Mission Ocean, Digital Twin Ocean and Marine Data for the Mediterranean

14th meeting of the Union for Mediterranean Working Group on Blue Economy

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Unit A1 – Maritime innovation, Marine Knowledge and Investment

11/10/2023
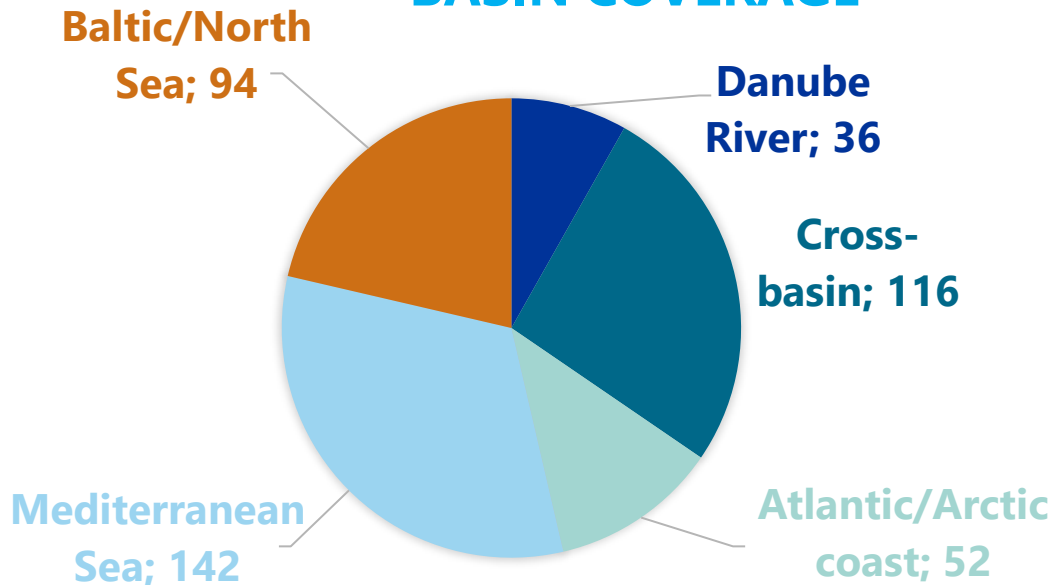
European Mission
'Restore our Ocean and Waters by 2030'

Systemic path to restoration of the health of the ocean & waters
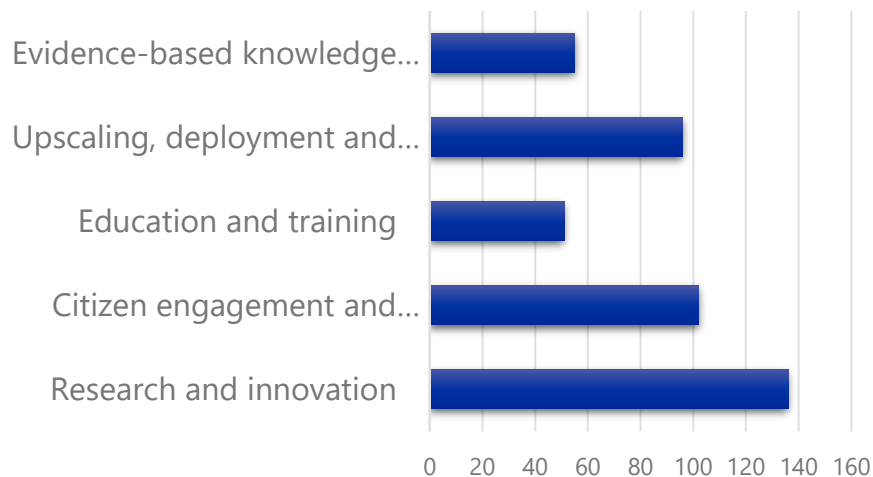
Mission intervention logic

Mission objective	**Restore our ocean and waters by 2030**

Specific objectives & targets

- Protect and restore marine and freshwater ecosystems and biodiversity in line with EU Biodiversity Strategy
- Prevent and eliminate pollution in line with EU Zero Pollution Action Plan
- Make the sustainable Blue economy climate neutral and circular in line with EU Climate law

Cross-cutting enablers

A. Digital ocean & water knowledge system
B. Public mobilisation & engagement

Outputs

- Danube River Basin lighthouse
- Atlantic & Arctic sea basin lighthouse
- Mediterranean sea basin lighthouse
- Baltic & North sea basin lighthouse

Mission Charter actions

BASIN COVERAGE

Baltic/North Sea; 94

Danube River; 36

Cross-basin; 116

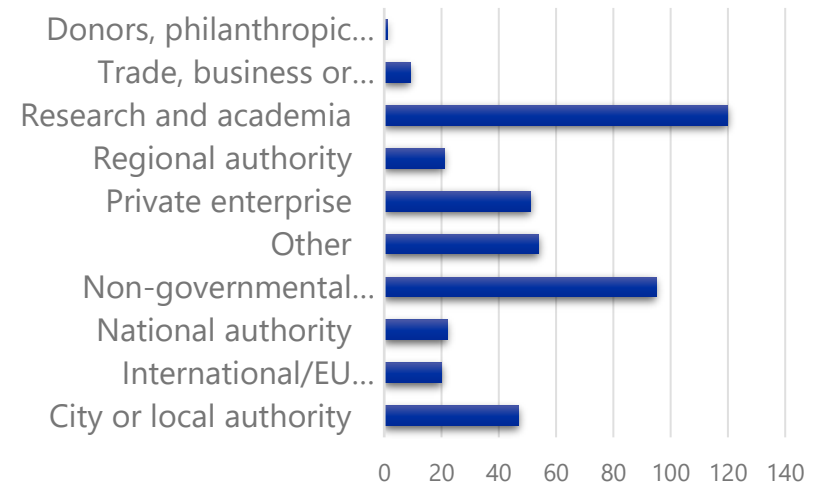**Mediterranean Sea; 142**

Atlantic/Arctic coast; 52

**Over 550 actions submitted with 440 actions visible to the Mission Atlas
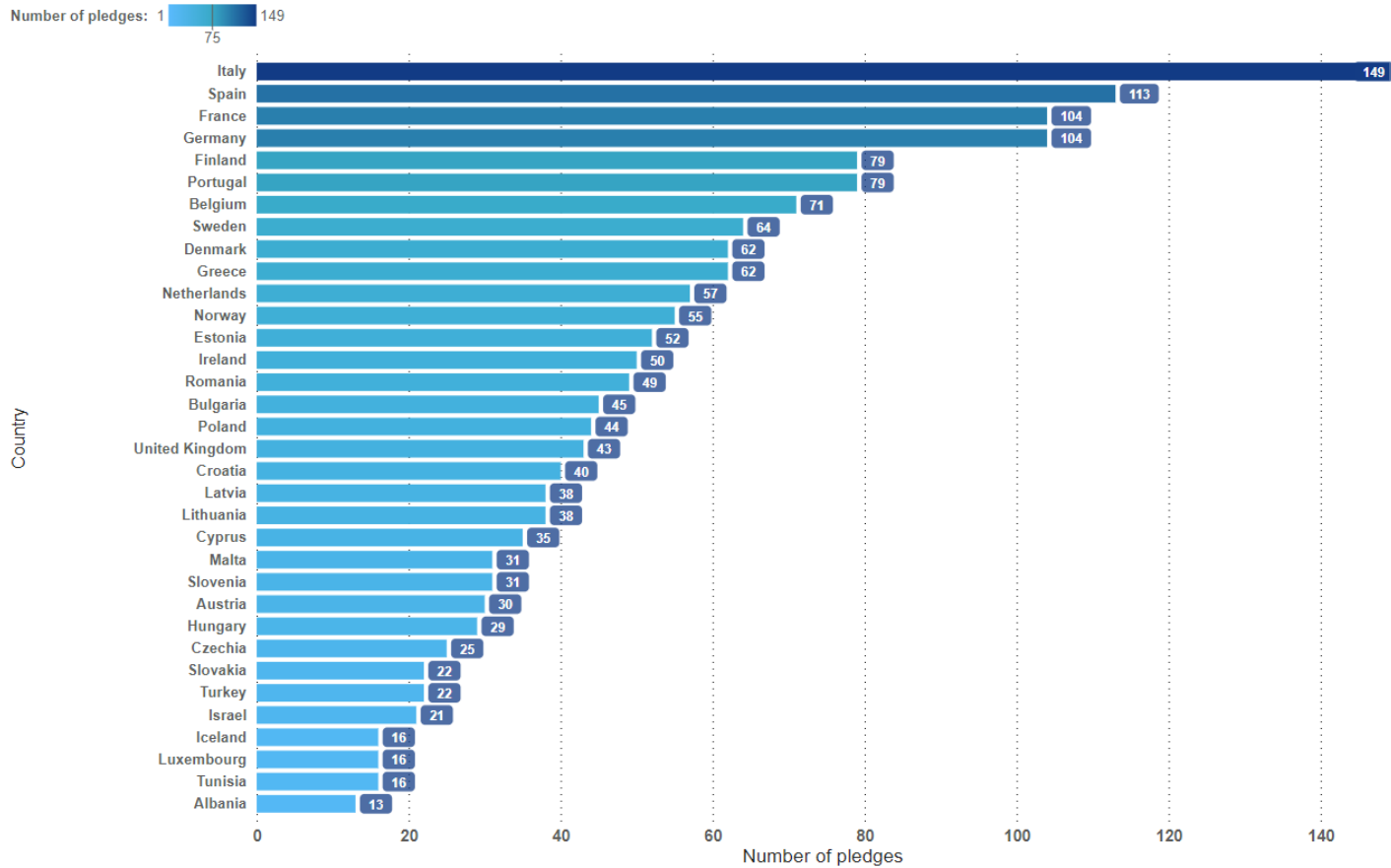Budget: €4,27 billion**
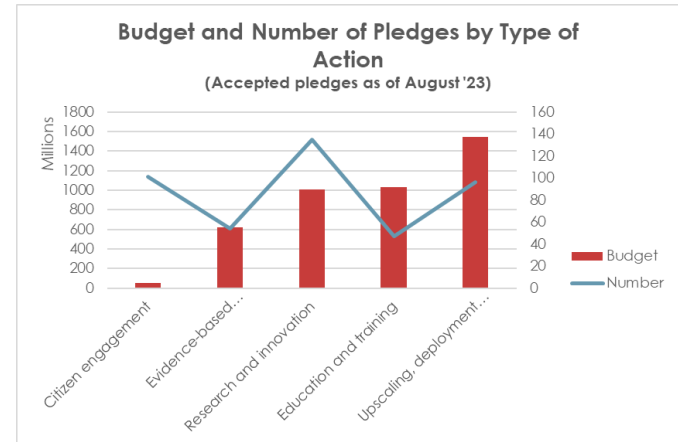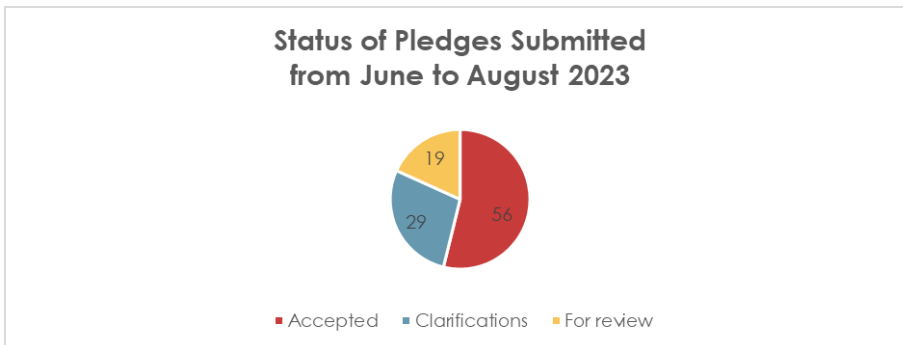
Mission Charter actions

Type of action

Category	Value
Evidence-based knowledge…	~55
Upscaling, deployment and…	~95
Education and training	~50
Citizen engagement and…	~100
Research and innovation	~135

Type of organisation

Category	Value
Donors, philanthropic…	~2
Trade, business or…	~8
Research and academia	~120
Regional authority	~20
Private enterprise	~50
Other	~52
Non-governmental…	~95
National authority	~22
International/EU…	~20
City or local authority	~48

Mission Charter actions

Number of pledges: 1 — 75 — 149

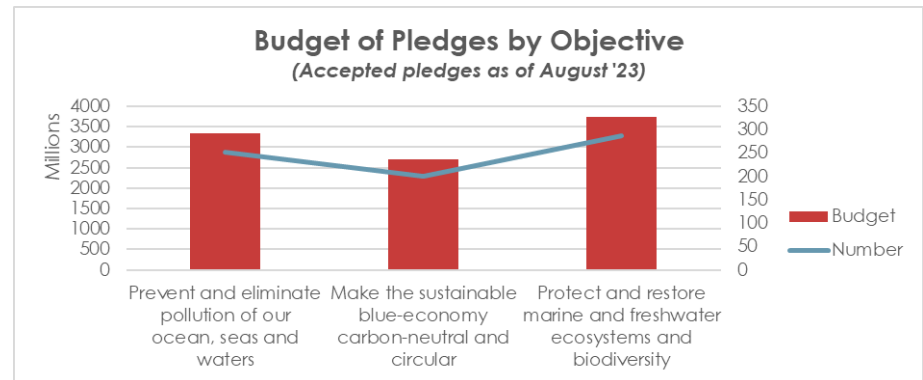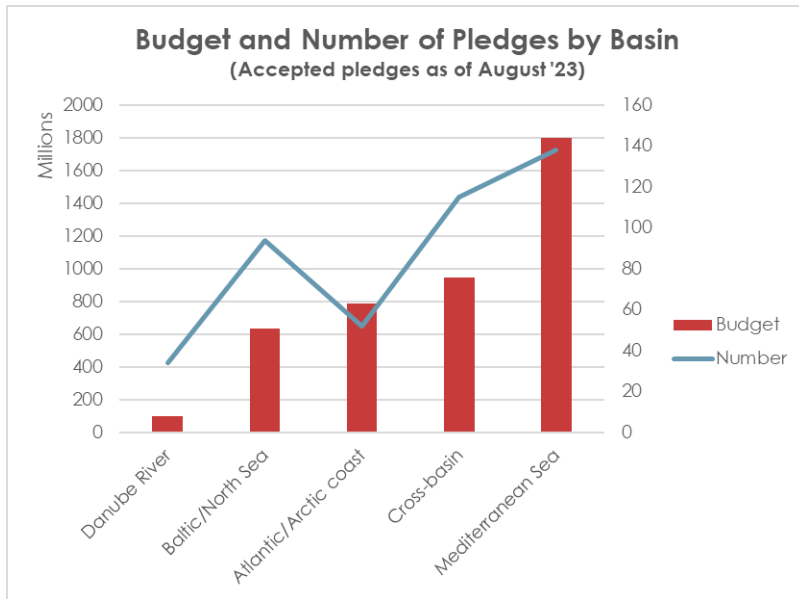| Country	Number of pledges
Italy	149
Spain	113
France	104
Germany	104
Finland	79
Portugal	79
Belgium	71
Sweden	64
Denmark	62
Greece	62
Netherlands	57
Norway	55
Estonia	52
Ireland	50
Romania	49
Bulgaria	45
Poland	44
United Kingdom	43
Croatia	40
Latvia	38
Lithuania	38
Cyprus	35
Malta	31
Slovenia	31
Austria	30
Hungary	29
Czechia	25
Slovakia	22
Turkey	22
Israel	21
Iceland	16
Luxembourg	16
Tunisia	16
Albania	13

Mission Charter actions – monthly submissions

Mission Charter actions – monthly submissions
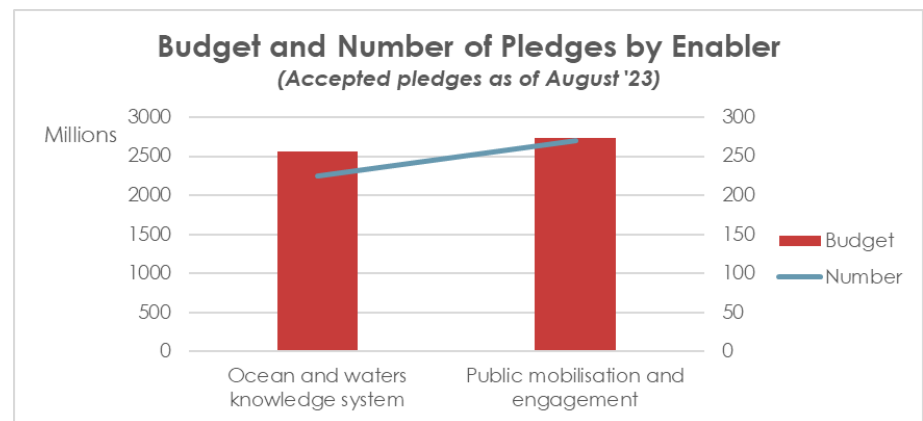
The European Marine Observation and Data Network

Data

Metadata

Data Products

Data Services

Bathymetry
Data on bathymetry (water depth), coastlines, and geographical location of underwater features such as wrecks

Geology
Data on seabed substrate, seafloor geology, coastal behaviour, geological events and probabilities, and minerals

Human activities
Data on the intensity and spatial extent of human activities at sea

Biology
Data on temporal and spatial distribution of species abundance and biomass from several taxa

Seabed habitats
Data on modelled seabed habitats based on seabed substrate, energy, biological zone and salinity

Chemistry
Data on concentrations of chemicals (pesticides, heavy metals, antifoulants) in water, sediments and biota

Physics
Data on salinity, temperature, waves, currents, sea level, light attenuation and FerryBox data

EMODnet
Central Portal
www.emodnet.eu

Ingestion facility

- Network of people and organisations (more than 100 across EU)

- Open access to marine data, metadata and products + tools/services (ingest, search, visualization, manipulation, e.g. Query Tool, etc.)

- *Based on the principle - collect marine data for multiple uses*

EMODnet is

Permanent service: *long term EU data initiative by DG MARE*

Widening thematic & geographic coverage: *highly multidisciplinary; pan-European & increasingly global*

Reduce fragmented *marine data landscape → towards coordinated, interoperable data sharing framework*

Platform for collaboration: *brings together key European providers, integrators, networks & infrastructures e.g. EuroGOOS ROOSs, CMEMS, SeaDataNet, OBIS, ICES, PANGAEA, RSCs, hydrographic offices, geological surveys, …*

EMODnet

Attract more data, providers & platforms: *with data Ingestion portal, EMODnet provides facility to help researchers make their data available.*

Support the efficient implementation of EU policies *related to the marine environment (MSFD, MSP, etc.)*

Raise visibility *of Europe's wealth of marine observations & data resources*

Support EC's leading role *in the UN Decade of Sustainable Science*

Change culture *towards open data sharing practices & increased collaboration*

Strengthen engagement/involvement of stakeholders and users

EMODnet for Business – private sector oriented datasets, products & services

Expose services to a new range of users (SMEs, innovators, startups, etc.)

Support data holders to share their data: strengthen **Data Ingestion Facility**

Increase international relevance – **EMODnet for global**

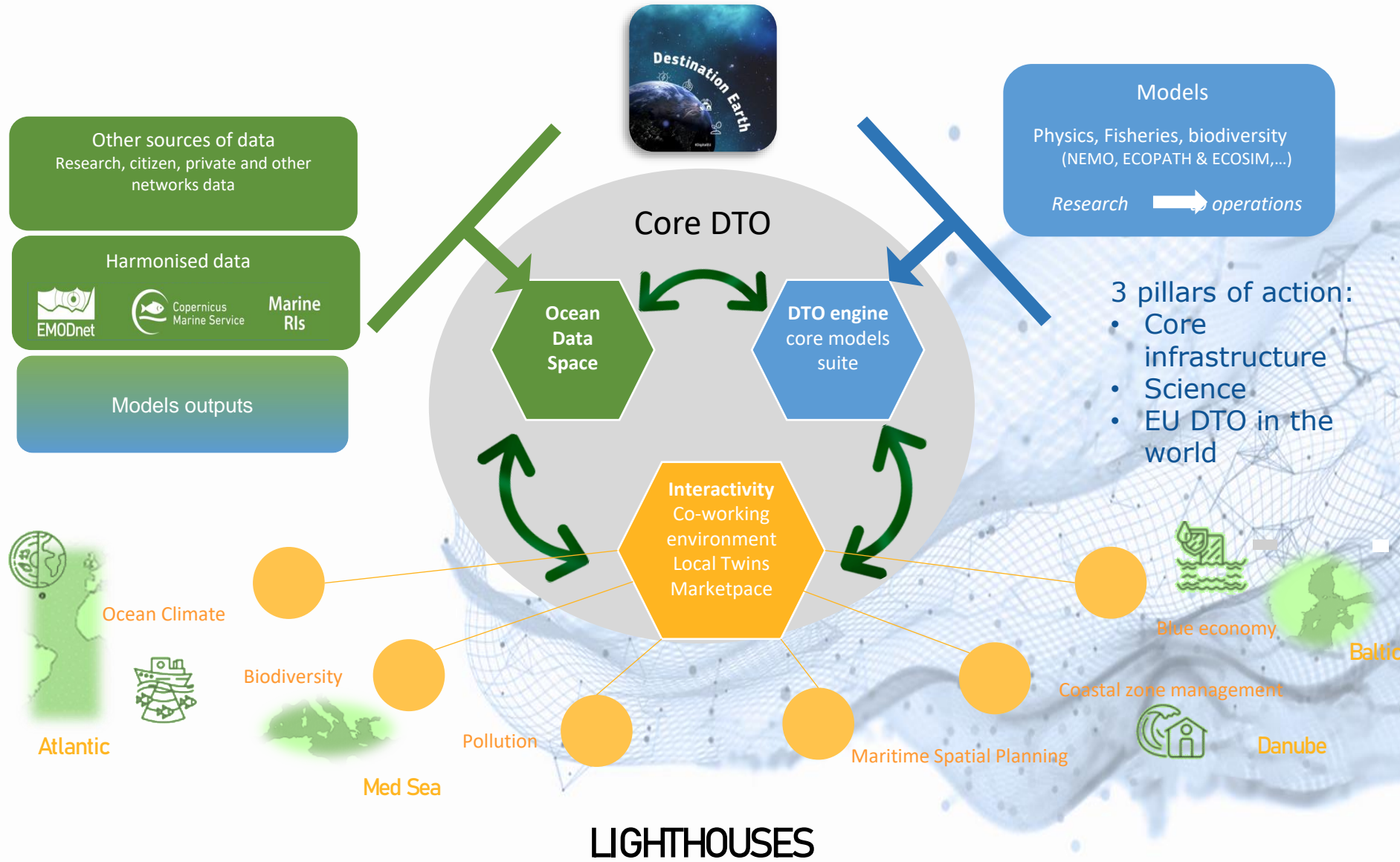Increased number of parameters & more + higher resolution products – **fit for purpose**

Support **Ocean Observation initiative**

Support the implementation of the **Green Deal**

Be one of the pillars of the Digital Twin of the Ocean – requiring a wealth of in-situ data to become useful, efficient and operational

Maintain and improve the service – ensure availability of in-situ marine data

EU DTO: the European Commission Vision

Other sources of data
Research, citizen, private and other networks data

Harmonised data
EMODnet · Copernicus Marine Service · Marine RIs

Models outputs

Destination Earth

Models
Physics, Fisheries, biodiversity (NEMO, ECOPATH & ECOSIM,…)

Research → *operations*

Core DTO

Ocean Data Space

DTO engine core models suite

Interactivity Co-working environment Local Twins Marketpace

3 pillars of action:
- Core infrastructure
- Science
- EU DTO in the world

Ocean Climate

Atlantic

Biodiversity

Pollution

Med Sea

Maritime Spatial Planning

Blue economy

Baltic

Coastal zone management

Danube

LIGHTHOUSES

Benefits of data sharing

- **Safeguarding long-term data availability** for wider use

- **Better return on investments** made in data observation

- Contributes to generating **better knowledge of the marine environment** and **higher quality data products,** which benefits all marine stakeholders

- **Satisfying funding requirements** for open access of data

- Making data **Findable Accessible Interoperable Reusable (FAIR)**

- Proper **acknowledgment** and increase of **citation** scores

- **Prevent duplication** of effort, reduce costs for operators and environmental impact

Data from & for the Med - Some examples of gaps

Mean interpolated depth, but…   Bathymetry
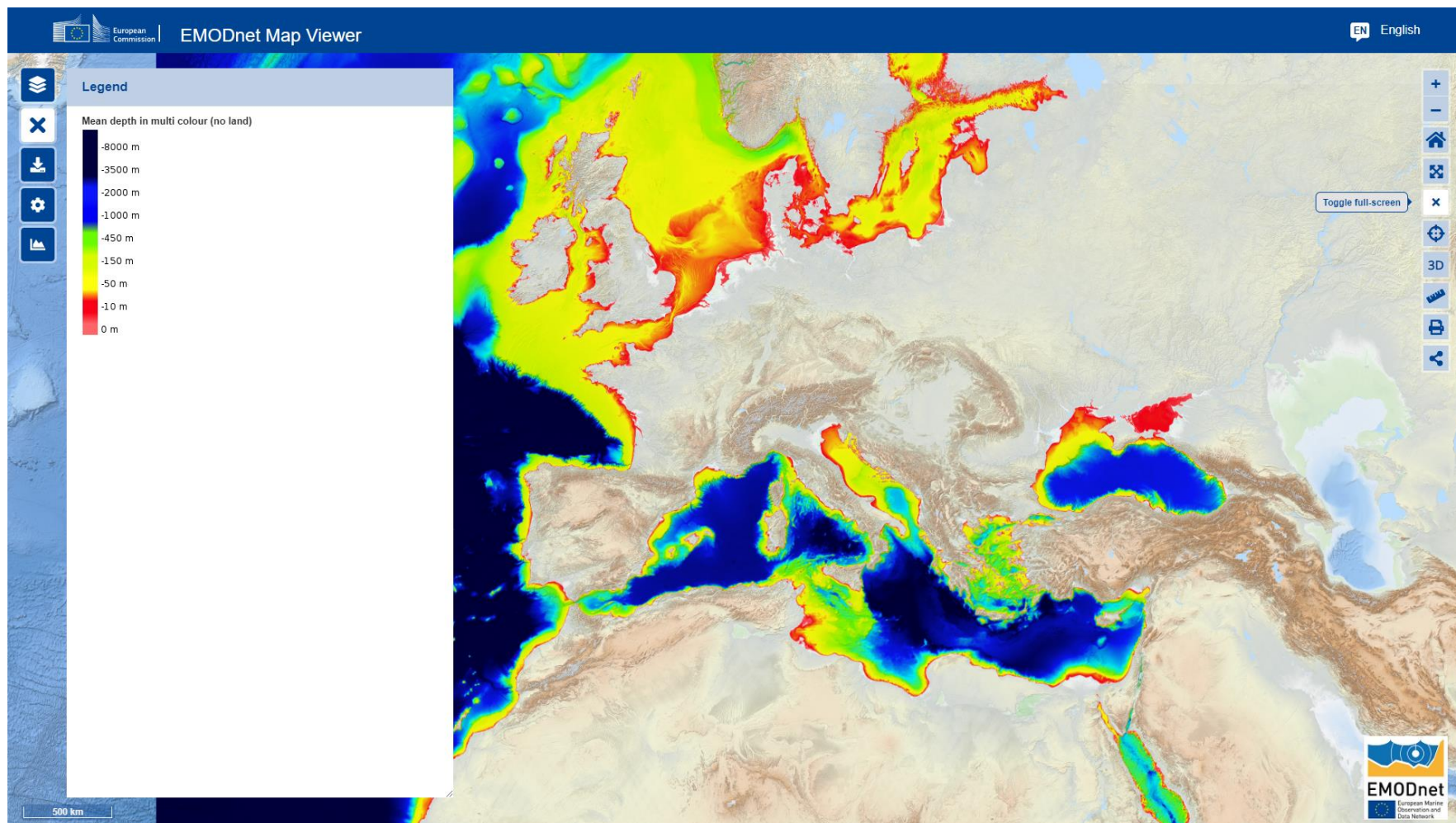
Data from & for the Med - Some examples of gaps

… these are the source data available   Bathymetry
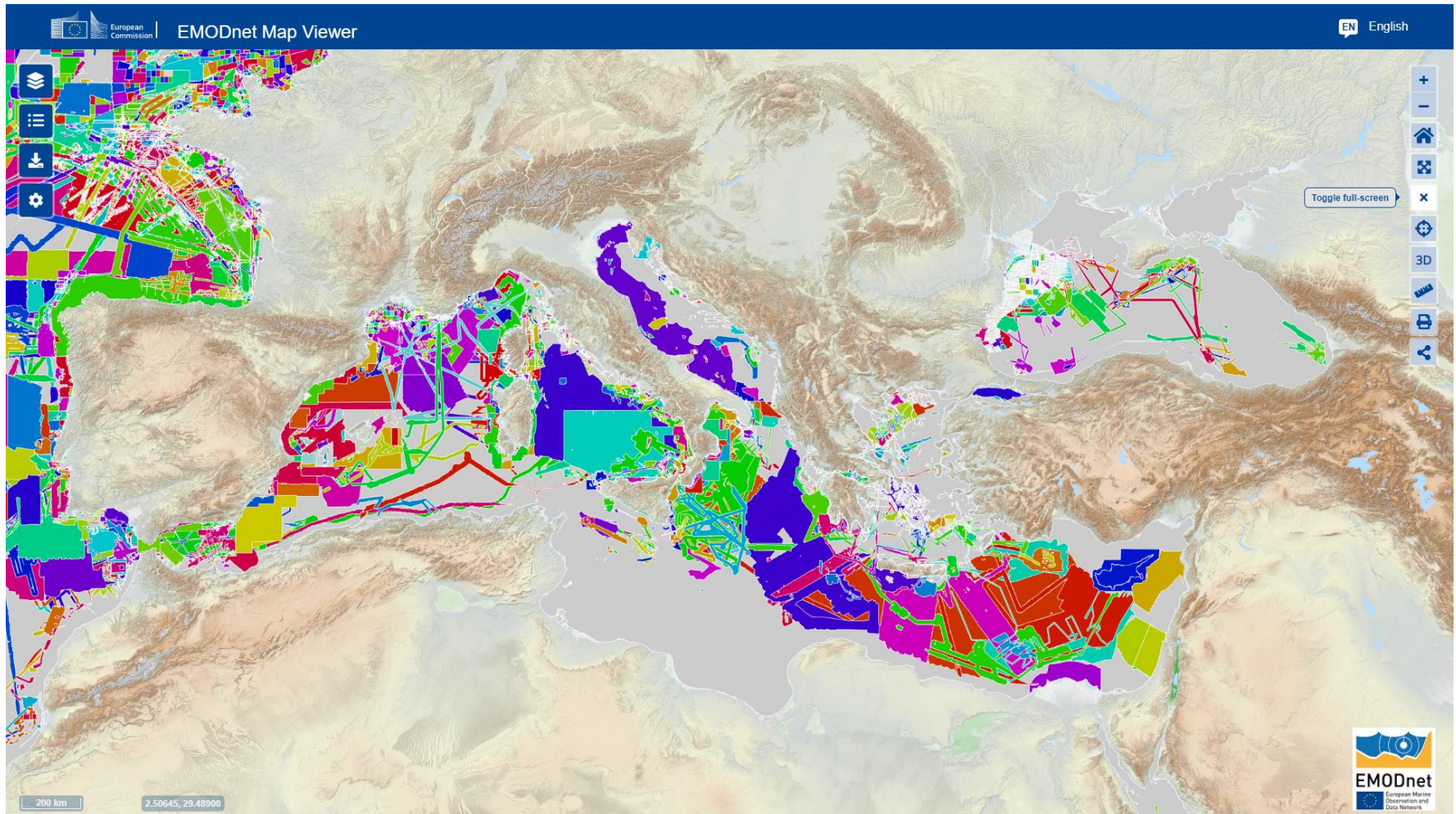
Data from & for the Med - Some examples of gaps

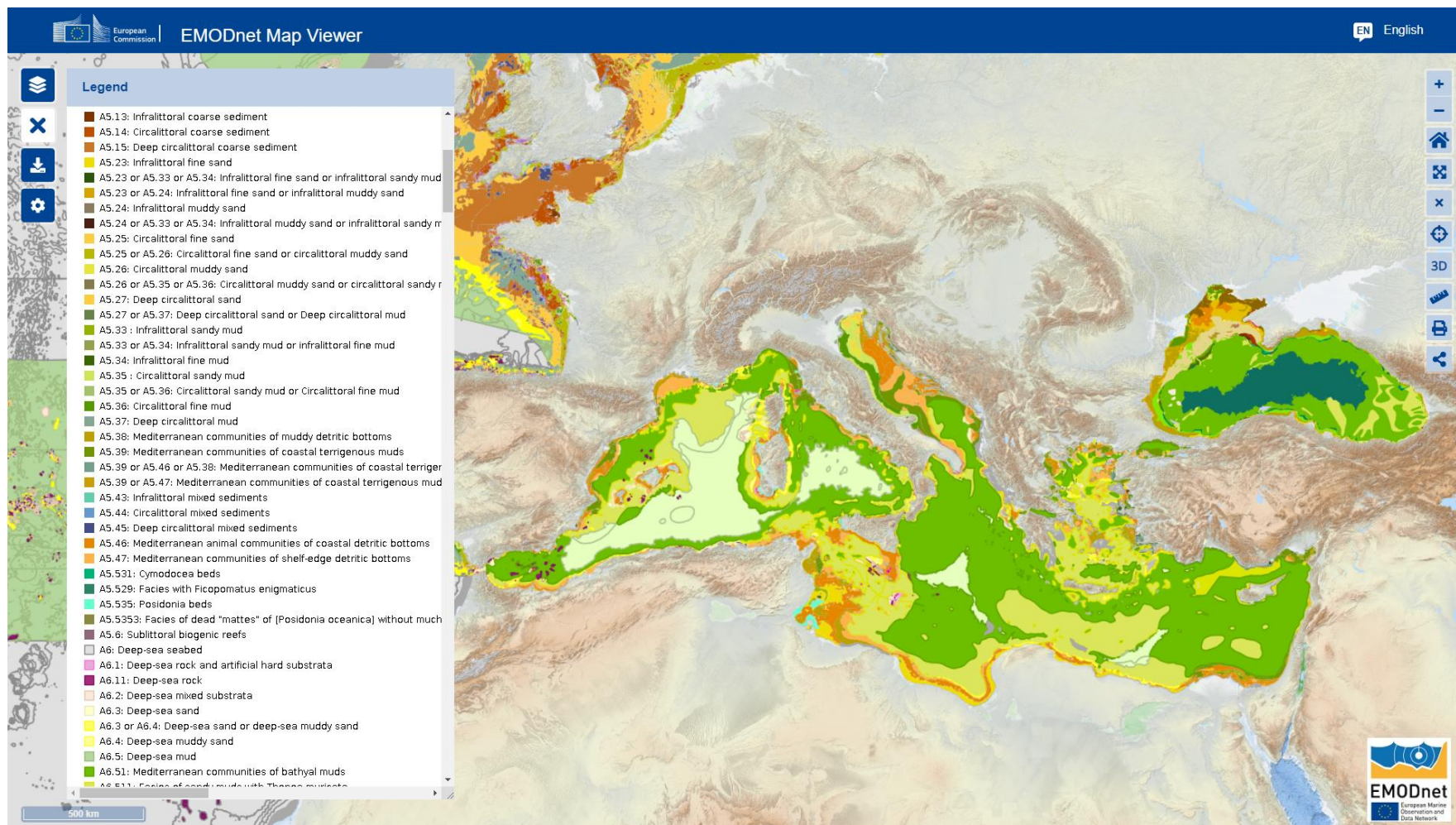## Seabed substrate map of European marine areas   Geology

EUSeaMap Habitat types – data product, but…   Seabed Habitats

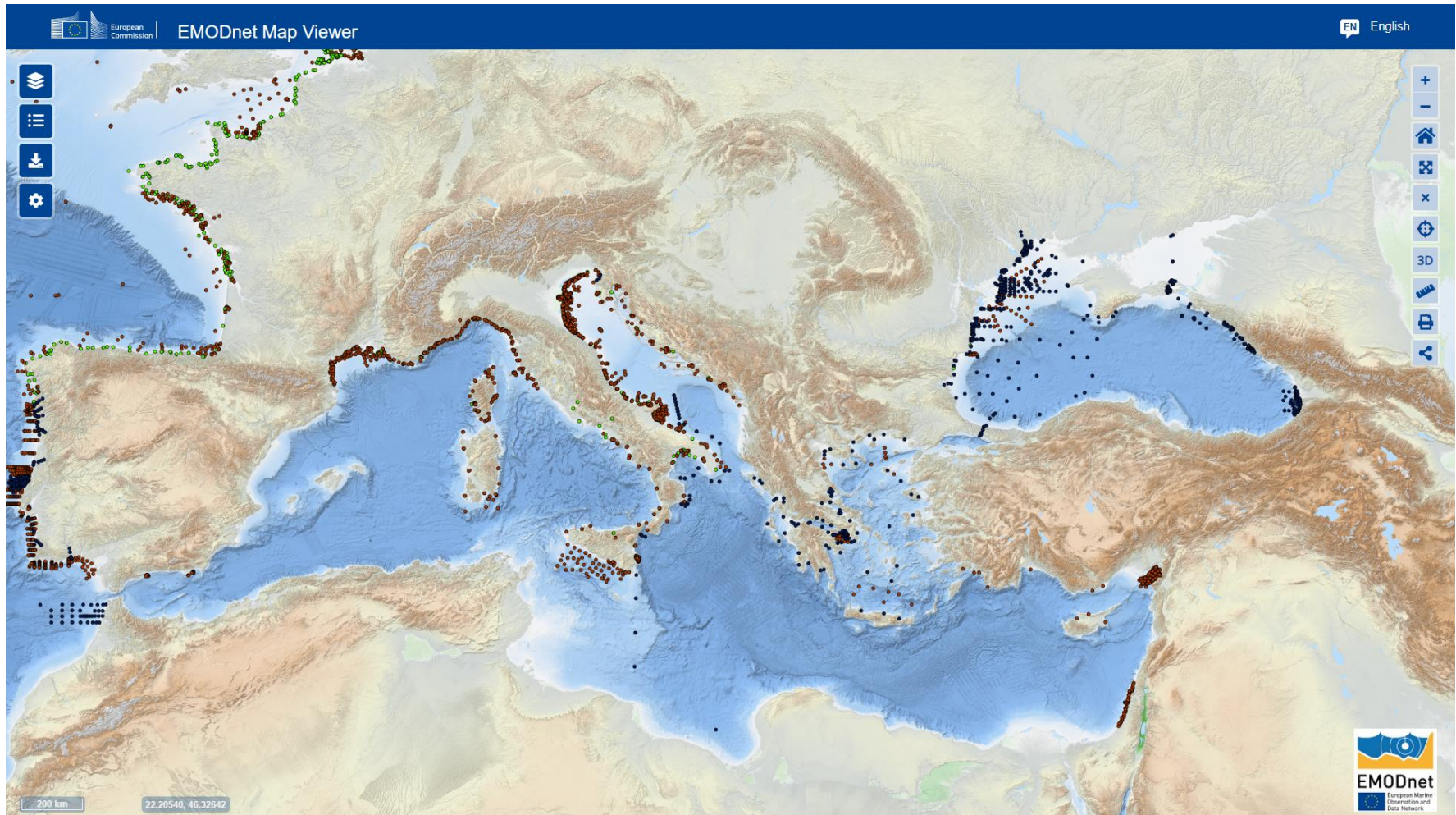# Data from & for the Med - Some examples of gaps

Habitat point observations   Seabed Habitats
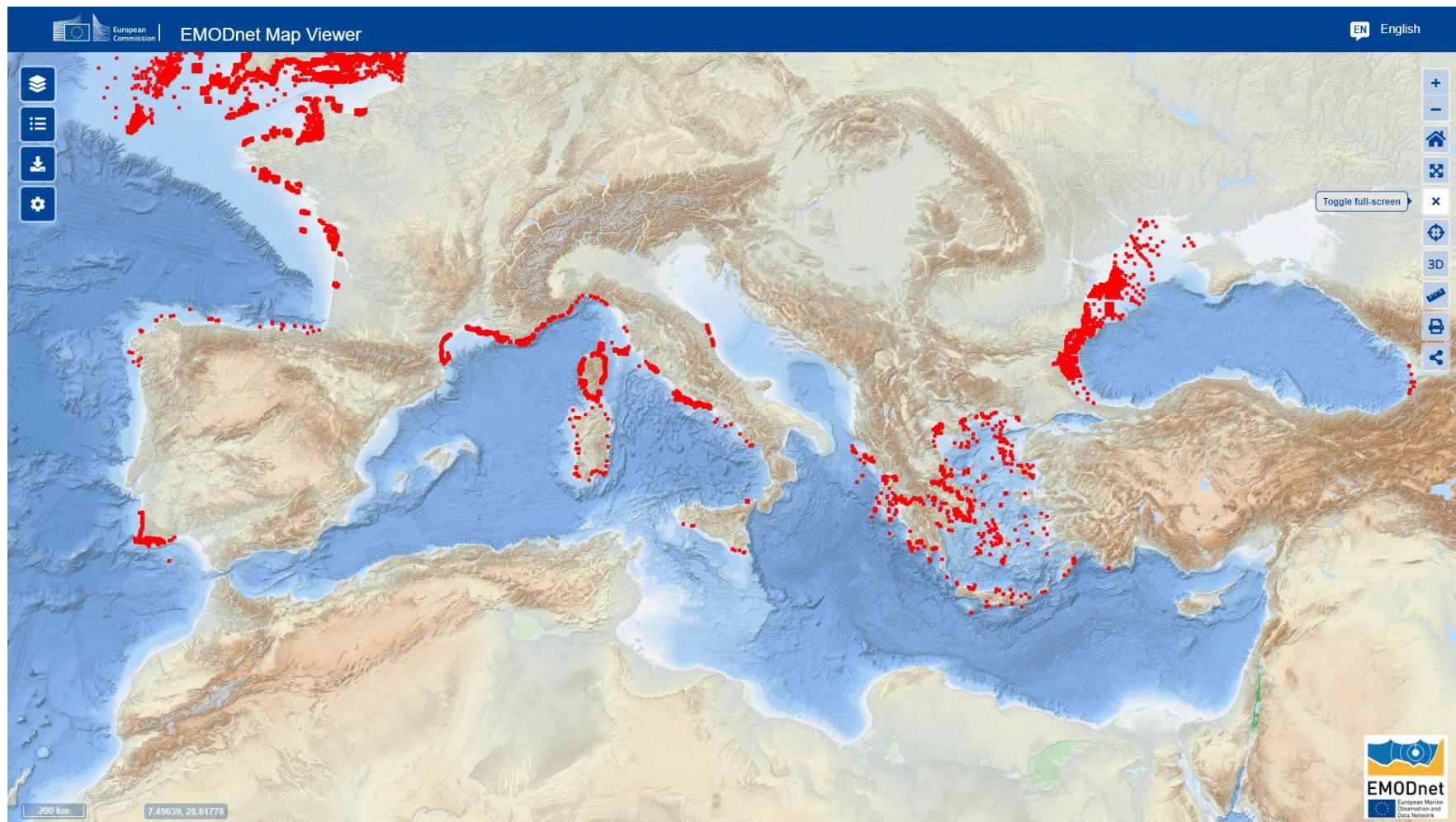
Data from & for the Med - Some examples of gaps
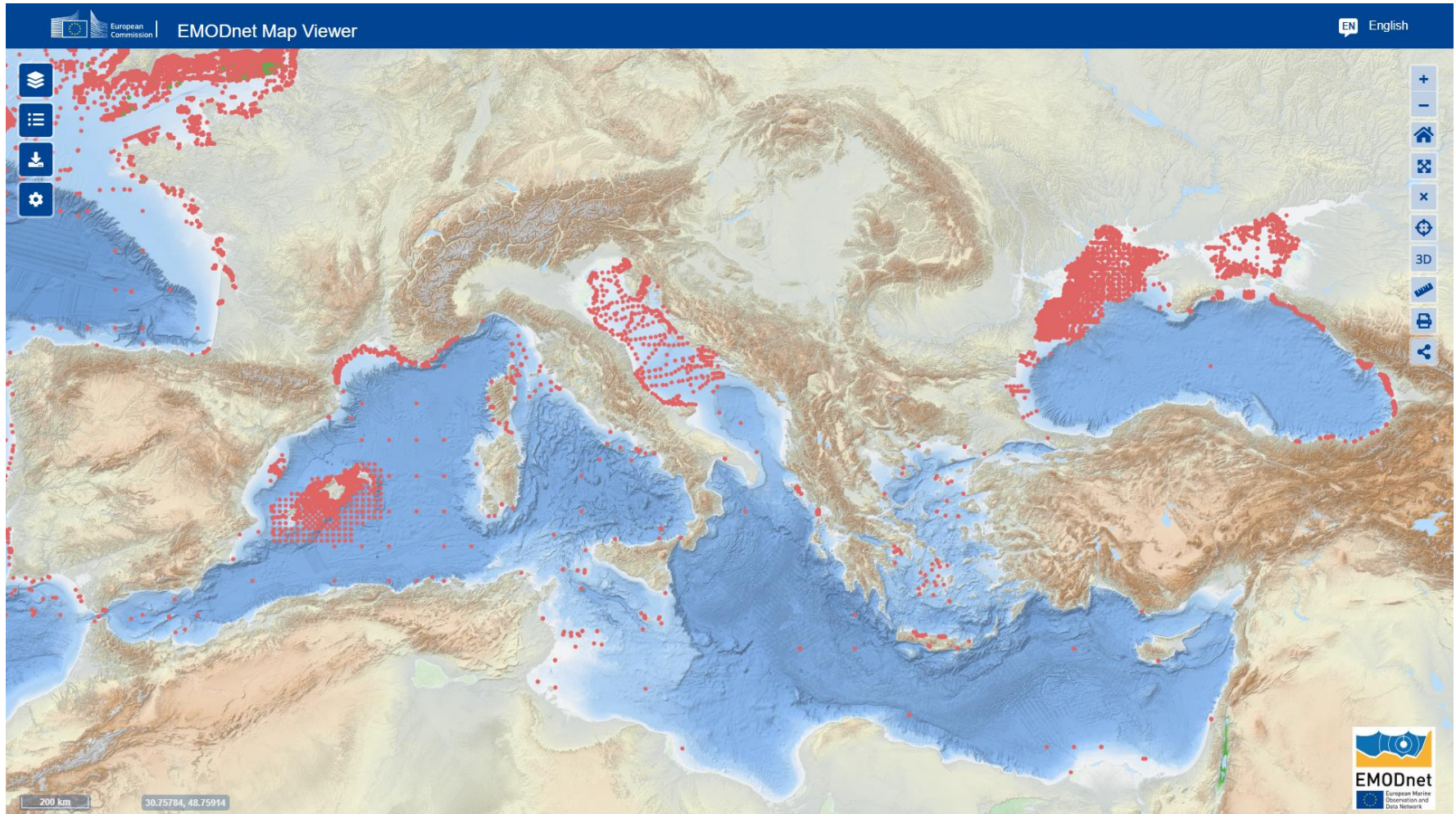
Contaminants: Lead in biota, sediment, water   Chemistry

Presence/absence benthos in the European Seas   Biology

Set up frameworks facilitating data provision, promoting and easing data sharing;

Facilitate regional agreements, multilateral collaboration frameworks, and programs which will aim to unlock data sharing and promote capacity building;

Utilise existing services, as the EMODnet Ingestion facility, to bring in more data from the Mediterranean, to increase the knowledge base and facilitate more efficient management.

For unified Marine Knowledge, we need to work together and build on existing capacity.

Thank you

More information:
https://emodnet.ec.europa.eu/en

Contact:
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