Evidence-based knowledge against marine pollution with open (and FAIR) data

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From observation to knowledge: certify the data

Intercalibration certification

The first centre in Italy of METROLOGY of MARINE parameters

Figure 2. The Triple Point of Water
Conservation, qualification and open access to data

National Oceanographic Data Centre for Italy

Conservation of relevant data

Outcomes

1. Classification and storage of oceanographic data
2. Regular updating of data and metadata
3. Standardization of vocabularies, data transport and metadata formats
4. Standardization of Quality Control procedures
5. Management of web interface
6. Development of new IT to improve data access

Production of open data

Available using standard protocols
What?

- Physical and biogeochemical data (vertical profiles)
- Current, sea level, waves and meteo data (time series)
- Contaminants (water, sediment and biota matrices)
- Litter (floating, seafloor and beach litter)

Where?

Mediterranean Sea and Polar areas

Who?

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more than 360,000 vertical profiles over the last 100 years
more than 2,700 time series over the last 60 years
National Oceanographic Data Centre for Italy

How?
Open standardized relevant data based on EU consolidated infrastructure, following FAIR Data principles:
Findable -> with rich standardized metadata
Accessible -> through a discovery service at https://nodc.ogs.trieste.it
Interoperable -> use of standards
Re-usable -> through accurate and relevant attributes

View and access marine data

Data archive
The Search and Download Service gives access to the largest Italian collection of controlled and validated data. The measurements have been collected from 1880 to today in the Mediterranean Sea and in the neighboring sea basins. Data are provided by all Italian marine science institutions, with minor contributions from other countries.

Real-time data
Fixed stations
The Data Viewer shows the distribution of observatories in the Adriatic Sea and gives access to the latest data recorded by OGS.

Mobile platforms
The Euro-Argo-Italy website managed by OGS gives access to data collected through drifters, floats and gliders in the Mediterranean Sea, the Black Sea, the Southern Ocean and the Atlantic Ocean.
Connection with European data infrastructures
Connection with Mediterranean network

The BLUEMED Initiative aims to advance a shared vision for a more healthy, productive, resilient, better known and valued Mediterranean Sea, promoting the citizens' social well-being and prosperity, now and for future generations, and boosting economic growth and jobs.
**Objectives**

- Collection, Aggregation, Standardization, Quality check of EU marine water quality data relevant to the EU Marine Directives and to global climate change.
- Provision of *open access, HQ data and data products*

**Group of Parameters**

<table>
<thead>
<tr>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine Litter</td>
</tr>
<tr>
<td>Beach macrolitter, Seafloor macrolitter, Floating microlitter</td>
</tr>
<tr>
<td>Ocean acidification</td>
</tr>
<tr>
<td>Acidity</td>
</tr>
<tr>
<td>pH, PCO₂, etc.</td>
</tr>
<tr>
<td>Contaminants</td>
</tr>
<tr>
<td>Hydrocarbons, Heavy metals, Pesticides, etc.</td>
</tr>
<tr>
<td>Anthracene, Fluoranthene, Me, Cd, Pb, TBT, DDTs, etc.</td>
</tr>
<tr>
<td>Eutrophication</td>
</tr>
<tr>
<td>Nutrients, dissolved gases, etc.</td>
</tr>
<tr>
<td>N, P, Si, O₂, Chl-a, etc.</td>
</tr>
</tbody>
</table>

**The Network**

- 65 Scientific institutes & data management experts
- 32 Countries
- 5 International organizations (ICES + RSCs)

[http://www.emodnet-chemistry.eu/](http://www.emodnet-chemistry.eu/)
Data Discovery and access service

pan-European marine litter data collections

Available to download as EMODnet Beach litter spreadsheet and as EMODnet Sea-floor litter csv file.
Data products viewing service

beach litter surveys: total number of litter items in 2019 (official monitoring)

seafloor trawlings: surveys location and trawling gears used
HIGH QUALITY DATA = reliable data, which reflects reality => findable, accessible, interoperable, reusable

How to assess and monitor plastic pollution?

«Validated Methods»

«Shared Methods»

HIGH QUALITY DATA www.euroqcharm.eu/en/
Evidence-based knowledge for EU Directives

EMODnet Chemistry role as **European data management hub** for many kinds of marine litter data, accepted by the MSFD community, Regional Sea Conventions, and Member States.
Marine Litter data for multiple purposes

Research  Stakeholders  Society

EU Contribution towards UN Agenda 2030 for Sustainable Development

European Plastic Strategy

EU Action plan for the Circular Economy

G20 Implementation Actions on Marine Plastic Litter
Among the actions: Sharing scientific information and knowledge