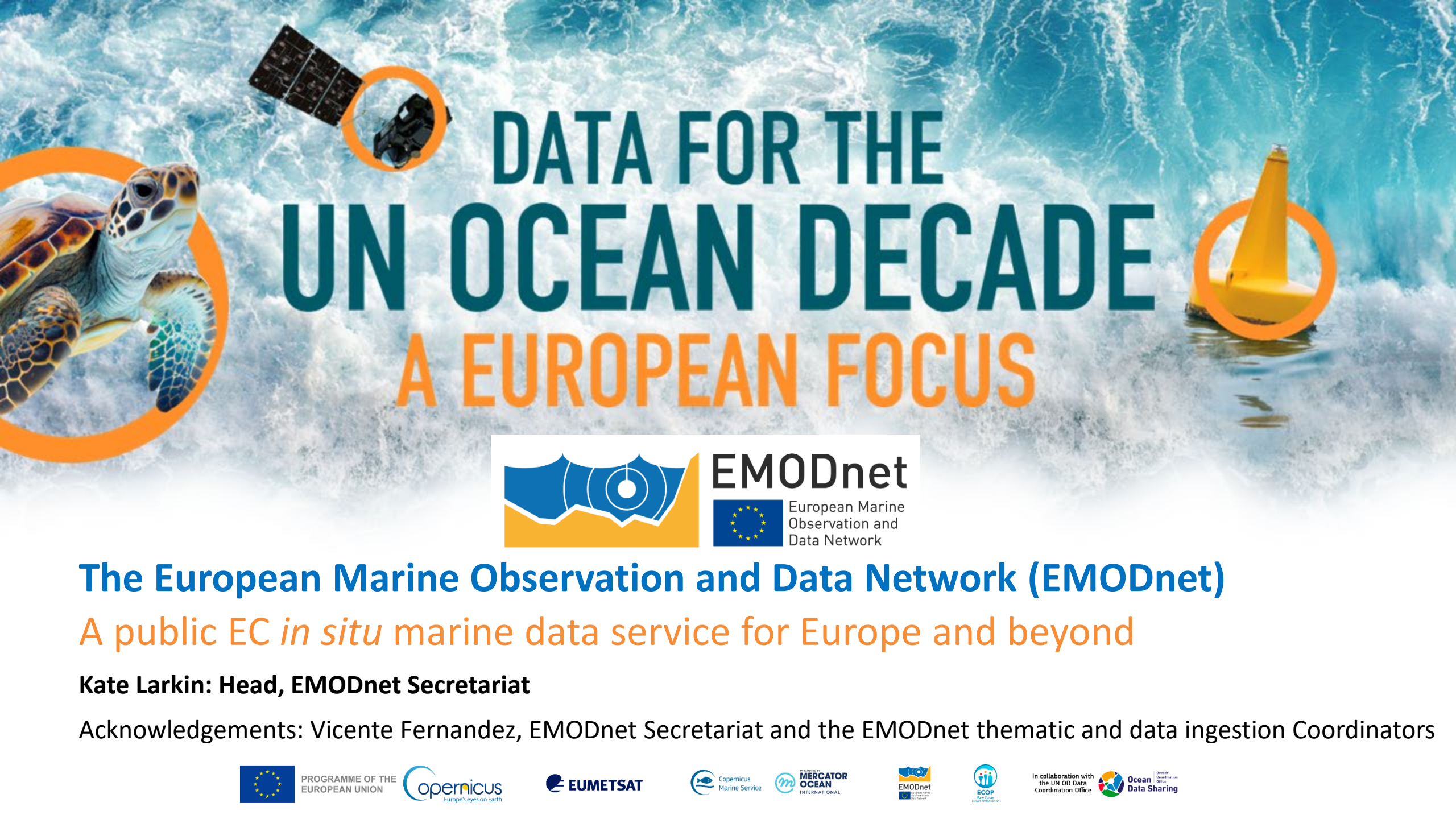




# DATA FOR THE UN OCEAN DECADE

## A EUROPEAN FOCUS



**The European Marine Observation and Data Network (EMODnet)**

*A public EC in situ* marine data service for Europe and beyond

**Kate Larkin: Head, EMODnet Secretariat**

Acknowledgements: Vicente Fernandez, EMODnet Secretariat and the EMODnet thematic and data ingestion Coordinators



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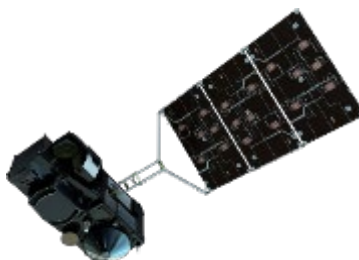


# Contents

- What is EMODnet, and what's the EMODnet offer?
- What EMODnet data/data products are global?
- Who uses EMODnet, and why?
- How does EMODnet contribute to the European and Global Ocean Data Ecosystem?
- What is EMODnet's contribution to the UN Ocean Decade and UN 2030?
- What are EMODnet's partnerships with regional data services worldwide?



Credit icons: UN Ocean Decade Challenge areas <https://oceandecade.org/challenges/>



# What is EMODnet?



## EMODnet



European Marine  
Observation and  
Data Network



European  
Commission

Energy, Climate change, Environment

### European Marine Observation and Data Network (EMODnet)

About ▼ Data Portals ▼ Data Services ▼ Solutions ▼ News & Events ▼ Atlas of the Seas ▼ EU-China ▼

Search



- EMODnet is a European Commission (EC) marine data service, funded by EC DG MARE;
- EMODnet is a European authority and regional best practice in the marine data domain;
- EMODnet is delivered by a network of > 120 organisations and experts, working in collaboration with *in situ* (field/survey) ocean observation efforts;
- A key *in situ* marine data pillar for the European Digital Twin Ocean, working in cooperation with Copernicus Marine Service;
- A key contributor to the Global Ocean Data Ecosystem and digital commons.

[emodnet.ec.europa.eu](https://emodnet.ec.europa.eu)



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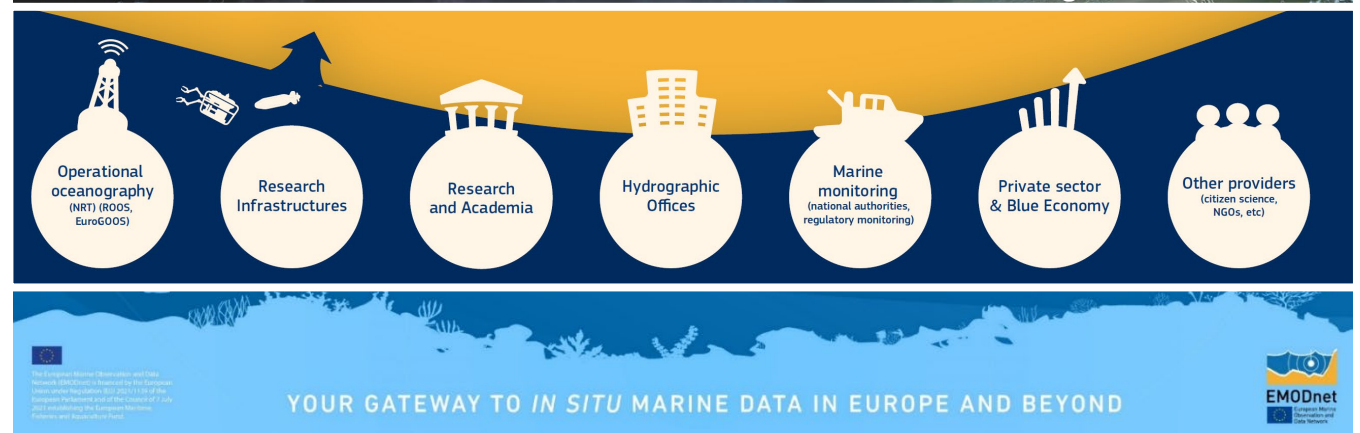
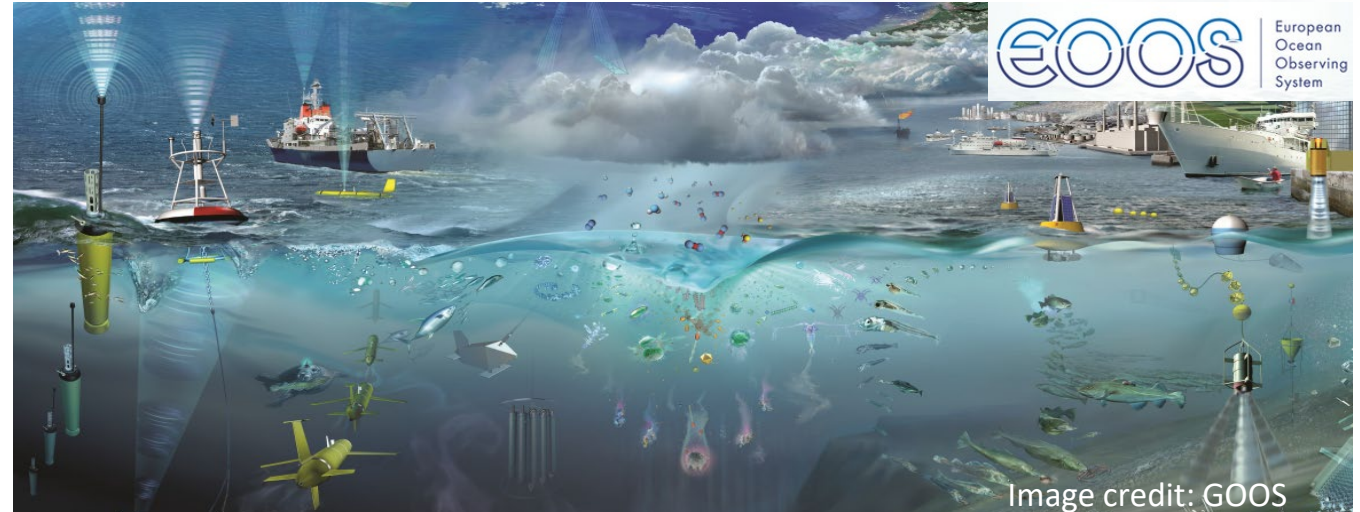
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# Where does EMODnet's marine data come from?

*Remote sensing  
(satellites)*

*In situ (field/survey data)*

Collected in/around water from surface to seafloor and sub-seafloor; very diverse infrastructure and parameters (marine environment and human activities)

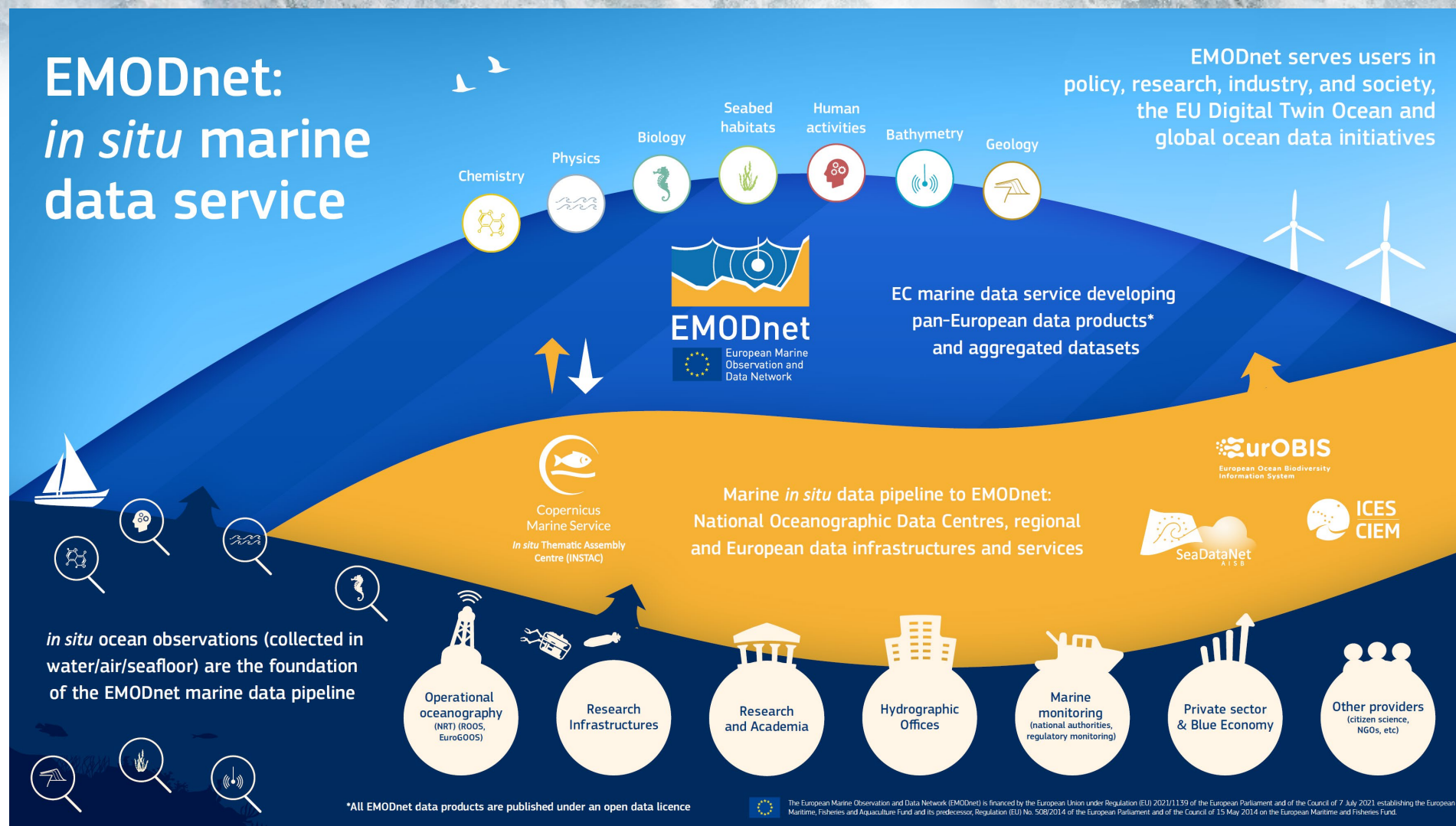


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# EMODnet: An EC *in situ* marine data service for society



<https://emodnet.ec.europa.eu/en/communication#infographics>

# One central map viewer

to visualise all EMODnet data

# 1 OCEAN 1 EMODnet

One single portal

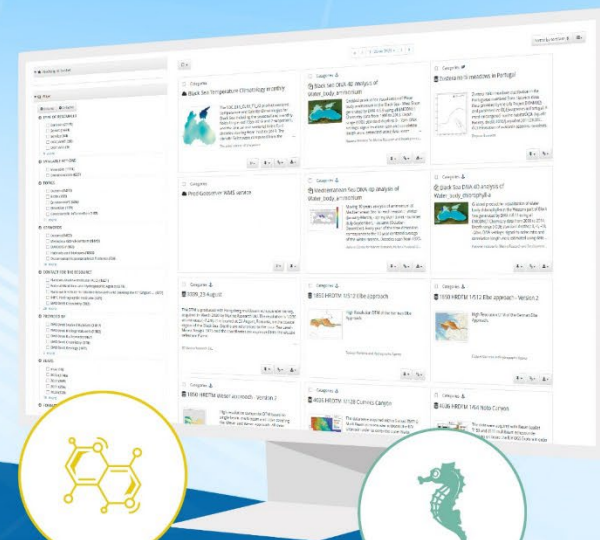
# One central metadata catalogue

to enhance data search and discovery

120  
partners

+100  
use cases

Discover, visualise and  
download marine data and products  
across 7 thematics and hundreds of parameters



BATHYMETRY



HUMAN ACTIVITIES



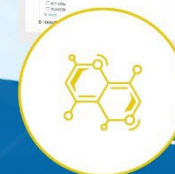
PHYSICS



GEOLOGY



SEABED HABITATS



CHEMISTRY



BIOLOGY

## EMODNET.EC.EUROPA.EU

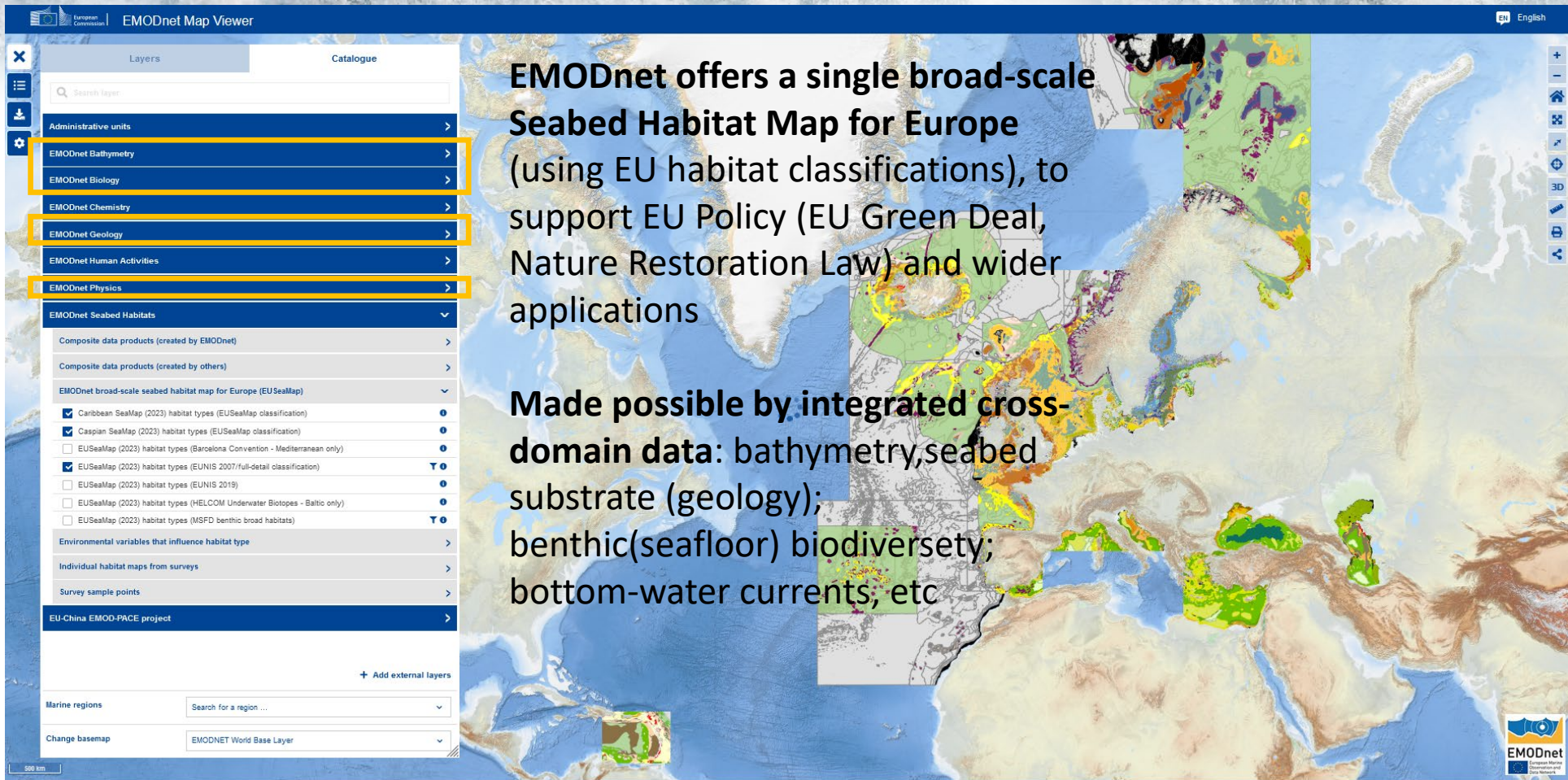


The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) 2021/1139 of the European Parliament and of the Council of 7 July 2021 establishing the European Maritime, Fisheries and Aquaculture Fund.

### YOUR GATEWAY TO *IN SITU* MARINE DATA IN EUROPE AND BEYOND



# EMODnet: pan-European integrated ocean knowledge, for all



**EMODnet offers a single broad-scale Seabed Habitat Map for Europe** (using EU habitat classifications), to support EU Policy (EU Green Deal, Nature Restoration Law) and wider applications

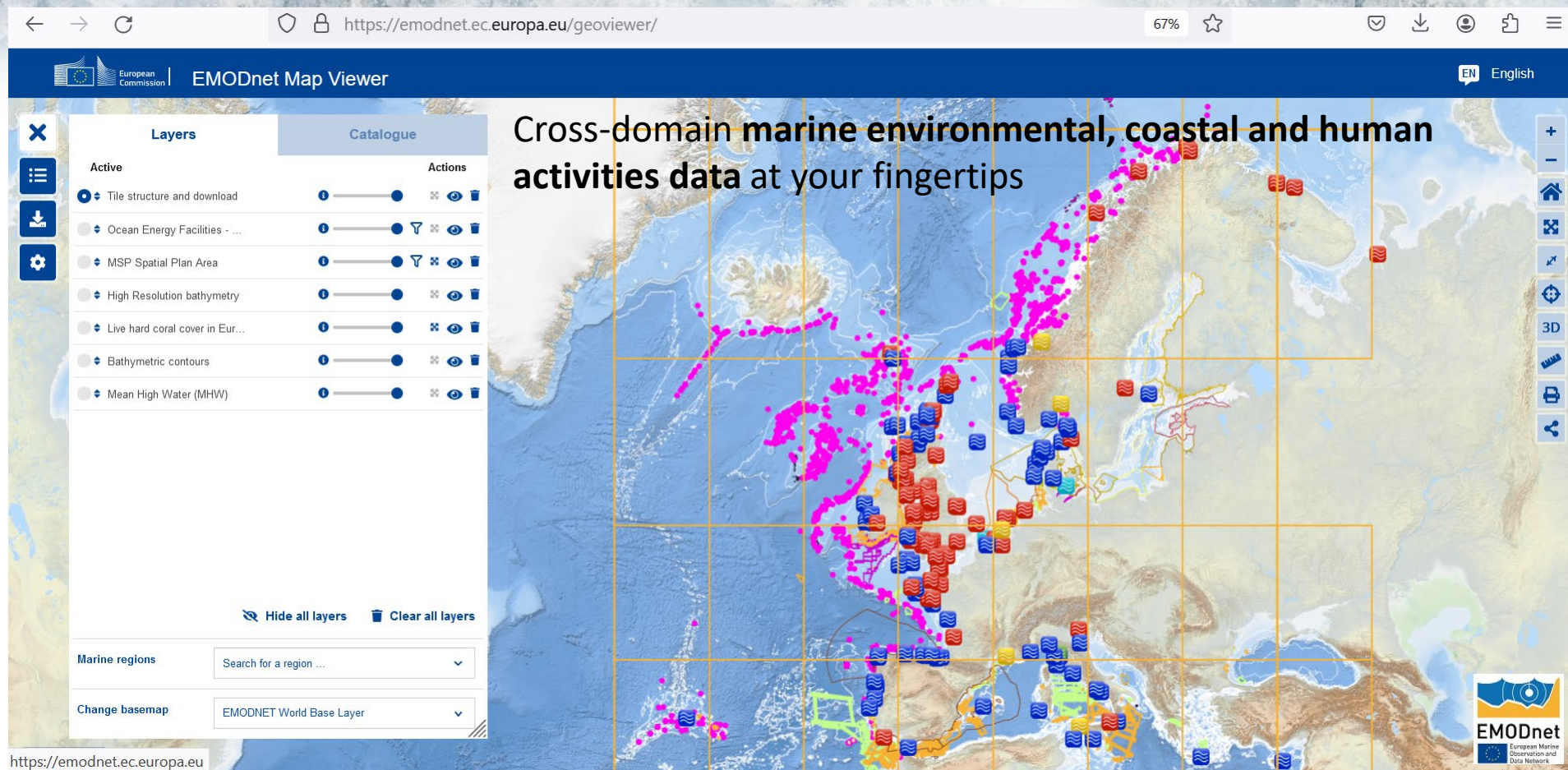
**Made possible by integrated cross-domain data:** bathymetry, seabed substrate (geology); benthic(seafloor) biodiversity; bottom-water currents; etc

**Challenge 2**  
Protect and restore ecosystems and biodiversity

**EMODnet Central Map Viewer: EUSeaMap** broad-scale seabed habitat map for European regional seas, Barents Sea/Arctic Ocean, NE Atlantic Ocean, Caspian Sea, Caribbean Sea). Based on thousands of *in situ* data points from European Ocean Observing capability, integrated by EMODnet

[emodnet.ec.europa.eu](https://emodnet.ec.europa.eu)

# EMODnet: pan-European integrated ocean knowledge, for all



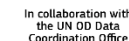
**EMODnet Central Map Viewer: Data/data products from 3 thematics showing Human Activities (Marine Spatial Plans, Ocean Energy Facilities) with Bathymetry seafloor topography and marine biodiversity (live hard coral cover). Based on thousands of *in situ* data points from European Ocean Observing capability, integrated by EMODnet**

[emodnet.ec.europa.eu](https://emodnet.ec.europa.eu)



## Challenge 4

Develop a sustainable and equitable ocean economy



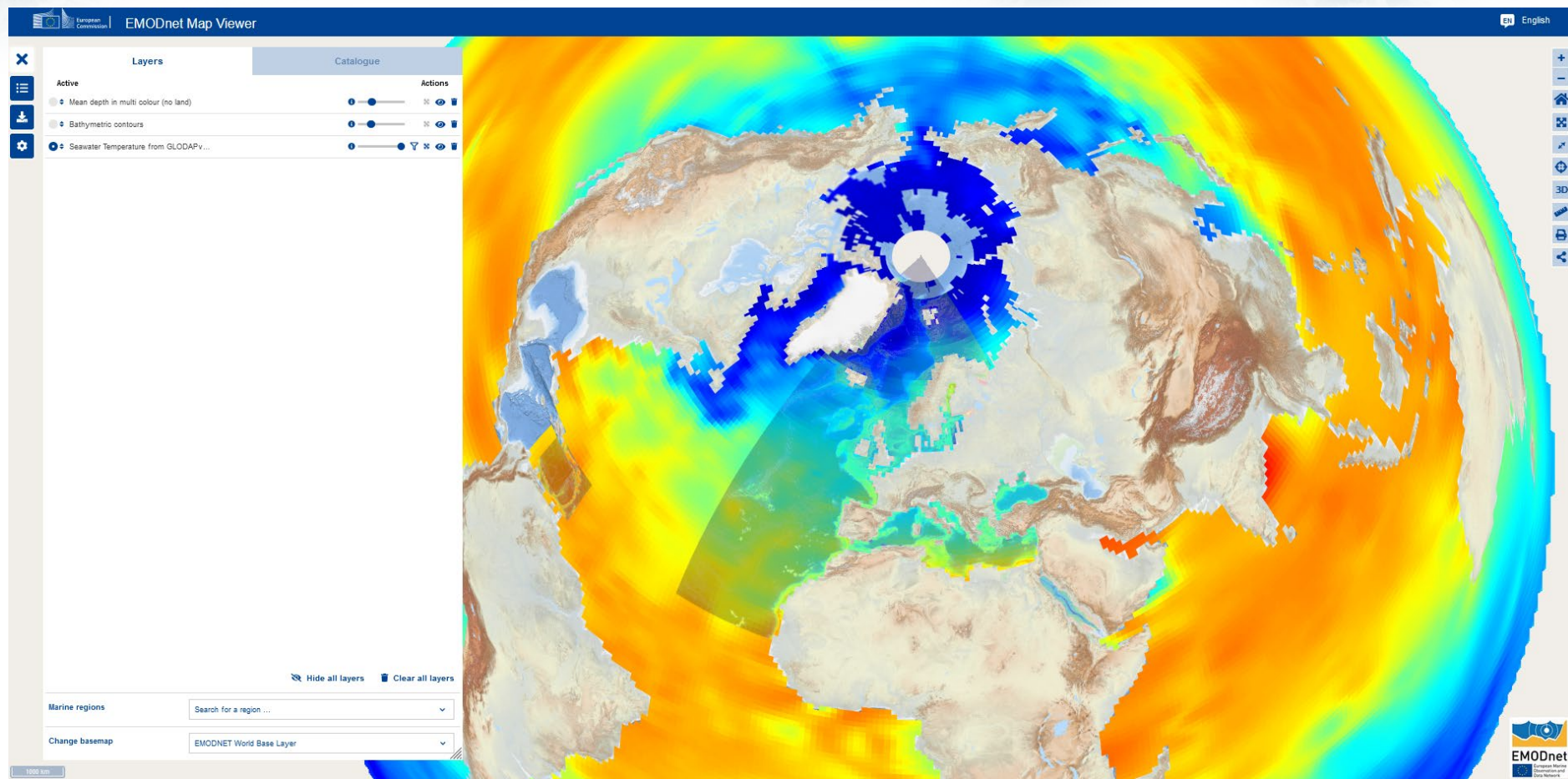
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# EMODnet: Global offer

**EMODnet's primary focus is on European regional sea-basins** (including Arctic Ocean - Barents Sea focus, Northeast Atlantic Ocean).

**EMODnet's offer includes the Caspian Sea, Caribbean Sea, European Overseas territories.**

**And some EMODnet parameters are fully global!**

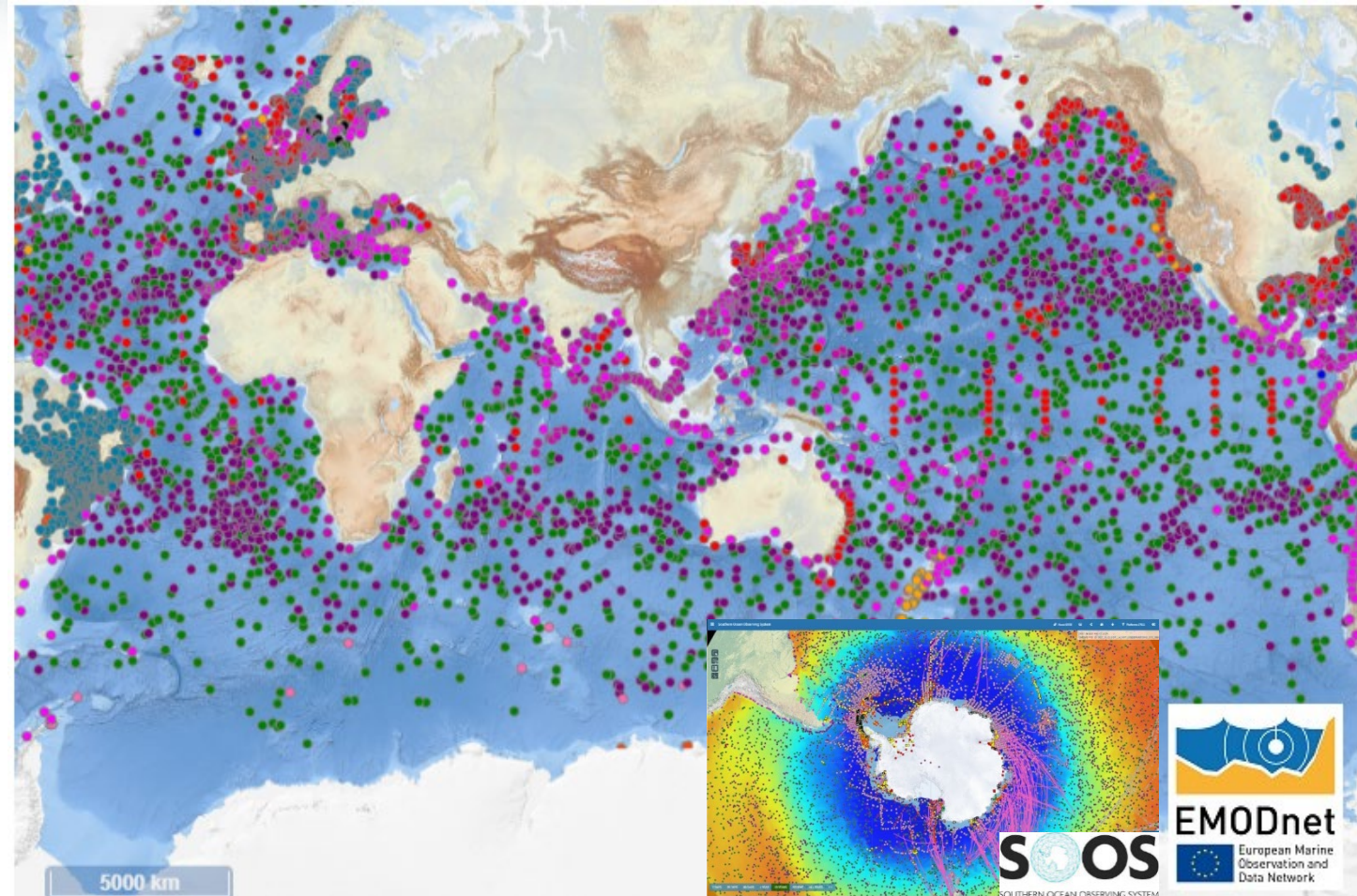


**EMODnet Central Map Viewer: Seawater temperature (surface) from GLODAP (global) and Bathymetry (European focus, with Caribbean Sea)**

# EMODnet: Global offer Ocean Physics

EMODnet offers many **ocean physics parameters with global coverage** e.g., surface temperature, salinity and currents, (many other parameters at EU-scale e.g., underwater noise, Sea Level Rise absolute and relative trends, riverflow, etc).

**EMODnet Physics** is an entry point for global ocean observations, covering regions from the Arctic Ocean (International Arctic Buoy Program - IABP) to the Southern Ocean Observing System (SOOS), the Deep Ocean Observing System (DOOS), and the Global Oceans (ARGO, GO-SHIP, etc.).

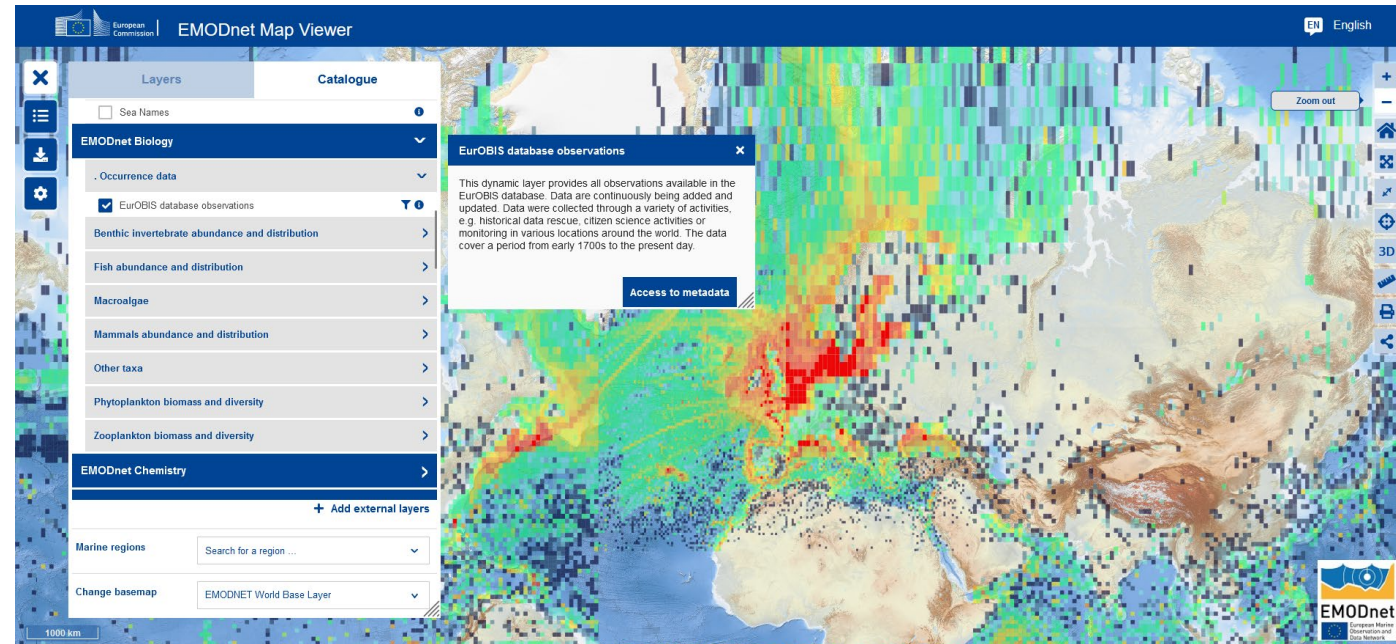
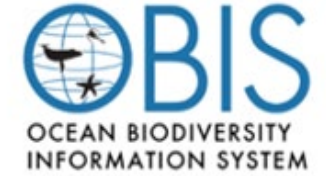
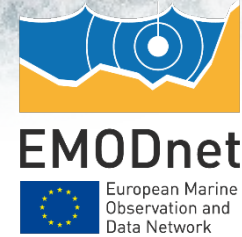


# EMODnet: Global offer Marine biodiversity

EMODnet Biology partners with OBIS via it's European node EurOBIS to offer global layers of marine biodiversity.

The European contribution to OBIS is significant: around **20 million of these records are provided by EMODnet Biology (OBIS European node EurOBIS)**

Global stakeholders **use EMODnet and OBIS marine biodiversity data for International Biodiversity Assessments**, e.g., for the identification of Ecologically or Biologically Significant marine Areas (or EBSAs).

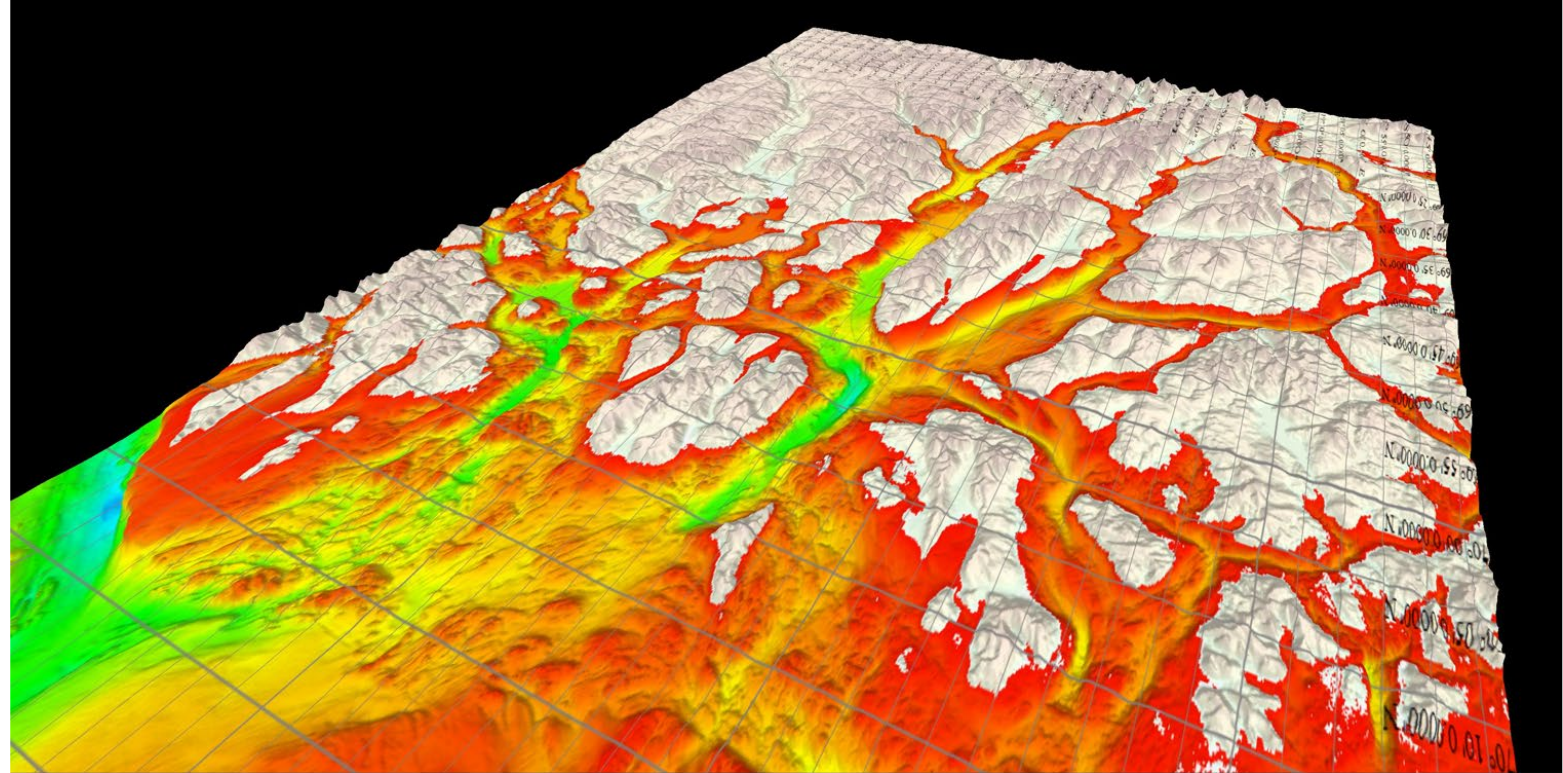


# EMODnet: EU Contribution to Global Data Sharing initiatives

## Bathymetry

### EMODnet Bathymetry contribution to Seabed 2030

EMODnet Digital Terrain Model, showing region 69-71N region of Tromsø - Skjervøy islands, Norway



### EMODnet's global contribution & impact:

EMODnet is a recognised European data provider of FAIR high resolution Bathymetry data (Digital Terrain Model) to the Nippon Foundation-GEBCO Seabed 2030 Project.

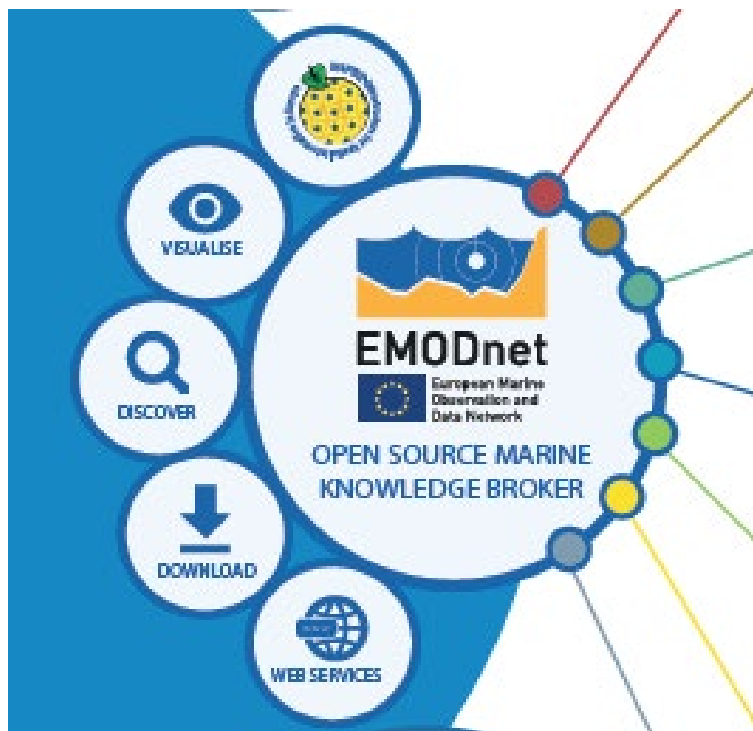
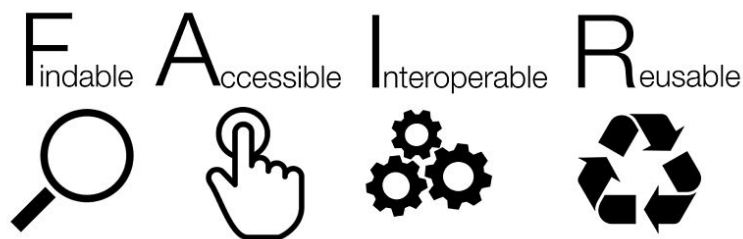
MoU (2019) EMODnet - Seabed 2030

Private sector data sharing collaborations e.g., EMODnet Associated Partner Fugro



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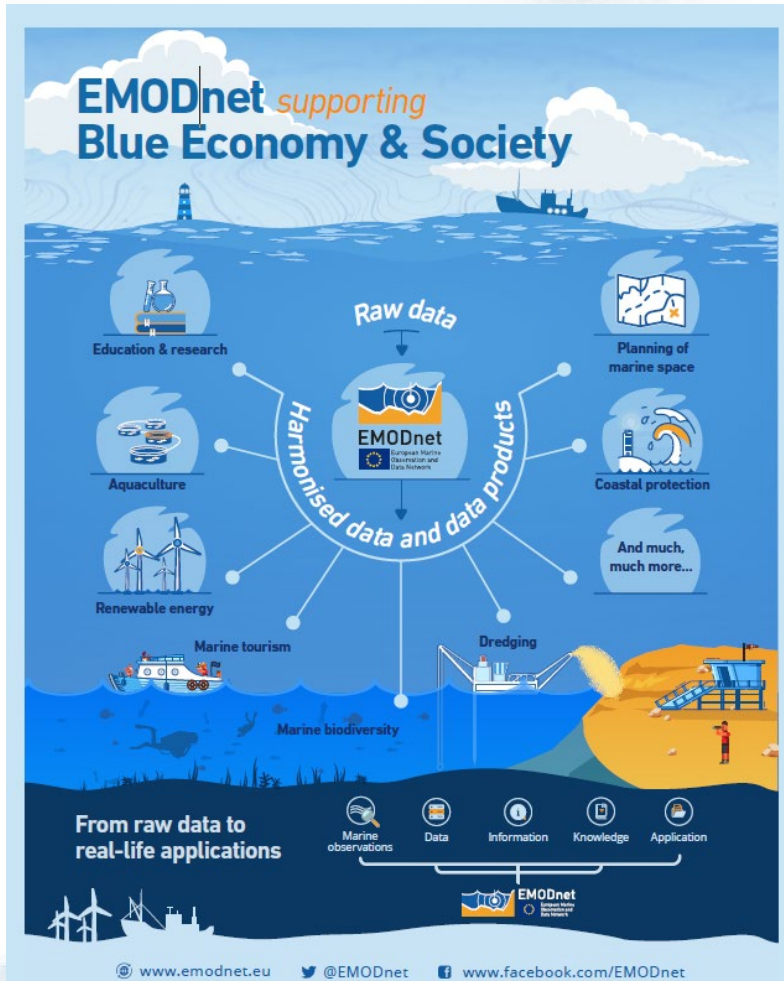
# What is EMODnet's added value? Why do people use it?



- ☐ **Public service** (free, open access);
- ☐ **Save costs in data collection**, so data are collected once, used many times;
- ☐ **Add value to primary data** offering **curated, integrated FAIR data layers** Support evidence-based **policy** implementation;
- ☐ Boost the **Blue Economy** planning and operations;
- ☐ **reduce uncertainty** in decision-making and operations;
- ☐ **stimulate innovation** (research and development, societal applications)

# Who uses EMODnet?

## Blue Economy



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# EMODnet for the European Marine Data Ecosystem: The European Digital Twin Ocean

**Challenge 8**  
Create a digital representation of the ocean

Through multi-stakeholder collaboration, develop a comprehensive digital



## European Digital Twin of the Ocean

A leap in ocean knowledge and sustainable action





**EDITOInfra**  
European Digital Twin Ocean



**EMODnet**  
European Marine Observation and Data Network



**Copernicus Marine Service**



- The European Digital Twin Ocean (DTO) is a public EU asset, open for all (global)
- Data and infrastructure service is powered by EMODnet and Copernicus Marine Service
- EDITOInfra is the EMODnet - CMEMS infrastructure for the DTO, to provide the data 'fuel' (data lake, on cloud) for complex ocean modelling, scenario-building, decision-making support



# EMODnet for the Global Ocean Data Ecosystem

EMODnet's FAIR common metadata catalogue is the backbone to support EMODnet's contribution to the global ocean data digital ecosystem, the UN Decade of Ocean Science for Sustainable Development, Sustainable Development Goals (SDG) agenda and machine-machine data harvesting.



International portal,  
implemented by ESA

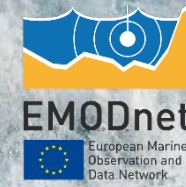


## Ocean Data and Information System (ODIS)

ODIS is an operational service  
built upon OceanInfoHub

Implemented by IODE of  
IOC/UNESCO

# EMODnet Contribution to the UN Ocean Decade



EMODnet is relevant to all 7 Ocean Decade objectives:

- A safe ocean
- A sustainable and productive ocean
- A transparent and accessible ocean
- A clean ocean
- A healthy and resilient ocean
- A predicted ocean
- An inspiring and engaging ocean

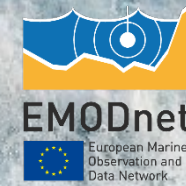


- **EMODnet is a key contributor to the generation of ocean knowledge for the UN Ocean Decade** (democratizing access to primary data and creating FAIR data and data products).
- **EMODnet plays a key role in achieving a truly accessible and digital ocean** - whereby all nations, stakeholders and citizens have access to ocean data and information, technologies, and have the capacities to inform decisions.

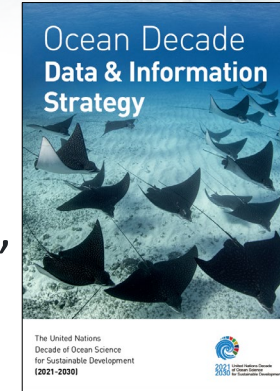


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# EMODnet Contribution to the UN Ocean Decade



- **EMODnet is an endorsed UN Ocean Decade Implementing Partner (DIP)**
  - EMODnet experts involved in development and implementation of the **UN OD Data & Information Strategy** and in **Ocean DataSharing**;
  - EMODnet contributes to key **UN OD Actions** (DITTO; digital twin oceans), OD2030 (ocean data strategy), OBPS (ocean best practices), etc);
- **Primary attachment action to the Decade Coordination Office for Ocean Data Sharing** - supporting the efforts of the DCC-ODS towards addressing Decade Challenge 8, i.e. **Creating a Digital Representation of the Ocean** (e.g., via EDITO and the European Digital Twin of the Ocean);



Decade Coordination Office  
**Ocean Data Sharing**

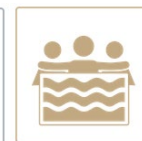


## Challenge 8

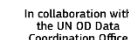
Create a digital representation of the ocean



EMODnet has an **EMODnet community UN Ocean Decade coordination Working Group**, to mobilise and map EMODnet contributions, identify gaps and new activities.



Credit icons: UN Ocean Decade Challenge areas <https://oceandecade.org/challenges/>



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# EMODnet regional partnerships worldwide and contribution to UN 2030

- EMODnet works with **other regional data services and global initiatives towards a global interoperable data sharing framework (OD 2030 and ODIS)** based on FAIR data principles and agreed standards for data, metadata and exchange, e.g. **Interoperability dialogues with other regions** e.g. EU-China EMOD-PACE data-sharing collaboration between EMODnet (EU) and NMDIS, China; non-EU countries bordering European regional sea-basins (e.g., North Africa), and with other national/regional data services e.g., U.S., Canada, Australia, etc;
- **EMODnet** provides expert advice to the implementation of **global data platforms** supporting the sea-related objectives of the **UN's 2030 Agenda for Sustainable Development**:
  - Global Ocean Acidification (SDG 14.1) federated system
  - Global Ocean Oxygen Database and Atlas



EMODnet also works with GEO BluePlanet (e.g., Marine Litter Working Group), UN Global Compact Offshore Renewable Energy, Marine Spatial Planning (MSPGlobal) and more.

**EMODnet continues to evolve!**

**Have your say in EMODnet's service evolution:  
Stakeholder consultation coming July 2024!**



**EMODnet**



European Marine  
Observation and  
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[emodnet.ec.europa.eu](https://emodnet.ec.europa.eu)

Stay up-to-date with  
the latest news





#EUdata4OceanDecade

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