

EU efforts for data harmonisation for policy purposes

G20 Workshop on harmonized monitoring and data compilation of marine plastic litter, 7th September 2020, Online , Japan

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The diagram illustrates a 6-year cycle for the assessment and management of the environmental status of marine waters, starting in 2018. The cycle involves several key components and steps:

- Assessment (Art. 8):** The cycle begins with an assessment in 2012. A box indicates "6-year cycle: updates start in 2018".
- Monitoring programmes (Art. 11):** The assessment leads to monitoring programmes in 2014. A decision point asks: "If GES is achieved, is there significant risk to maintaining GES?".
 - If **No**, the cycle proceeds to the next assessment.
 - If **Yes**, the cycle proceeds to "Identify targets needed to achieve or maintain GES".
- Environmental targets (Art. 10):** Targets are identified in 2012. A box asks: "To assess progress with targets".
- Programme of measures (Art. 13):** Measures are identified in 2015/16. A box asks: "To assess effectiveness of measures".
- Exceptions (Art. 14):** Exceptions are identified in 2015. A box asks: "Are any exceptions applicable?".
- Good Environmental Status (Art. 9):** The cycle concludes with Good Environmental Status in 2012. A box asks: "Determine GES".

The cycle is a continuous loop, with the next assessment starting in 2018.

2 Alien S
3 Fisher
4 Foodv
5 Eutro
6 Seaflo
7 Hydro
8 Conta
9 Conta
10 Mari
11 Ener

Quantitative Criteria:

- Beach litter
- Sea Surface litter
- Seafloor litter
- Micro-litter
- Biota entanglement
- Litter ingestion

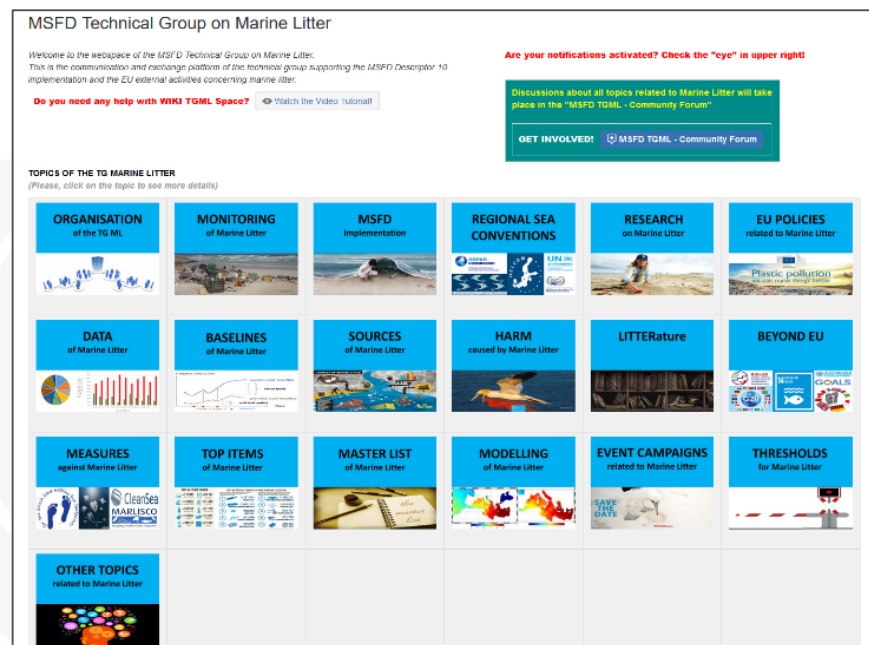
Baselines, Thresholds
+ Targets

MSFD Technical Group on Marine Litter (TG ML)

MSFD CIS working group set-up to **coordinate** the implementation of monitoring, **compiling** data, **defining** baselines & thresholds, providing **harmonised** protocols

- Chaired by France, Germany , JRC*
- EC, EEA
- EU Member States
- Regional Sea Conventions
- Other stakeholders
- 113 Members

Collaboration through on-line platform, annual meeting and technical workshops



*Science and knowledge service of the European Commission

Link to reports:

https://mcc.jrc.ec.europa.eu/main/dev.py?N=41&O=434&titre_chap=TG%2520Marine%2520Litter



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EU efforts on data management



THE EUROPEAN MARINE OBSERVATION AND DATA NETWORK - AT A GLANCE

Over **150 organisations** assembling and making available **marine data, metadata & products**

7 Thematic portals

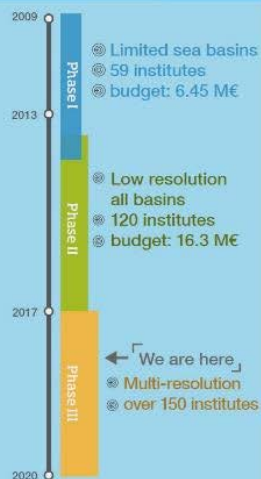


6 Sea-basin Checkpoints

ARCTIC ATLANTIC
BALTIC BLACK SEA
MED SEA NORTH SEA

Checking the fitness for purpose of marine data in European sea basins

EMODnet Timeline



1 Central Portal (www.emodnet.eu)

Gateway to all EMODnet data resources and tools allowing users to retrieve data layers from multiple themes

1 Ingestion Portal

facilitating submission of new datasets

EMODnet Secretariat



MARITIME AFFAIRS

Long-term initiative (2009-...) by **DG MARE** as part of EU Blue Growth strategy

- ☐ to **unlock marine data**, facilitating **access** and **re-use**
- ☐ for **different domains**

Towards the **new vision**

- ☐ interoperability (FAIR)



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European Marine Observation and Data Network



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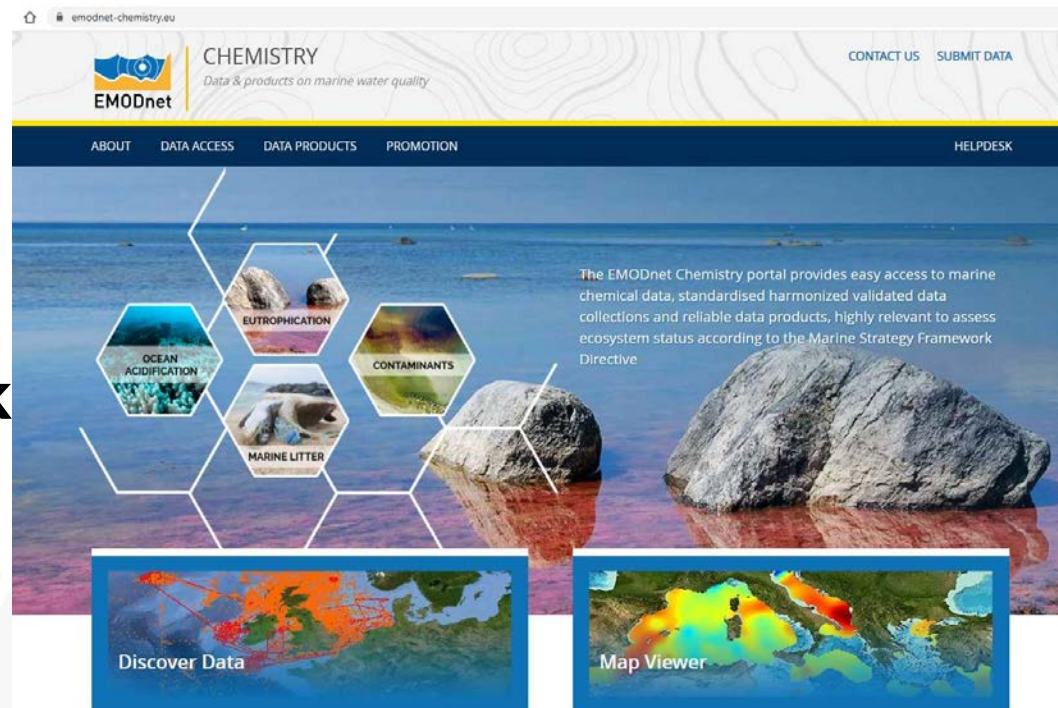


EMODnet Chemistry

Collect, aggregate, standardize, quality check data, share information and products on marine water quality:

- ☐ **Marine Litter**
- ☐ **Eutrophication**
- ☐ **Contaminants**
- ☐ **Ocean acidification**

Data on water, biota and sediment



	Group	Examples
Eutrophication	nutrients, dissolved gasses ...	N, P, Si, Oxy, Chl-a
Ocean acidification	acidity	pH, pCO ₂
Contaminants	hydrocarbons, heavy metals, pesticides, ...	anthracene, fluoroanthene, Me, Cd, Pb, TBT, DDTs
Marine Litter	beach litter, seabed litter, microlitter	

<http://www.emodnet-chemistry.eu/>



EMODnet



Support to EU MSFD Directive

- EMODnet Chemistry aims at providing **access to marine chemistry data** and **generating products** relevant for the implementation of the EU **Marine Strategy Framework Directive** (MSFD, 2008)
- Tight connection with EEA, RSCs, JRC, ICES through **MSFD Experts Board meetings** to obtain **feedbacks on data products** useful for indicators of MSFD descriptors





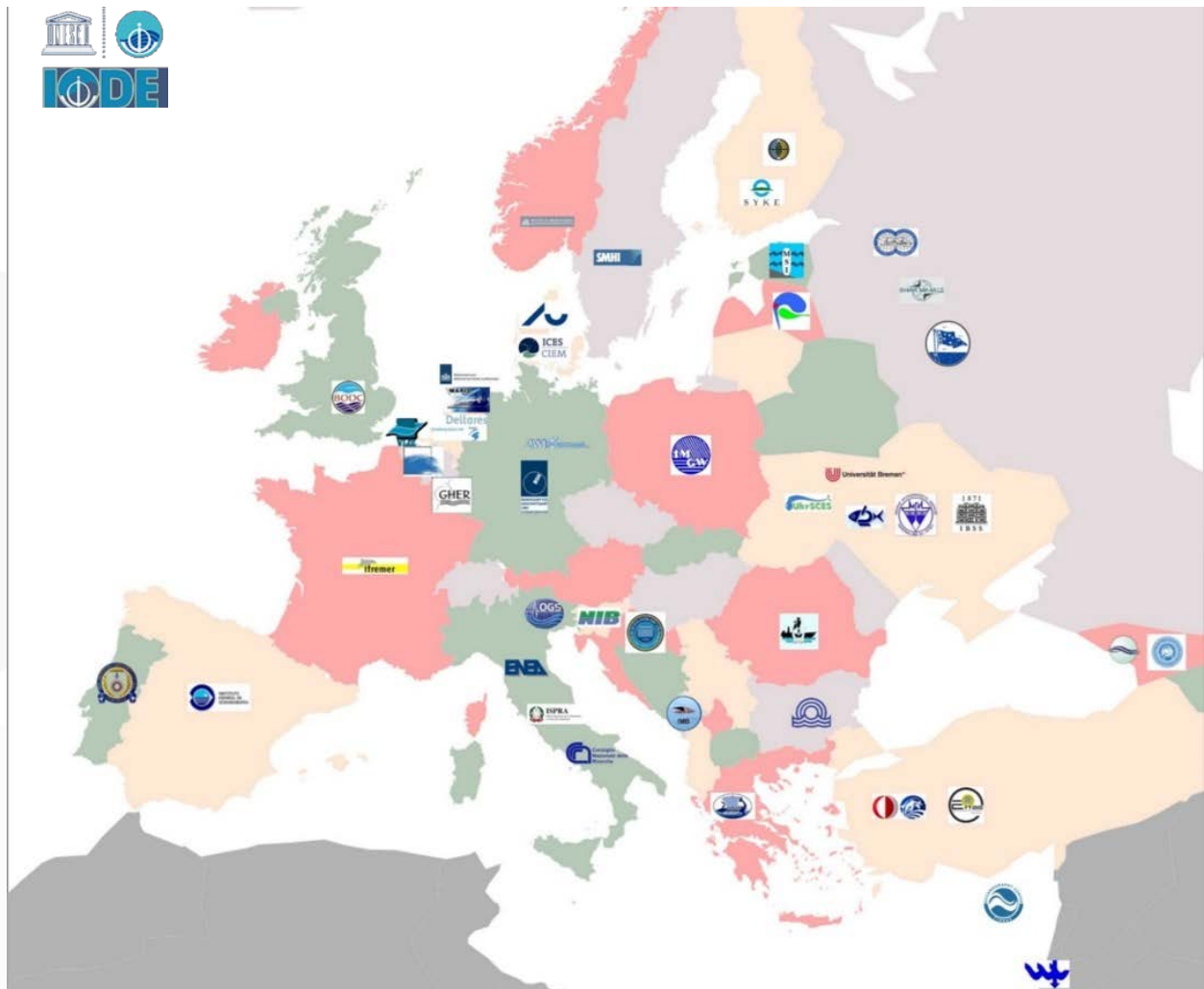
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European Marine
Observation and
Data Network

EU Network of data centres

EMODnet Chemistry brings together **16 organisations** from 11 countries along European seas, and a group of **24 data centres** and **organizations** joining the open Advisory Forum, including **ICES** and the regional sea conventions (**OSPAR**, **HELCOM**, **UNEP/MAP** and **BSC**)





EMODnet



Data and metadata standards:



HORIZON 2020
THE EU FRAMEWORK PROGRAMME
FOR RESEARCH AND INNOVATION



Adopts and adapts **SeaDataNet**, the consolidated pan – **European infrastructure** set up and operated for **ocean and marine data management**



Station	day/month/year	Latitude	Longitude	Depth(m)	TEMP (°C)	SALINITY (g/kg)
C1	27/11/2006	13.716	-45.701	8.5	17.261	37.266
C1	27/11/2006	13.716	-45.701	1	17.261	37.266
C1	27/11/2006	13.716	-45.701	2	17.247	37.264
C1	27/11/2006	13.716	-45.701	3	17.261	37.264
C1	27/11/2006	13.716	-45.701	4	17.26	37.264
C1	27/11/2006	13.716	-45.701	5	17.261	37.262
C1	27/11/2006	13.716	-45.701	6	17.261	37.246
C1	27/11/2006	13.716	-45.701	8	17.147	37.245
C1	27/11/2006	13.716	-45.701	8	17.146	37.245



- **Adoption of ISO 19115 –19139 standard for describing metadata** (on data sets, research cruises, monitoring networks, research projects => marine metadata profiles, schemas, schematron rules)
- **Controlled vocabularies** for the marine domain (>65,000 terms in 82 lists), with **international governance** and web service
- **Standard data exchange formats : ASCII and binary (NetCDF)** fully supported by controlled vocabularies

Works together with IOC/IODE and ICES for **maintenance** and **dissemination** of standard QA-QC procedures

Protocols and formats agreed at European scale (MSFD TG ML)

BEACH

Based on consolidated protocols adopted by regional sea conventions (OSPAR, UNEP, TG ML)

New EMODnet format and tools based on OSPAR data format

SEAFLOOR

Based on consolidated protocols (ICES, MEDITS, DeFishGear)

New EMODnet format based on ICES and MEDITS

FLOATING MICROLITTER

More fragmented and heterogeneous management

New EMODnet format based on SeaDataNet/EMODnet data formats and infrastructure

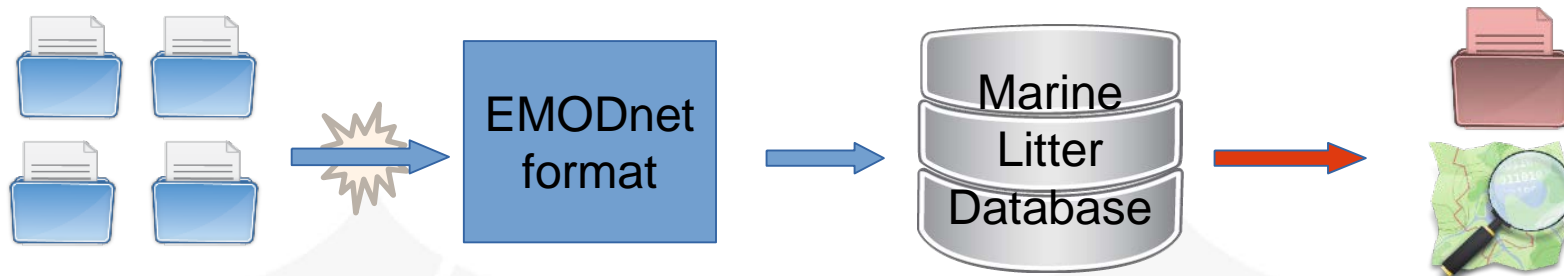
**Collect all type of data with central submission facilities,
and provide open access to harmonized information**



EMODnet



Litter Databases content



Beach	OSPAR-MCS database Data collection from Member States EMODnet partners and associates, EEA Marine Litter Watch	38 countries 1096 beaches 7077 surveys
Seafloor	ICES-DATRAS database DeFishGear, EMODnet partners	23 countries 4339 surveys
Floating microlitter	EMODnet partners, Volvo Ocean Race	6 countries 163 surveys

Counts updated at 01/09/2020



EMODnet



European Marine
Observation and
Data Network

Discovery and access services: data

EMODnet CHEMISTRY Data & products on marine water quality
CDI Data Discovery and Access Service - Extended search

NEW SEARCH SEARCH RESET

Sea regions

Search

- ☐ Arctic Ocean
- ☐ Asian mainland
- ☐ Atlantic Ocean
- ☐ Baltic Sea
- ☐ European mainland
- ☐ Indian Ocean
- ☐ Mediterranean Region
- ☐ Pacific Ocean

Date search From To

Parameters

Search Marine categories

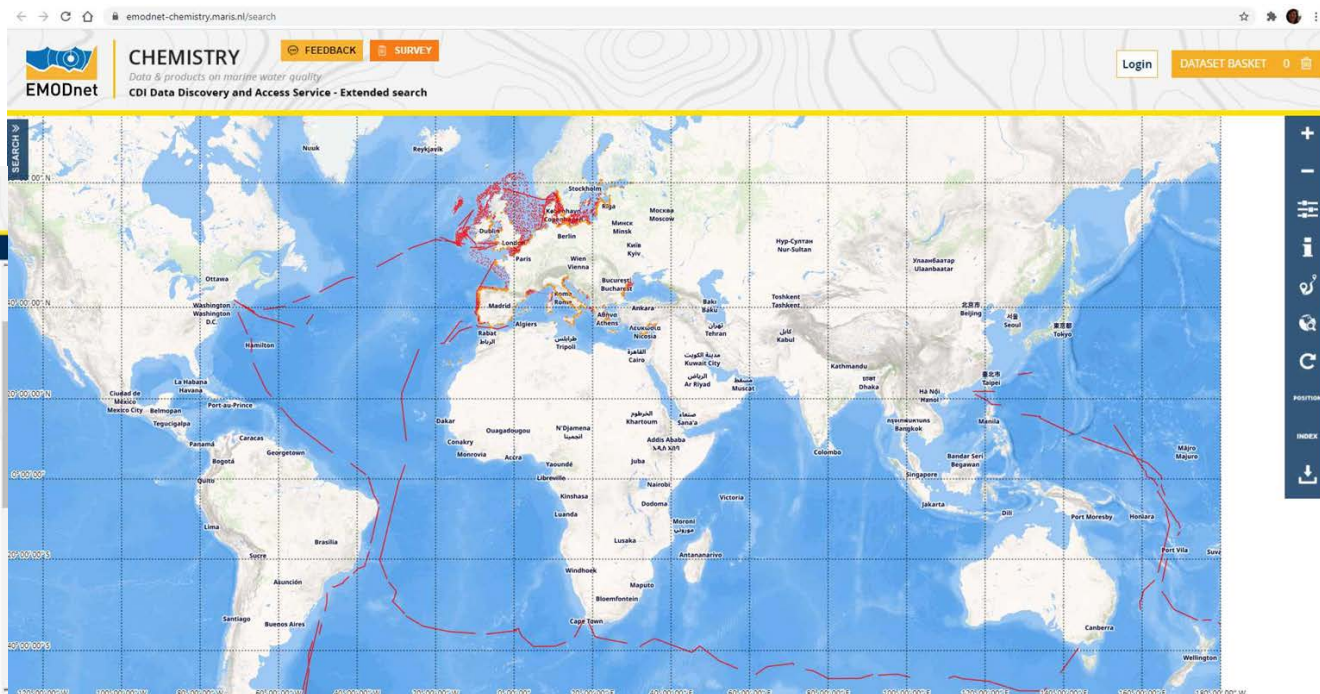
- ☐ Plankton
- ☐ Dissolved
- ☐ Chl a/b

Search Groups of variables

- ☐ Chlorophyll
- ☐ Dissolved gases
- ☐ Chl a/b
- ☐ Chl a/b
- ☐ Chl a/b

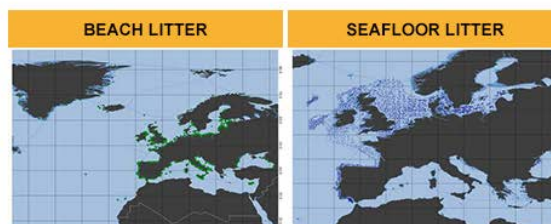
Marine litter

Search Discovery Parameter



Data collections

Marine Litter



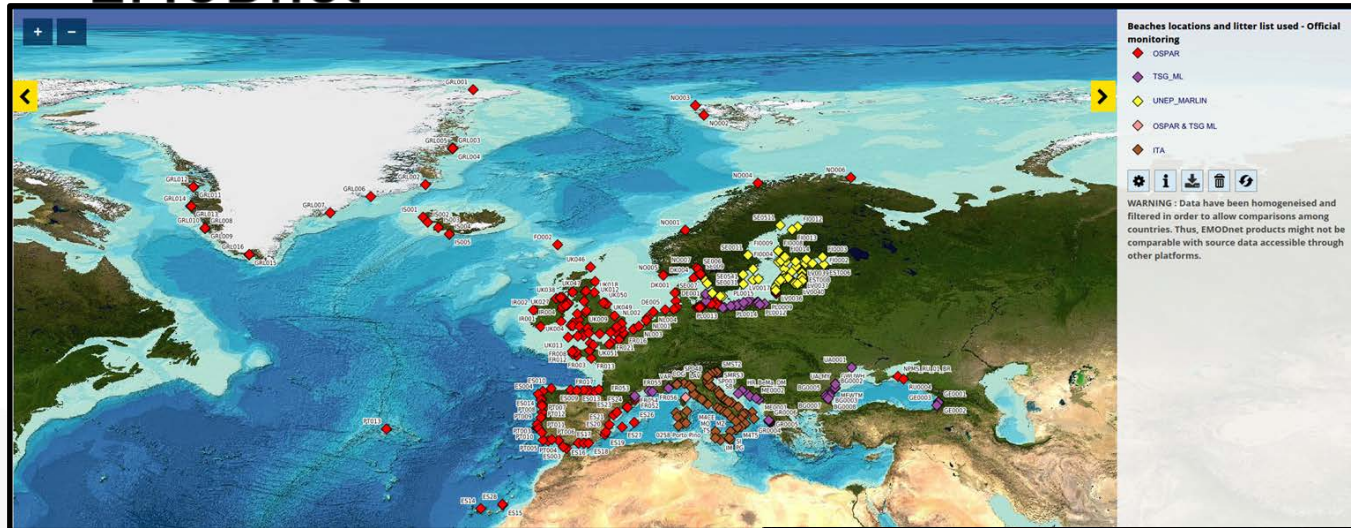
Available to download as [EMODnet Beach litter spreadsheet](#) and as [EMODnet Sea-floor litter csv file](#).

Data collections are available in ODV csv spreadsheet format, which can be easily handled and visualised with ODV Software (More information can be found at www.seadatanet.org/Software/ODV).

Chat live with an agent now!



Viewing services: data products



beach litter surveys:
location and lists
used during the
surveys (official
monitoring & other
sources)

seafloor trawlings:
surveys location
and trawling gears
used



Data Harmonization & harmonised monitoring

EU Joint list of litter categories:

- **Mapping** between different lists (TG ML, OSPAR, UNEP) allows merging and harmonizing data from different sources

But

- Some codes miss correspondence (**impossible** mapping as a generic code is missing) or mapping many-to-many (with **lost of information**). Hierarchical approach allows more detail.

→ Harmonised monitoring is the key to comparable assessments and thus to equal levels of protection

Litter quantification parameters often depend on the applied method → Close interaction with regional (RSCs) and global (UN, G7/20) harmonisation efforts is needed

Provided “Guidance on Monitoring of Marine Litter”, review of approaches and methods is currently ongoing





EMODnet



Microplastics for a global assessment

Data template is available to undertake collection of available datasets from EU Member States through TG ML by EMODnet Chemistry

Mandatory data (min-max depth, distance, net-opening, mesh-size, type, size & **count**), weight, ...

Possible link with Japanese approach / G20 platform for global assessment

Protocols to be harmonised

Size	Record size of each item. Minimum resolution is to allocate in to bin sizes of 100 μm
Type	Plastic fragments, pellets, filaments, plastic films, foamed plastic, granules, and styrofoam
Shape	For pellets: cylindrical, disks, flat, ovoid, spheruloids; For fragments: rounded, subrounded, subangular, angular; For general- irregular, elongated, degraded, rough, and broken edges
Colour	Transparent, crystalline, white, clear-white-cream, red, orange, blue, opaque, black, grey, brown, green, pink, tan, yellow

CATEGORIES FOR MICROPARTICLES	
Material	Description
Plastic	Plastic fragments rounded
	Plastic fragments subrounded
	Plastic fragments subangular
	Plastic fragments angular
	cylindrical pellets
	disks pellets
	flat pellets
	ovoid pellets
	spheruloids pellets
	filaments
	plastic films
Other	foamed plastic
	granules
	styrofoam
	Other (glass, metal, tar)

Table 9: Categories used to describe microplastics appearance



www.emodnet.eu

Your gateway to marine data in Europe