How EMODnet could help to collect and manage data to be used for GES assessment, which are not in national databases (e.g. from regular monitoring or research projects)

MEDCIS Workshops, Litter, Divani Acropolis Hotel, Athens
23rd February, 2018

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What is EMODnet?

What is EMODnet?

Plan
Implement
Learn
Measure

To unlock fragmented & hidden marine data by making data more easily accessible

Long-term initiative as part of Blue Growth strategy (Marine Knowledge 2020)
How does it work?

- Developed by **7 thematic data portals**
- Supported by a common **central portal**

http://www.emodnet.eu/

Link to EU Marine Strategy Framework Directive

- Tight connection with EEA, RSC, JRC and ICES to provide relevant information for parameters identified as indicators of MSFD descriptors
**MSFD GES Descriptors and EMODnet**

1. Biodiversity
2. Non-indigenous species
3. Commercially exploited fish and shellfish
4. Food web integrity
5. Eutrophication
6. Sea-floor integrity
7. Hydrographical conditions
8. Contamination
9. Contaminants in seafood for human consumption
10. Marine litter
11. Energy, including underwater noise

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**EMODnet Chemistry 3**

6/3/2017 - 5/3/2019

Aims to collect, aggregate, **standardize**, check the **quality** of data developing new services to **share** information and products

<table>
<thead>
<tr>
<th>Collects data on:</th>
<th>Group</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>In 3 matrices:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- water column;</td>
<td>Eutrophication</td>
<td>nutrients, dissolved gases ...</td>
</tr>
<tr>
<td>- biota;</td>
<td>Ocean</td>
<td>pH, pCO2</td>
</tr>
<tr>
<td>- sediment.</td>
<td>Contaminants</td>
<td>N, P, Si, Oxy, Chl-a</td>
</tr>
<tr>
<td></td>
<td>Marine Litter</td>
<td>anthracene, fluroanthene, Me, Cd, Pb, TBT, DDTs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>beach litter, seabed litter, microlitter</td>
</tr>
</tbody>
</table>

**Data products** generation are organized at **Regional level**
EMODnet Chemistry 3

- Updated contaminants data collection for May 2018

Covers all European waters

- Contaminants 1960-2017
- 95,734 stations

EMODnet Chemistry 3 network

- Involves 45 institutes from 27 countries
- and 3 international organisations (ICES, Black Sea Commission, UNEP/MAP)
Adopting and adapting SeaDataNet

A pan-European infrastructure set up and operated for ocean and marine data management

Expanding the number of nodes

CDI Data Discovery and Access service

2/28/2018
Quality assessment for data and products

Data are checked, flagged and completed with metadata by National Collators

- Data Aggregation
- Parameter Homogenization
- Unit Conversion (to «umol/l»)
- Regional Quality Check
- Global Analysis

Regional data collections

Q.C data collections

Feedback loop guarantees data quality upgrade

Report errors to the data originators

Update the official copy of data

QC data collections

2/28/2018

8.1.1 Concentration of contaminants in the relevant matrix (biota, sediment, water)

<table>
<thead>
<tr>
<th>Group of variables</th>
<th>Examples</th>
<th>2012-...</th>
<th>all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antifoulants</td>
<td>TBT, TPT, ...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy metals</td>
<td>Cd, Cu, Pb, ...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrocarbons</td>
<td>Polycyclic aromatic (PAHs) and aliphatic</td>
<td>8,677</td>
<td>61,889</td>
</tr>
<tr>
<td>Pesticides and biocides</td>
<td>DDT, DDD, DDE, ...</td>
<td>4,271</td>
<td>25,935</td>
</tr>
<tr>
<td>Radionuclides</td>
<td>Radioactivity</td>
<td>54</td>
<td>3,196</td>
</tr>
</tbody>
</table>
Proposed products

- Aim is to display **spatial data distribution**, evaluate data **quality** and **fitness** for use for MSFD environmental quality assessment
- Contaminant concentration will be only considered in relationships with Environmental Quality Standards
- A set of contaminants, units and matrix common for all basins are identified for products at **European scale**
- Temporal ranges:
  - Before 2012
  - From 2012 to today
  - For 6-year windows

Type of maps

- Proposal still under revision

Maps showing values: above or below LOQ. Example:
- Green points: below LOQ
- Orange points: above LOQ

Maps showing data with LOQ above or below EQSD threshold values:
- Green points: LOQ below 30% of EQSD threshold values
- Red points: LOQ above 30% of EQSD threshold values

Maps showing matrix monitored:
- Blue points: water
- Brown points: sediments
- Green points: biota

Maps showing species group monitored (for DDT, Fluoranthene, HCB, Mercury and Benzo(a)pyrene) according to EQSD thresholds for biota:
- Green point: Molluscs
- Orange point: Crustaceans
- Blue point: Fish
- Grey point: Others
## List of Contaminants

<table>
<thead>
<tr>
<th>Matrix</th>
<th>Contaminants</th>
<th>Units of measure</th>
<th>Further details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>Pesticides and biocides: DDT, HCB</td>
<td>µg/l</td>
<td>Dissolved phase</td>
</tr>
<tr>
<td></td>
<td>Antifoulants: TBT, TPT</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Heavy metals: mercury, cadmium, lead</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hydrocarbons (PAH): Anthracene, Fluoroanthene, Benzo(a)pyrene</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sediments</td>
<td>Pesticides and biocides: DDT</td>
<td>µg/kg of dry weight</td>
<td>total sediment (regardless of size class) or size class &lt; 2000 µm</td>
</tr>
<tr>
<td></td>
<td>Antifoulants: TBT</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Heavy metals: mercury, cadmium, lead</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hydrocarbons (PAH): Anthracene, Naphtalene, Hexachlorobenzene</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biota</td>
<td>Pesticides and biocides: total DDT</td>
<td>µg/kg of fresh weight (BUT: mussel in dry weight)</td>
<td>Focus on molluscs, fish (only in the muscle), and on crustaceans</td>
</tr>
<tr>
<td></td>
<td>Heavy metals: mercury and its compounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hydrocarbons (PAH): Fluoroanthene, Benzo(a)pyrene, Hexachlorobenzene</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## MSFD Board of experts

**Expectations:**

1. ‘Advise’ on (suitable) products
2. Monitor development of services (i.e. vocabs)
3. Continuous dialogue

**By:**

1. Workshops, Bilateral dialogues
2. Participation at their meetings (e.g. OSPAR ICG EUT)
3. Providing technical input, use cases
Next: Contaminants Workshop

Mini-online workshop
Use questionnaire to prepare participants and frame questions
End of March, details will be posted on EMODnet Chem news/events page as well as circulated

Agreements and collaborations

A series of MoUs are discussed to formalise data exchange mechanisms and cooperation:
- With BSCS and UNEP/MAP (involved as subcontractors)
- With EEA for Data supply to Eutrophication and Contaminants thematic assessments (2017)
- With INFO-RAC for synergy between information systems
- With CMEMS - Copernicus INSTAC for BGC variables
- With OSPAR/MCS and ICES for marine litter data exchange
- With TGDATA, both EMODnet and SeaDataNet standards feature heavily in the *art 19.3 recommendations on publication of datasets*
The beginning of the end? of the EIONET dataflow and shift to EMODnet/ICES dataflow for EEA indicators

2/28/2018
HarmoNIA

Harmonization and Networking for contaminant assessment in the Ionian and Adriatic Seas

SPECIFIC OBJECTIVE 2.2
ENHANCE THE CAPACITY IN TRANSNATIONALLY TACKLING ENVIRONMENTAL VULNERABILITY, FRAGMENTATION, AND SAFEGUARDING ECOSYSTEM SERVICES IN THE ADRION AREA

Challenges, objectives and expected results:

Challenges:
- wide heterogeneity of information used for MSFD reporting
- inconsistencies in methodological approaches
- scarcity of data availability

Expected results:
1. establishment of an Adriatic – Ionian network involved in the assessment of marine Contaminants
2. definition of best practices to tackle monitoring, assessment and evaluation of impacts due to contamination
3. regional aggregated dataset of contaminants for the Adriatic – Ionian region
4. case studies of environmental vulnerability