Developing the first pan-European Marine Litter database within EMODnet Chemistry

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EMODnet Chemistry supports the implementation of the Marine Strategy Framework Directive (MSFD) with a data management plan focus on disclosing the fragmented and inaccessible environmental information.
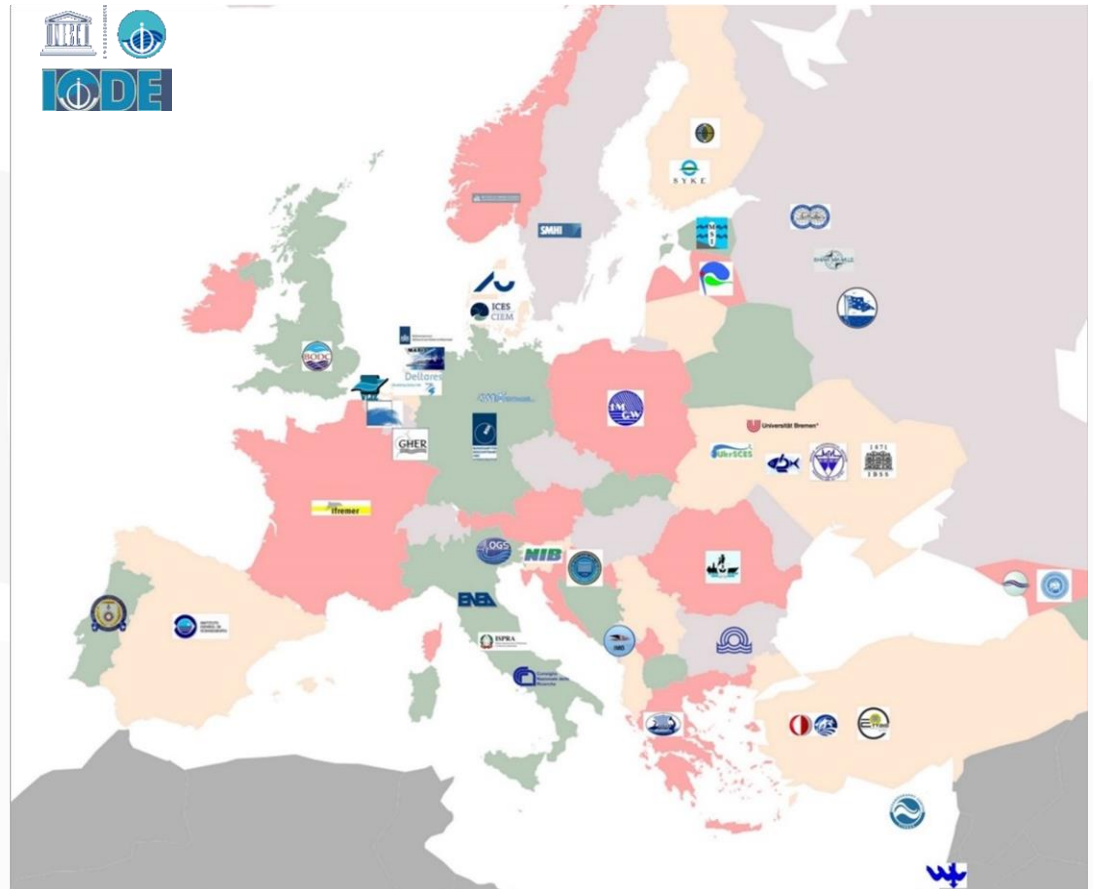
Network

- 45 institutes
- 27 countries
- 3 international organizations
  (ICES, Black Sea Commission, UNEP/MAP)

Activity

- Collection
- Standardization
- Aggregation
- Sharing of data

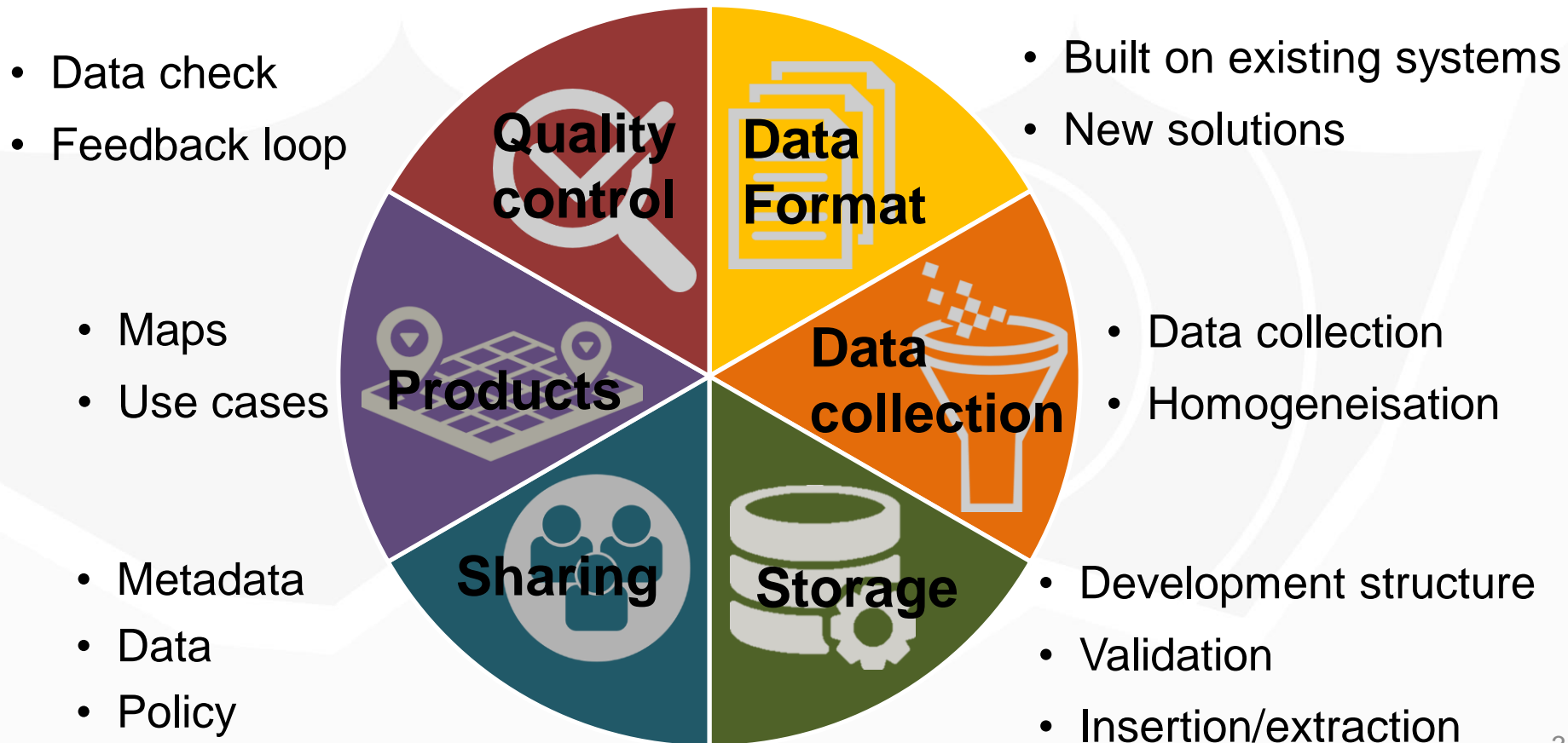## Data (MSFD Descriptors)

- Nutrients
- Contaminants
- Marine Litter

Marine litter data management

Include all type of data, providing central submission facilities, encouraging data exchange mechanisms and producing search and display services

- Data check
- Feedback loop

- Built on existing systems
- New solutions

- Maps
- Use cases

Quality control

Data Format

Products

Data collection

- Data collection
- Homogeneisation

- Metadata
- Data
- Policy

Sharing

Storage

- Development structure
- Validation
- Insertion/extraction

Marine litter data management - Format

- Include all type of data in an homogeneous form and keeping relevant information.
- Definition of new data formats/ adaptation of existing ones with the base of consolidated protocols.

BEACH	SEAFLOOR	FLOATING MICRO-LITTER
• Consolidated protocols (OSPAR, UNEP, TG-ML)	• Consolidated protocols (ICES, MEDits)	• No consolidated protocol
• New format based on OSPAR	• New format based on ICES	• Adaptation of EMODnet existing infrastructure, data formats and vocabularies

# Marine litter data management - Collection

Sources:

- Regular harvesting from existing databases:
  - OSPAR Database
  - ICES DATRAS SOAP Web Service
  - Requested a tailored-made Web Service for Marine Litter Watch EEA data

- Harvesting of beach litter data from Member States collated by JRC

- Harvesting of data from EMODnet partners

- Harvesting of data through EMODnet ingestion portal and additional sources:
  - From DeFishGear project (Adriatic-Ionian region)
  - From EMBLAS project (Russia)
  - From Volvo Ocean Race (worldwide)
  - …
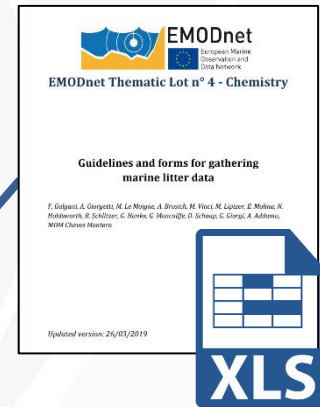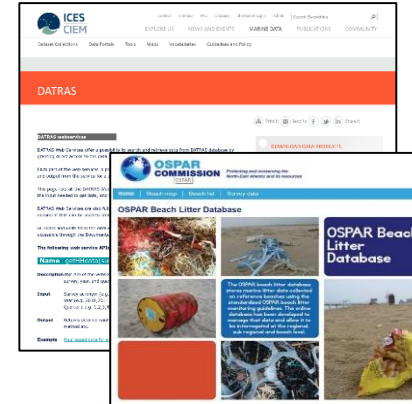
Marine litter data management - Storage

- Development of Central Databases for Beach Litter and Sea floor Litter
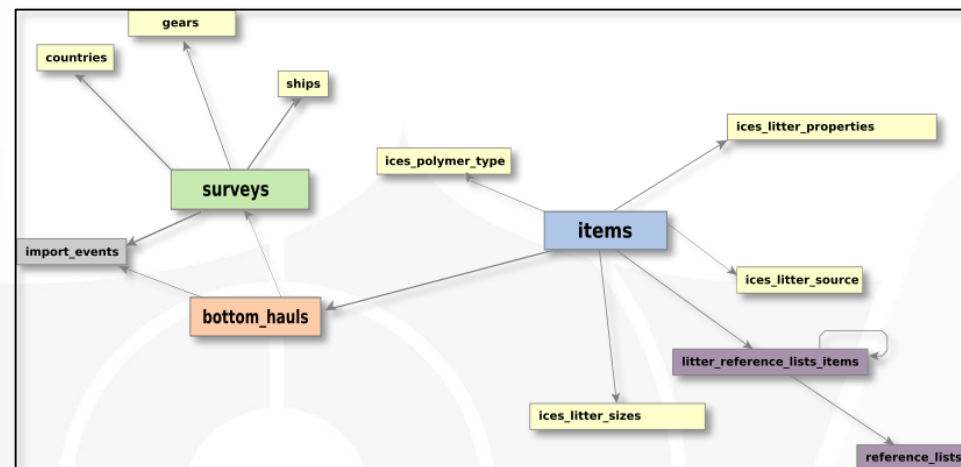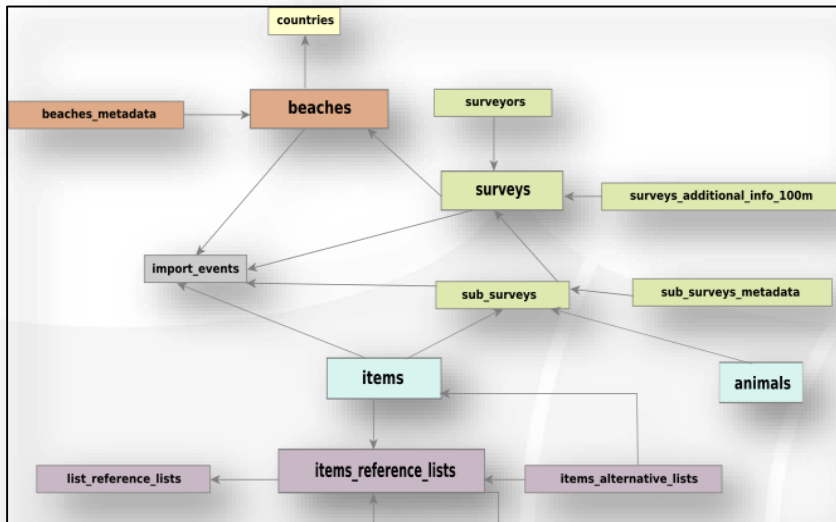
- Other Litter data are managed through SeaDataNet infrastructure and data formats. Data in common data format are kept by the assigned NODCs.

Marine litter data management - Sharing

Search and Discovery Service through EMODnet Chemistry Portal
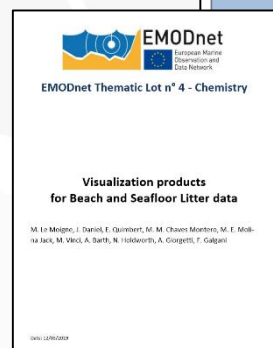

- Metadata
  - Originator
  - Collator
  - Dataset description
- Data download (depending on data policy)
- Acknowledgment requested

Marine litter data management – Products

Develop products that fit society needs, allowing the quick visualization and assessment of the database content and enhancing the direct use of the data.

- Map layers of relevant information:

    - Static maps of seafloor litter

    - Dynamic maps of beach and seafloor litter

- Documentation about methods used

- Assessed by board of experts

EMODnet seafloor litter data
MSFD region aggregated data of fishing gear and plastic single use materials(2011-2017)*

*Different sampling devices were used in the two regions (North East Atlantic Ocean and Baltic Sea). GOV trawl gear type is the most used in the North East Atlantic Ocean

EMODnet Thematic Lot n° 4 - Chemistry

Visualization products for Beach and Seafloor Litter data

M. Le Moigne, J. Daniel, E. Quimbert, M. M. Chaves Montero, M. E. Molina Jack, M. Vinci, A. Barth, N. Holdsworth, A. Giorgetti, F. Galgani

* The visualization products have been developed for EMODnet Chemistry by Ifremer and OGS.

Marine litter data management – Products

Viewing and Downloading Service through EMODnet Chemistry Portal

* The visualization products have been developed for EMODnet Chemistry by Ifremer and OGS.
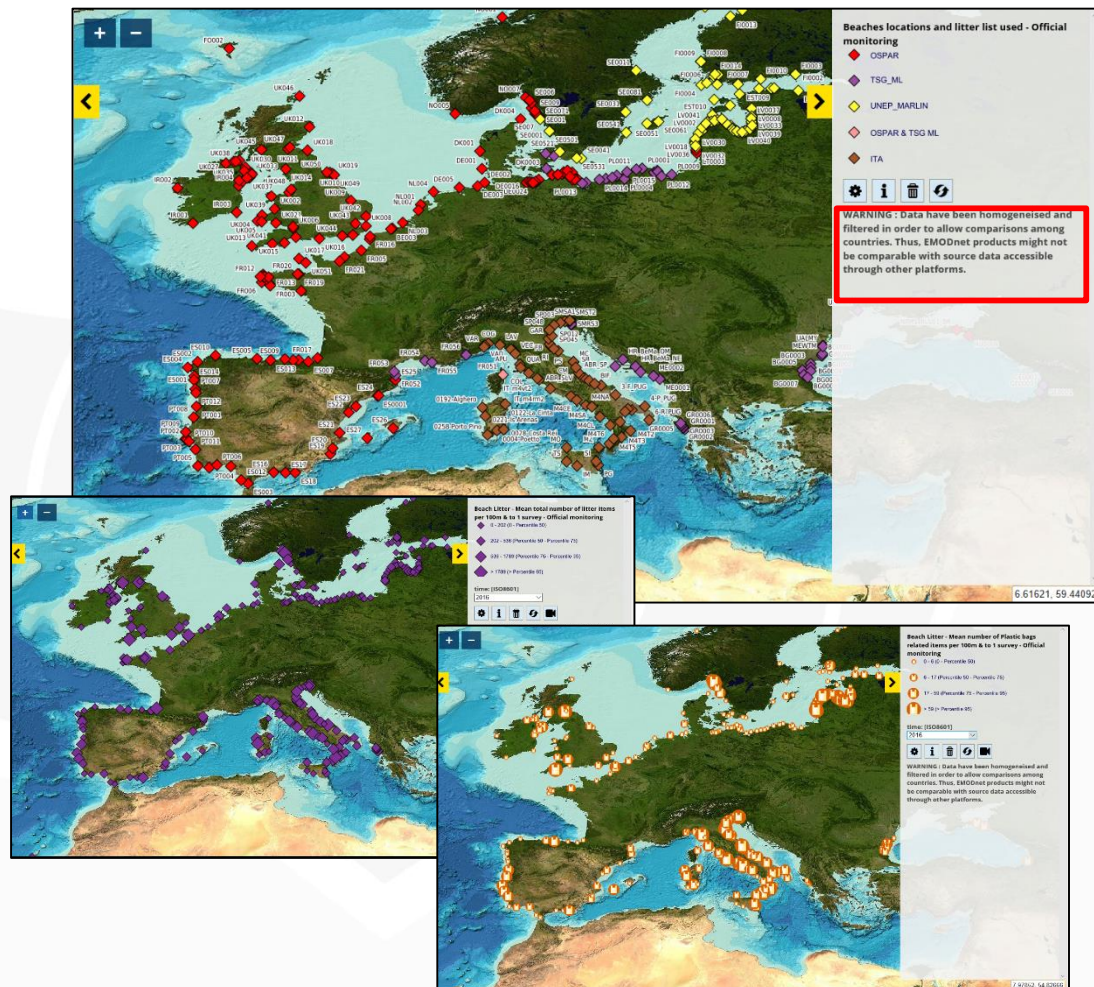
Marine litter data management – Products

Viewing and Downloading Service through EMODnet Chemistry Portal

EMODNET CHEMISTRY - LITTER

- ∨ Beach litter [2001 - 2018]
  - › Official monitoring
  - › Other sources
- ∨ Seabed litter [2006 - 2018]
  - Seabed litter - Trawls locations
  - Seabed litter - Density (Nb. Items/km2)
  - Seabed Litter - Material categories percentage per year
  - Seabed litter - Fishing related items density (Nb. Items/km2)
  - Seabed litter - Plastic bags density (Nb. Items/km2)
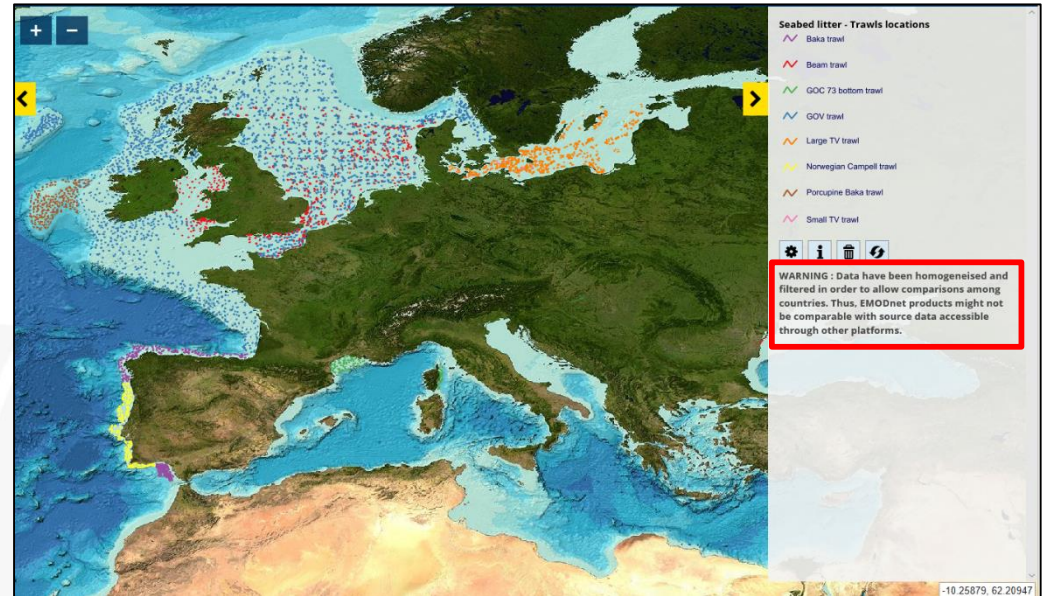
WARNING : Data have been homogeneised and filtered in order to allow comparisons among countries. Thus, EMODnet products might not be comparable with source data accessible through other platforms.

* The visualization products have been developed for EMODnet Chemistry by Ifremer and OGS.

Marine litter data management – Quality
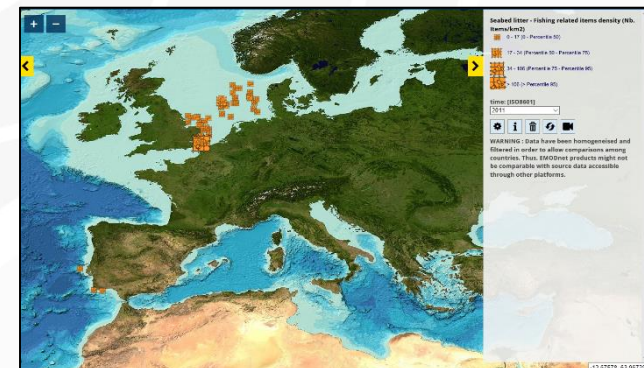
EMODnet Chemistry commits with providing the best quality data and products with data control all over the data flow.

- During formatting and insertion phase:

    - Direct contact with originators to clarify possible issues with the data

    - Online **validation tool** to check formatting errors (beta version)
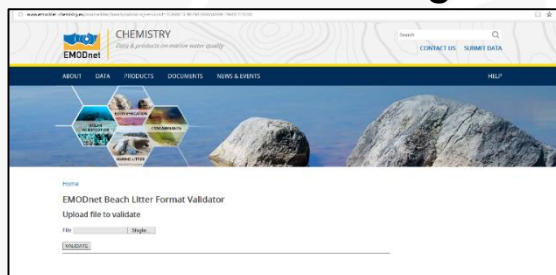
- Assessment of products in development phase by consultation with EMODnet board of experts and other collaborators as needed.

- Data assessment and quality control during the generation of data products.

- Feedback loop with the originators to ensure the correction of possible detected errors

Uses

The data and products may be freely used for non-commercial, educational and research purposes, as well as for general information, within the limits of the methods used.

Research   Policy makers   Society

EMODnet litter data have been used for:

- EU plastic assessment

- Beach litter baselines dataset

- Ongoing update of TG-ML reference list

Summary

- Development of a **data management system** for marine litter at EU scale:

  - beach + seafloor through Marine Litter Database
  - floating micro litter with bio-ODV

- **Visible and accessible Data** + **Visualization products** at multibasin

  scale

- Ensured data and products **quality** :

  - Data quality control and feedback with originators
  - Products evaluation through expert consultation

- Highlight the necessity to keep working on the **harmonisation** of

  monitoring programs and sampling and reporting methods, for which strong

 cooperation of the international is essential.

Future developments

- **EMODnet 4**, EMODnet Ingestion 2

- **Data insertions**:

  - Updated datasets from MS through TG-ML

  - Updated data from OSPAR, ICES databases

  - New data by partners

  - Marine Litter Watch dataset from EEA

- Extended **data types** and **data formats**:

  - Floating macro litter

  - Seafloor litter from images and sub sampling?

- Updated/new **visualization products**

THANKS FOR YOUR ATTENTION!
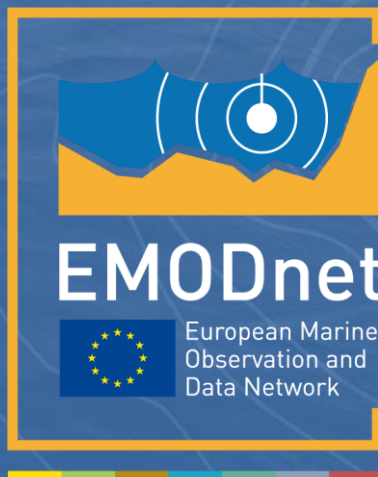
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www.emodnet.eu

www.emodnet-chemistry.eu

Your gateway to marine data in Europe

This work exists only thanks to the synergy and active interaction with EMODnet partners, OSPAR, HELCOM, EEA, DeFishGear, ICES DATRAS, facilitated by MSFD Technical Group on Marine Litter and JRC.