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European Marine
Observation and
Data Network

Your gateway to marine data in Europe

IMDIS 2018 5th-7th November Barcelona, Spain

‘Enlarging the EMODnet Chemistry focus with the EU Marine Litter data challenge’

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OUTLINE

1. Rationale
2. MSFD D10 requirements
3. Litter protocols and formats
4. Litter "hindrances"
5. European Marine Litter data management
6. Database content
7. Use cases



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Rationale

**Marine Strategy
Framework Directive
(2008)**

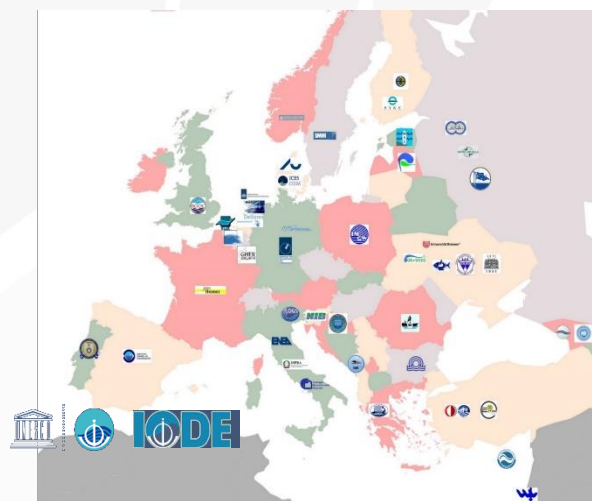


**GES
(by 2020)**



**11 Descriptors
(MSFD Annex 1)**

**Use EMODnet as a sustaining infrastructure
unifying European environmental information.**





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Rationale

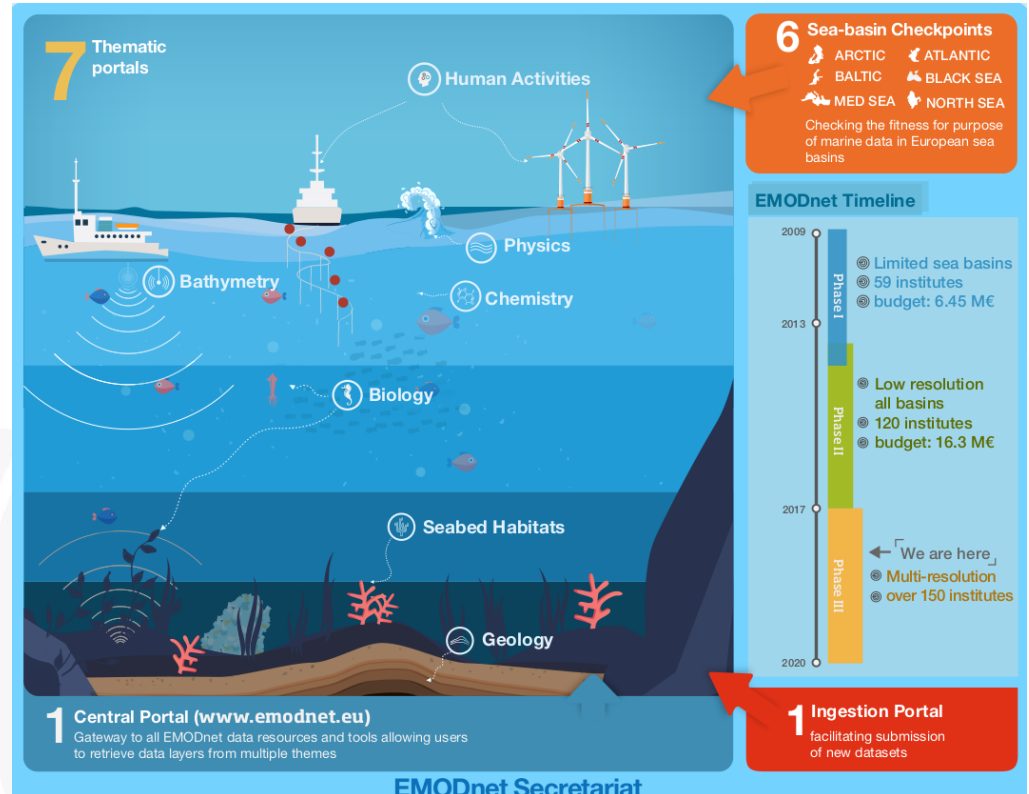
EMODnet Chemistry

Complexity and heterogeneity



MSFD Descriptors

- 5 Eutrophication
- 8 Contaminants
- 9 Sea-food contaminants
- 10 Marine Litter :
 - beach
 - seafloor
 - floating microlitter



Data are fragmented and highly heterogeneous:

- Different sampling protocols
- Different formats and reporting units
- Data **divided** into various databases
- **Not accessible** data (dark sides)



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MSFD Requirements

MSFD Descriptor 10: "Properties and quantities of marine litter do not cause harm to the coastal and marine environment"

Commission Decision for floating microlitter, beach litter, seafloor litter:

- **trends** in the **amounts**
- spatial **distribution**
- where possible, analysis of **composition and source**.





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Litter protocols and formats

BEACH

SEAFLOOR

FLOATING MICRO-LITTER

- Existing and Consolidated protocols (OSPAR, UNEP, UNEP –Marlin, Italian ,TG-ML)

- Consolidated protocols for bottom trawling (ICES, MEDITS, DeFishGear)

- More fragmented and heterogeneous management

- New EMODnet format based on OSPAR

- New EMODnet format based on ICES

- Adapted SDCloud/EMODnet existing infrastructure and data formats (CDIs+Litter ODV)

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



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Litter data “hindrances” to the management

BEACH

- data reported in **original language**
- **Missing/ambiguous items reporting** (e.g. more than 100...)
- **multiple and/or mixed reference lists**
- **missing relevant info** → **coordinates** (beaches, surveys)
- Different protocols → **different survey parameters (lengths...)**

SEAFLOOR

- **different mandatory units** (count/weight)
- mandatory info with **different granularity** (categories/subcategories)
- **different sampling Gears** → NOT COMPARABLE RESULTS! (literature*)
- **Missing relevant info** → **coordinates/distance/width** (“wing spread”) to report N.items/area
- *[Fiorentini et al., 1999; Kammann et al., 2018]

FLOATING MICRO-LITTER

- Up to now not relevant points



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European Marine Litter data management

BEACH

SEAFLOOR

FLOATING MICRO-LITTER

- Relational database (PostgreSQL)
- Spatial capabilities (PostGIS)

tables:

- Beaches
- Surveys
- Animals
- Items
- Reference lists
- Vocabularies and auxiliary lists
- Import log

- Relational database (PostgreSQL)
- Spatial capabilities (PostGIS)

tables:

- Surveys
- Hauls
- Items
- Reference lists
- Vocabularies
- Import log

- CDIs
- Litter ODV

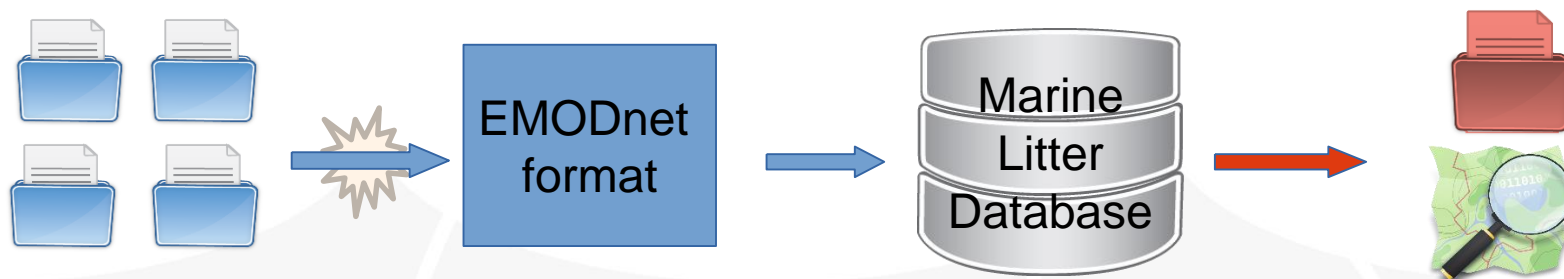


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Database content



Beach	OSPAR-MCS JRC collection from Member States EMODnet partners and associates	29 countries 521 beaches
Seafloor	ICES-DATRAS database EMODnet partners	15 countries 2064 surveys
Floating micro-litter	EMODnet partners	4 countries 131 surveys

More data in future: EEA Litter Watch, MEDITS, DeFishGear, Volvo Ocean Race, EMODnet partners,



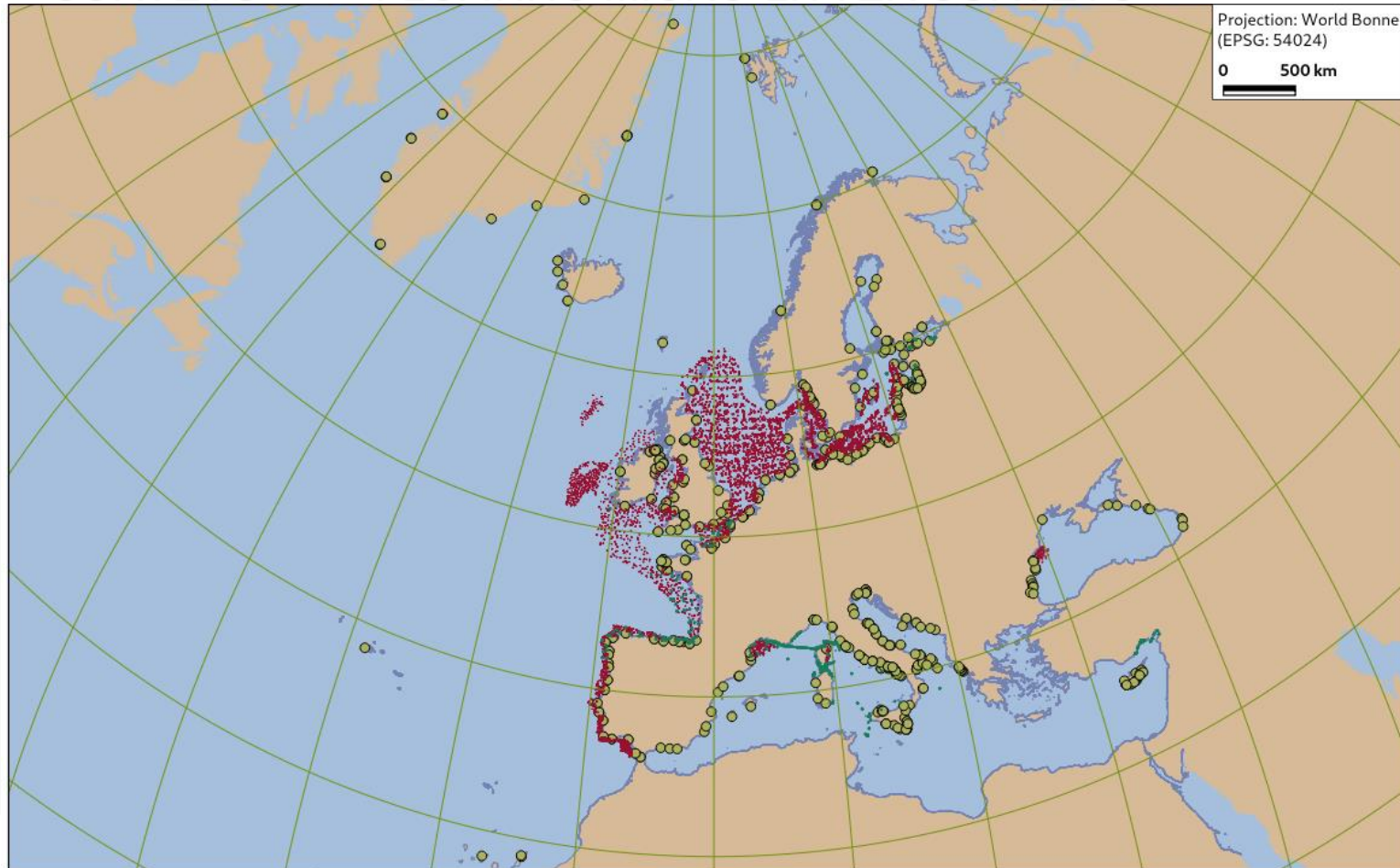
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Database content

DISTRIBUTION OF **SURVEYED BEACHES**, **SEAFLOOR SURVEYS** AND **FLOATING MICRO-LITTER SURVEYS**



Projection: World Bonne
(EPSG: 54024)

0 500 km

- Seafloor litter surveys
- Floating micro-litter surveys
- Surveyed beaches



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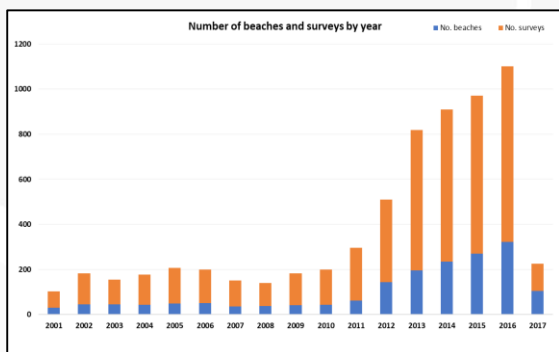
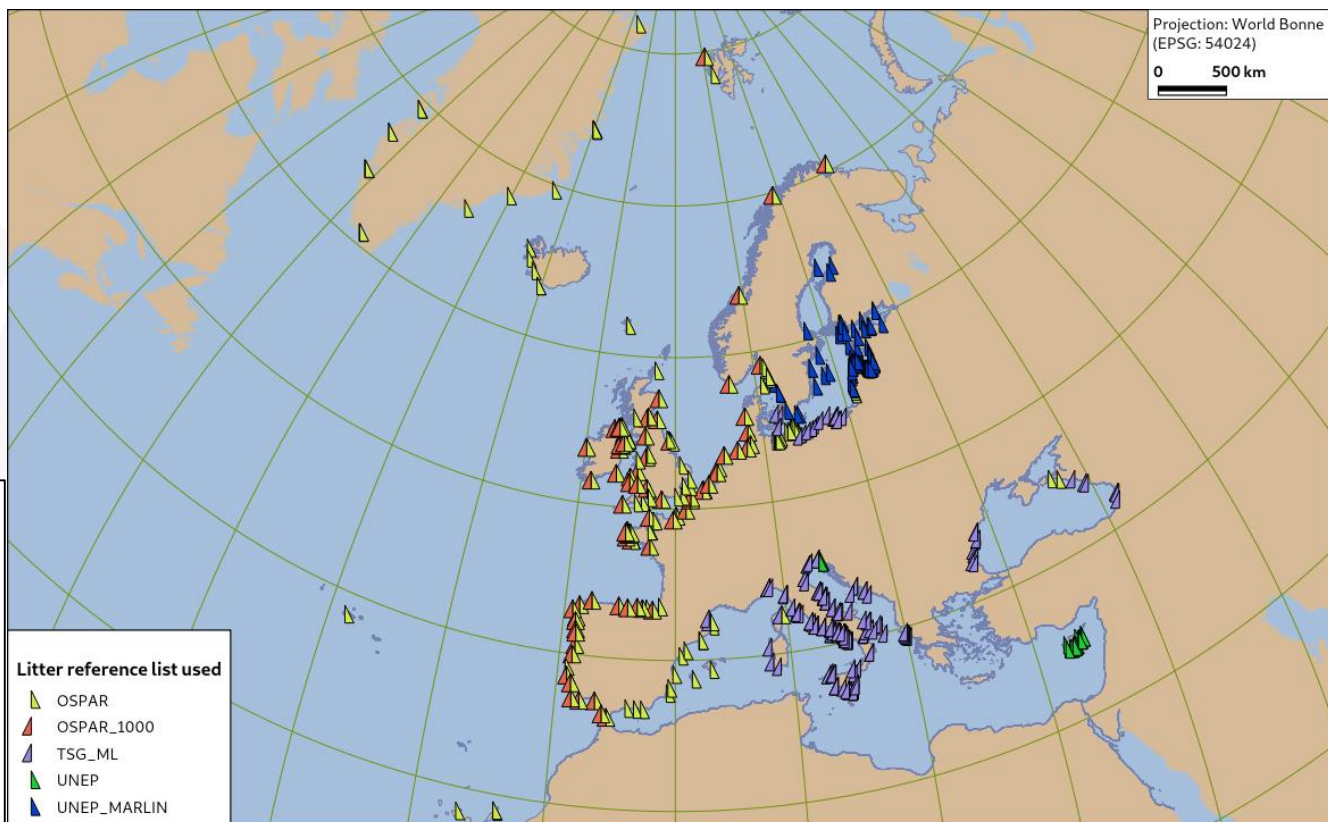
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Database content

REFERENCE LISTS USED IN BEACH SURVEYS

No. countries	29
No. years	18
Marine regions	4
No. beaches	521
No. surveys	4795
No. insertions	541396



No. beaches and surveys by year



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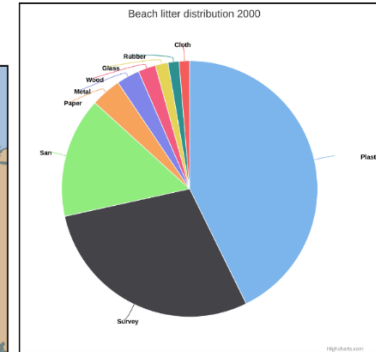
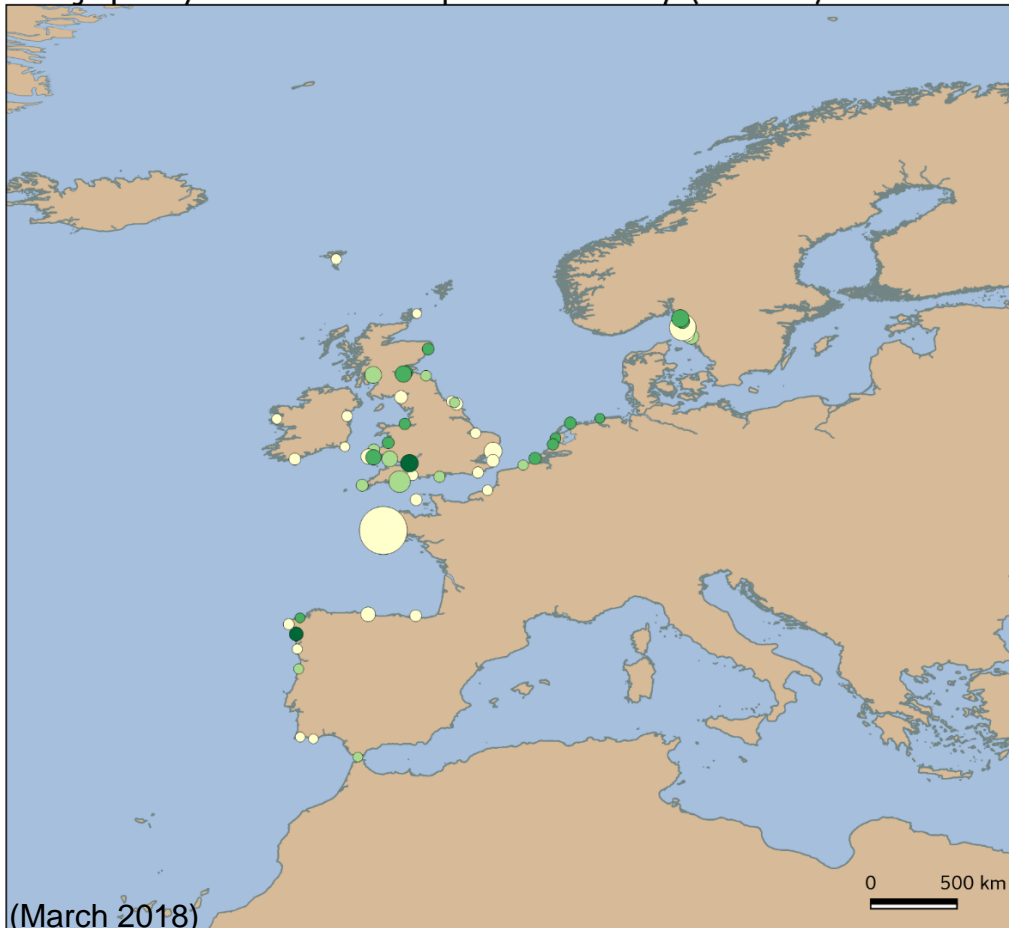


Database content

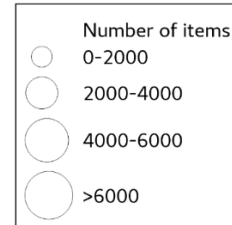
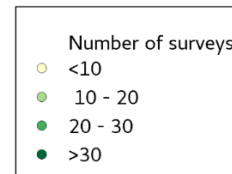
AGGREGATED LITTER DATA FOUND BY **BEACH** AND META-CATEGORY

EMODnet beach litter data

Average quantity of marine beach litter per number of surveys (2000-2010)



Litter categories (Ospar litter reference list): Plastic, Survey(old items, not classified), Sanitary, Paper, Metal, Wood, Glass, Rubber, Cloth.





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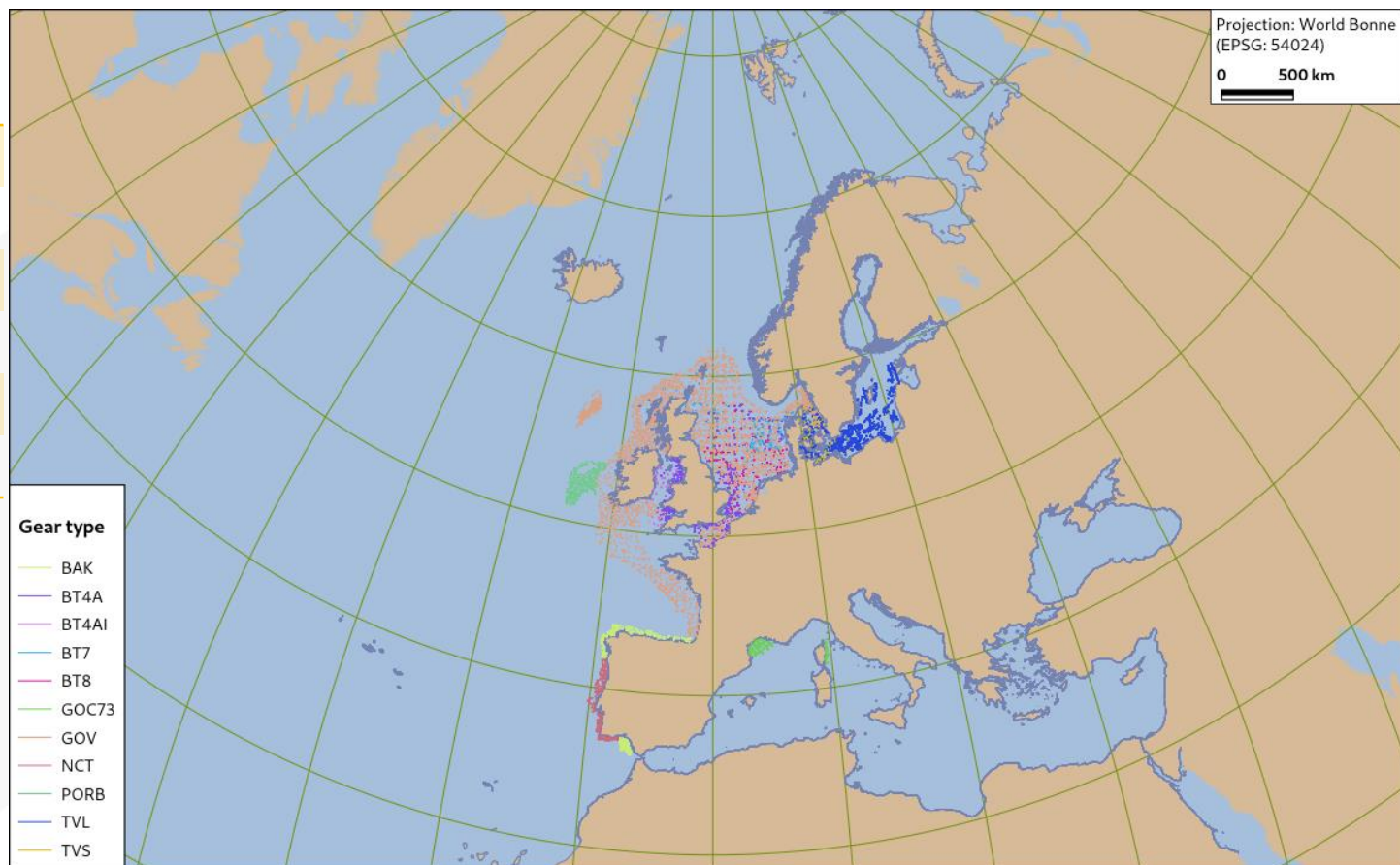
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SEAFLOOR LITTER DATA BY GEAR

Gear types:
ICES MEDITS EC

No. countries	15
No. years	12
No. surveys	2064
No. hauls	10837
No. gears	11
No. insertions	24215





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Database content

SEARCH AND DISCOVERY SERVICE FOR MICRO-LITTER ON EMODNET PORTAL

No. countries	4
No. surveys	131



CHEMISTRY

Data & products on marine water quality

CDI Data Discovery and Access Service - Extended search

Datasets 0

[Proceed to check out](#) [Reset basket](#)

Layer control

- CDI entry Points ?
 - CDI entry Tracks ?
 - CDI entry Areas ?

 - Grid Lines ? ▲▼
 - Regional sea ? ▲▼
 - Regional sea labels ? ▲▼
 - Main sea ? ▲▼
 - Main sea labels ? ▲▼
 - Bathymetry ? ▲▼
 - Blue Marble ? ▲▼
- Display all selected records
 Only selected records in results list

Listing results

20 100 1000 records [GO](#)



- [Enlarge map](#)
- [Help](#)
- [Position](#)
- [Index](#)
-
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[Timeseries on](#) [Summary](#) [Zoom to selected](#) [Export](#) [Store query](#)

[ADD TO BASKET](#)



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DATA FORMATS

http://nodc.ogs.trieste.it/doi/documents/Guidelines-Litter_Data_EMODnetChemistry3_rev_20180731.pdf

<http://nodc.ogs.trieste.it/doi/documents/Proposal-EMODnet-TG-ML-Micro-Litter-Data-Gathering-20180221.pdf>

Will be soon submitted to Ocean Best Practices

ONLINE ACCESS TO MAP LAYERS

<http://ec.oceanbrowser.net/emodnet/>

DATA AVAILABLE THROUGH CDI (beach, micro...seafloor soon)

http://seadatanet.maris2.nl/v_cdi_v3/search.asp



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Use cases

- EC Marine litter single use plastics assessment
- Beach Litter Baselines and Top 10 Items
- Contributing in the revision of TG-ML Master List



Guidance on Working of Marine Litter in European Seas
2009 Technical Group on Marine Litter
Annex B.1 - Master List of Categories of Litter Items

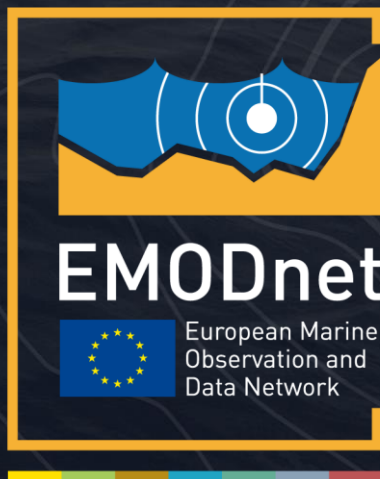
Master List of Categories of Litter Items										
Code	Item Name	Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
101	Plastic	Plastic	X							
102	Paper	Paper	X							
103	Textile	Textile	X							
104	Food	Food	X							
105	Alcohol	Alcohol	X							
106	Medicine	Medicine	X							
107	Pharmaceuticals	Pharmaceuticals	X							
108	Personal Care Products	Personal Care Products	X							
109	Beauty Products	Beauty Products	X							
110	Household Products	Household Products	X							
111	Construction Materials	Construction Materials	X							
112	Automotive Parts	Automotive Parts	X							
113	Industrial Waste	Industrial Waste	X							
114	Construction Debris	Construction Debris	X							
115	Construction Debris	Construction Debris	X							
116	Construction Debris	Construction Debris	X							
117	Construction Debris	Construction Debris	X							
118	Construction Debris	Construction Debris	X							
119	Construction Debris	Construction Debris	X							
120	Construction Debris	Construction Debris	X							
121	Construction Debris	Construction Debris	X							
122	Construction Debris	Construction Debris	X							
123	Construction Debris	Construction Debris	X							
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178	Construction Debris	Construction Debris	X							

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safe-keeping of
marine data*

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