



EMODnet



European Marine
Observation and
Data Network

Chemistry



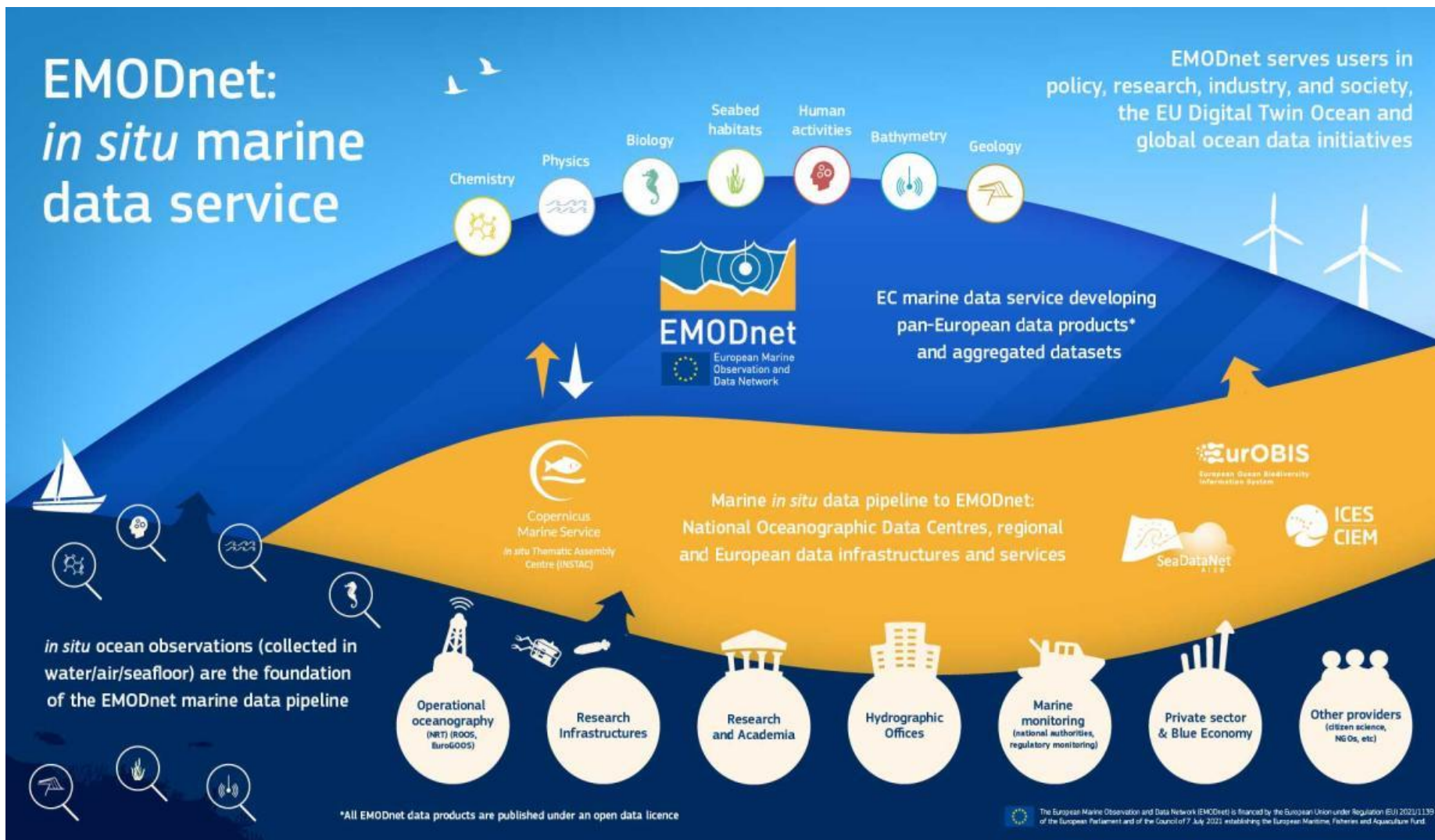
EMODnet as the EU data platform for marine litter data

Alessandra Giorgetti, Matteo Vinci, Maria Eugenia Molina Jack, OGS
Dick Schaap, MARIS

One Ocean Science Congress
Nice, 3-6 June 2025

EMODnet Service

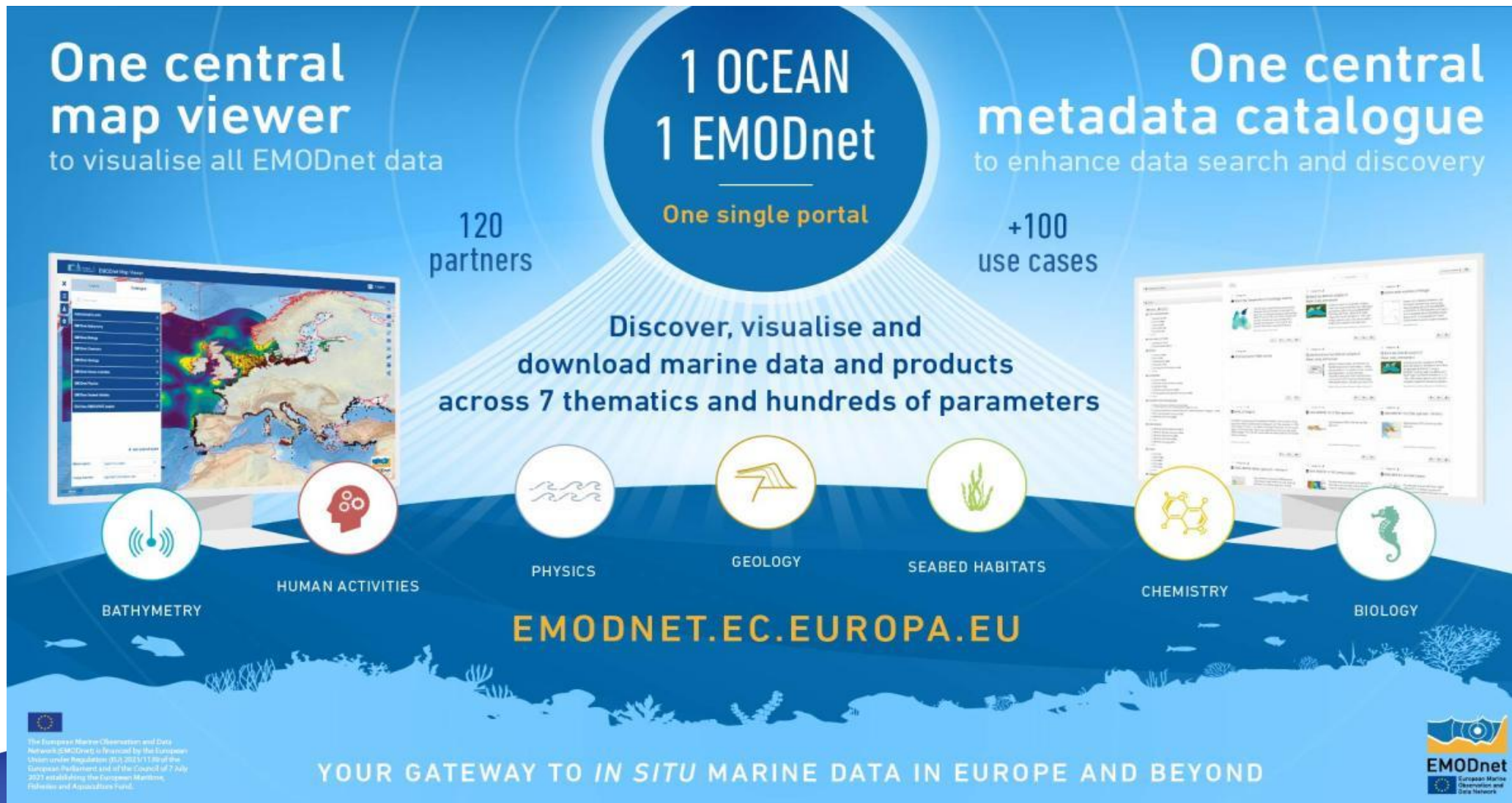
The European Marine Observation and Data Network



- Funded by the **European Commission (DG MARE)** since **2009**, with a vision to 2035
- **+ 120 organisations** working with national, regional and European marine data infrastructures
- **Easy and free access** to marine data, metadata and data products from 7 domains

EMODnet Portal

A single point of access to the most comprehensive collection of marine observations and products in Europe



The graphic features a central blue circle with the text "1 OCEAN 1 EMODnet" and "One single portal" below it. To the left, a computer monitor displays a map viewer interface, with a circular icon below it showing a signal tower and the label "BATHYMETRY". To the right, another monitor displays a metadata catalogue interface, with a circular icon below it showing a seahorse and the label "BIOLOGY". Between the monitors are four circular icons representing "HUMAN ACTIVITIES" (a head with gears), "PHYSICS" (waves), "GEOLOGY" (a rock layer), and "SEABED HABITATS" (seaweed). The background is a light blue gradient with a dark blue ocean floor at the bottom featuring fish and coral. The URL "EMODNET.EC.EUROPA.EU" is prominently displayed in the center.

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

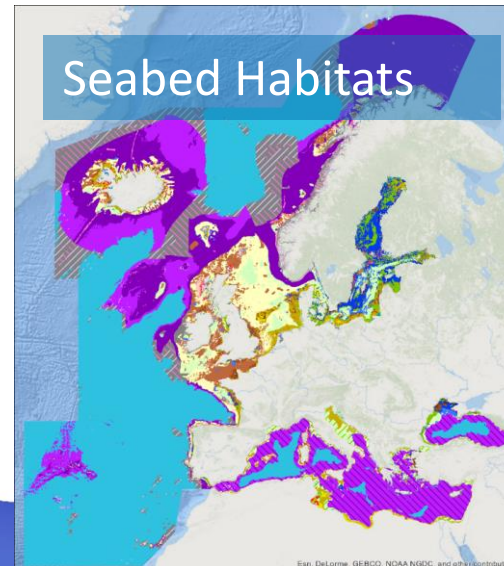
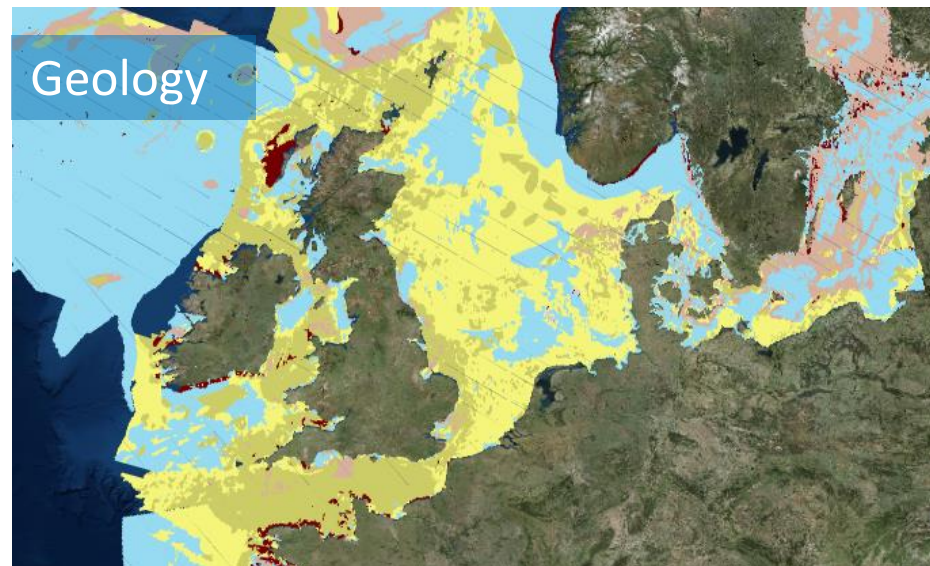
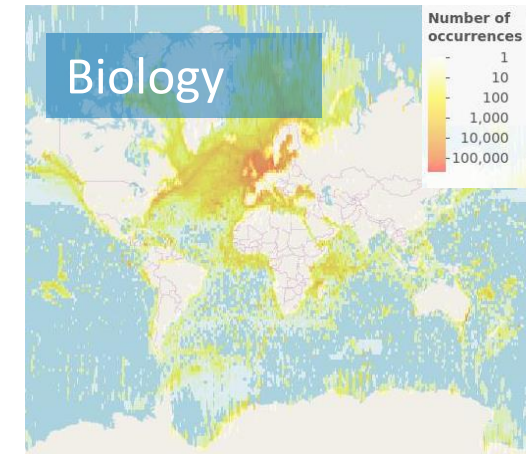
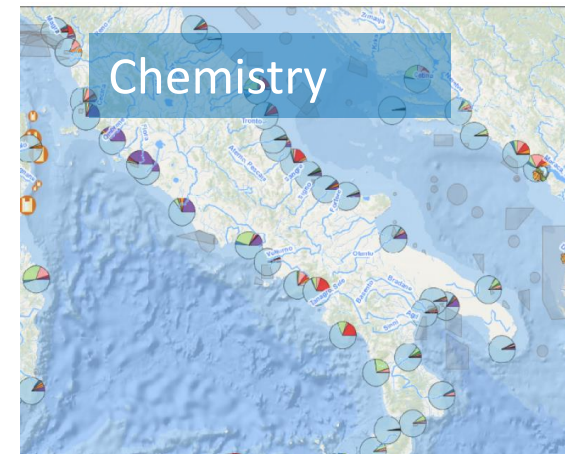
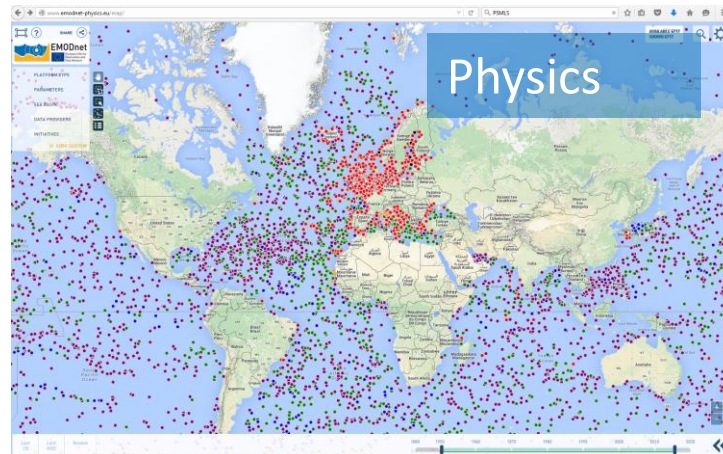
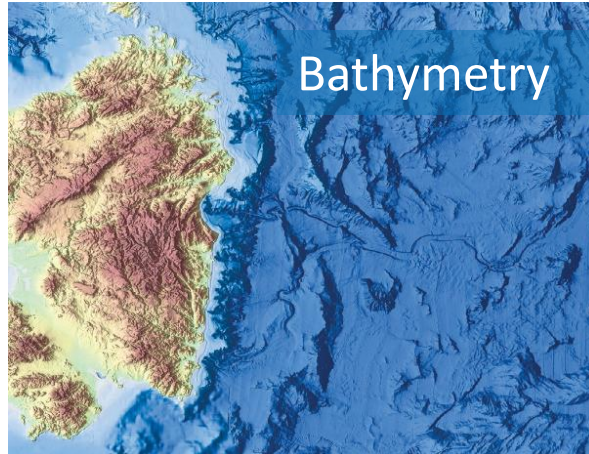
EMODNET.EC.EUROPA.EU

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

The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) 2023/1117 of the European Parliament and of the Council of 7 July 2023 establishing the European Maritime, Fisheries and Aquaculture Fund.



EMODnet – 7 thematic areas and networks



EMODnet Chemistry

Easy access to marine water quality data



- **Data and data products on marine pollution** to support the EU and global marine and climate change policies
- **A network of 44 organisations:** national oceanographic data centres, research institutes, monitoring agencies, international organisation
- The **MSFD Board of Experts** for feedback and refining data products and metadata
- **SeaDataNet** is used for managing and structuring metadata and data

EMODnet Chemistry

Contribution to the Marine Knowledge Value Chain

Data - Metadata - Data Products



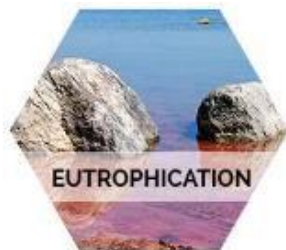
	Group of Parameters	Parameters
Marine Litter	Beach macrolitter, Seafloor macrolitter, Floating microlitter	Composition, Abundance, etc.
Ocean acidification	Acidity	pH, PCO ₂ , etc.
Contaminants	Antifoulants, Hydrocarbons, Heavy metals, Pesticides, Polychlorobiphenyls (PCBs), Radionuclides	Anthracene, Fluoranthene, Me, Cd, Pb, TBT, DDTs, etc.
Eutrophication	Nutrients, dissolved gases, etc.	N, P, Si, Chl-a, O ₂ , C, etc.

Task & Responsibility



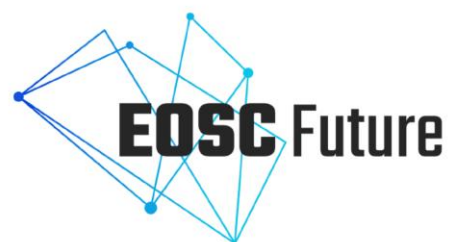
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Contribution to the EU projects and initiatives



 eosC | Blue-Cloud2026

 EDITOInfra



EMODPACE-CEMDnet (2020-2022)

Strengthening international Ocean Data sharing through the Ocean Diplomacy with China

- EMODnet PArtnership for China and Europe (**EMOD-PACE**) &
- the China-EU Marine Data Network Partnership (**CEMDnet**) by the National Marine Data and Information Service (NMDIS) of China

中国－欧洲EMODnet伙伴关系 - 中国-欧盟海洋数据网络伙伴关系



- Connecting people & organisations
- Cultivating cooperation



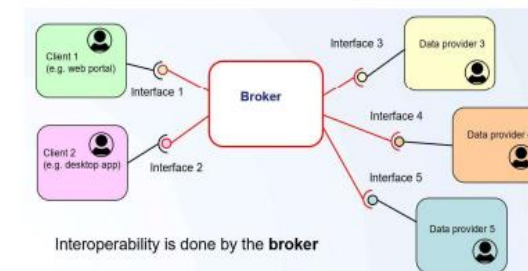
Principle of Brokerage service

Brokerage can be considered as building a 'bridge' between EU data services and NMDIS data services

A bridge requires 2 'bridgeheads' which should be 'web services'



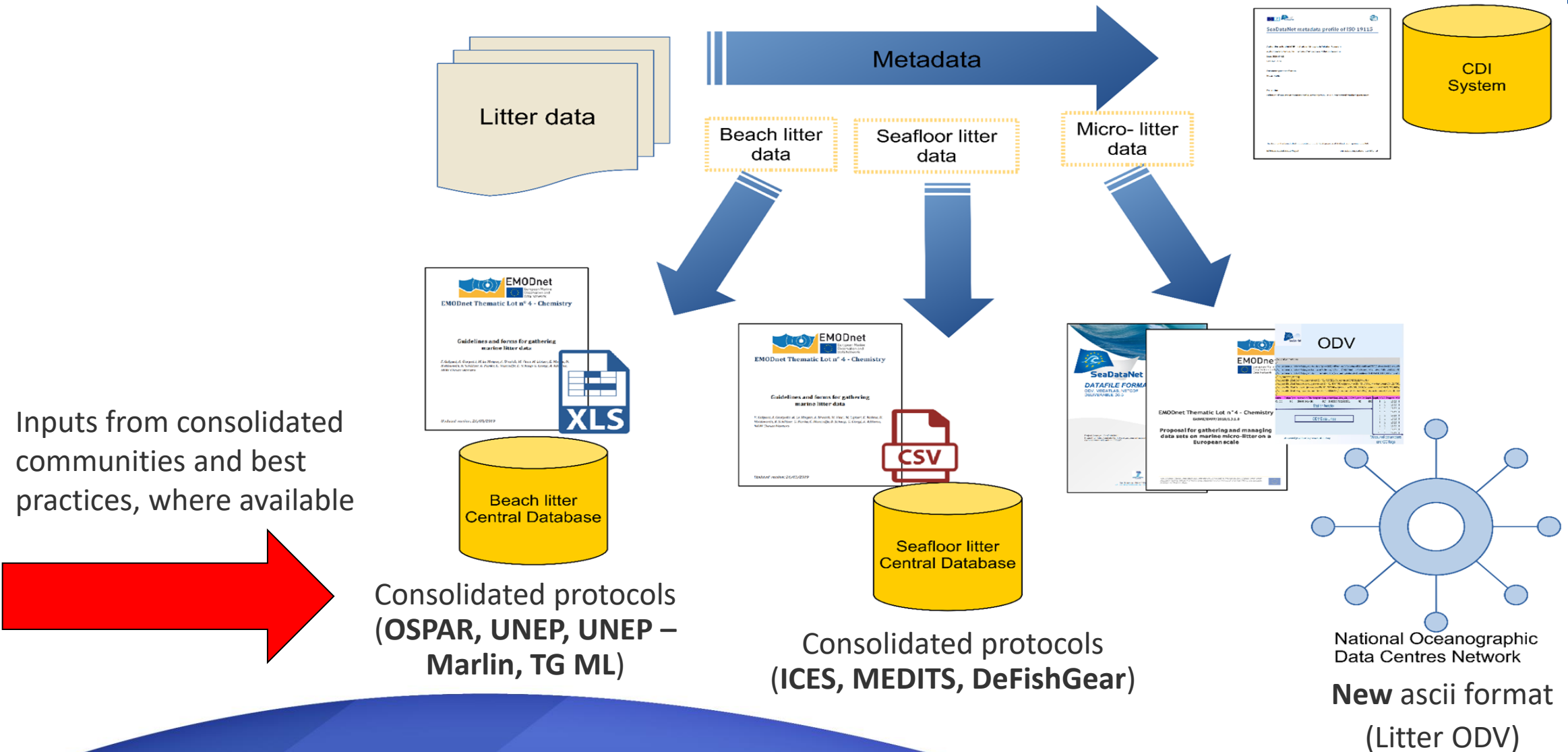
Use is made of **DAB Brokerage service**. Supports many protocols at metadata and data levels



- Unlocking & Combining data
- Creating marine knowledge

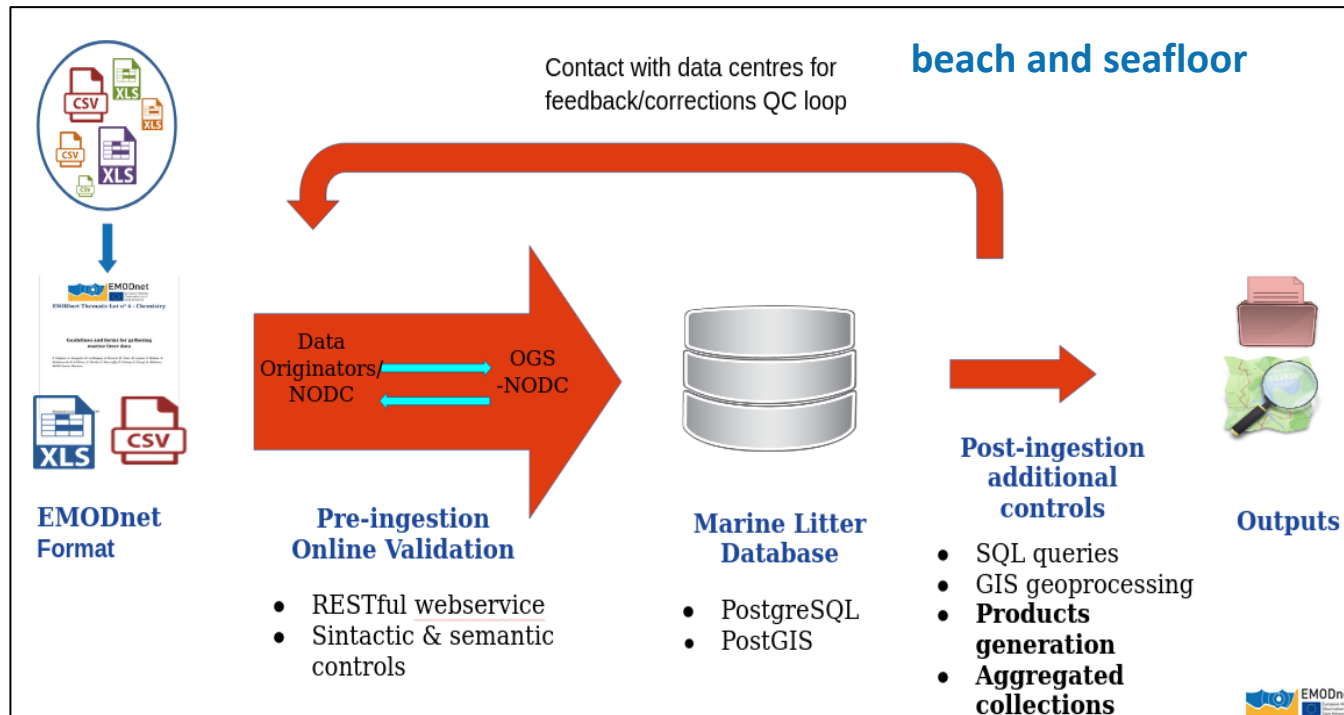
Marine litter data management

Consolidated workflows and data sources, agreed formats and guidelines

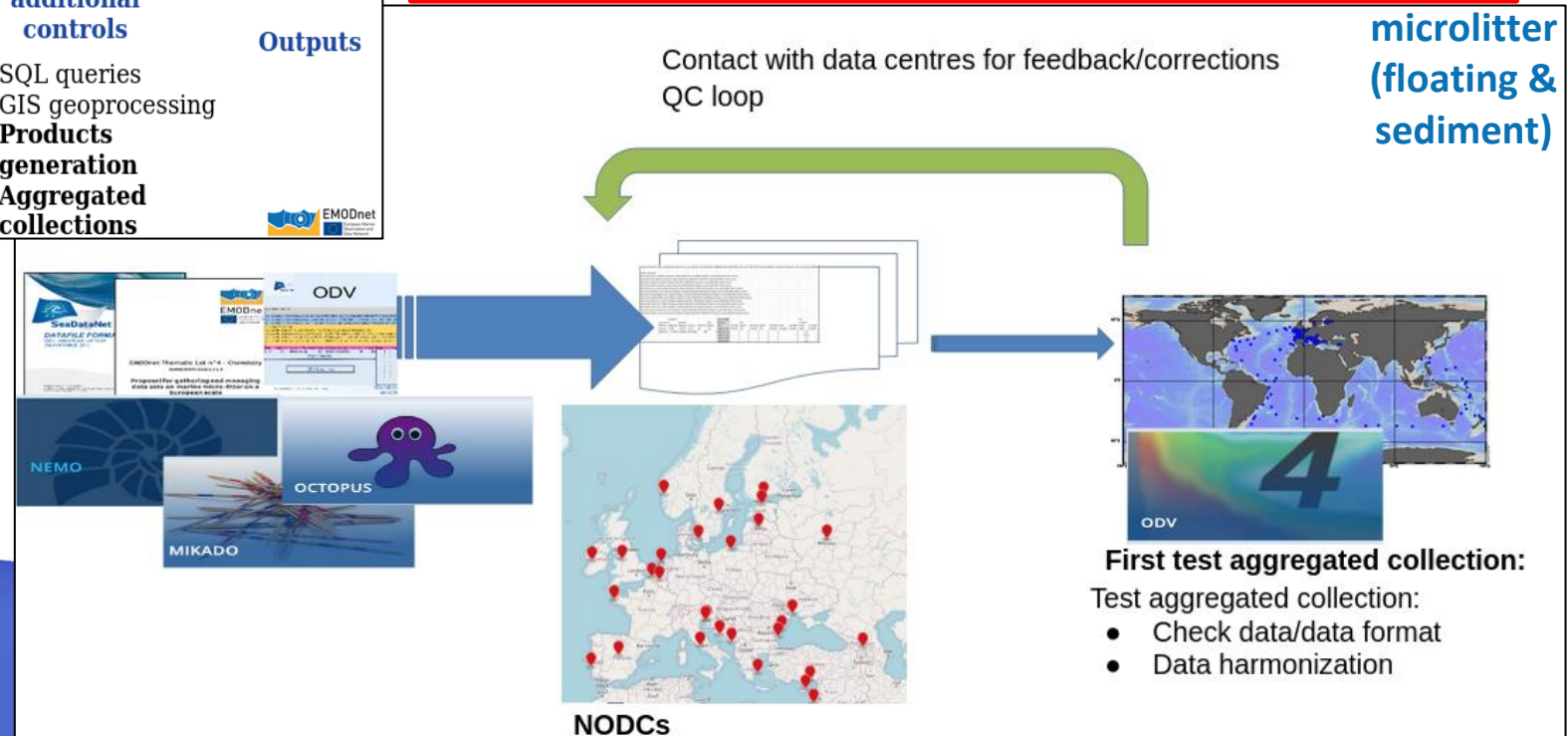


Loop for the quality of marine litter data

Quality checks before and after ingestion

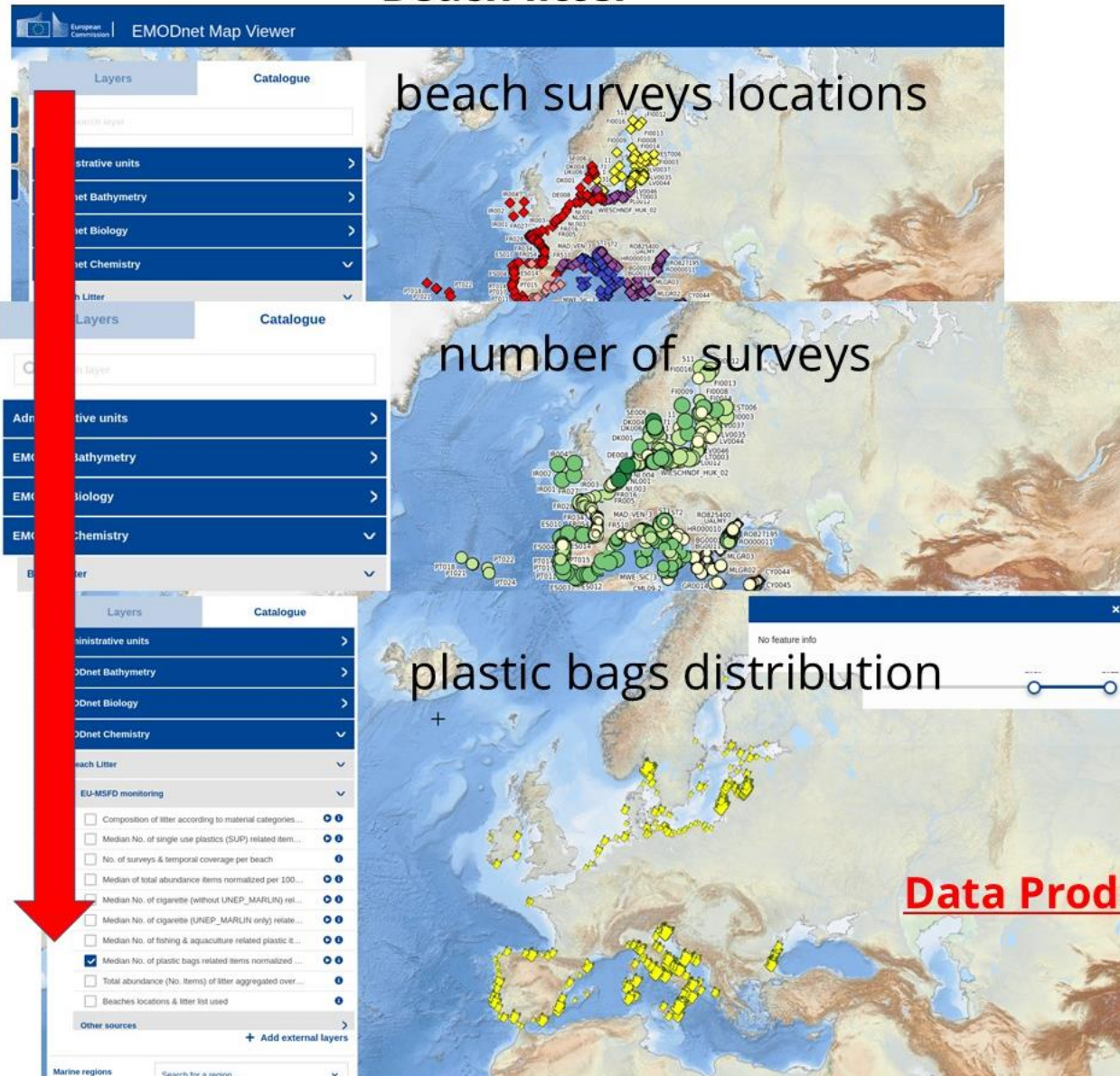


- **formatting** through **agreed guidelines**, formats and tools,
- strong **focus on pre-ingestion validation** (more efficient and safer) to streamline the workflow,
- continuous **updating** of validators,
- database **ingestion**,
- **post-ingestion** analysis and **additional QC**.

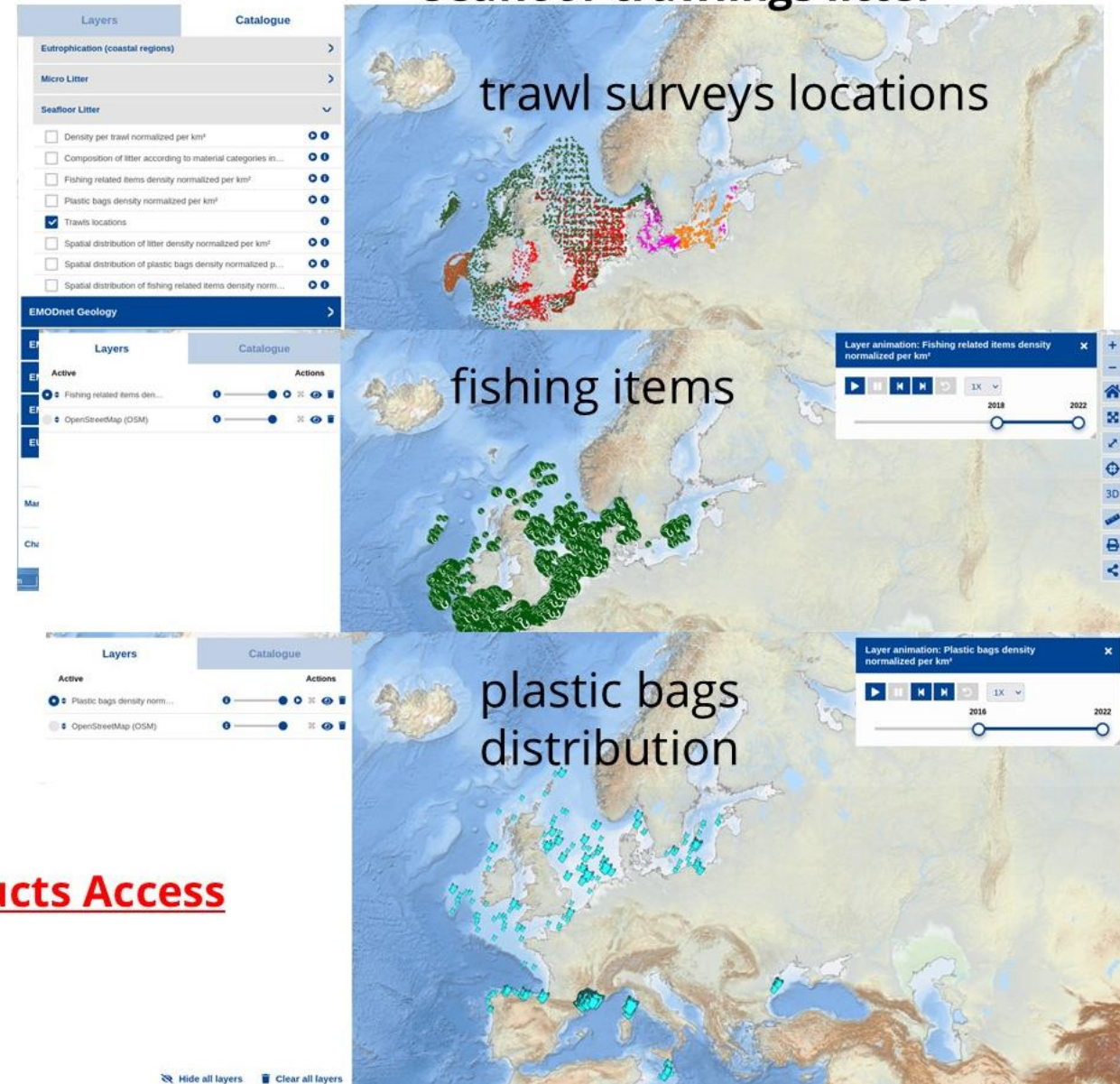


Data products help harmonization and post-ingestion quality controls

Beach litter



Seafloor trawlings litter



Data on marine litter on the seafloor in EMODnet

New development: composition and density of litter from images

- [Towards an Integrated Marine Debris Observing System](#) concept presented at OceanObs'19
- Collection of litter composition and density **from images** (ROV, AUV, cameras,...) to complement opportunistic data (from trawling)
- 2 international workshops were organised by JRC in May 2018 and September 2023
- International workshop in Shanghai, October 2024
- Global monitoring of marine litter to support the Global treaty

Cruise

Dive identification

Camera

Dive metadata

Transect

Hot spots

Items classification

field	mandatory (y/n)	field_type
cruise_name	y*3	alphanumeric
cruise_platform_name	y*3	alphanumeric
cruise_platform_type	y*3	alphanumeric
cruise_start_date	y*3	date
cruise_end_date	n	date
coordinates reference_system	y	alphanumeric
csr_id	y*3	alphanumeric
dive_platform_name	y	alphanumeric
dive_platform_type	y	alphanumeric
dive_id	y	alphanumeric
dive_start_date	y	timestamp
dive_start_point	n	numeric
dive_end_point	n	numeric
dive_end_date	y	timestamp
camera_system_number	y	numeric
instrument(s?)	y	alphanumeric
camera_height	n	numeric
camera_orientation	n	numeric
originator	y	numeric
collator	y	numeric
survey_type	y	
monitoring_purposes_uses	y	y/n
data_policy	y	alphanumeric
edmerp_id	n	alphanumeric
format of raw images/videos	y	alphanumeric
transect_id	y	alphanumeric
transect_start_point	y	numeric
transect_end_point	y	numeric
transect_length	y	numeric
transect length uncertainty	y	numeric
transect_description	n	alphanumeric
transect width	n	numeric
transect width uncertainty	n	numeric
min_depth	y*2	numeric
max_depth	y*2	numeric
average depth	y*2	numeric
Hot Spots number	y	numeric
hot_spot_coverage	y	numeric
litter_presence	y	alphanumeric
item lat	y*1	numeric
item lon	y*1	numeric
item_depth	n	numeric
item_timestamp	n	timestamp
Litter items, which protocol/list/codes?	y	alphanumeric
Litter item code	y	alphanumeric
unit	y	alphanumeric
number of items	y	numeric

EMODnet Chemistry interactions with expert groups and communities

The European MSFD Technical Group on Marine Litter and the European Environment Agency

- **EMODnet** as the **European platform for marine litter data**
 - Contributes to the guidelines for monitoring and reporting
 - Carries out **data collection** through the network of NODCs working with EU Member States
 - Performs **data standardization** and quality control
 - Provides harmonized data sets with the distribution of litter volumes
- Baselines for beach litter were published in 2019, trends in 2024
- Development of a methodology to obtain quantitative and comparable data and metadata on **marine macrolitter from seafloor images** to complement data from trawling worldwide
- **Development of a management system for seafloor litter data from images**



EMODnet Chemistry interactions with expert groups and communities

The European component to Global systems



Global Partnership on Plastic Pollution and Marine Litter (GPML):

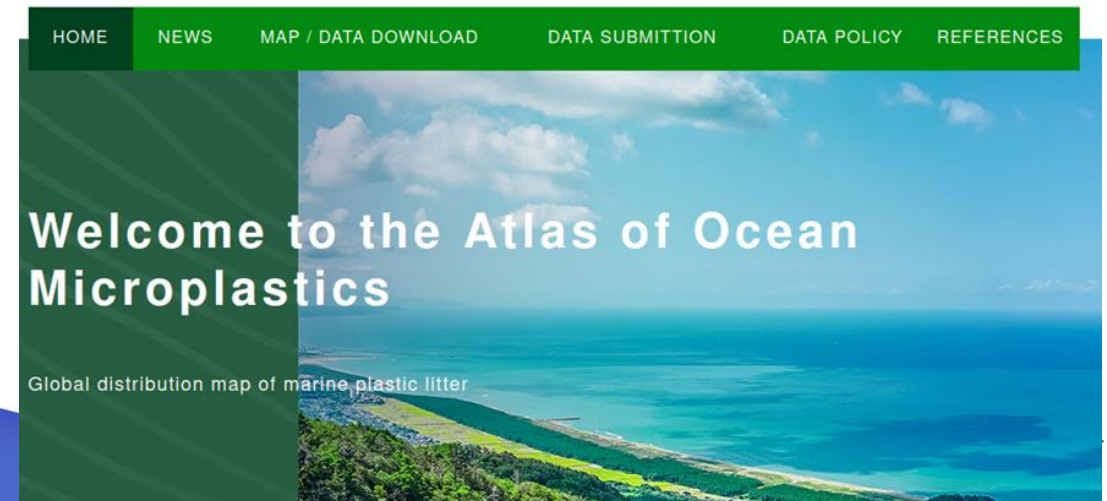
- Data and products sharing (Digital Platform)
- Revision/alignment of glossary and ontologies/vocabularies (Community of Practice on Data Harmonization)



[Terms of use](#)

G20 Actions against Marine Plastic Litter lead by the Ministry of the Environment Japan (MOEJ):

- **Guidelines** for Harmonizing Ocean Surface Microplastic Monitoring Methods (May 2019)
- Developing an **Atlas of Ocean Microplastic (AOMI)**





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the latest news

