



EMODnet

European Marine
Observation and
Data Network

Technical Update EMODnet Chemistry

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16th EMODnet Technical Working Group
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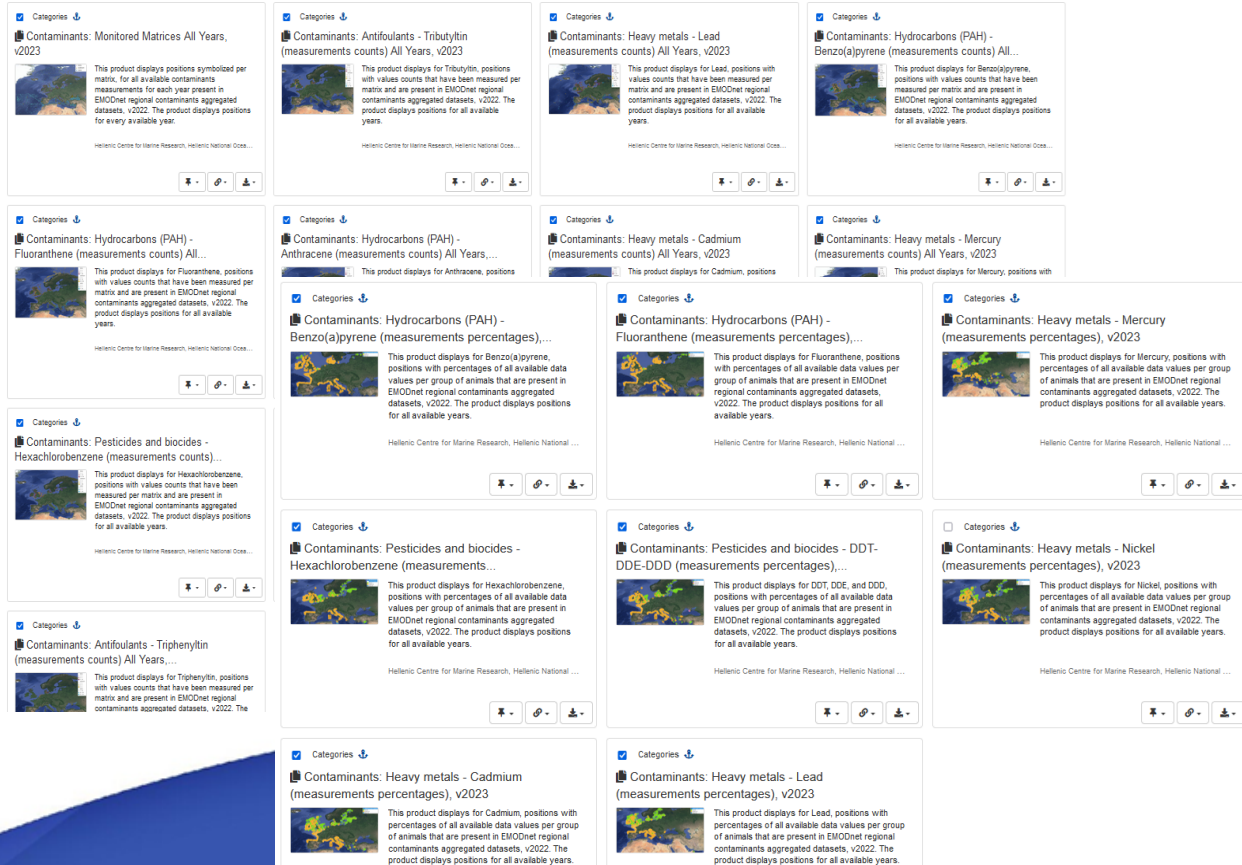


The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) 2021/1139 of the European Parliament and of the Council of 7 July 2021 establishing the European Maritime, Fisheries and Aquaculture Fund.

Contaminants maps

21 new maps

- **Aggregated Measurements Counts (All Years):** for 12 parameters, positions with values counts that have been measured per matrix for all available years
- **Aggregated Monitored Matrices (All Years):** positions symbolized per matrix, for all available contaminants measurements for all available years
- **Contaminants in marine organisms:** for 8 parameters, positions with percentages of all available data values per group of animals for all available years
→ relevant to evaluate harmonization for policy assessment



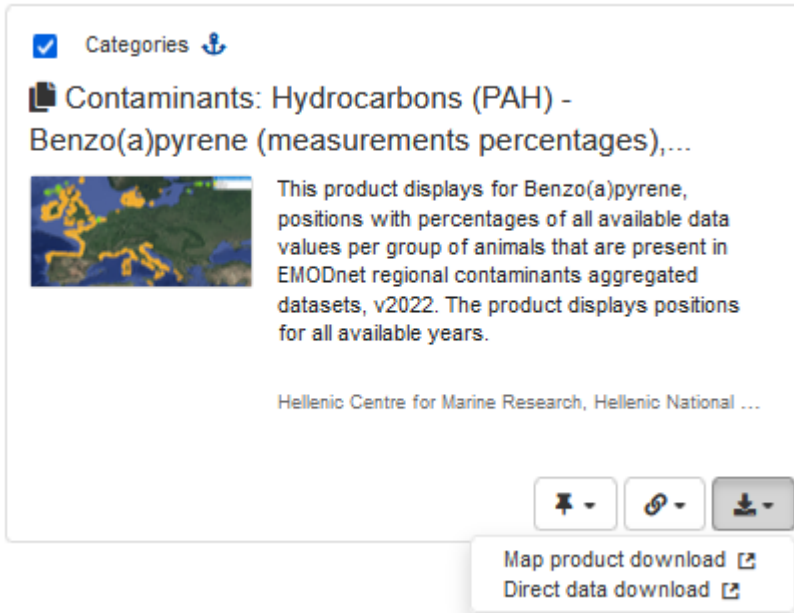
The image displays a grid of 21 map thumbnails, each representing a different contaminant in marine organisms. Each thumbnail includes a title, a small map, and a brief description of the data. The contaminants include: Antifoulants - Tributyltin, Heavy metals - Lead, Hydrocarbons (PAH) - Benzo(a)pyrene, Fluoranthene, Anthracene, Heavy metals - Cadmium, Heavy metals - Mercury, Pesticides and biocides - Hexachlorobenzene, DDT, DDE, DDD, Antifoulants - Triphenyltin, Heavy metals - Cadmium, and Heavy metals - Lead.


- Metadata uploaded in CP Catalogue
- Layers under uploading in Map Viewer:


Projects /  EMODNET /  EM-625 /  EM-1002


Contaminants maps

- Data download links at all layers:
 - Map product download (download link to the shapefile)
 - Direct data download (download link to European contaminants aggregated dataset, in ODV & transposed format)








Categories 

 Contaminants: Hydrocarbons (PAH) - Benzo(a)pyrene (measurements percentages),...

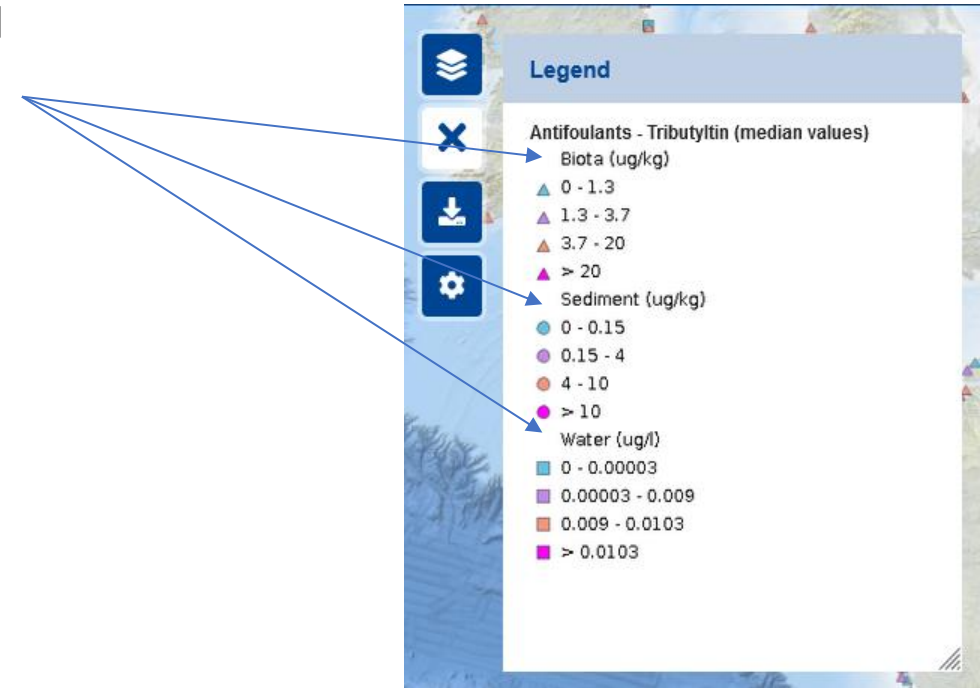
 This product displays for Benzo(a)pyrene, positions with percentages of all available data values per group of animals that are present in EMODnet regional contaminants aggregated datasets, v2022. The product displays positions for all available years.





Hellenic Centre for Marine Research, Hellenic National ...

Map product download 
Direct data download 

- Concentration maps:
units added in the legend



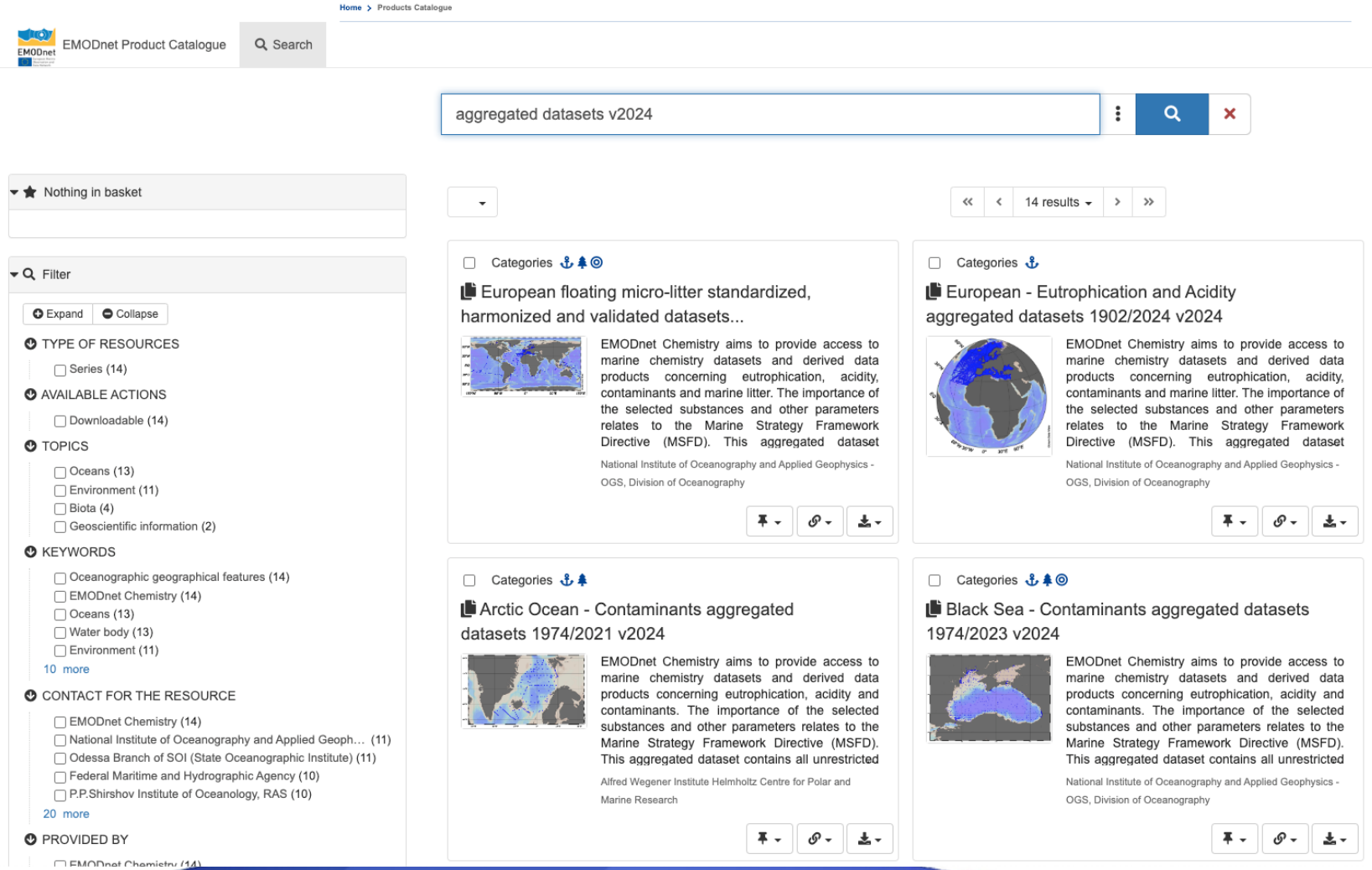
Legend

Antifoulants - Tributyltin (median values)

- ▶ Biota (ug/kg)
 - ▲ 0 - 1.3
 - ▲ 1.3 - 3.7
 - ▲ 3.7 - 20
 - ▲ > 20
- ▶ Sediment (ug/kg)
 - 0 - 0.15
 - 0.15 - 4
 - 4 - 10
 - > 10
- ▶ Water (ug/l)
 - 0 - 0.00003
 - 0.00003 - 0.009
 - 0.009 - 0.0103
 - > 0.0103

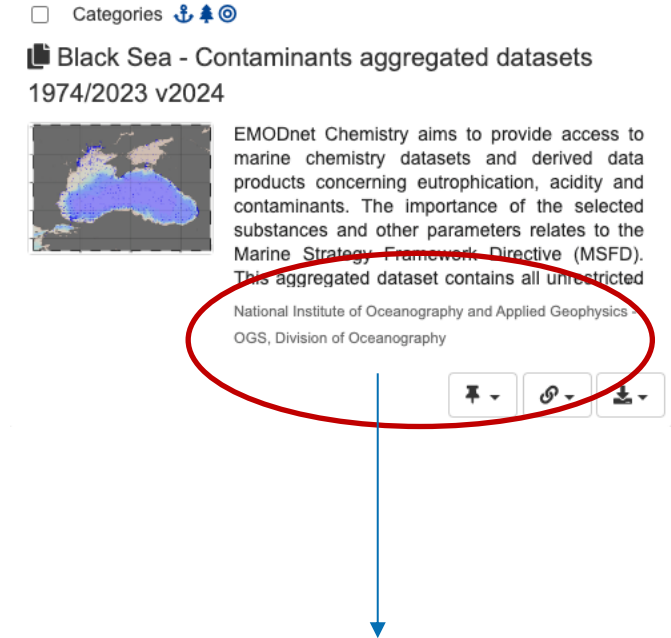
Aggregated datasets

14 new aggregated data collections: eutrophication, contaminants, microlitter



The screenshot shows the EMODnet Product Catalogue interface. At the top, there is a search bar containing 'aggregated datasets v2024'. Below the search bar, there are navigation controls showing '14 results'. On the left side, there is a filter panel with sections for 'TYPE OF RESOURCES', 'AVAILABLE ACTIONS', 'TOPICS', 'KEYWORDS', 'CONTACT FOR THE RESOURCE', and 'PROVIDED BY'. The main content area displays four search results cards. Each card includes a map thumbnail, a title, a description, and a list of actions (share, download, etc.). The results are:

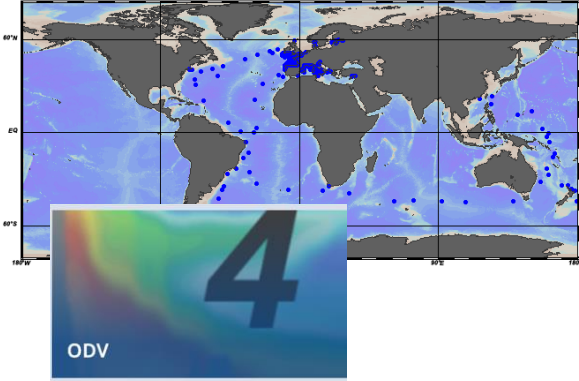
- European floating micro-litter standardized, harmonized and validated datasets...**
- European - Eutrophication and Acidity aggregated datasets 1902/2024 v2024**
- Arctic Ocean - Contaminants aggregated datasets 1974/2021 v2024**
- Black Sea - Contaminants aggregated datasets 1974/2023 v2024**



This block shows a detailed view of the search result for 'Black Sea - Contaminants aggregated datasets 1974/2023 v2024'. It features a map of the Black Sea region. The text below the map reads: 'EMODnet Chemistry aims to provide access to marine chemistry datasets and derived data products concerning eutrophication, acidity and contaminants. The importance of the selected substances and other parameters relates to the Marine Strategy Framework Directive (MSFD). This aggregated dataset contains all unrestricted National Institute of Oceanography and Applied Geophysics - OGS, Division of Oceanography'. A red circle highlights the text 'This aggregated dataset contains all unrestricted'. Below the text are icons for share, download, and other actions. A blue arrow points from the red circle to the text in the adjacent block.

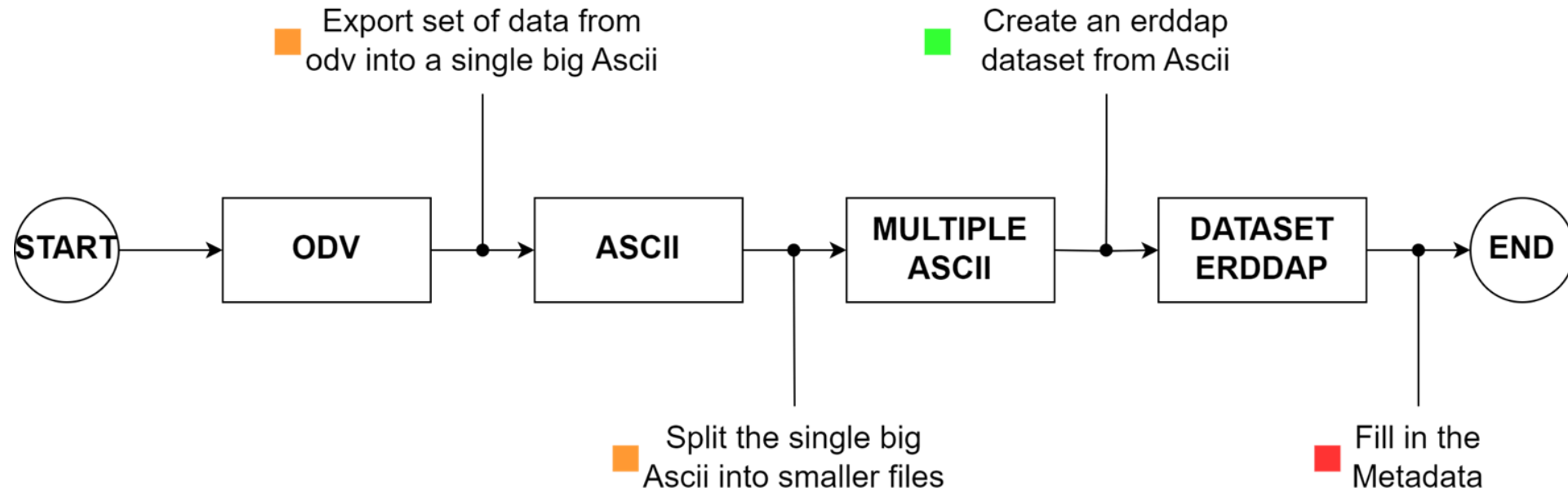
This information is not consistent between records. We need to agree on what information is being harvested to improve this content

ERDDAP developments in Chemistry for aggregated datasets



- First workflow with EMD Eutrophication aggregated collections
- ERDDAP dataset type: **TABLEDAP** vs GRIDDAP (non-regular distribution of data points)
- File formats from ODV export: **NetCDF4** and **Ascii**
- **High Memory usage** and **Storage consumption**
- **Different collections = different configurations**
- **Time** required to create a well-defined workflow
- Chemistry **aggregated datasets: extended ODV format**. Large amount **metadata** coded through standard vocabularies. Specific work needed to provide **meaningful set of information**
- A specific instance will be created: Which domain? Is **emodnet-chemistry.eu** ok?
- Next step: **WMS service** to display stations on the **geoviewer**:
 - Integrated for GRIDDAP datasets but not for TABLEDAP
 - Download for each dataset geojson and uploading in a geoserver >>> To be tested further

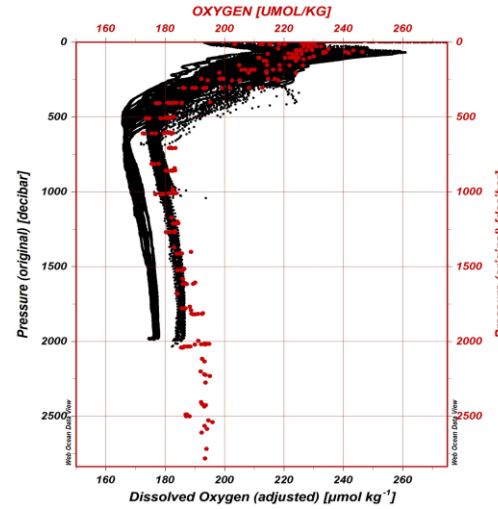
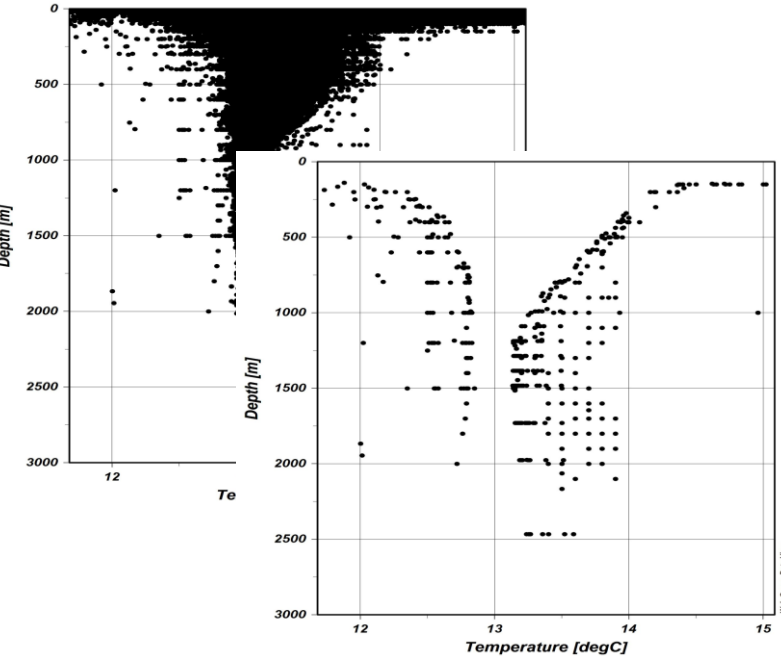
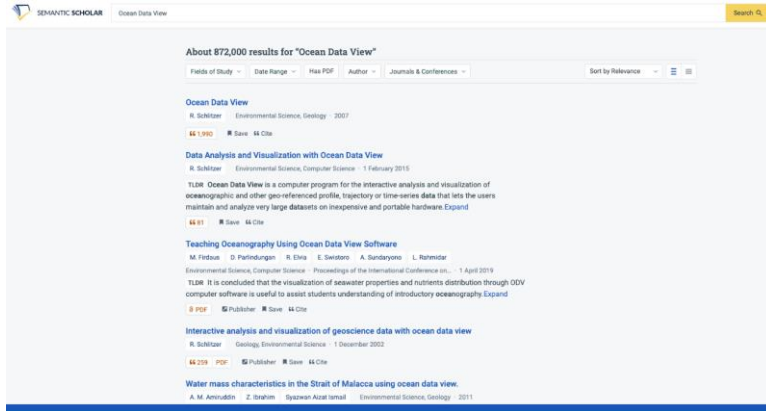
Proposed workflow



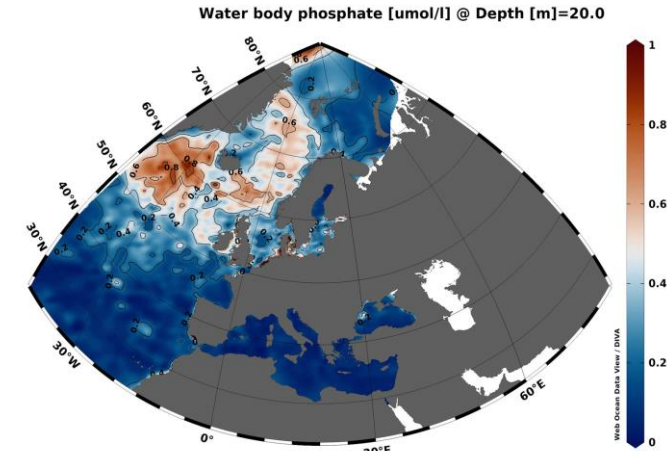
- Easy to handle and manipulate by scripts
- High storage consumption
- Takes some time to split files

ODV / webODV: Progress and Improvement

- Essential for the QC of Chemistry data
- Widely used in the oceanographic scientific community (a very important part of our users)



QC Flagging using Sample Filter Polygon or using trusted reference data



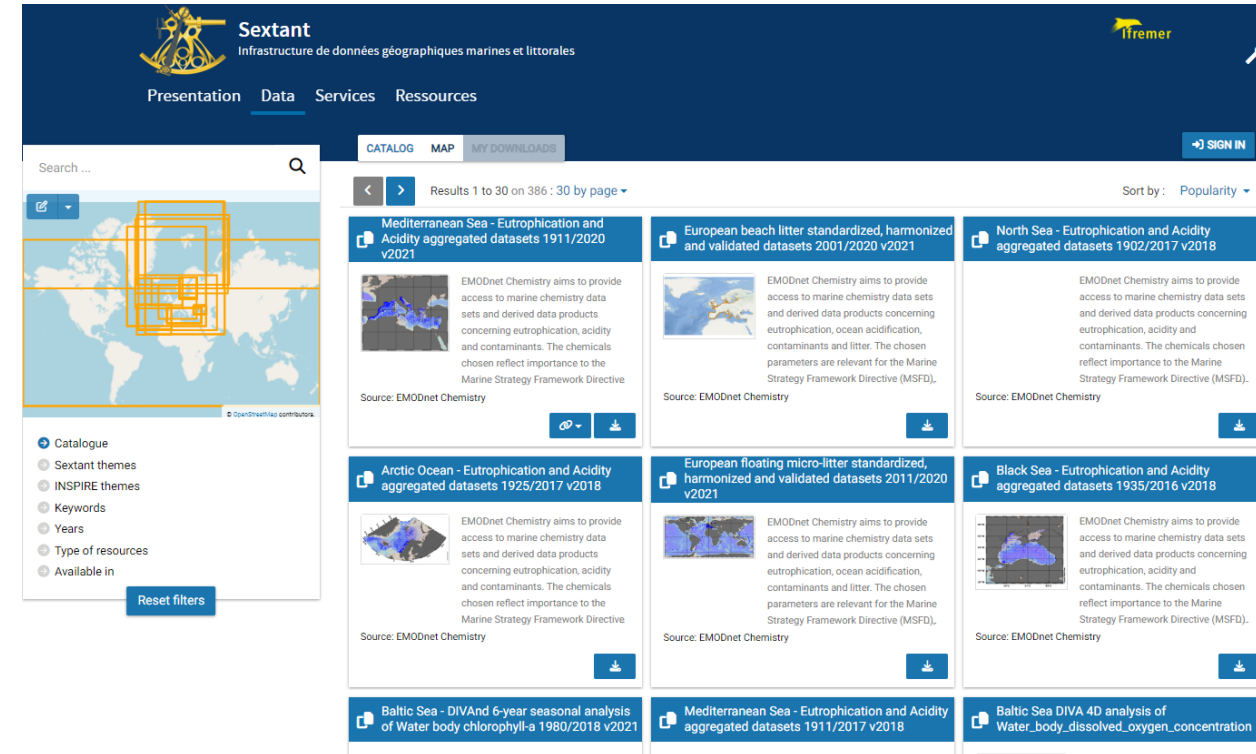
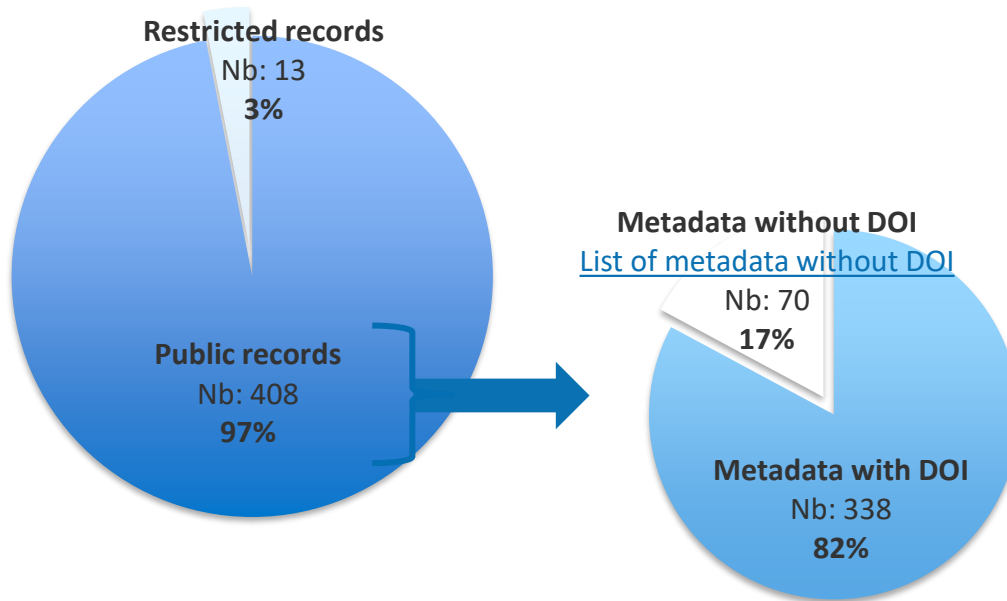
Global eutrophication collection

Continuous improvements:

- Revision of the importer to facilitate micro litter data import
- Improvements of the transposed export format for contaminants data
- Extension and update of unit conversion list

Sextant metadata Catalogue

A few key figures



Sextant
Infrastructure de données géographiques marines et littorales

Presentation Data Services Ressources

Search ...

CATALOG MAP MY DOWNLOADS

Results 1 to 30 on 386 : 30 by page

Sort by: Popularity

Mediterranean Sea - Eutrophication and Acidity aggregated datasets 1911/2020 v2021

European beach litter standardized, harmonized and validated datasets 2001/2020 v2021

North Sea - Eutrophication and Acidity aggregated datasets 1902/2017 v2018

Arctic Ocean - Eutrophication and Acidity aggregated datasets 1925/2017 v2018

European floating micro-litter standardized, harmonized and validated datasets 2011/2020 v2021

Black Sea - Eutrophication and Acidity aggregated datasets 1935/2016 v2018

Baltic Sea - DIVAnd 6-year seasonal analysis of Water body chlorophyll-a 1980/2018 v2021

Mediterranean Sea - Eutrophication and Acidity aggregated datasets 1911/2017 v2018

Baltic Sea DIVA 4D analysis of Water_body_dissolved_oxygen_concentration

Bug and improvement

- ✓ Fixed: reducing latency when many contact points were indicated in the metadata
- 🕒 Pending: update EMD Chem template to add parent/child resources

Other work in progress in Chemistry side

Statistics on Usage of data product (KPI 2.B)

Data provider	Number of manual downloads (Status)	Total Volume downloaded in GigaBytes (Status)	Number of Map visualisations (Status)
AWI	Meeting in Oct 2024		
MARIS	Available (not via Graylog)	Available (not via Graylog)	Available from OGC MARIS service logs (new)
HCMR	Available	In progress	In progress
IFREMER	Available	In progress	In progress
OGS	Available	In progress	Not applicable
Uliege/CI NECA	Available	In progress	Available

- **Seafloor litter from images:** Progress on data management proposal upgrade
- Improvement on the **accessibility to QA/QC info for methods** (doi links in CDI & Zenodo)
- Creation and maintenance of EMODnet Chemistry QC/QA questionnaires [Zenodo specific community](#)
- Work in progress on **findability for new substances** in the data access system (emerging contaminants)
 - At present: Groups of variables are based on the Call for tenders issued by CINEA
 - A number of chemical substances are not part of these groups → Chemistry is exploring on how to enhance findability of all chemical data in the infrastructure

Additional improvements for data usability

Product catalogue

Simplify filtering options

- Need to answer the questions: What? Where? Who? When? How?
- Reduce the list of values
- Facilitate user understanding

Links in metadata consultation ([EM-963](#))

- Direct download of the resources
- Direct link from the catalogue to viewer

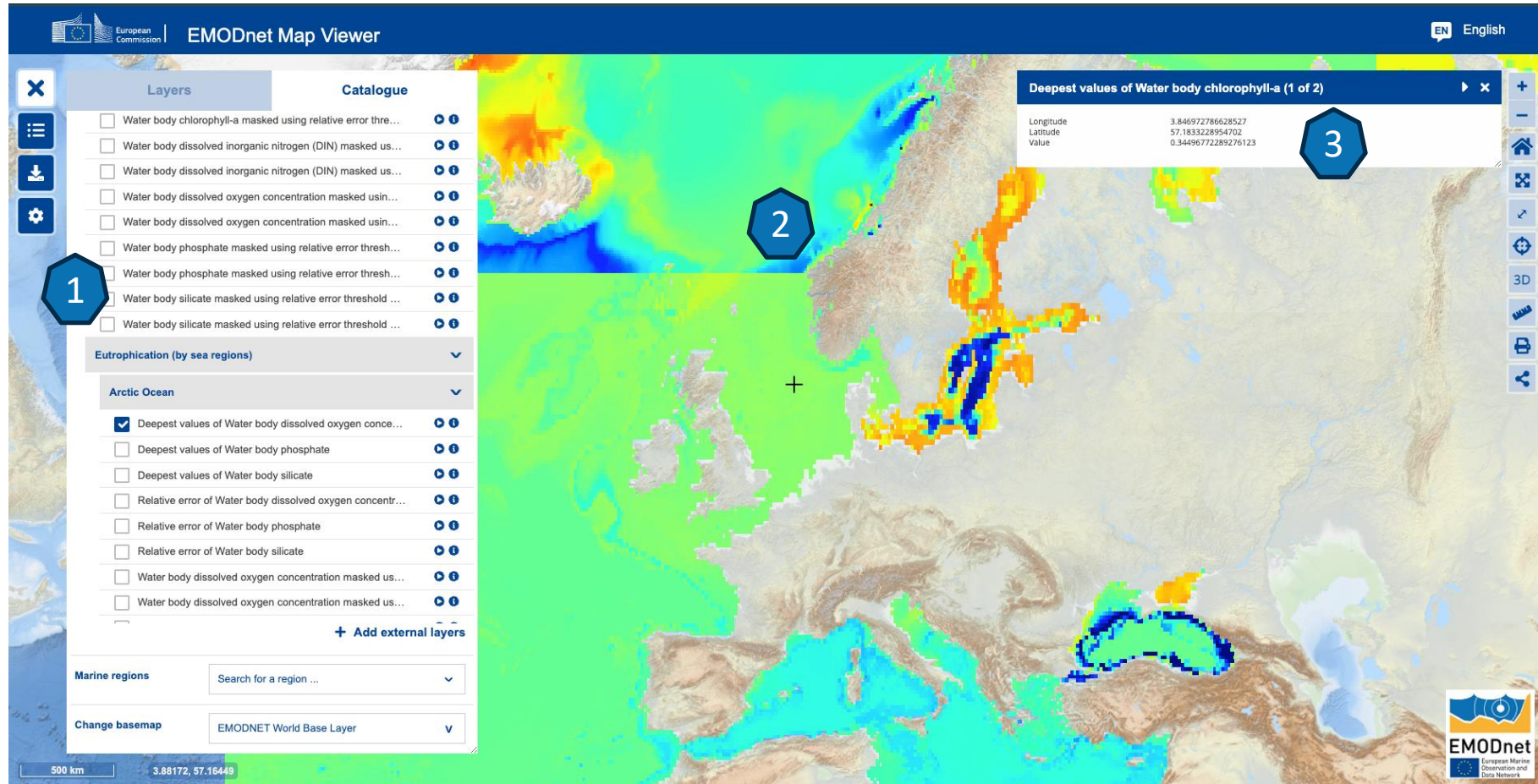
Publishing

- Provide all details in full page so that users have more overview and can browse immediately what details are given and where to get downloads and map views

The screenshot displays the EMODnet Product Catalogue interface. At the top, there is a navigation bar with the European Commission logo and the text 'Energy, Climate change, Environment'. Below this is the main header 'European Marine Observation and Data Network (EMODnet)'. A secondary navigation bar contains links for 'About', 'Data Services', 'Solutions', 'Themes', 'Community Pages', 'Atlas of the Seas', 'News & Events', and 'FAQ Downloads'. The main content area shows a search bar and a 'Back to search' button. A red box highlights the 'Download' and 'Display mode' buttons. The main content area displays a data entry for 'Mediterranean Sea - DIVAnd 4D 6-year seasonal analysis of Water body chlorophyll-a 1990/2021 v2023'. The entry includes a detailed description of the data, a map of the Mediterranean Sea showing chlorophyll-a concentrations, and a list of contributors. The map is titled 'Water body chlorophyll-a 1990/2021 v2023' and shows a color scale from 0 to 100. The list of contributors includes Brunetti Fabio (OGS), Cardin Vanessa, Bensi Manuel, Ursella Laura, Siena Giuseppe, Cataletto Bruno, Cinzia Comici Cinzia, Civitarese Giuseppe, DeVittor Cinzia, Giani Michele, Kovacevic Vedrana, and Moseletti Renzo.

Additional improvements for data usability

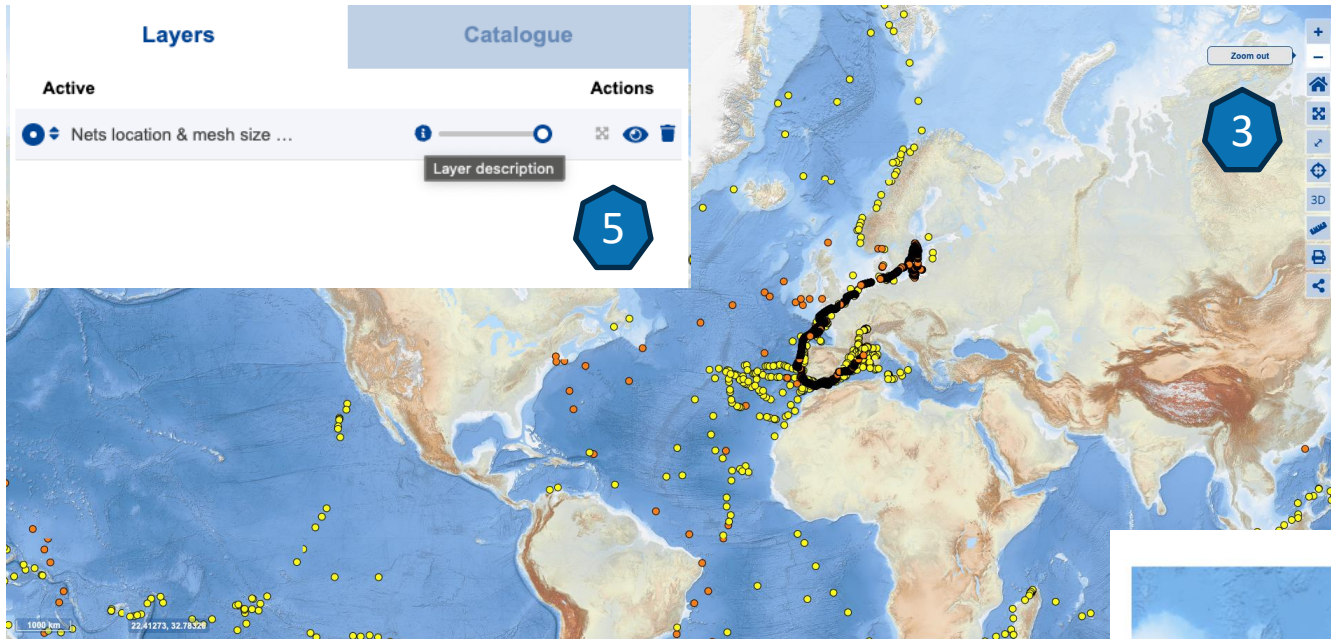
Viewer



1. Incomplete titles
2. Different scale ranges for the regions and no possibility to change the colour scale ([EM-743](#))
3. Too many decimals

Additional improvements for data usability

Viewer

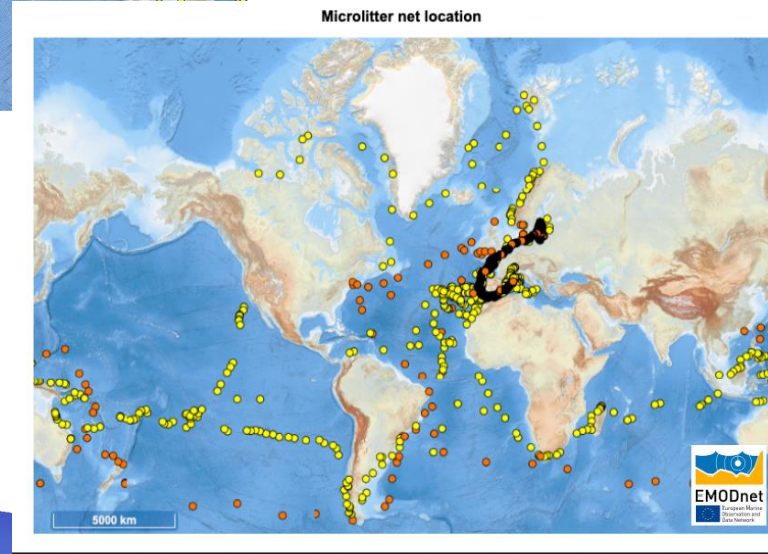


3. Zoom out covering all the product area
4. Boxes « metadata » and « Download » placed on the top of the square would facilitate findability
5. Change hovering under the “i” into : Layer description and download
6. Pre-defined title “Title of the legend” instead of “EMODNET CENTRAL PORTAL” and legend in the same page of the image (as EMODnet logo)

Nets location & mesh size used ✕

(descriptor 10). A series of specific standard vocabularies or standard terms related to micro-litter have been added to SeaDataNet NVS (NERC Vocabulary Server) Common Vocabularies to describe the micro-litter. European micro-litter data are collected by the National Oceanographic Data Centres (NODCs). Micro-litter map products are generated from NODCs data after a test of the aggregated collection including data and data format checks and data harmonization. A filter is applied to represent only micro-litter sampled according to a very specific protocol such as the Volvo Ocean Race (VOR) or Oceaneye. Warning: the absence of data on the map doesn't necessarily mean that they don't exist, but that no information has been entered in the National Oceanographic Data Centre (NODC) for this area.

[Access to metadata](#) [Download](#)



Nets location & mesh size used

- 330 (µm)
- 500 (µm)

JIRA Tickets

EM-14 and EM-84 → Web Services MetadataUrl and DataUrl fields **DONE**

EM-648 → Review layer legends and add units where missing **DONE**

EM-743 → No possibility to change the colour scale in the climatologies

STILL TO BE DONE

EM-767 → Map viewer products list **DONE**

EM-957 → Check if filter values are displayed in the preferred order **IN**

PROGRESS

EM-533 → EMODnet Catalogue tags Chemistry: add review of Geonetwork

interface **IN PROGRESS**

EM-963 → View and Download in the Products Catalogue **IN PROGRESS**



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