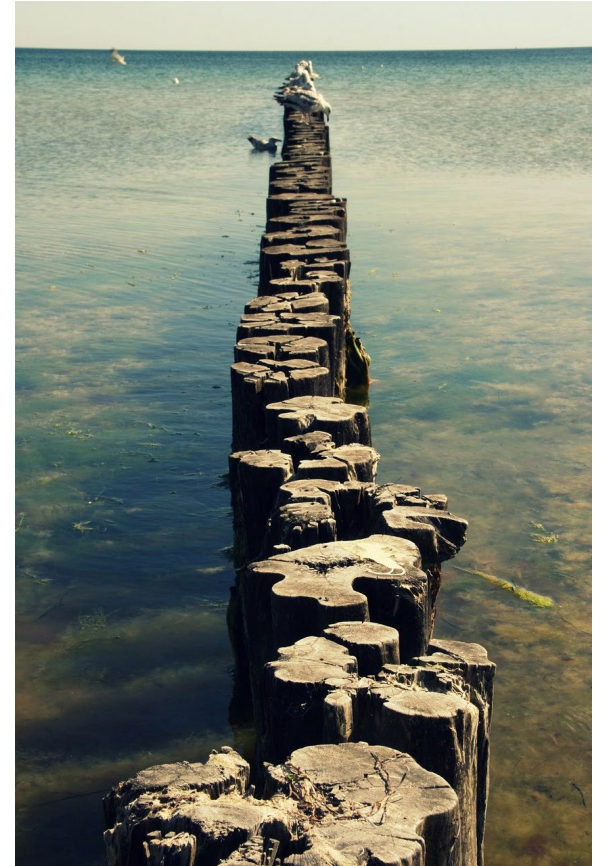
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## 4. Raise visibility and awareness of the DCO for Ocean Data Sharing

- Participation in key events
- Highlighting Action success stories
- Mobilising a Community of Practice (coming in 2024)

## 5. Mobilise resources for continuation beyond 2024

- In kind (staffing, secondments)
- Identifying opportunities for sustained funding: private sector and philanthropic



## Coordinating Offices' lasting legacy

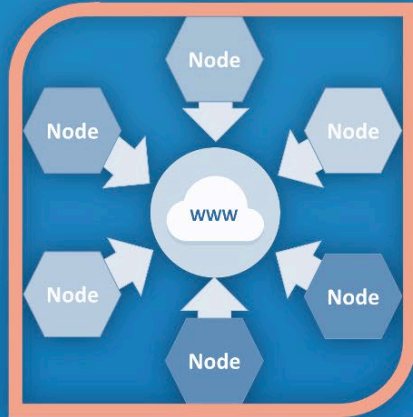
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- Lift ocean observations and resulting data management & sharing
- Cultural change across disciplines
- Enable a federated ocean digital ecosystem
- Easier for scientists to find and access data
- Easier for decision makers to make informed choices
- Lift our understanding of the relationship between ocean and climate change
- Enable the “blue economy”



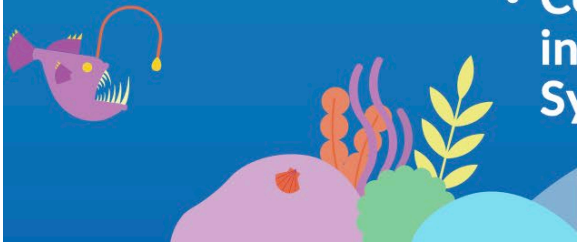
# The ODIS/OIH Mission

To build a sustainable, interoperable, and inclusive digital ecosystem for all ocean stakeholders



- Improve discovery and interoperability of existing information systems across sectors (private, public, etc)
- Improve access to global ocean information, data, and knowledge products for sustainable ocean management
- Link and anchor a network of regional and thematic nodes that will share the metadata that they choose to expose;
- Provide capacity building to support contributors and end-users of the global OIH
- Connect independent digital initiatives to form a diverse, but interoperable and inclusive, Ocean Data and Information System

Establishing a  
federal global  
digital  
ecosystem



# Ocean Data 2030

## The Ocean Data Information System (ODIS) & Ocean InfoHub (OIH)



Bibliographic infobases (catalogues and repositories)	Code lists and vocabularies	Data catalogues	Data products (model output, forecasting, climatologies...)
Data systems/portals (allowing downloading of datasets)	Education and training materials	Information on platforms (buoys, sensors, floats, gliders, satellites...)	Information on experts and organizations
Information on projects	Information on vessels	Journals (open source and commercial)	Manuals, guidelines, standards and best practices
Maps and atlases (geospatial products)	Multimedia content	Real-time observing systems	Software (ocean related)

- ODIS will be an e-environment where users can discover data, data products, data services, information, information products and services provided by Member States, projects and other partners.
- OIH is a project that aims to develop ODIS by connecting existing and future data and information systems
- Composed of nodes, through which data providers and partners can share (meta) data - based on schema.org
- Special focus on co-design with three pilot regions: Africa, Latin America and the Caribbean (LAC), and the Pacific Small Island Developing States (PSIDs)
- Website <https://oceaninfohub.org/> & Documentation <https://book.oceaninfohub.org/index.html>

OIH Ocean InfoHub

HOME ABOUT REGIONS & PARTNERS ODIS UN DECADE CONTACT

Global Search across our Global partners Search

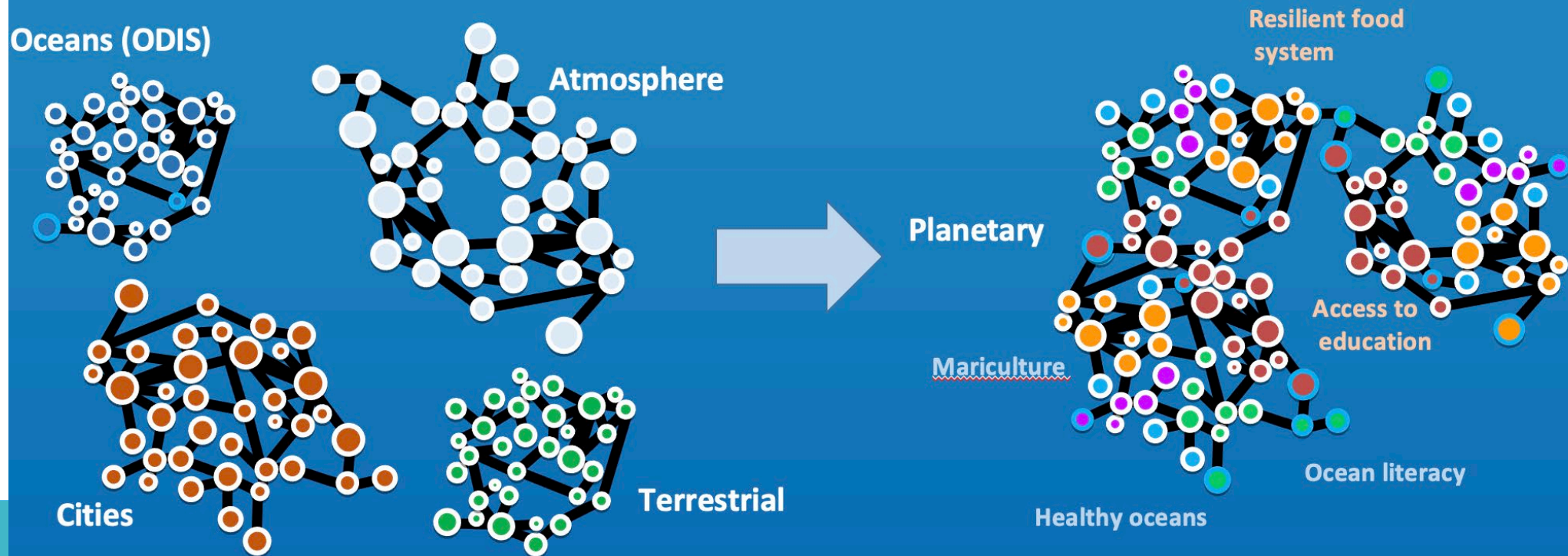
TRY: [Whale](#) [Heavy Metals](#) [Coral Reef](#) [Rare Species](#) [Browse by Category](#)

27K Experts	42K Documents	1.5K Training	48K Datasets
114 Vessels	3.6K Projects	13K Institution	42K Spatial Search

38 partners connected, >80 being prepared

## From digital ecosystems to the digital biosphere

The digital ocean ecosystem is just one of many in a “digital biosphere” needed to address the SDGs and their successors







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# Thank you



# Global Ocean Challenges

## SUSTAINABLE DEVELOPMENT GOALS



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



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of Ocean Science  
for Sustainable Development



### Challenge 1

**Understand and beat marine pollution**

Understand and map land and sea-based sources of pollutants and contaminants and their potential impacts on human health and ocean ecosystems and develop solutions to remove or mitigate them.

[Watch the video](#)



### Challenge 2

**Protect and restore ecosystems and biodiversity**

Understand the effects of multiple stressors on ocean ecosystems, and develop solutions to monitor, protect, manage and restore ecosystems and their biodiversity under changing environmental, social and climate conditions.

[Watch the video](#)



### Challenge 3

**Sustainably feed the global population**

Generate knowledge, support innovation, and develop solutions to optimise the role of the ocean in sustainably feeding the world's population under changing environmental, social and climate conditions.

[Watch the video](#)



### Challenge 4

**Develop a sustainable and equitable ocean economy**

Generate knowledge, support innovation, and develop solutions for equitable and sustainable development of the ocean economy under changing environmental, social and climate conditions.

[Watch the video](#)



### Challenge 5

**Unlock ocean-based solutions to climate change**

Enhance understanding of the ocean-climate nexus and generate knowledge and solutions to mitigate, adapt and build resilience to the effects of climate change across all geographies and at all scales, and to improve services including predictions for the ocean, climate and weather.

[Watch the video](#)



### Challenge 6

**Increase community resilience to ocean hazards**

Enhance multi-hazard early warning services for all geophysical, ecological, biological, weather, climate and anthropogenic related ocean and coastal hazards, and mainstream community preparedness and resilience.

[Watch the video](#)