



EMODnet



European Marine
Observation and
Data Network

Chemistry



EMODnet Chemistry: marine litter data management recap, overview, and perspectives

Matteo Vinci - mvinci@ogs.it

Maria Eugenia Molina Jack - mmolinajack@ogs.it

Elena Partescano - epartescano@ogs.it

Alexia Cociancich - acociancich@ogs.it

Alessandro Altemburger - aaltenburger@ogs.it

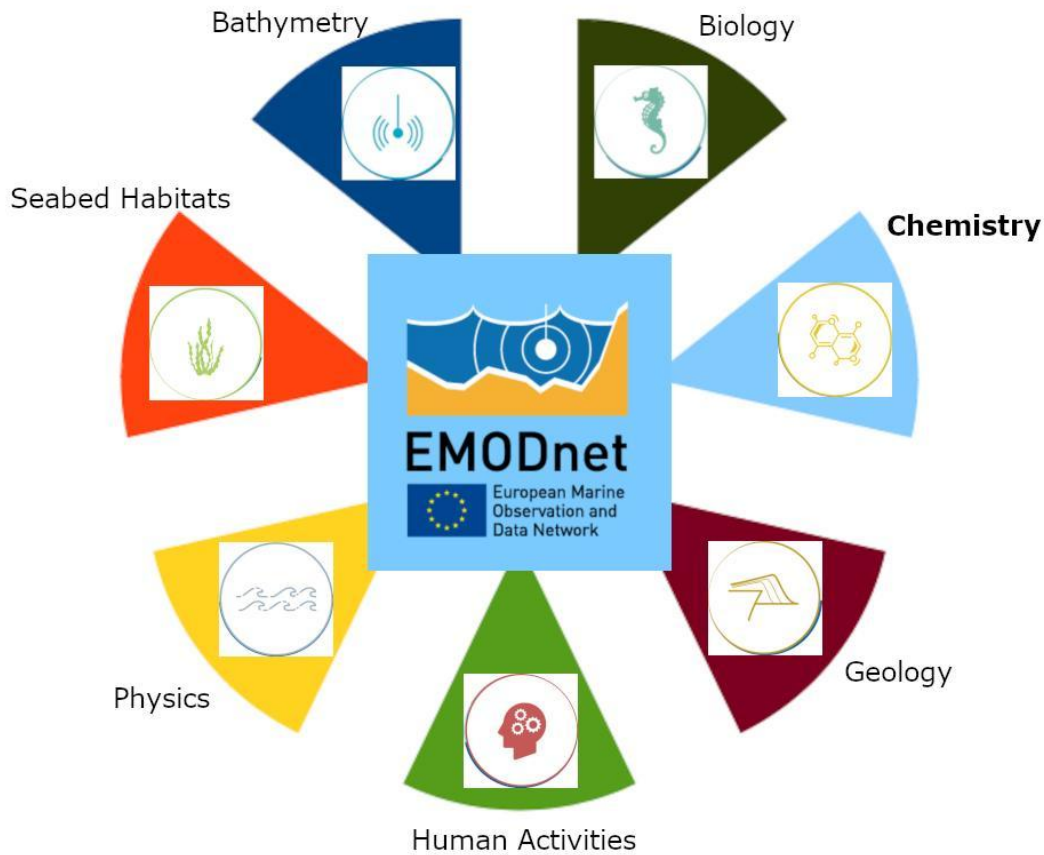
Alessandra Giorgetti; agiorgetti@ogs.it

OGS, Italy

outline

- EMODnet Chemistry intro
- Going through our pillars/lessons learned:
 - data management workflow, formats and relevant consolidated communities recap
 - working with quality:
 - pre-ingestion: focus on streamlining the data management workflow
 - post- ingestion QC: project activities that contributes to upgrade quality
 - Microlitter focus
 - interactions, outcomes and feedbacks working with stakeholders :
 - EU level
 - Global level
 - perspectives and challenges

<https://emodnet.ec.europa.eu/en/chemistry>



	Group of Parameters	Parameters
Marine Litter	Beach macrolitter, Seafloor macrolitter, Floating and sediment microlitter	Composition, Abundance, etc.
Eutrophication	Nutrients, dissolved gases, etc.	N, P, Si, O ₂ , Chl-a, etc.
Contaminants	Hydrocarbons, Heavy metals, Pesticides, etc.	Anthracene, Fluoranthene, Me, Cd, Pb, TBT, DDTs, etc.



The Network

- 45** Scientific institutes & data management experts
- 27** Countries
- 5** International organizations (ICES + RSCs)

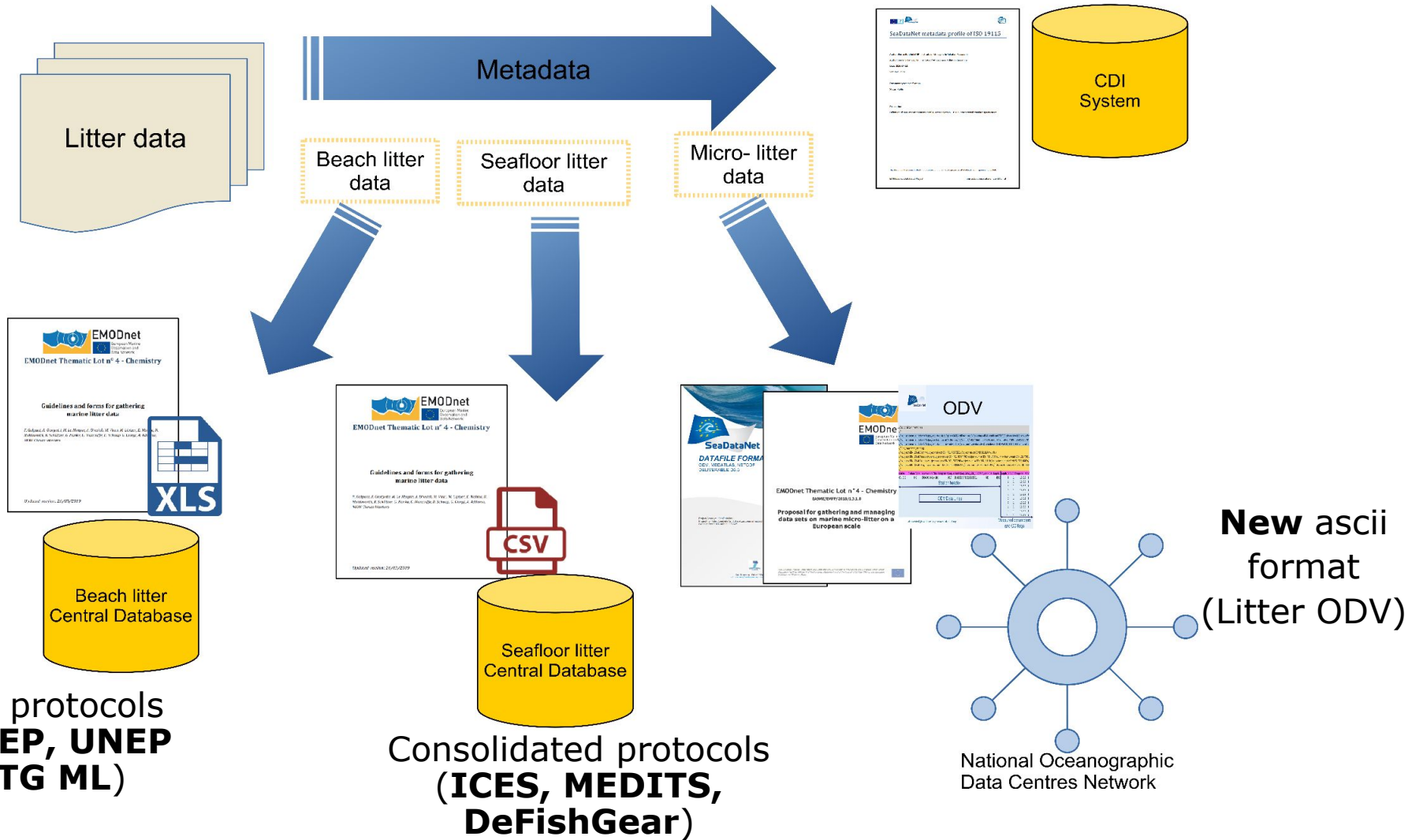
Data management at European scale

- Collection, **Standardization**, **Quality check**, and **Aggregation** of marine data **relevant to the EU Marine Directives (MSFD)** and to **global challenges**
- Provision of **open access**, **HQ data** and **data products**

Data and metadata standards



Marine litter data consolidated workflows, agreed formats and their sources



Pillar/Lesson Learned: Agreed and harmonized formats and guidelines, based on: consolidated communities, their best practices and protocols when available!

Beach, Seafloor and micro-Litter quality workflows (pre and post ingestion)

Pillar/Lesson Learned:

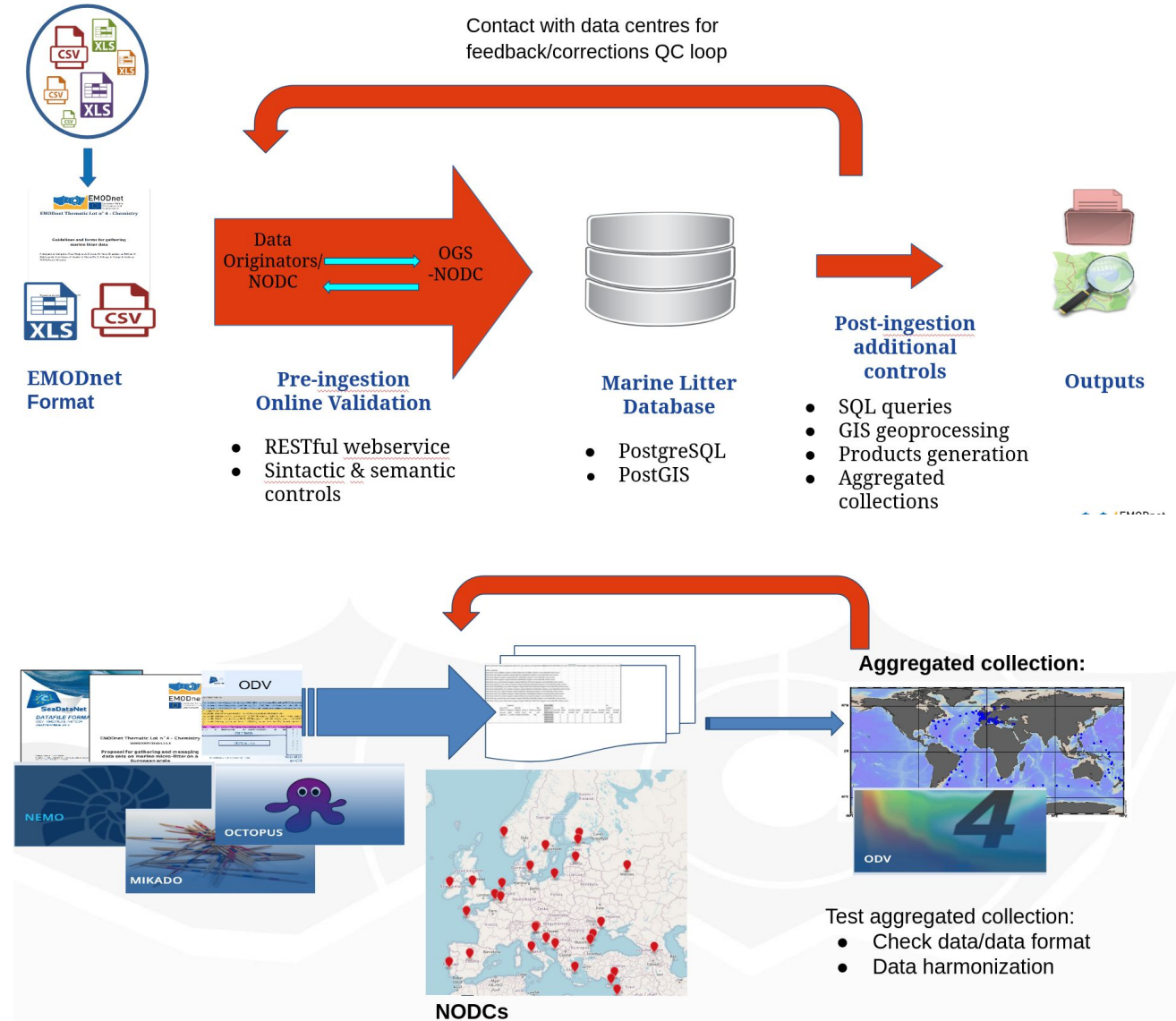
data validation to ensure the possible best data quality, reliability over time

- **pre-ingestion phase:**

streamlining the data management workflow (pre- is **more efficient&safe** than post-)

- **Post-ingestion quality:**

- ad hoc specific queries, Gis geo-processing
- **data-products generation** workflow
- **aggregated collections** generation



Aggregated collections for post ingestion quality controls

Beach and seafloor litter aggregated collections:

- new **Python tool developed for data aggregation**
- **aggregation and re-validation loops** highlighting quality gaps and needs updates
- **correction of errors, gaps or anomalies** found in agreement with data originators (e.g. highlighted by **more updated and performant validator version**)

Micro-litter aggregated collections:

- **ODV software for aggregation**
- correction of errors or anomalies found in agreement with data originators
- **harmonization:**
 - **unit conversion (P06)**
 - merging same parameters where possible (P01)
 - **sampling effort harmonized into 2 main categories:** distance (km) and volume (litres)

Publishing the resulting aggregated dataset and ongoing test of more automatic ways to deliver this data product



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Marine micro-litter in EMODnet Chemistry

Floating and sediment micro-litter:

- Metadata (CDIs)

Common Data Indexes for metadata:
(who, where, when, what, ...?)

- Data(litter-ODV)

- floating
- sediment



Mandatory: crucial for monitoring purposes



Optional: useful to describe datasets but not necessary

Metadata and Data are both described by lists of internationally agreed and regularly reviewed terms managed in Common Vocabularies

Data collection for microlitter

DISCOVERY PARAMETER	
Micro-litter in water bodies	(1842)
Micro-litter in sediments	(76)

- | DATA ORIGINATOR COUNTRY |
|-------------------------|
| Estonia |
| Finland |
| France |
| Germany |
| Greece |
| Italy |
| Latvia |
| Slovenia |
| Spain |
| Sweden |
| Switzerland |
| Turkey |

Per Year	Datasets
2023	12
2022	32
2021	39
2020	89
2019	382
2018	419
2017	368
2016	322
2015	174
2014	85
2013	25
2012	5
2011	4



EMODnet Chemistry interactions and feedback within expert groups and communities

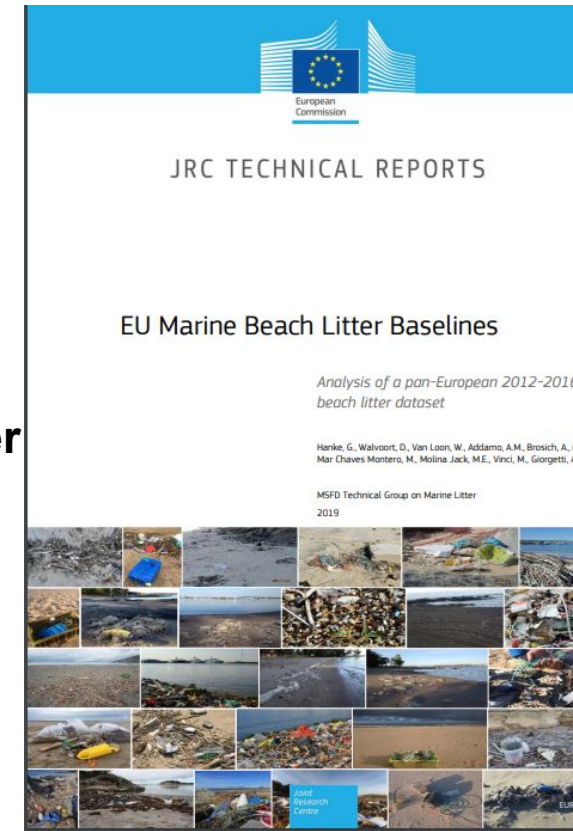
EU-TGML:

- **collection, standardization, analysis, quality control and sharing through NODCs network supporting EU-MS**
- provided **harmonized datasets for the assessment of litter abundance, baselines, trends and distribution:**
 - **Baselines:** beach litter published in 2019, **ongoing work for seafloor and micro-litter**
 - **Trends:** ongoing work for beach litter
- **International expert group for seafloor litter images data management, ongoing DM proposal upgrade for implementation. TGML goal Integrated monitoring approach with seafloor trawlings**



EuroQcharm:

- EU-CSA (finished) for **analyzing and evaluating existing methodologies for plastic pollution assessment, and harmonize them on a European level.**
- 'data management can provide a harmonized common framework for data reporting **but it cannot alone address the imbalance or heterogeneity due to non-comparable monitoring methods**'
- great boost on **QA/QC info management improvement for better data comparability (micro-litter)**

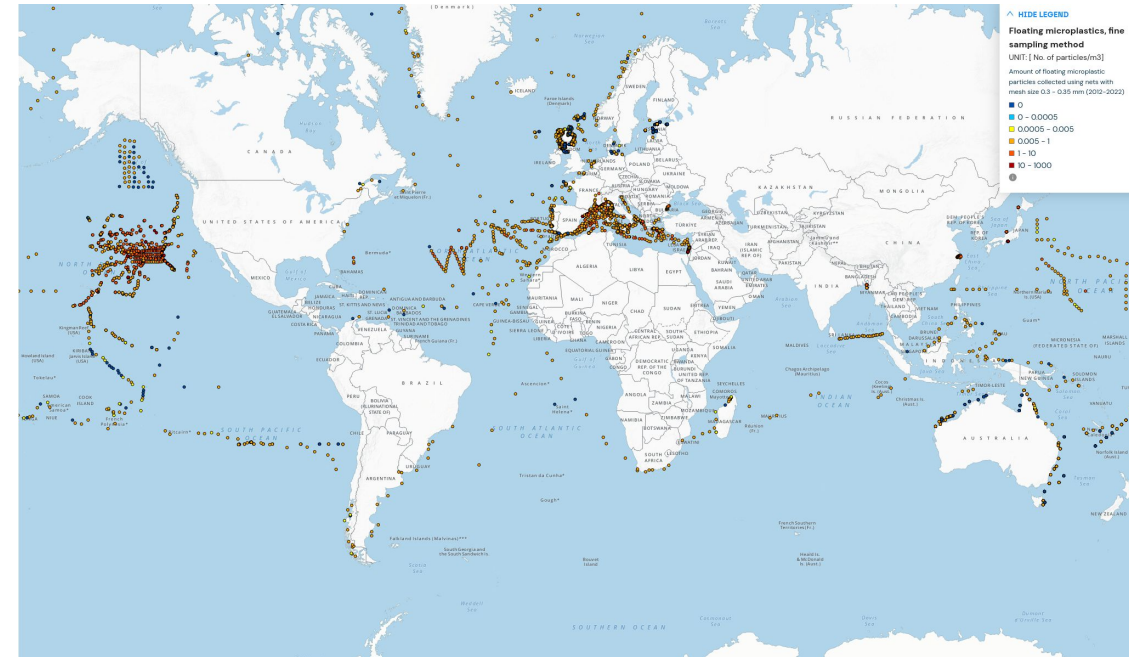


EMODnet Chemistry interactions within expert groups and communities

Link with Global initiatives :

[UNEP-Global Partnership on plastic pollution and marine litter](#), CoPs:

- data and products sharing
- revision/alignment of glossary and ontologies/vocabularies for common terms usage or compatibility
- [finalized global indicator for floating microplastic built with datasets from EMODnet, MOEJ, and NOAA](#)



G20 microlitter MOEJ prototype group:

- Chemistry consortium invited as marine litter expert for their prototype development
- Ongoing support/dialogue/harmonization in different aspects like:
 - data management systems
 - core sets of metadata and data for monitoring support
 - comparison leading to a micro-litter data management upgrade
 - [Harmonized monitoring and data compilation of marine plastic litter](#)
 - [surface microplastic data mapping system “Atlas of Ocean Microplastics \(AOMI\)”](#)



Terms of use



IMDOS:

- actively contributing and facilitating on the previous global interactions

Perspectives and challenges:

Perspectives:

- **continuation and improvement of the consolidated workflows**
- finalization of **DM system for seafloor Images** aiming for a mid-term stability of the DM system (at least 3 years)

Challenges:

- updated/alignment of consolidated workflows to EU stakeholders needs and updates (TGML)
- **upgrade of tools for data formatting and quality control, specifically for microlitter**

"Everyone wants to save the world (...we would say the planet..), but no one wants to help mom do the dishes."

—P.J. O'Rourke



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