EMODnet Thematic Lot n°5 – EMODnet Chemistry

EASME/EMFF/2020/3.1.11/Lot 5/SI2.846161

Start date of the project: 02/10/2023 (24 months)

Centralisation Phase

Work Package 5:

MSFD Board of Experts: Marine Litter

24 March 2025

Disclaimer

The information and views set out in this report are those of the author(s) and do not necessarily reflect the official opinion of the CINEA or of the European Commission. Neither the CINEA, nor the European Commission, guarantee the accuracy of the data included in this study. Neither the CINEA, the European Commission nor any person acting on the CINEA's or on the European Commission's behalf may be held responsible for the use which may be made of the information.

Document info

Title (and reference)	EMODnet Chemistry: MSFD Board of Experts: Marine Litter
WP title (and reference number)	WP5
Task (and reference number)	
Authors [affiliation]	Neil Holdsworth (ICES), François Gaudin (IFREMER), Chiara Altobelli (OGS)
Dissemination level	Public
Submission date	09.04.2025
Deliverable due date	

EMODnet
European Marine
Observation and
Data Network

Contents

MSFD Board of Experts: Marine Litter

1 Introduction and summary

This board meeting walked-through the process for producing the data products, including QA steps used for the 2025 updates of the **marine litter** datasets and map products. Marine litter, on beaches, in the sea and on the seafloor are a pervasive problem in the marine environment, and monitoring programmes across Europe routinely monitor and collect data on the abundance and types of marine litter in support of assessments in the MSFD[1].

The MSFD Board of experts comprises over 50 participants from around 28 international research institutions, non-governmental organisations and regional, national and European government agencies. Each session has a thematic focus, this one on marine litter, and draws on the pool of experts in data management, research and governmental agency role to actively give input to ensure that EMODnet Chemistry is tuning its data management and data products to the needs of the user and to keep the experts informed on developments. To become a member, or to receive further information, please send an email with the subject 'Chemistry MSFD Board of experts' to info@emodnet-chemistry.eu.

The meeting was held online, with a total of 20 participants from around Europe. EMODnet comprises a network of more than 120 organisations. For EMODnet Chemistry, this is the second in a series of 3 thematic MSFD board meetings, with eutrophication following later in the year. The latest regional and European marine litter maps were presented and discussed for the 6 marine regions of the MSFD.

2 Summary of EMODnet Chemistry (Alessandra Giorgetti)

The European Marine Observation and Data Network was initiated by DG MARE in 2009 and is currently developing a vision to 2035. It is financed by the European Union. EMODnet provides easy and free access to marine data, metadata, and data products from 7 different domains. EMODnet is implemented by a network of over 120 organisations working with European marine data infrastructures. Since January 2023, EMODnet has a single point of access for all 7 domains via the EMODnet portal. The EMODnet Chemistry network includes 42 organisations such as national oceanographic data centres, environmental monitoring agencies, and expert institutes. The network focuses on the collection, aggregation, standardisation, and quality control of EU marine water quality data relevant to EU Marine Directives and global climate change. EMODnet delivers standardised, harmonised, and validated data collections and reliable data products.

EMODnet Chemistry offers access to data and data products through a data discovery and access service, regional data collections, webODV Data Explorer and Extractor, and a Map Viewer service. The parameters examined by EMODnet include marine litter, ocean acidification, contaminants, and nutrients. EMODnet publishes regional and global products and is currently on phase V which completes in September 2025.

In EMODnet, work on marine litter data management started in 2016 and includes beach litter, sea floor litter, and microlitter. The efforts build on existing protocols and work in synergy with existing networks and systems. The European Marine Litter database (MLDB) was released in 2017, and was developed through collaboration with technical groups and regional conventions. The database has been used for various assessments and reports, including the EU coastlines macro litter trends and the compilation of EU marine litter baselines (MSFD).

---

[1] https://maritime-forum.ec.europa.eu/theme/environment-and-climate/marine-litter_en

EMODnet
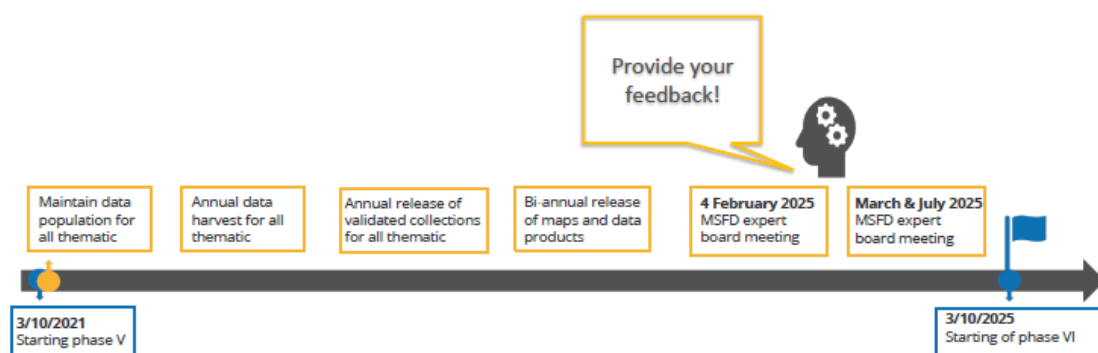European Marine
Observation and
Data Network

Figure 1 Timeline for publication of regional data products (updated February 2025)

3   Marine Litter Products (François Gaudin)

The presentation detailed updates to existing products, suggested removal of products that were potentially of marginal use and new proposals for the 2025 release of Marine Litter maps. All products are based on the MLDB and segmented by beach, seafloor and floating micro-litter data types. Throughout the presentation, participants were polled on specific questions that arose from the presentation of the maps, these are summarized in section 5 Inline polling results.

There are **18 Beach litter** products, including maps of beach locations, number of surveys and temporal coverage, composition of litter, and median total abundance. Various reference lists have been developed over the years on the classification of litter, see Figure 1,, and there was some confusion on the labelling presented in the maps. To summarize, the original master List (G-CODE list) from 2013 authored by the MSFD technical group (TSG-ML) and the Joint List (including the J-CODE list) from 2021 both come from the now called "MSFD TG ML". The Joint List is a hierarchical system for categorising and recording litter items, allowing for varying levels of detail in analysis. At the lowest level of detail, litter items are classified by the type of material they are made from. The J-Code List is the list with the highest level of detail available within the Joint List, providing the most specific categorisation of litter items.
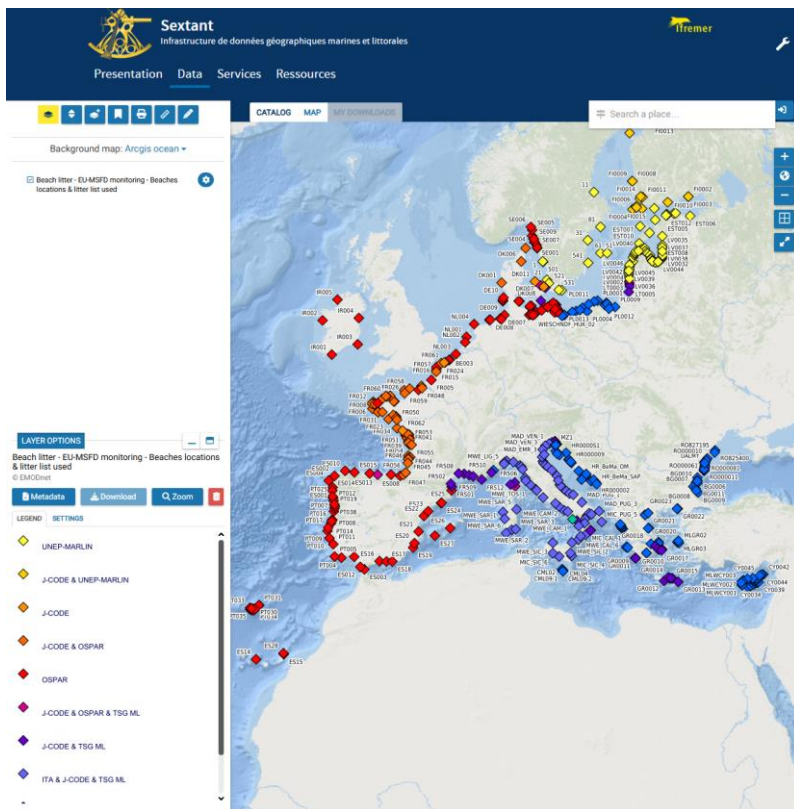
Figure 1 Beach Litter from official monitoring sources; locations and reference list used

There are currently **8 seafloor litter** maps, with a proposal to add an additional product. These include maps of trawl locations, composition of litter, density per trawl and fishing-related items. The proposed addition, was a spatial distribution of sampling effort (within the 6 year time period that reflects the assessment period of the MSFD cycle), see Figure 2.
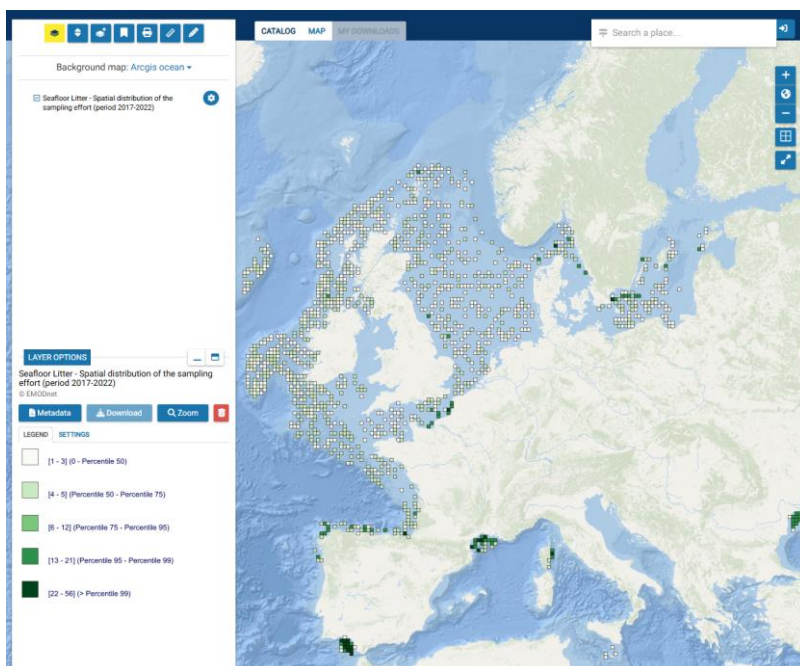

Figure 2 Seafloor Litter - Spatial distribution of the sampling effort (period 2017-2022)

EMODnet
European Marine
Observation and
Data Network

There are currently **16 floating micro-litter** products, of which it is proposed to deprecate 3 products, and add 2 new products. These include maps of net locations (Figure 3), density per net, type and size of litter. It was proposed to remove 3 map products related to the colour or transparency of litter as there was limited data coverage for these products, for example only data for Italy is available for transparency of litter.

The new products proposed were for the spatial distribution of sampling effort in the 6-year assessment period (split by type of protocol).
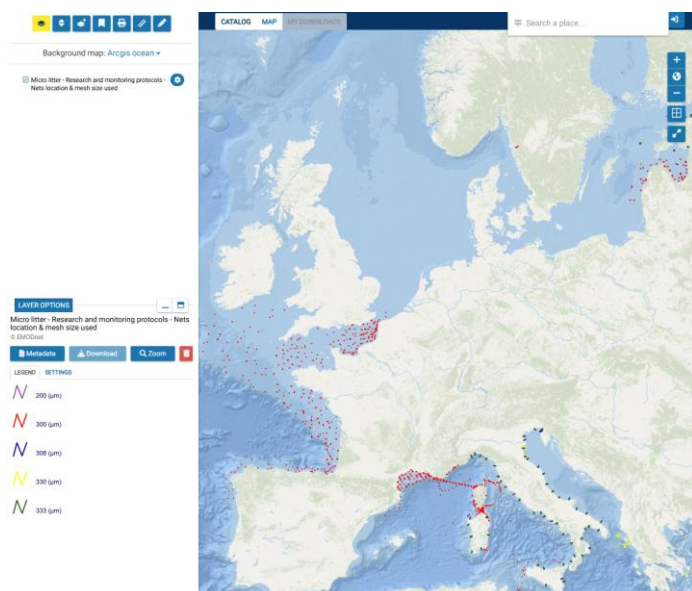

Figure 3 Micro litter - Research and monitoring protocols - Nets location & mesh size used

4   Discussion

- There was some concern that the information on the maps could be 'hidden' below other information, for example if an icon for a beach litter list label overlaps another beach litter map label. The map layer can be turned off and on, and the opacity adjusted, in addition when zooming in these overlaps disappear.
- It was not clear on the labelling of the UNEP litter reference list, there was an assumption this should mean UNEP-MAP. The EMODnet team clarified that beaches labelled with UNEP refer to the litter list from UNEP/IOC[2].
- Time period for seafloor maps, these cover the entire period of the dataset (2006-2024), except for the new map on the spatial distribution effort for which the 6-years' time extent was chosen to match the duration of an MSFD cycle. It is possible (in the map viewer) to navigate through the different years (from 2006 to 2024) for the following maps: composition of litter, density per trawl, fishing related items density, plastic bags density, spatial distribution of litter density.
- In seafloor litter classifications, 'fishing related' is derived from the categorisation (list) and not specifically flagged by data submitters as fishing related.
- An open access version of the method of Seafloor litter distribution, which is also described in the meta-links of the map products is available here[3].

---

[2] https://litterintelligence.org/media/nladhmse/unep-ioc-operational-guidelines.pdf Table 1 p. 16
[3] Gerigny et al (2019): https://archimer.ifremer.fr/doc/00507/61868/

EMODnet
European Marine
Observation and
Data Network

- A potential use for the new seafloor distribution sampling effort map could be for monitoring programme decision makers at a regional or national level who are assessing spatial/temporal gaps in their sampling effort of litter.

5   Inline polling results

Online polls were launched throughout the presentation to gauge understanding and knowledge of the maps and the EMODnet platform. For the inline polls where participants were asked to use a scale of 5 ticks to denote the value of a product, 1 tick indicates "not so useful" and 5 ticks indicates "very useful".
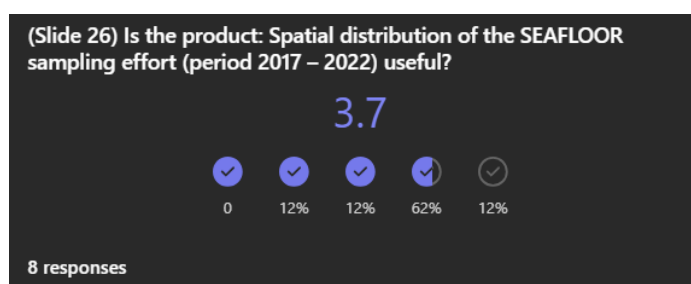

Figure 4 Proposed addition of sampling effort product; 1 tick indicates "not so useful" and 5 ticks indicates "very useful"
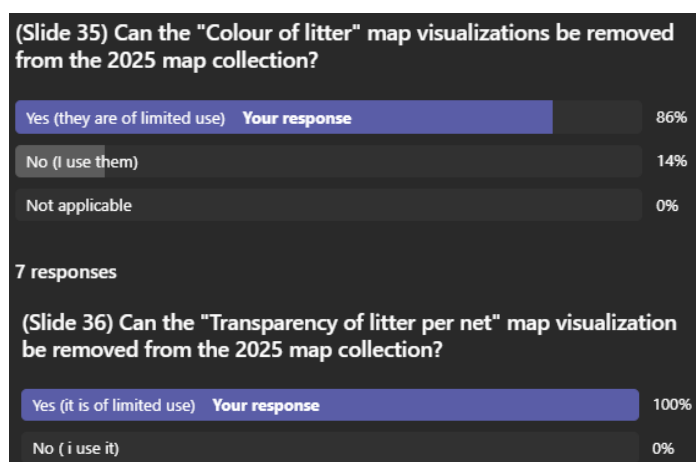

Figure 5 Proposed deprecation of floating litter map products

EMODnet
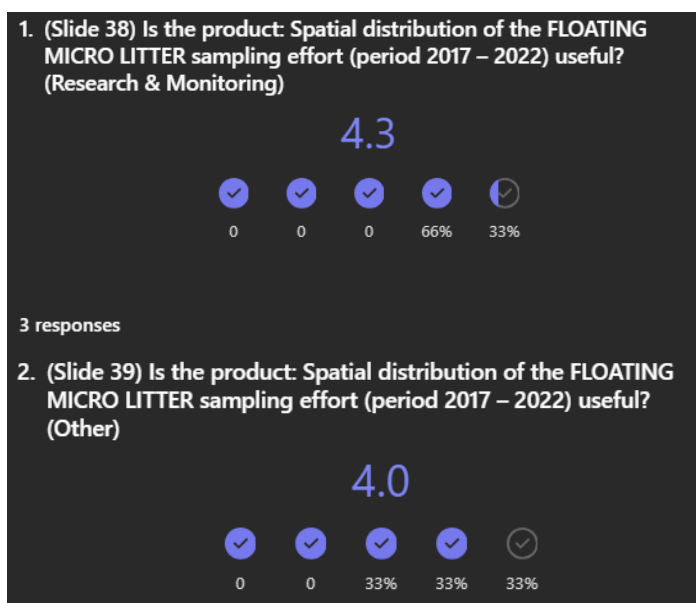European Marine
Observation and
Data Network

Figure 6 Proposed addition of floating micro-litter sampling effort products; 1 tick indicates "not so useful" and 5 ticks indicates "very useful"

6   Actions for EMODnet

- Relabelling of legend to be clear which reference lists are referred to (Figure 7).
- The proposed **new** products will be added to the EMODnet map viewer
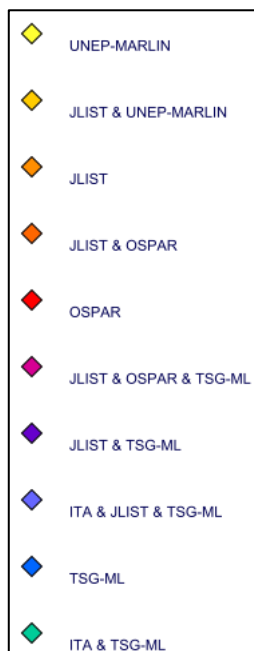- The proposed **deprecated** products will be removed from the EMODnet map viewer

Figure 7 Beach Litter: official monitoring lists proposed legend

7 Participants

Meeting title	MSFD Board for EMODnet Chemistry: Marine litter
Attended participants	20
Average attendance time	1h 26m

Participants
Neil Holdsworth
François Gaudin
Alessandra Giorgetti
Chiara Altobelli
Anna Osypchuk
Hans Mose Jensen
Laura Marquez
Marta Ruiz
Lise Cronne
Østrem, Ann Kristin
Matteo Vinci
Jemmima Knight
Thomas Maes
Karin Wesslander
Amandine Thomas
Maria Eugenia Molina Jack
Erol Cavus
Chris Moulton
Silvère André
Julie Gatti
Marilena Tsompanou

EMODnet
European Marine
Observation and
Data Network

8   Agenda

09:30 Welcome and Introduction, round table of **new participants** to the board (Neil Holdsworth, ICES)

- New introductions: Jemmima, Laura

09:40 Update on development of EMODnet Chemistry (Alessandra Giorgetti, OGS)

09:50 New data collection and map products for marine litter, including Q&A (François Gaudin, Amandine Thomas, IFREMER)

10:30 Inline polling (Neil Holdsworth, ICES)

10:40 Summary and conclusions (all participants)

10:55 Close of meeting