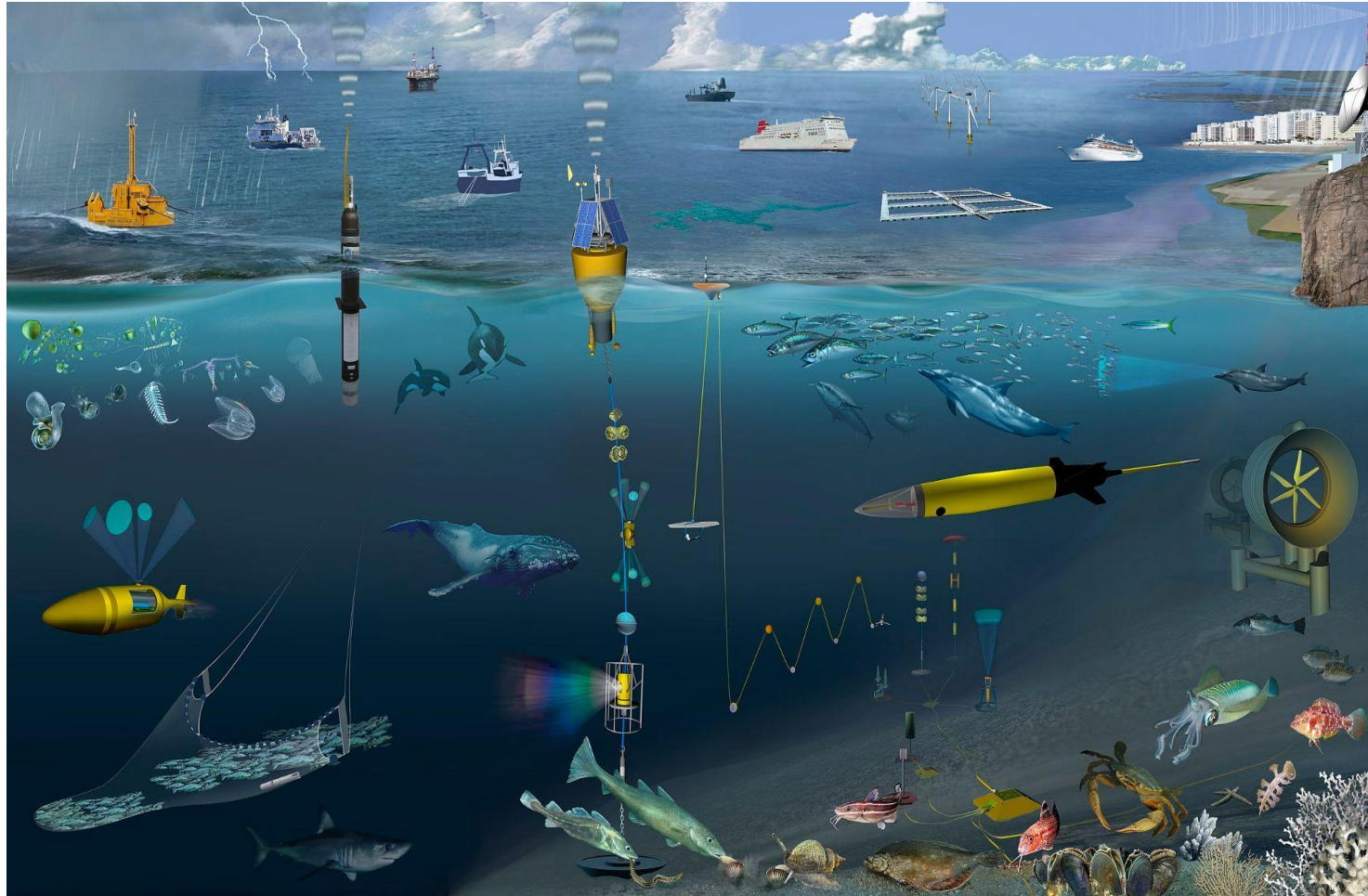# Overview of EMODnet and activities of EMODnet Ingestion

Dick M.A. Schaap – MARIS
Coordinator EMODnet Ingestion

Marine and Ocean Observation

- Scientific Research to gain knowledge and insight
- Modelling (including hindcast, nowcast, forecast)
- Economic activities: shipping, offshore industry, dredging industry, fisheries, tourism, engineering ..
- Environmental Management: monitoring and assessment (water quality, climate status, stock assessment)
- Marine Conventions and Directives, in Europe: Water Framework Directive (WFD), Marine Strategy (MSFD), Marine Spatial Planning (MSP), Coastal Zone Management
- EU Strategies, such as Green Deal, Blue Environment, Blue Economy

Marine Knowledge Value Chain

- **In situ:** data and samples collected for atmosphere, water, seabed, fauna and flora, with diverse instruments and platforms. Samples are further analysed. In situ data are complemented by remote sensing observations.

- **Observations:** ocean, seas, coastal waters, estuaries, river mouths; physics, chemistry, biology, bathymetry, geophysics, and geology

- **Value chain:** steps from sensor data and samples to information to knowledge and benefits - with feedback loops

- **Public Benefit:** Accessible data, High Quality data products, and Knowledge of use for Blue Economy, Resource Management, Ocean Health, Hazards, and Advancing Science
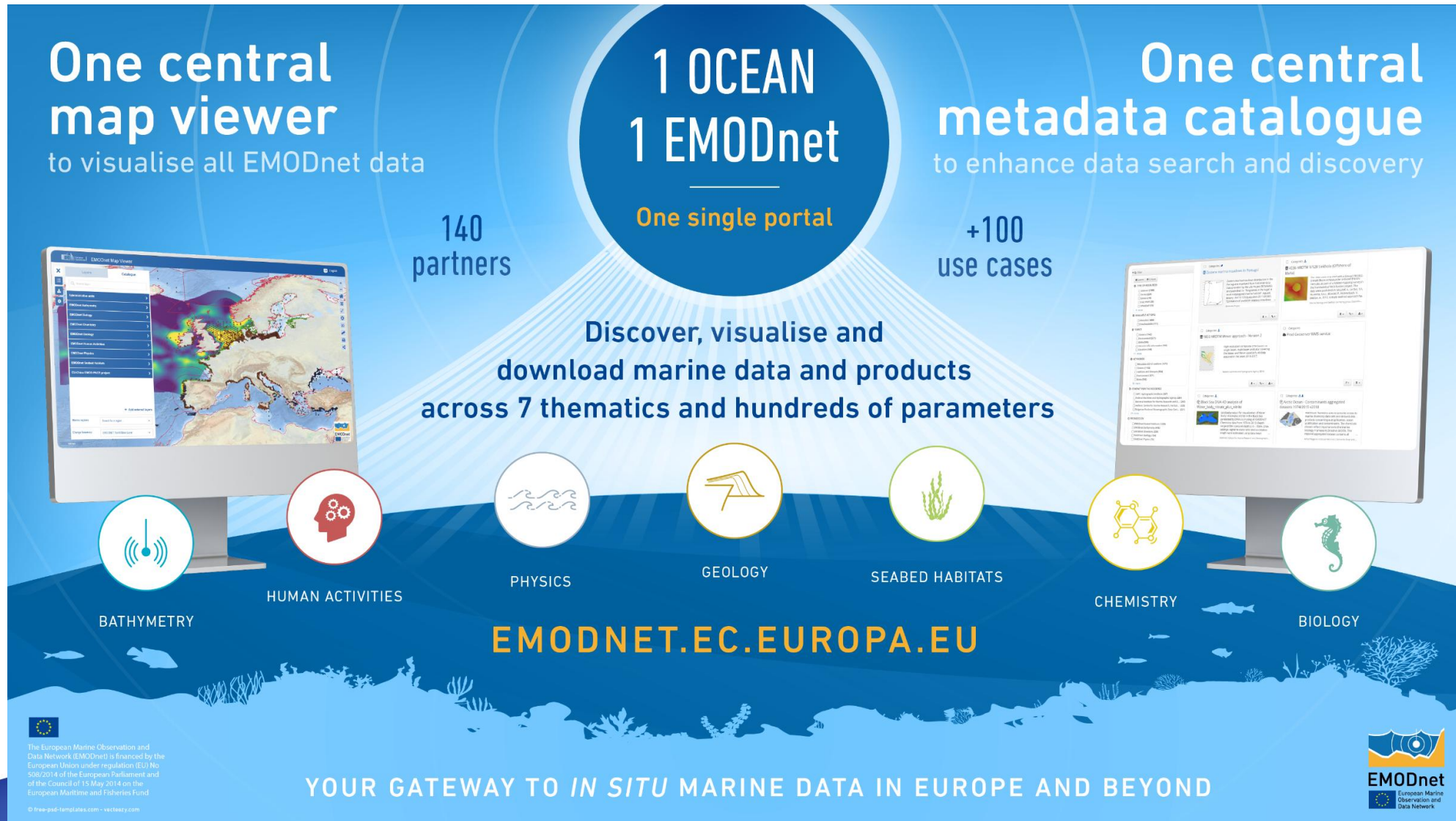

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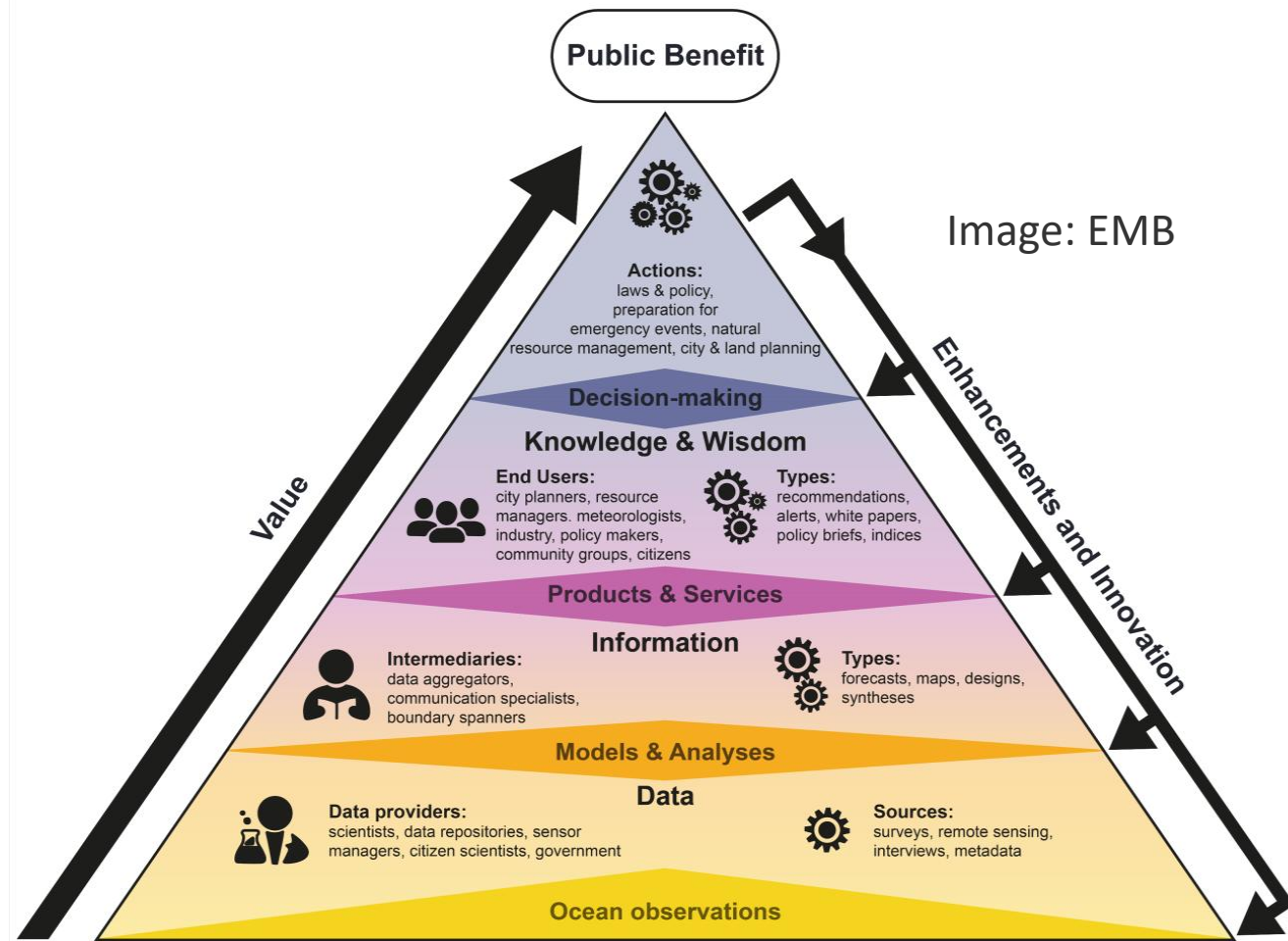
European Marine Observation and Data Network (EMODnet)

- Data from the marine environment are a **valuable asset**. Rapid access to reliable and accurate marine data and information is vital in addressing threats to the marine environment, in the development of policies and legislation to protect vulnerable areas of our coasts and oceans, in supporting research with the evidence-base to understand the complexity of marine ecosystems, trends, and in forecasting future changes.

- Likewise, better quality and more easily accessible marine data is a prerequisite for further sustainable economic development, so-called '**blue growth**', and to achieve the ambitious targets of the **EU Green Deal** and **EU Mission: Restore our Ocean and Waters**.

- In 2008 EC DG MARE initiated the **European Marine Observation and Data Network (EMODnet)** which has developed itself into the **European Commission *in situ* marine data service**, complementary to **Copernicus Marine**. EMODnet is one of the main Marine Knowledge Initiatives of the European Union.

EMODnet provides access to European marine data and derived data products across seven discipline-based themes and its Ingestion service

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

140 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) No 508/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund

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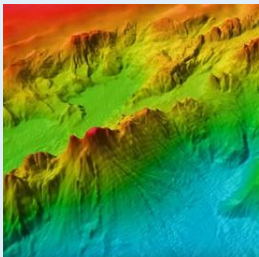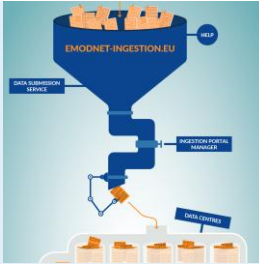
YOUR GATEWAY TO *IN SITU* MARINE DATA IN EUROPE AND BEYOND

EMODnet thematic products and services

Bathymetry	Biology	Chemistry	Geology
Data and maps on bathymetry (water depth), and coastlines, e.g., Digital Terrain Model	Data and maps on temporal and spatial distribution of species abundance and biomass from several taxa.	Data and maps on the concentration of nutrients, organic matter, contaminants, and marine litter in water, sediment and biota.	Data and maps on seabed substrate, sea-floor geology, coastal behaviour, geological events, minerals, and submerged landscapes.
Human Activities	**Physics**	**Seabed Habitats**	**Ingestion**
Data and maps on the intensity and spatial extent of human activities at sea, e.g., Vessel Density maps and National Maritime Spatial Planning	Data and maps on salinity, temperature, waves, winds, currents, sea-level, light attenuation, ice, river outflow, underwater noise.	Data, maps on the spatial distribution and extent of seabed habitats and communities, e.g., EUSeaMap broad-scale seabed habitat map for European seas	Reaching out to potential new data providers and operating services and support for uptake of their data assets, for ingestion into relevant EMODnet thematics and data/data products.

EMODnet Thematic groups develop high-quality European data products and services based upon many national, regional, and European sources and infrastructures

- The EMODnet Thematic groups rely and interact with European marine data infrastructures such as **SeaDataNet, EurOBIS, EGDI, ICES**, and others.

- These infrastructures have established nodes in many European countries.

- Their data centres offer validation, long term stewardship, and FAIR documentation, following agreed community standards.

- Currently, data from more than a thousand data originators from public, research and private sector in the European marine data landscape are managed.
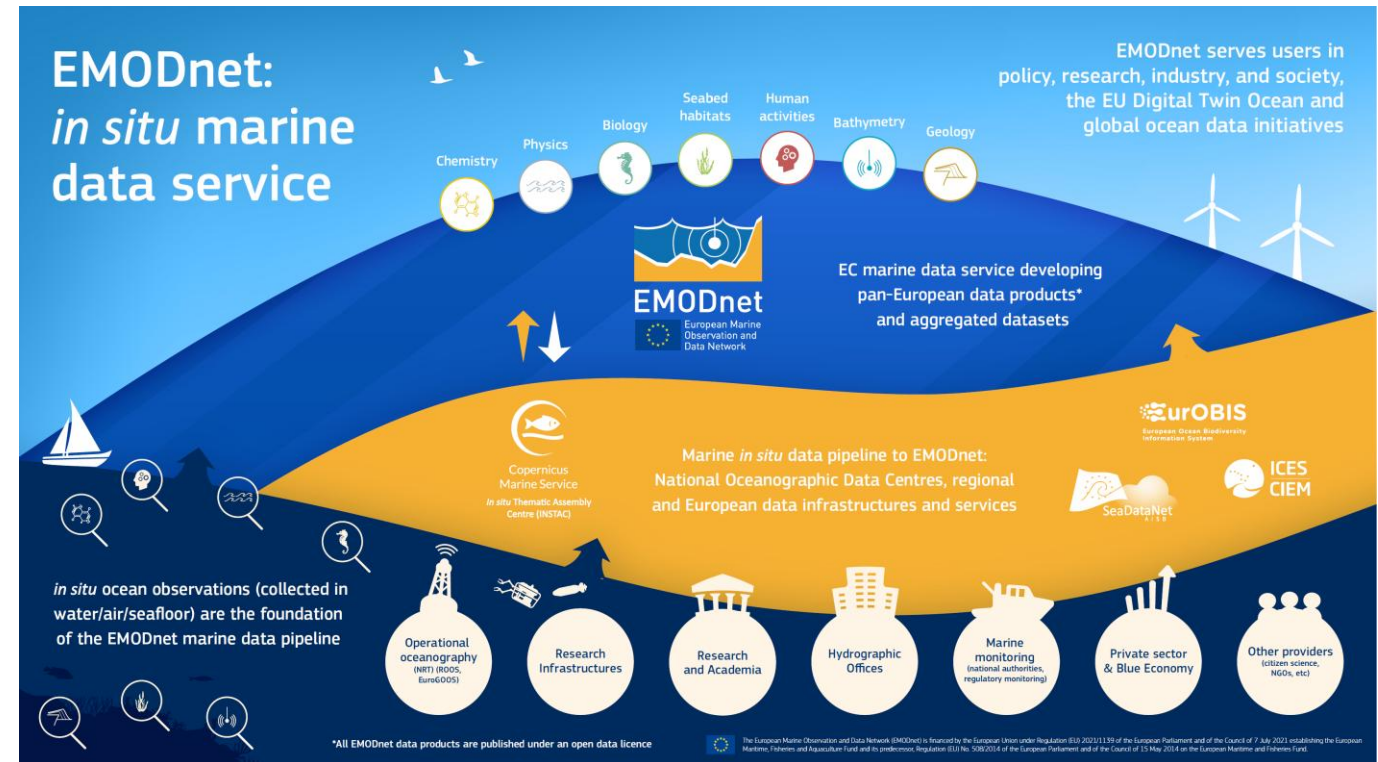
However, still, a lot of valuable marine data **does not arrive in these infrastructures**, **preventing its distribution through EMODnet and limiting its use.**

EMODnet Data Ingestion
A key pillar of the European Marine Observation and Data Network for sharing data

Overarching goal:

- To **facilitate** the data flow and the ingestion process from data providers to leading European marine data management infrastructures that are feeding EMODnet, for making their data open and FAIR

Approach:

- **Identifying new data holders** in the data collection landscape (from public and private sectors) :
  - who are not connected to their national focal points that are contributing data to the EU data infrastructures and EMODnet, or,
  - are often unaware of how to connect
- **Motivating**, and **supporting data holders** to become partners in the EU data management infrastructures for data exchanges and **share their data** EMODnet
- **Training data holders** in the **use of standards & best** practices for easier and faster integration of their data
- **Cooperating** with EU Programmes, Projects, Initiatives, Networks
- **Promotion activities** (webinars, workshops) for raising awareness about EMODnet Ingestion offer

EMODnet Ingestion ambassadors

Promotion and interaction with new data providers from multiple sectors

Network of 50 National Data Centres, specialized marine centres, and all EMODnet thematic coordinators ensuring provision of trustable data and products

Data Ingestion process
A free and open public service for long-term stewardship, free distribution and publishing via EMODnet

Use is made of **standards, best practices**, and **existing marine data management infrastructures**, data centres and pathways towards the **EMODnet**
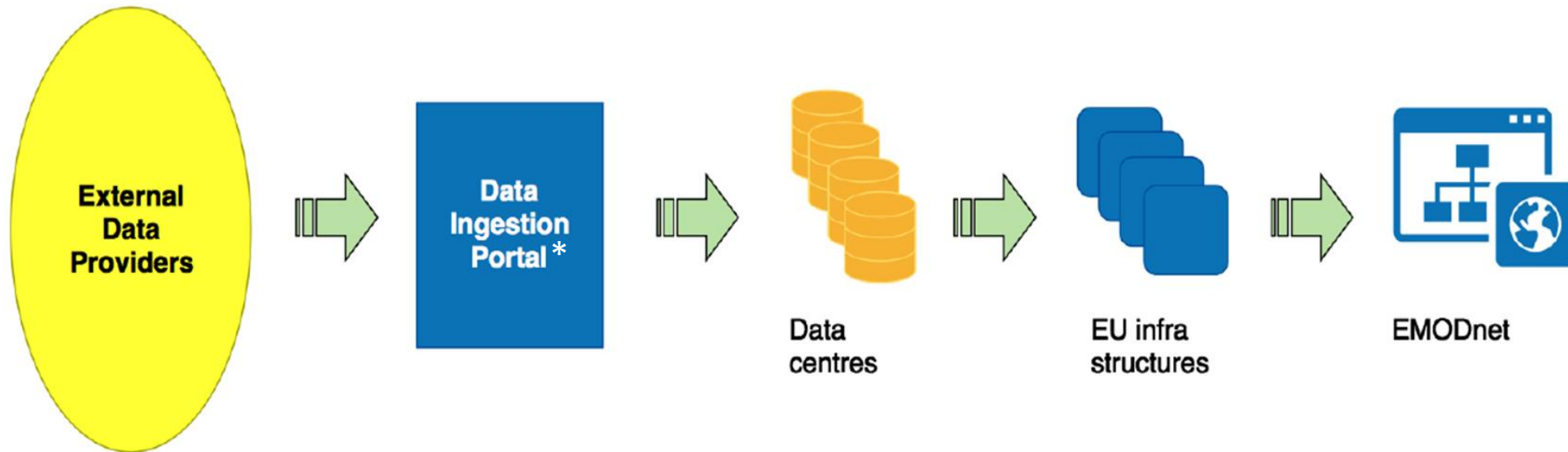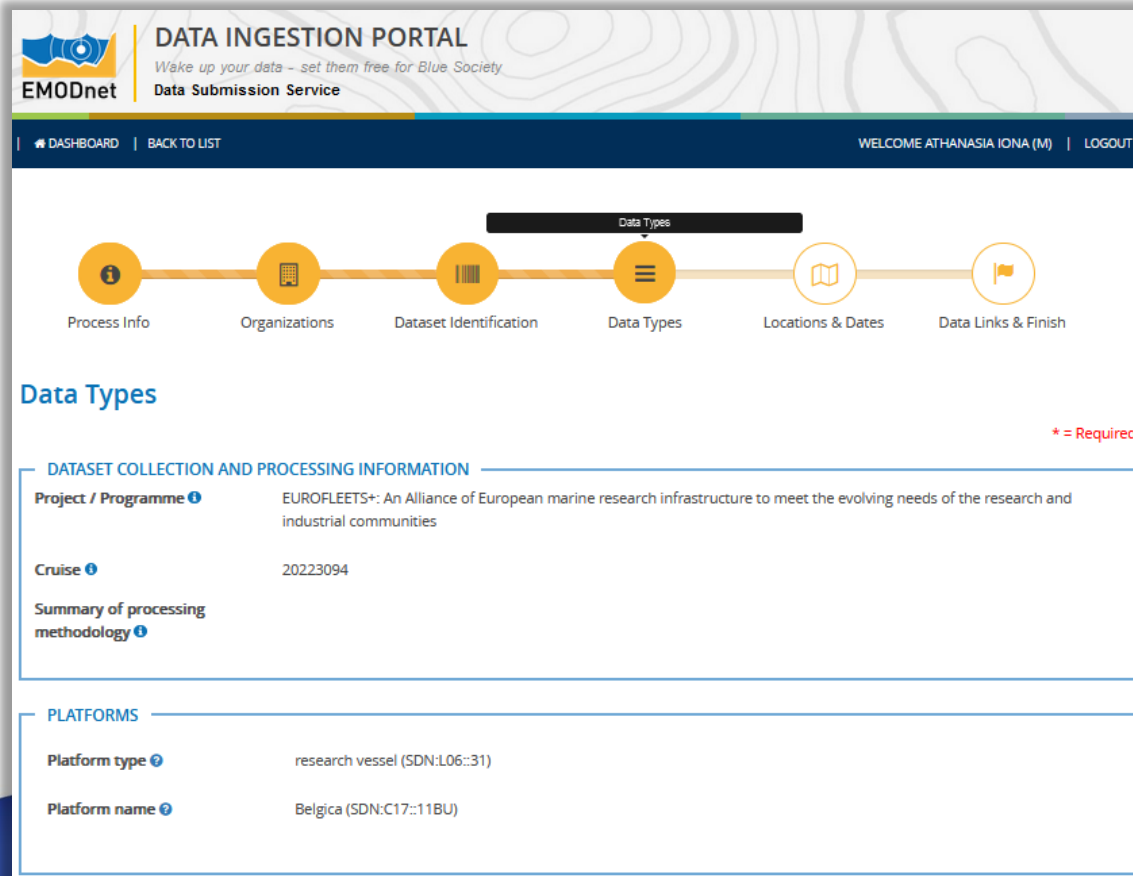
Workflow from submission to elaborating and processing for publishing in EMODnet

* Migration to Central Portal, 2024

On line submission form

A step by step approach

Distinction between 2 phases in the life cycle of a data submission:

- **Phase I**: from data submission to publishing *'as is'*
- **Phase II**: data that fit for use by EMODnet and its stakeholders are further elaborated and integrated by the expert data centers in national, European infrastructures and EMODnet for publishing and sharing with the wider community

- 5 conceptually similar groups of **ISO/INSPIRE** compliant **metadata elements**, extended use of **vocabularies**

- The **ownership** of the data is **transparent and clear** throughout the process, giving **proper acknowledgments** and **credits** to the originating **Organizations and scientists**:
  - tagging Projects, Cruise Summary Reports, Organizations, and using DOIs ⇔ ORCID iDs

On-line Summary service
A viewing & downloading service for publishing the datasets and making them findable and accessible

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Synthesis of our data providers and data content

>1550 submissions from 200 Organizations from Academic, Governmental, Business, NGOs sectors

Increasing submissions in time

Submissions in time from the start of the service
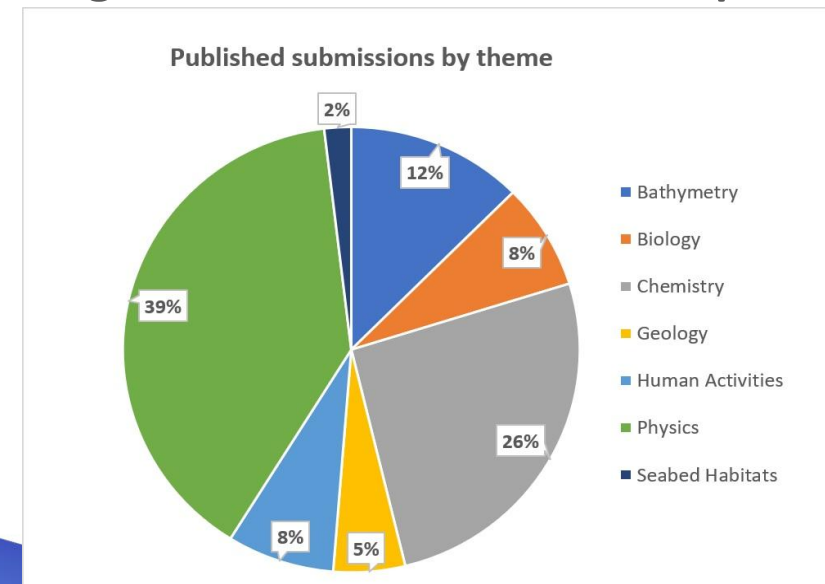
Legend: Submissions — Published 'as is' — Elaborated phase II

Types of organisations per sector

- Business & Private company 16%
- Government/Public administration 19%
- NGOs/Civil society 6%
- Academia/Research 59%
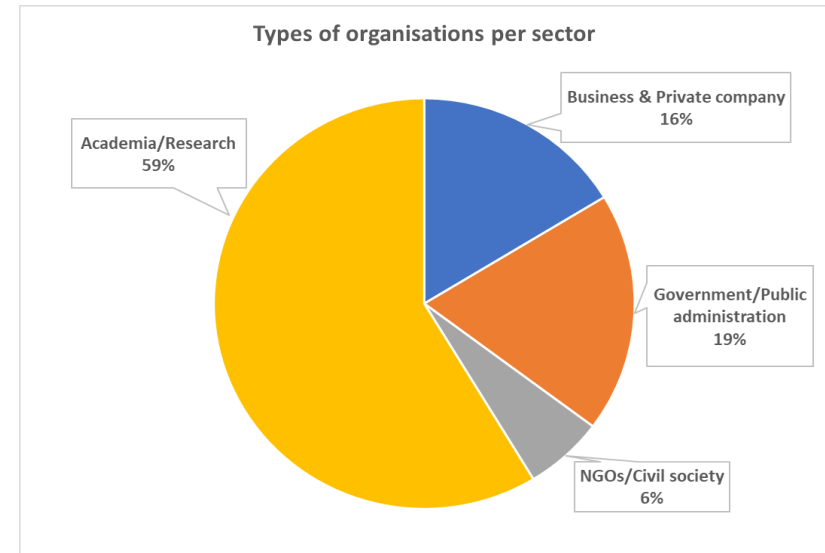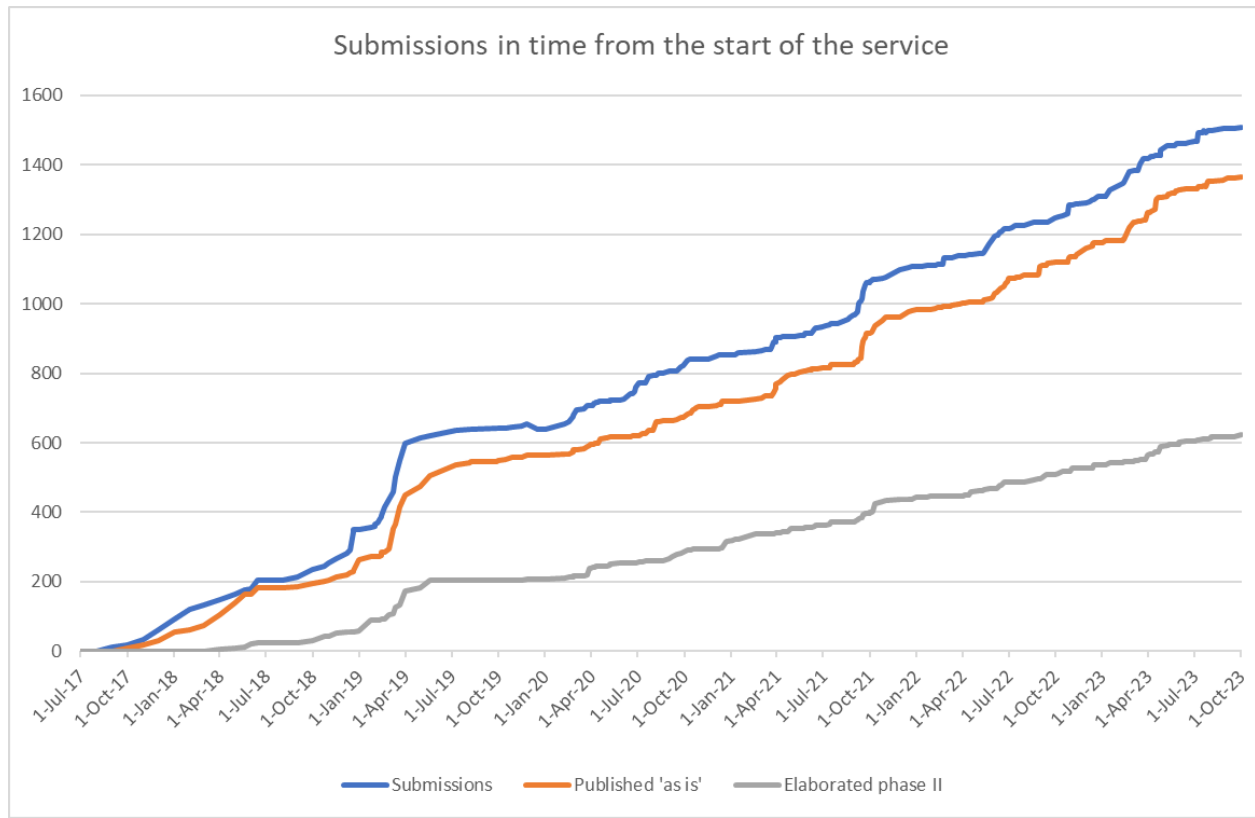
Wide range of marine environmental parameters

Published submissions by theme

- Bathymetry 12%
- Biology 8%
- Chemistry 26%
- Geology 5%
- Human Activities 8%
- Physics 39%
- Seabed Habitats 2%

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