

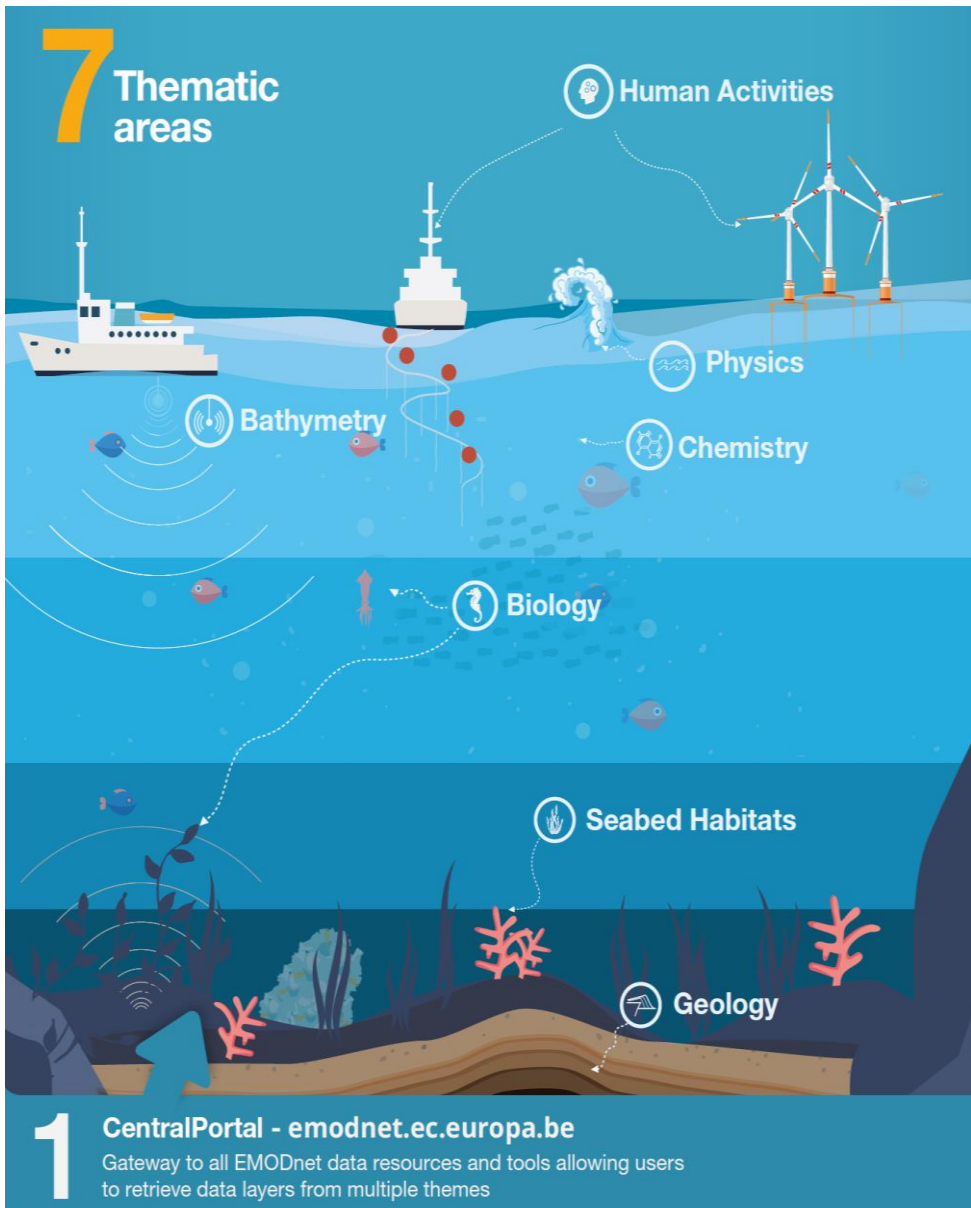


The European Marine Observation and Data Network (EMODnet) public EU marine data service

Fish-X Conference, Brussels, 27th September 2023

Kate Larkin, Head, EMODnet Secretariat

EMODnet: A public EU *in situ* marine data service, open to all



- **EMODnet is an operational EU marine data service**, funded by the European Maritime Fisheries and Aquaculture Fund (EMFAF) managed by EC DG MARE
- **The EMODnet Portal delivers users with access to aggregated marine environmental and human activities data spanning 100's of parameters** (e.g., temperature, marine litter, pollutants, phytoplankton...)
- **The most comprehensive EU marine data service for marine data collected *in situ*** (in water/field) data by the European Ocean Observing community e.g., oceanographic vessels, research and operational oceanography automated platforms, private sector surveys, citizen scientists, etc)
- **Datasets and Metadata**
 - ✓ Standardised to EU/International standards
 - ✓ Harmonised into Integrated data layers
 - ✓ Open source and open access
- **Data products** e.g., Digital Terrain Model, Vessel Density composite map, are fully open access with data policy Creative Commons BY4.0
- **European seas and beyond**, increasingly global
emodnet.ec.europa.eu

One central map viewer

to visualise all EMODnet data



1 OCEAN 1 EMODnet

One single portal

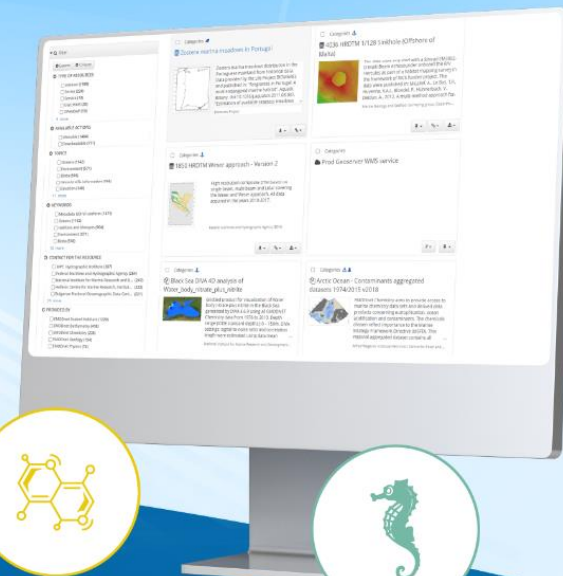
One central metadata catalogue

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

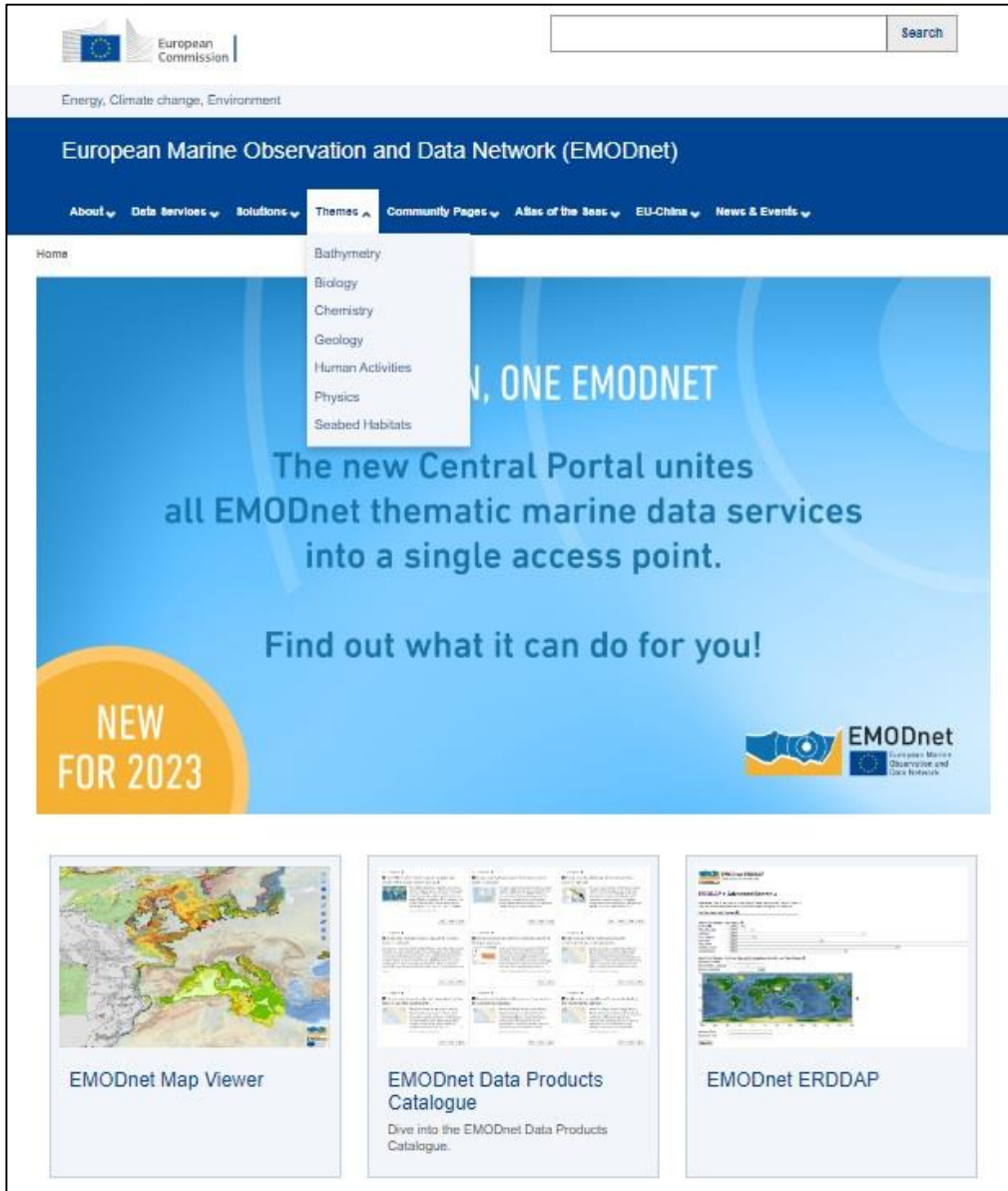
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YOUR GATEWAY TO *IN SITU* MARINE DATA IN EUROPE AND BEYOND



EMODnet
European Marine
Observation and
Data Network

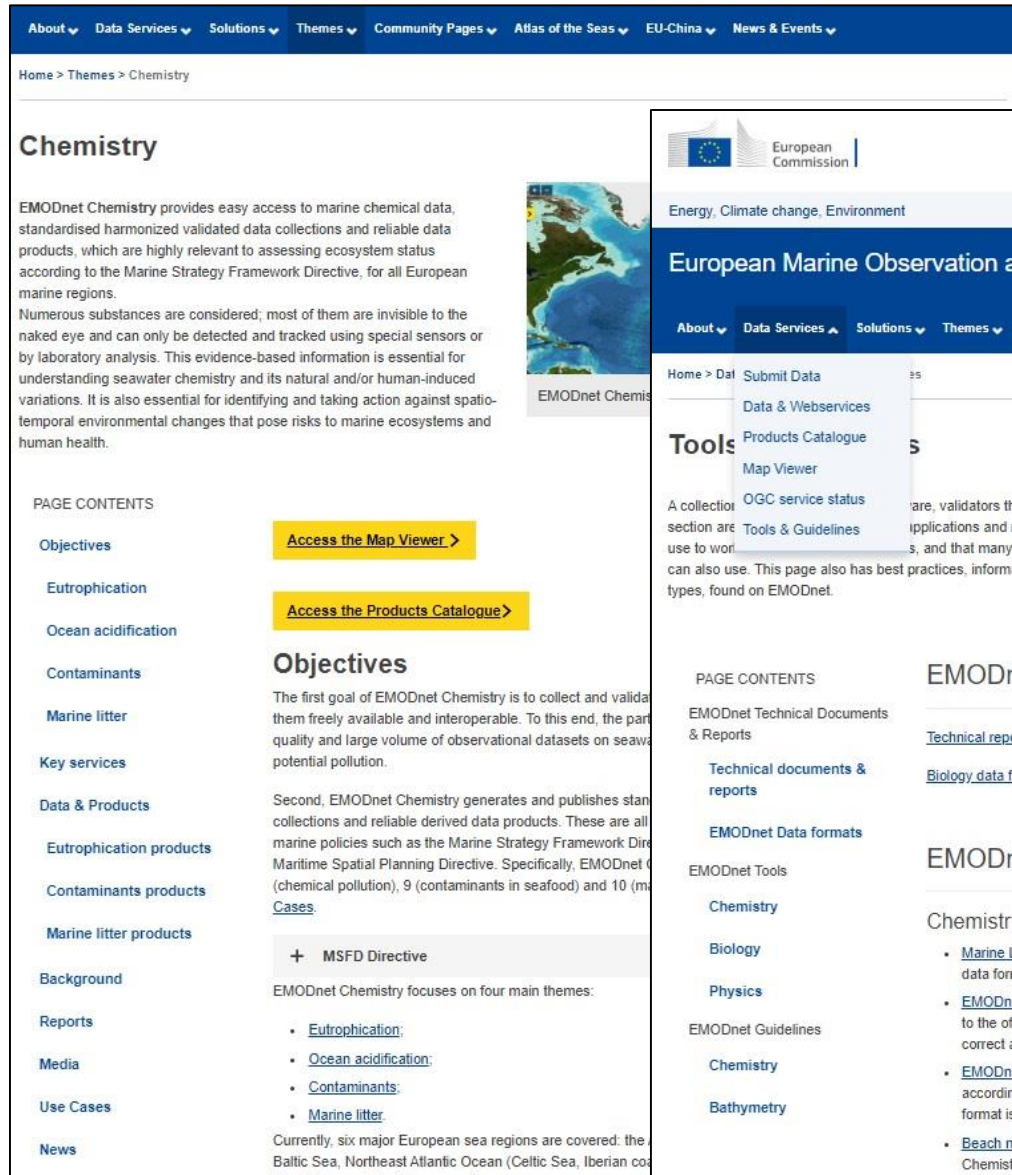
EMODnet: Features and functionalities of the EMODnet portal



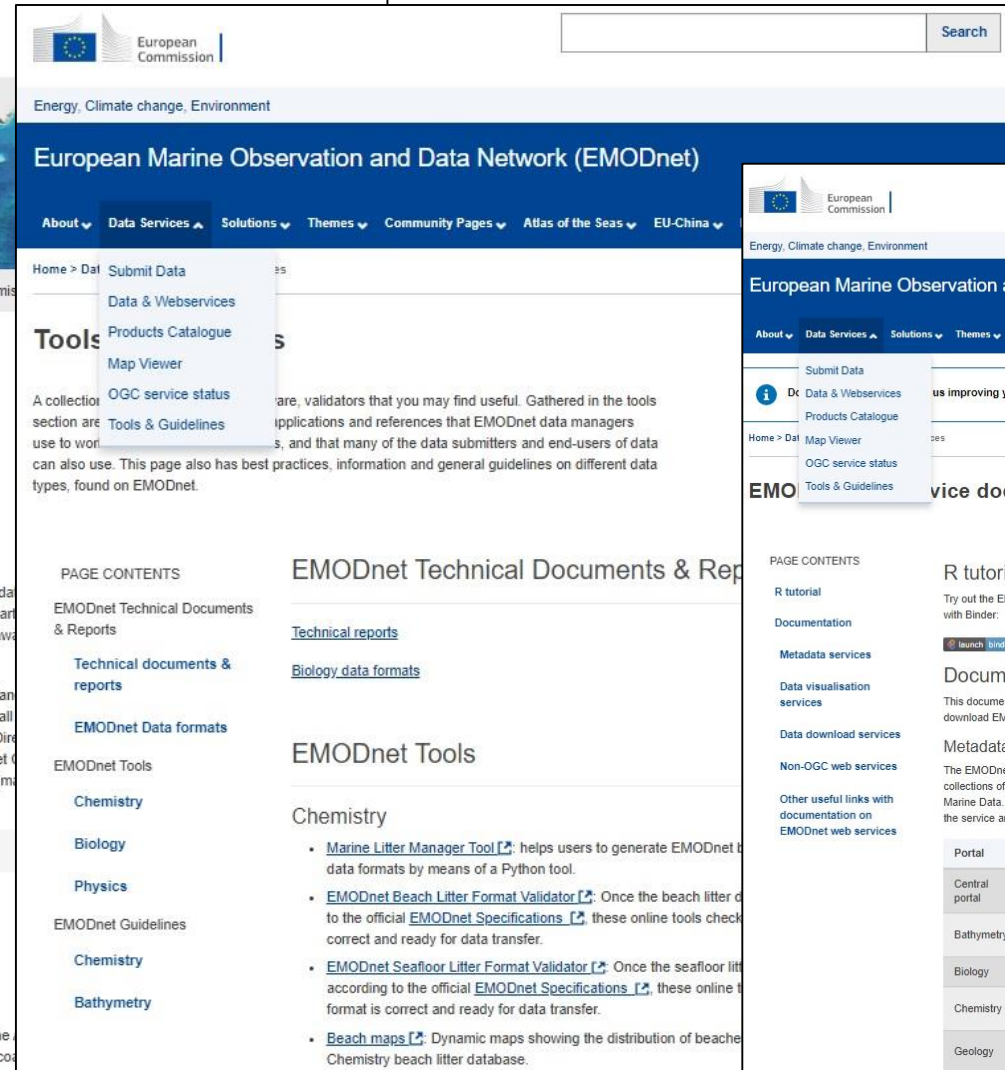
Since January 2023:

- **Unification of all EMODnet thematics** and the shutting down of individual portals
- One EMODnet **website**
- One EMODnet **map viewer**
- One EMODnet **catalogue**
- One EMODnet **ERDDAP**
- Striving for **consistency** across **themes** in:
 - Metadata
 - File formats
 - Download APIs
 - Web Services

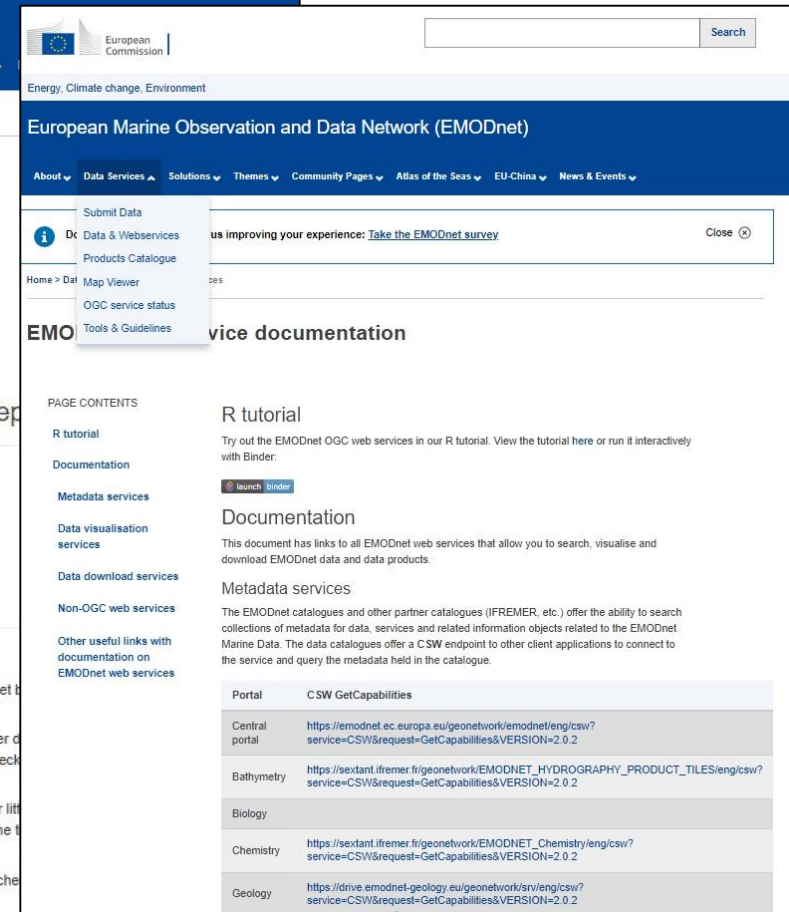
EMODnet: One website – thematic pages – common information pages



This screenshot shows the 'Chemistry' thematic page on the EMODnet website. The page features a navigation menu at the top with categories like 'About', 'Data Services', 'Solutions', 'Themes', 'Community Pages', 'Atlas of the Seas', 'EU-China', and 'News & Events'. The main content area includes an introductory paragraph about EMODnet Chemistry, a 'PAGE CONTENTS' sidebar with links to 'Objectives', 'Eutrophication', 'Ocean acidification', 'Contaminants', 'Marine litter', 'Key services', 'Data & Products', 'Eutrophication products', 'Contaminants products', 'Marine litter products', 'Background', 'Reports', 'Media', 'Use Cases', and 'News', and a main text block under the heading 'Objectives'.



This screenshot displays the 'Tools' page on the EMODnet website. It features a navigation menu and a search bar. The main content area includes a 'Tools' section with a list of tools: 'Submit Data', 'Data & Webservices', 'Products Catalogue', 'Map Viewer', and 'OGC service status'. Below this is a 'PAGE CONTENTS' section with links to 'EMODnet Technical Documents & Reports', 'Technical documents & reports', 'EMODnet Data formats', 'EMODnet Tools', 'Chemistry', 'Biology', 'Physics', 'EMODnet Guidelines', 'Chemistry', and 'Bathymetry'. The 'EMODnet Tools' section is expanded to show a list of tools under the 'Chemistry' category, including 'Marine Litter Manager Tool', 'EMODnet Beach Litter Format Validator', 'EMODnet Seafloor Litter Format Validator', and 'Beach maps'.



This screenshot shows the 'Documentation' page on the EMODnet website. It features a navigation menu and a search bar. The main content area includes a 'Documentation' section with a list of documentation items: 'R tutorial', 'Documentation', 'Metadata services', 'Data visualisation services', 'Data download services', 'Non-OGC web services', and 'Other useful links with documentation on EMODnet web services'. Below this is a 'PAGE CONTENTS' section with links to 'R tutorial', 'Documentation', 'Metadata services', 'Data visualisation services', 'Data download services', 'Non-OGC web services', and 'Other useful links with documentation on EMODnet web services'. The 'Documentation' section is expanded to show a list of documentation items under the 'Documentation' category, including 'R tutorial', 'Documentation', 'Metadata services', 'Data visualisation services', 'Data download services', 'Non-OGC web services', and 'Other useful links with documentation on EMODnet web services'.

EMODnet: One central catalogue

EMODnet Product Catalogue

Search English

Search ...

Nothing in basket

Filter

- TYPE OF RESOURCES
 - Dataset (570)
 - Series (19)
- AVAILABLE ACTIONS
 - Viewable (453)
 - Downloadable (58)
- TOPICS
 - Environment (568)
 - Biota (203)
 - Oceans (99)
 - Geoscientific information (25)
 - Imagery base maps earth cover (2)
- KEYWORDS
 - Environment (568)
 - Habitats and biotopes (538)
 - Metadata GDI-VI-conform (528)
 - Marine habitat mapping (278)
 - Biota (203)
- CONTACT FOR THE RESOURCE
 - Hellenic Centre for Marine Rese... (132)
 - Hellenic National Oceanographic... (131)
 - National Parks and Wildlife Service (79)
 - Joint Nature Conservation Commi... (56)
 - EMODnet Seabed Habitats (43)
- PROVIDED BY
 - EMODnet Seabed Habitats (564)
 - EMODnet Chemistry (19)
 - EMODnet Human Activities (6)
- YEARS
 - 2022 (5)
 - 2021 (15)
 - 2019 (16)
 - 2018 (10)
 - 2017 (27)
- FORMATS

Search results:

- North East Atlantic Ocean - Contaminants aggregated datasets 1970/2017 v2018
- North Sea - Contaminants aggregated datasets 1970/2017 v2018
- Black Sea - Contaminants aggregated datasets 1974/2017 v2018
- Baltic Sea - Contaminants aggregated datasets 1972/2017 v2018
- Mediterranean Sea - Contaminants aggregated datasets 1974/2017 v2018
- Habitat Map of "Capo Milazzo" marine protected area



EMODnet Product Catalogue

Search English

Back to search Previous Next

Download Display mode

North Sea - Contaminants aggregated datasets 1959/2019 v2021

EMODnet Chemistry aims to provide access to marine chemistry data sets and derived data products concerning eutrophication, ocean acidification and contaminants. The chemicals chosen reflect importance to the Marine Strategy Framework Directive (MSFD). This regional aggregated dataset contains all unrestricted EMODnet Chemistry data on contaminants, and covers the North Sea with 34978 CDI records divided per matrices: 1460 biota, 24740 water profiles, 8090 sediment profiles and 201 sediment time series. For water, the temporal range is from 1959-10-03 to 2019-12-30. For sediment, the temporal range is from 1970-07-11 to 2019-12-18 for profile data and from 1993-09-16 to 2015-06-15 for the time series. For biota, the temporal range is from 1979-02-26 to 2018-02-28. Data were aggregated and quality controlled by Aarhus University, Department of Bioscience, Marine Ecology Roskilde from Denmark. Regional datasets concerning contaminants are automatically harvested. Parameter names in these datasets are based on P01, BODC Parameter Usage Vocabulary, which is available at: http://seadatanet.maris2.nl/bandit/browse_step.php. Each measurement value has a quality flag indicator. The resulting data collections for each Sea Basin are harmonised, and the collections are quality controlled by EMODnet Chemistry Regional Leaders using ODV Software and following a common methodology for all Sea Regions. Harmonisation means that: (1) unit conversion is carried out to express contaminant concentrations with a limited set of measurement units (according to EU directives 2013/39/UE, Comm. Dec. EU 2017/848) and (2) merging of variables described by different "local names", but corresponding exactly to the same concepts in BODC P01 vocabulary. Detailed documentation is available at: <https://doi.org/10.8092/8b52e8d7-dc92-4305-9337-7634a5cae3f4>. Explore and extract data at: <https://emodnet-chemistry.webodv.awi.de/contaminants%3ENorthSea>. The harmonised dataset can also be downloaded as ODV spreadsheet (TXT file), which is composed of metadata header followed by tab separated values. This worksheet can be imported to ODV Software for visualisation (More information can be found at: <https://www.seadatanet.org/Software/ODV>). The same dataset is offered also as XLSX file in a long/vertical format, in which each P01 measurement is a record line. Additionally, there are a series of columns that split P01 terms in subcomponents (measure, substance, CAS number, matrix...). This transposed format is more adapted to worksheet applications users (e.g. LibreOffice Calc). The original datasets can be searched and downloaded from EMODnet Chemistry Download Service: <https://emodnet-chemistry.maris.nl/search>

Overview

Water

Sediment timeseries

Sediment profiles

Biota

Identification Content ReferenceSystem Quality DomainConsistency

Distribution format **Zipped file (ODV spreadsheet and transposed spreadsheet) (Version: 1.0)**

Distributor

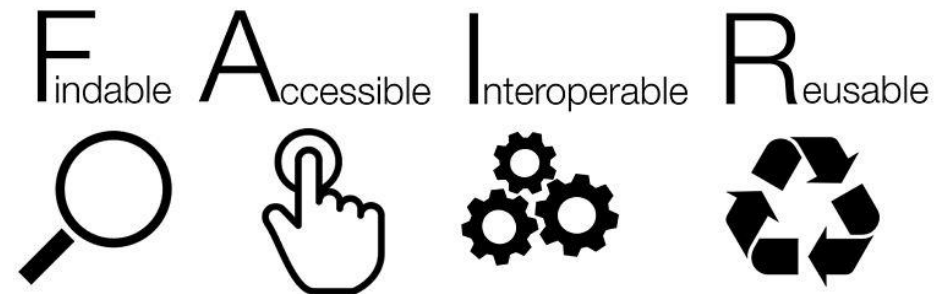
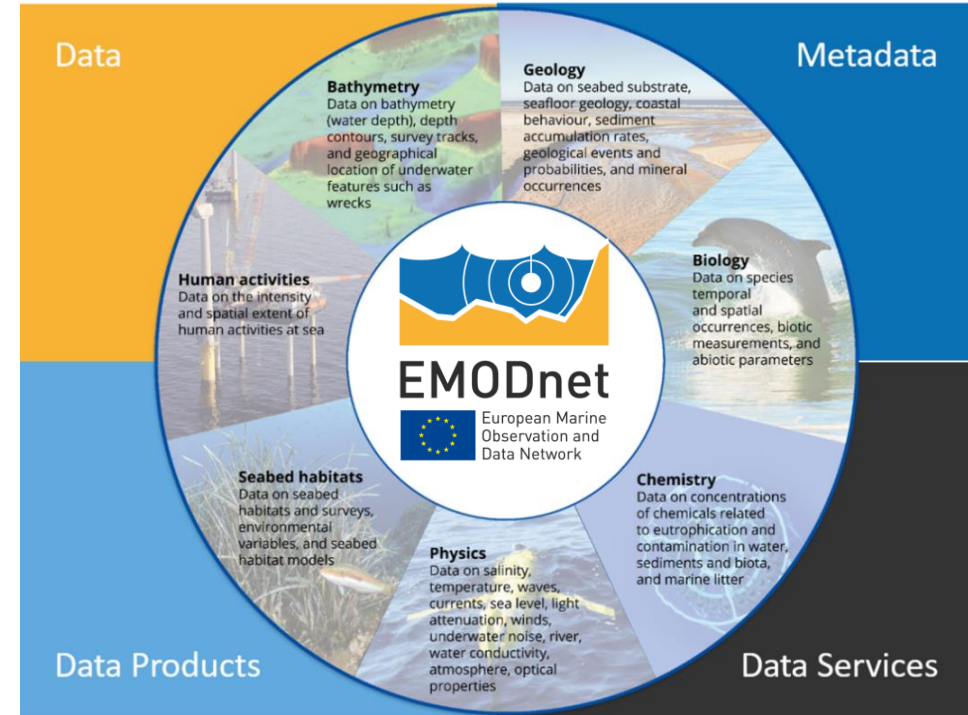
Organisation name	National Institute of Oceanography and Applied Geophysics - OGS, Division of Oceanography
Delivery point	Borgo Grotta Gigante 42/c
City	Sgonico (Trieste)
Postal code	34010
Country	Italy
Electronic mail address	nodc@ogs.trieste.it
Linkage	http://www.ogs.trieste.it/
Role	Distributor: Party who distributes the resource

Users can access metadata and data service information in the catalogue

EMODnet: Added value

Pan-European integrated and standardised FAIR marine data and data products

- INSPIRE (EU) and FAIR (International) data standards and principles
- Aggregated, harmonized multi-parameter data sets
- Searchable metadata (ISO standards)
- Data services (maps, query)
- Integrated data products
- Data and web services e.g. OGC, machine-machine readability e.g. WMS, WFS, WCS and use of APIs



EMODnet: The result of interoperable marine data e.g., Vessel Density data product

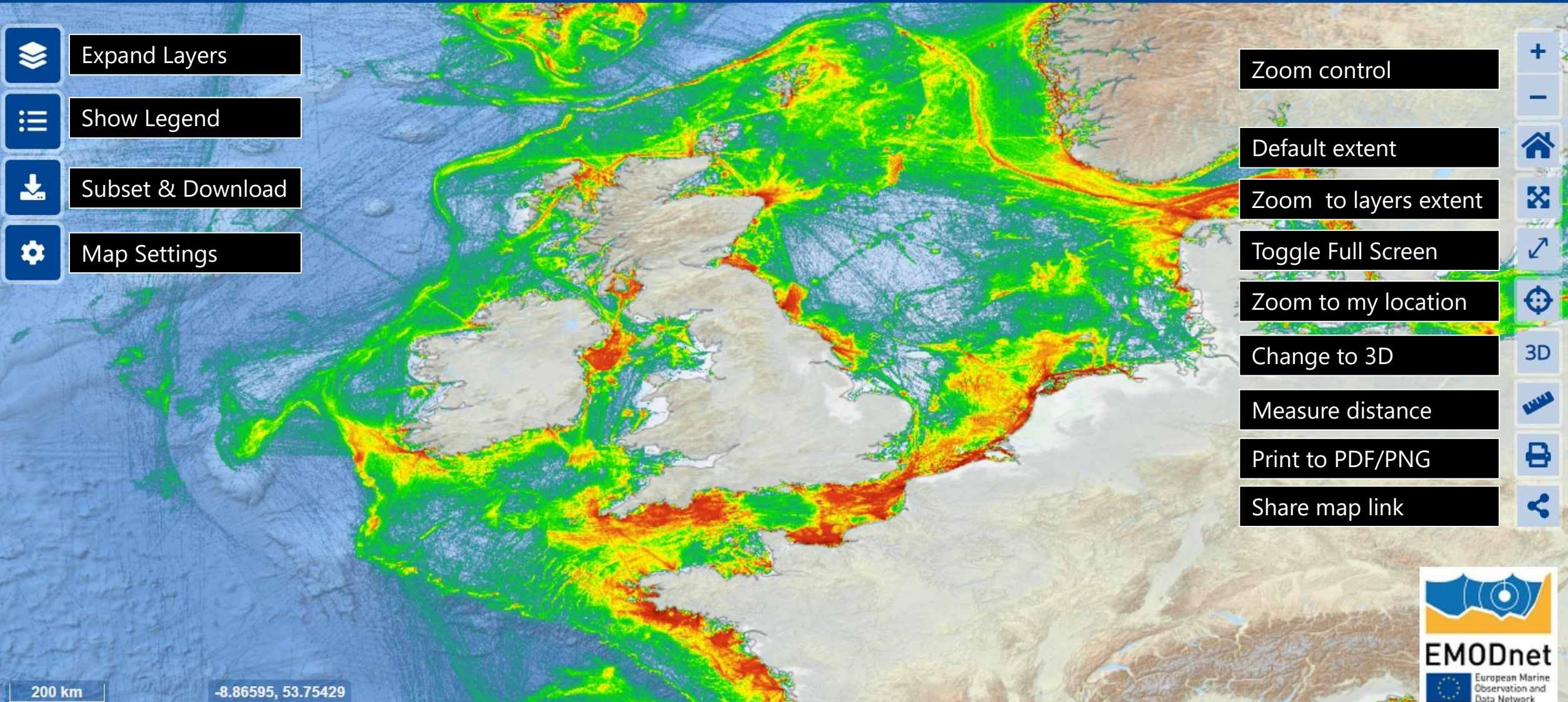


EMODnet Map Viewer

EN English

- Expand Layers
- Show Legend
- Subset & Download
- Map Settings

- Zoom control
- Default extent
- Zoom to layers extent
- Toggle Full Screen
- Zoom to my location
- Change to 3D
- Measure distance
- Print to PDF/PNG
- Share map link



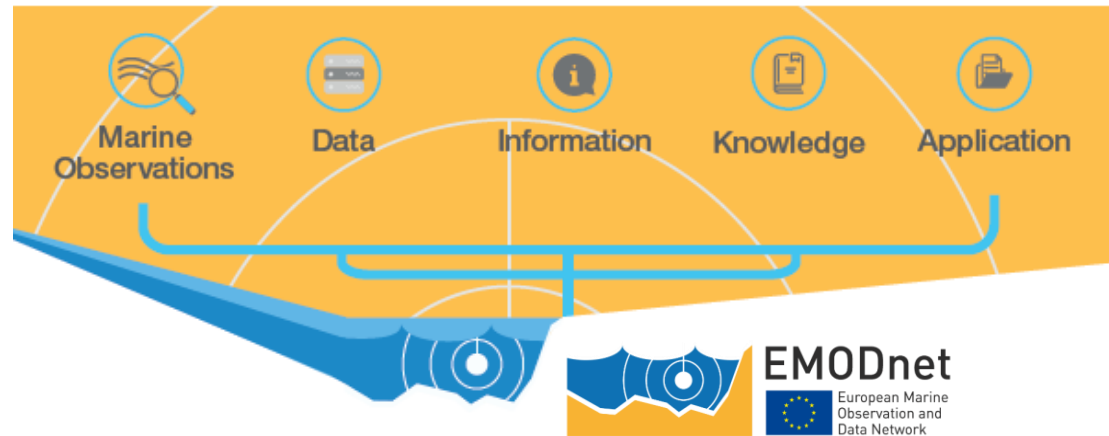
200 km

-8.86595, 53.75429



EMODnet supports EU Policy implementation, sourcing, assembling and integrating marine data from many diverse sources into **FAIR marine data** and producing **added value data products** to provide the marine knowledge base to meet the ambitious targets of the **EU Green Deal** (including MSFD, MSP), **EU Climate Pact**, **EU 2030 Biodiversity Strategy**, **EU Mission Restore our Ocean and Waters**, and global policy initiatives.

From raw data to real-life applications

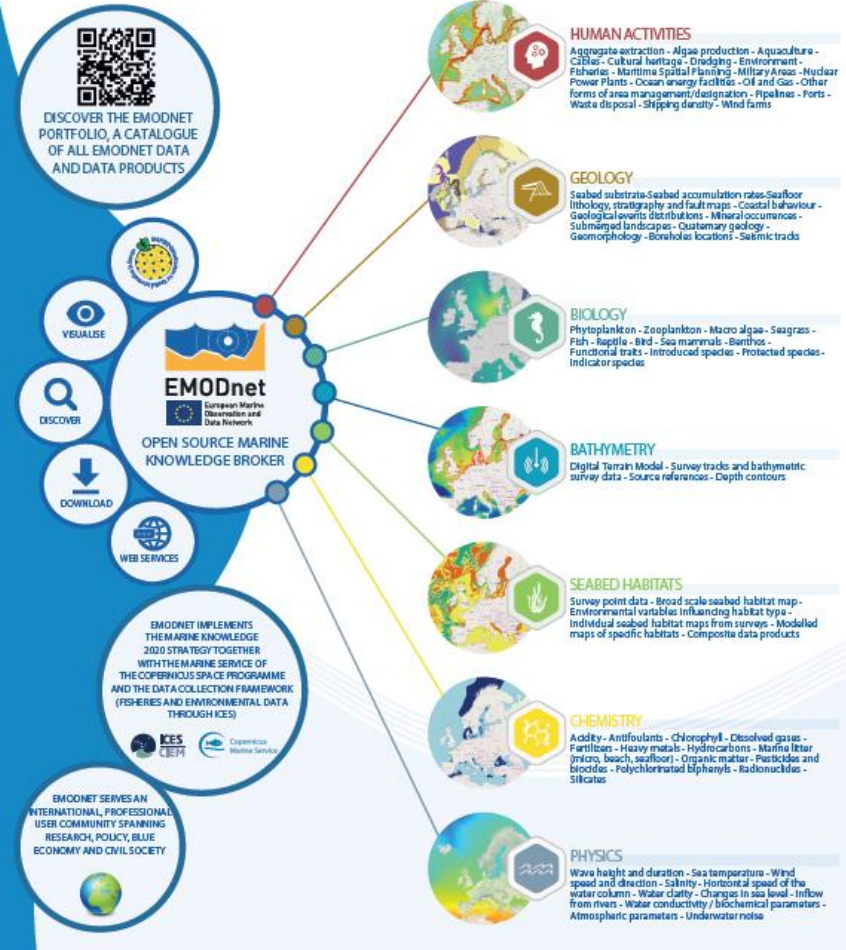


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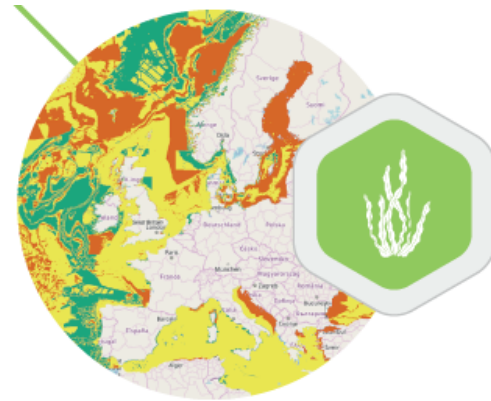
EMODnet: Marine biodiversity

Examples of EMODnet biodiversity-relevant parameters from Biology and Seabed Habitat thematics:



BIOLOGY

Phytoplankton - Zooplankton - Macro algae - Seagrass - Fish - Reptile - Bird - Sea mammals - Benthos - Functional traits - Introduced species - Protected species - Indicator species



SEABED HABITATS

Survey point data - Broad scale seabed habitat map - Environmental variables influencing habitat type - Individual seabed habitat maps from surveys - Modelled maps of specific habitats - Composite data products

Many ongoing collaborations and partnerships for marine biodiversity data e.g.,



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For full list of data and data products visit emodnet.ec.europa.eu/en/communications/data-and-product

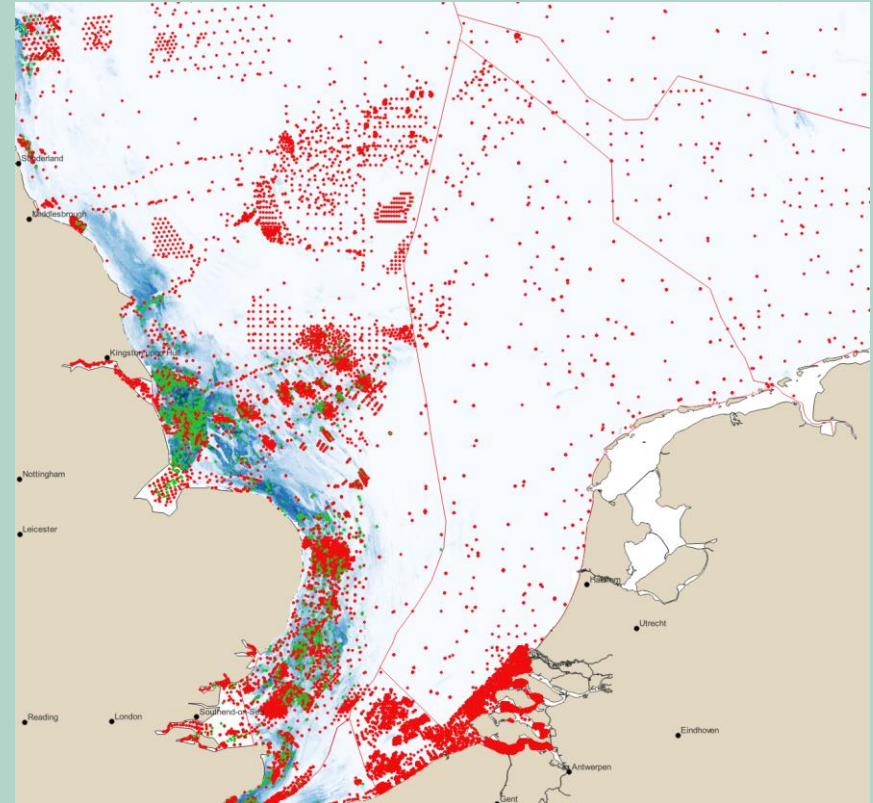
The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) 2021/130 of the European Parliament and of the Council of 7 July 2021 establishing the European Maritime, Fisheries and Aquaculture Fund and its predecessor Regulation (EU) No. 508/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund



BIOLOGY

Distribution of reef-building benthos in the North Sea

The request to Deltares by the Dutch Ministry of Infrastructure and Transport was to chart the actual distribution of four reef-building species (*Sabellaria*, *Modiolus*, *Lanice*, *Ostrea*) in the Dutch EEZ, and to estimate the probability for restoring populations of these species in the same area.



<https://emodnet.ec.europa.eu/en/use-case/distribution-reef-building-benthos-north-sea>

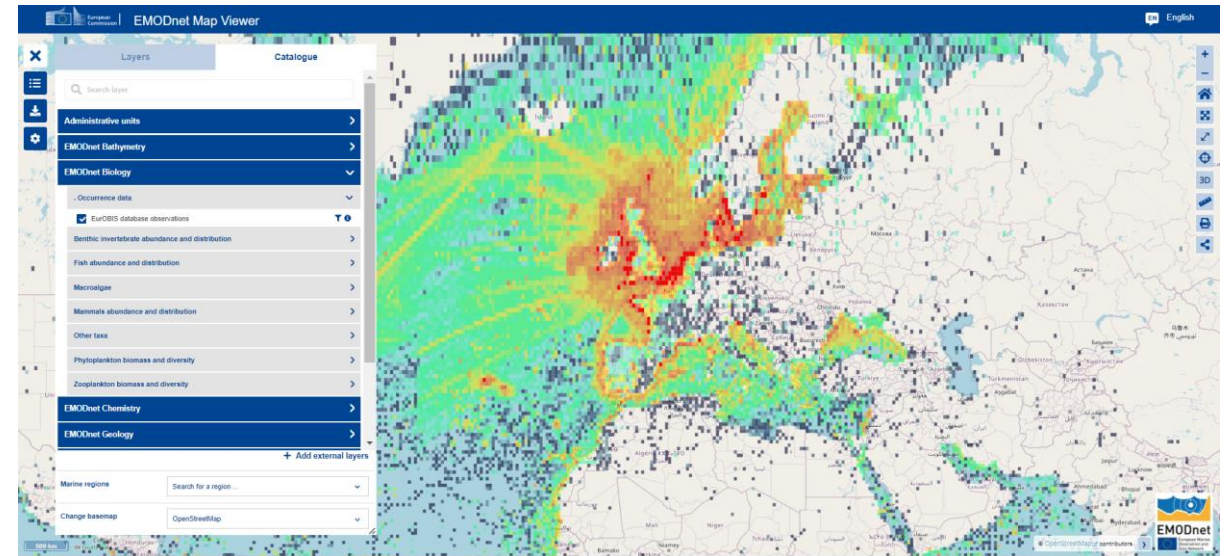
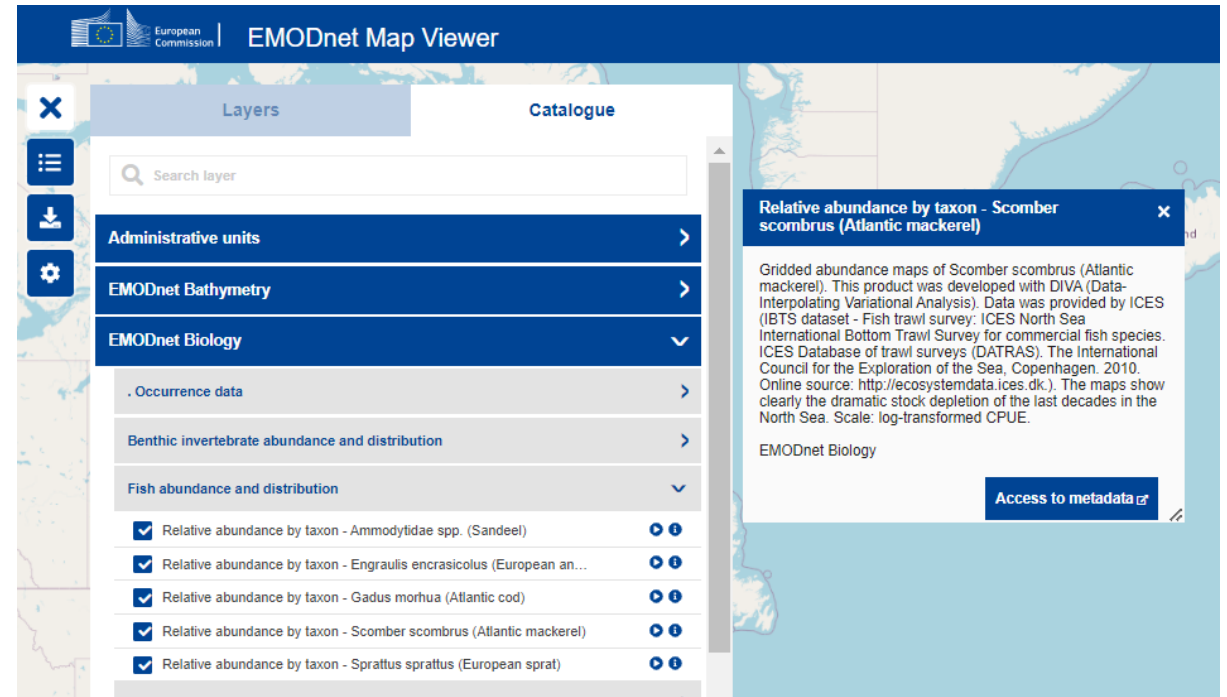
EMODnet: Fish/fishery data

EU Data Collection Framework (DCF)

- Data collected under EU DCF are first reported to e.g., ICES, JRC.
- EMODnet publishes any public (open access / open source) EU DCF data (caveat: most data are restricted) and EMODnet produces also some fish/fisheries data products (see example: gridded abundance map of *Scomber scombrus* = Atlantic mackerel, ICES data)

Wider marine biodiversity,

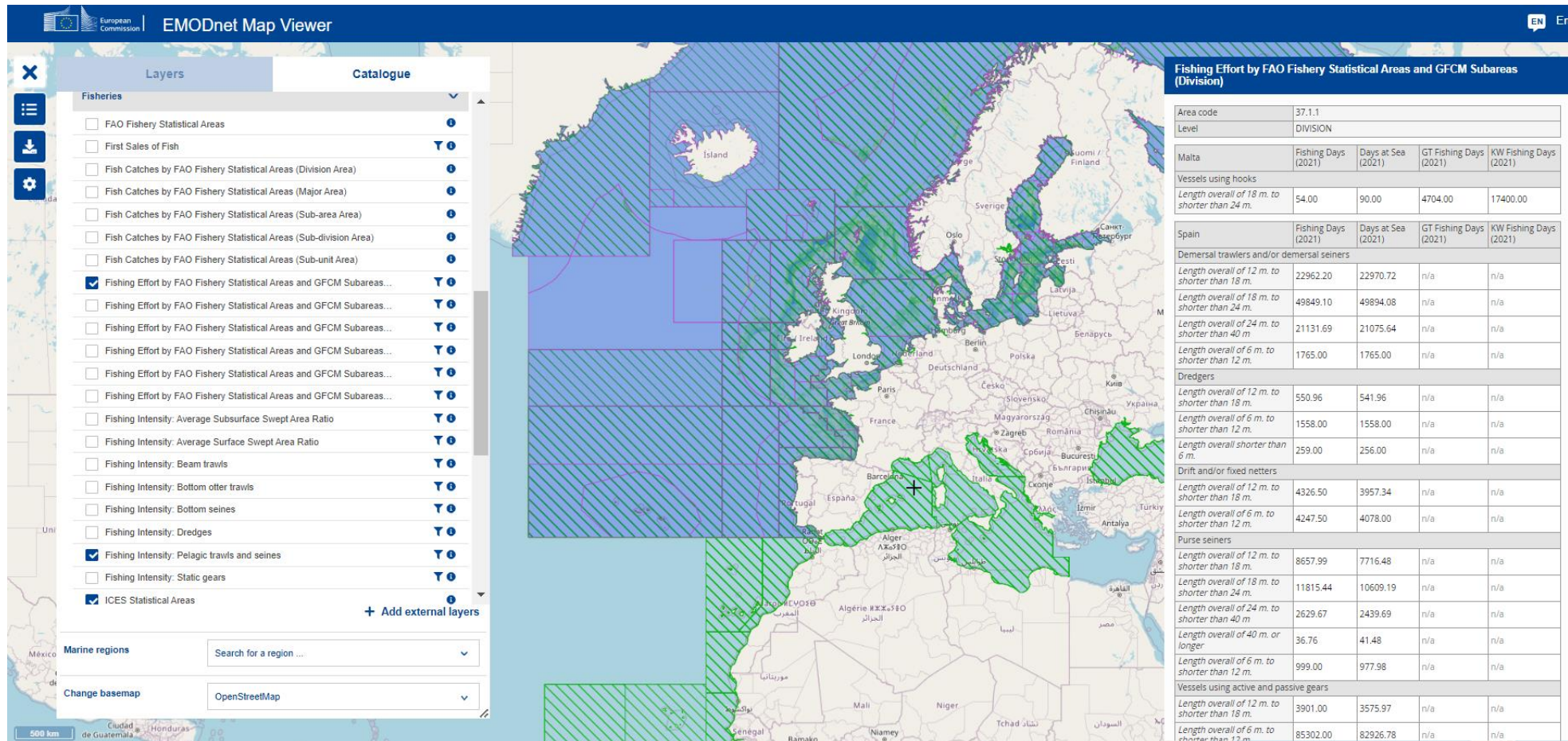
- EMODnet publishes many other wider fish data, including non-commercial fish;
- These data come from other sources, e.g. research surveys, citizen science, legacy/historical data (see example: OBIS and EurOBIS Occurrence data in EMODnet, searching for the taxon of interest).



EMODnet: Fish/fishery data, including related human activities data

EMODnet Fisheries human activities data and information

e.g., Fishing effort by FAO Fishery statistical areas and GFCM subareas, ICES statistical areas and ICES NE Atlantic data on fishing intensity: pelagic trawls and seines



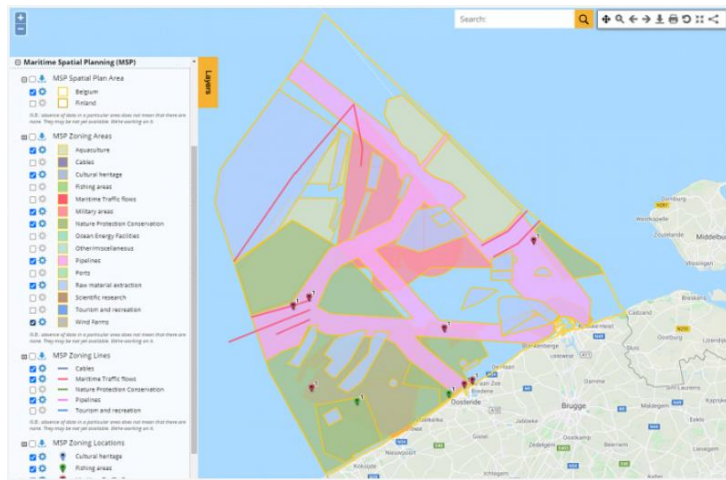
EMODnet: A EU focal point for EU Member State (National) Marine Spatial Plans and for harmonised data and knowledge to support MSP development

«EMODnet Human Activities is a focal point for EU Member State Marine Spatial plans and in the future this can be expanded to include MSP data products, for examples at the European level».

Joni Kaitaranta, HELCOM



- **EMODnet Human Activities:**
 - National (EU MS) Maritime Spatial Plans (=Output Data);
 - works in close co-operation with Regional Sea Conventions, and the EC JRC Technical Group (TG) on Data for MSP towards a technical solution for harmonising EU MSP within EMODnet;
 - Wind farm database and other data and information related to MSP.
- **EMODnet bathymetry, biology, chemistry, geology, physics, seabed habitats:**
 - High resolution transboundary in situ marine environmental and human activities data, essential for **climate-smart MSP** and offering trusted multi-disciplinary data to underpin cumulative impact assessments;



MSP Spatial Plan Area for Belgium, EMODnet Human Activities



EMODnet Human Activities Map viewer and data visualization (centralising by end 2022)

EMODnet | A key infrastructure for the EU Digital Twin Ocean (DTO)

EMODnet works together with Copernicus Marine Service to provide the back-bone for the European Digital Twin Ocean leading to a step change in capability for big (ocean) data analyses, ocean prediction and scenario-setting with Climate Change and broader societal applications.

The ongoing joint technical activities will deliver a **common data lake** in 2024.

The centralization of cross-thematic, and interoperability of multi-disciplinary data was a crucial first step, achieved by EMODnet services in January 2023.



emodnet.ec.europa.eu



Join us at the EMODnet Open Conference 2023 in Brussels, Belgium!

Powering the European Marine Data Ecosystem

For a digital and green future



OPEN CONFERENCE

29-30 November 2023
Brussels | NHow

#EMODnetConference2023

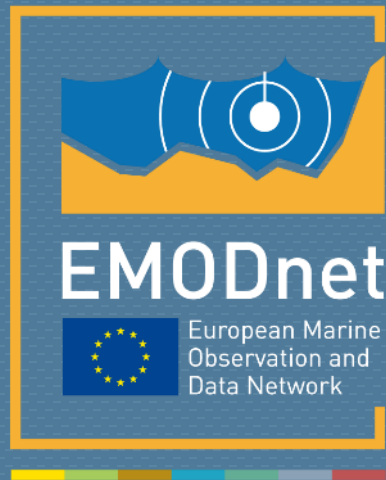
<https://emodnetconference2023.eu/>

Registration is open!

Full programme includes Sessions on EMODnet for the EU Digital Twin Ocean and more!

Contact us: secretariat@emodnet.eu Follow us: [@EMODnet](https://twitter.com/EMODnet)

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Your gateway to marine data in Europe

