

MSFD

Technical Group on Marine Litter

Micro-litter Position Paper



TG Marine Litter + JPI Oceans
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SAM Microplastics expert workshop
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Marine Strategy Framework Directive

Marine Strategy Framework Directive 2008/56/EC

"The marine environment is a precious heritage that must be protected, preserved and, where practicable, restored with the ultimate aim of maintaining biodiversity and providing diverse and dynamic oceans and seas which are clean, healthy and productive."

11 Descriptors of the Good Environmental Status of European Seas

Descriptor 10

Properties and quantities of marine litter do not cause harm to the coastal and marine environment.



http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/marine-strategy-framework-directive/index_en.htm

Related EU Policy context development

EU Plastics Strategy Communication

- Published January 2018
- http://ec.europa.eu/environment/waste/plastic_waste.htm

Legislative proposal COM(2018) 340 final

- Proposes measures for Single Use Plastics + Fishing Gear
- Agreement EU Parliament + EU Council on 19.12.2018
- http://ec.europa.eu/environment/circular-economy/pdf/single-use_plastics_proposal.pdf
- <https://www.bereadytochange.eu/en/>
- Plastics Strategy work on pellets, tire abrasion and textiles

Reach

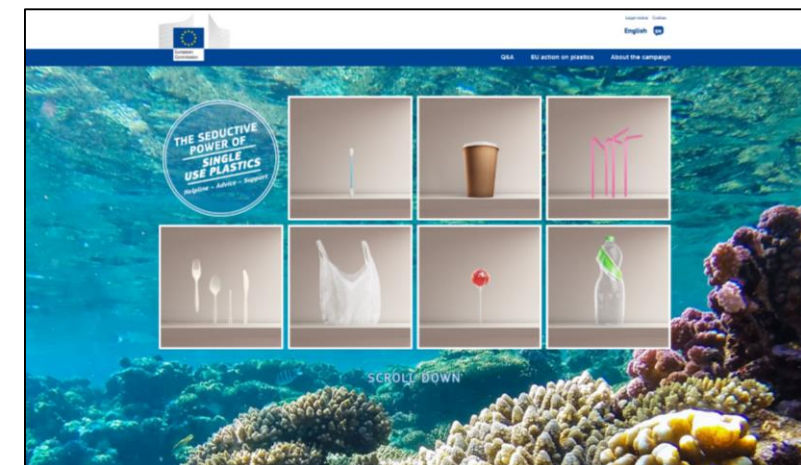
- Work on microplastics has started

New Waste Legislation

- 2008/98/EC

Port Reception Facilities Directive

- Review process



Current state of MSFD implementation

MSFD 6 years cyclic set-up

- **2012 Initial assessment**
- **2015 Programs of measures**
- **2018/2019 Member States reporting (reports incoming, some delays...)**
- **2020 Monitoring plans reporting (update after 2014)**
- **.....**

Process is guided by the Good Environmental Status Group, Marine Strategic Coordination Group and EU Marine Directors.



MSFD provisions for Micro-litter

MSFD Commission Decision 2017/848/EU (repealing 2010/477/EU)

Criteria and methodological standards on good environmental status of marine waters

Micro-litter particles (< 5 mm)

D10C2 Primary criterion :

***„The composition, amount and spatial distribution of micro-litter on the coastline, in the surface layer of the water column, and in seabed sediment, are at levels that do not cause harm to the coastal and marine environment“
(D10C4 considers micro-litter in biota)***



MSFD Technical Group on Marine Litter

Support and accompany the EU MSFD implementation process in close collaboration with MS, based on a mandate by EU Member States

Chairs: F.Galgani IFREMER, S.Werner UBA, G.Hanke EC JRC

Members: All coastal EU Member States, Regional Sea Convention Secretariats, Commission Services, NGO umbrella organizations, scientific project leads

Collaboration beyond EU: G7/G20, UNEP

Link to TG Litter documents:

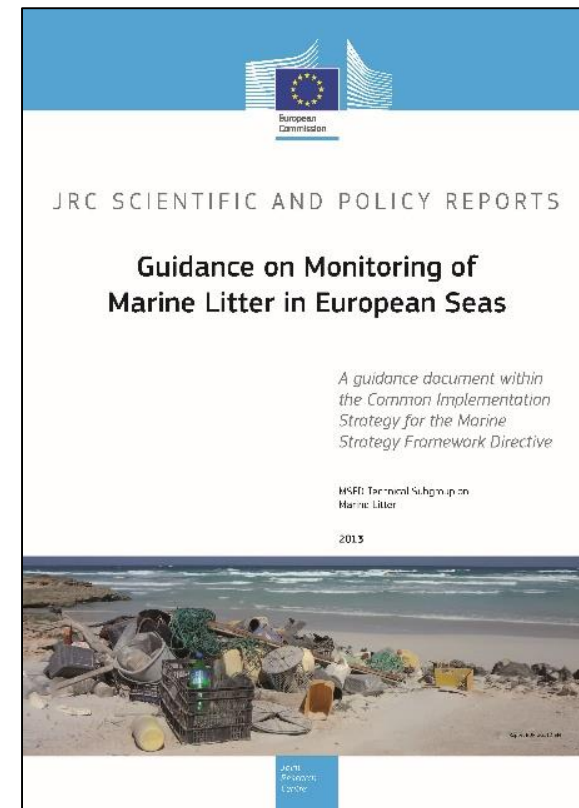
http://mcc.jrc.ec.europa.eu/dev.py?N=41&O=434&titre_chap=TG%20Marine%20Litter



MSFD Guidance for monitoring of marine litter

Guidance and protocols for marine litter monitoring under MSFD

- **Published by TG Marine Litter in 2013**
- **Micro-litter guidance chapter on pages 94-110**
Note: Marine litter monitoring is based on operationally defined parameters, therefore need of detailed protocols for data comparability
- **Update through TG Litter 2018/2019**
- **Covers beach, water, seafloor, biota, micro-litter**
- **Aims to support development of 2020 MS MSFD Monitoring Plans**



Quantitative Baselines on Micro-Litter

- **Marine Litter Baselines are needed (Point-in-time/status-quo, Trend assessments, etc.)**
- **Comparable data across EU in different environmental compartments**

TG Litter is currently finalizing work on beach litter (best data coverage)

**Close collaboration with DG MARE
EMODNET chemistry data portal
consortium**



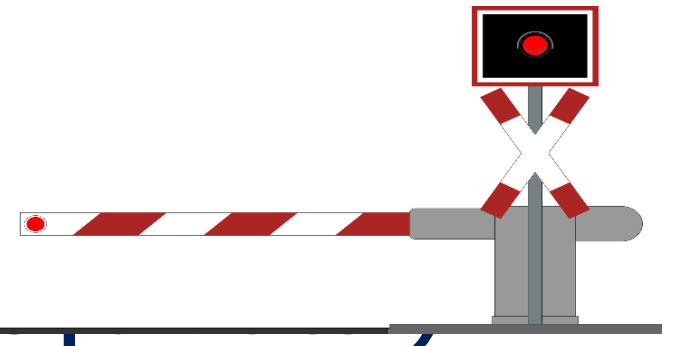
Thresholds for marine Micro-Litter

MSFD ComDec 2017/848/EU requires thresholds for all Descriptors

Discussion on D10 thresholds in TG Marine Litter is ongoing

Elements of micro-litter risk assessments:

- **Exposure assessments (relevance)**
- **Impact on wildlife (ingestion/entanglement)**
- **Toxicological effects (particular for micro/nan**
- **Socio-economic impact (wellbeing, recreational value, food, etc.)**



NOTE: For chemical additives provisions are available through D8

NOTE: Important input from SAPEA Evidence Review Report "A scientific perspective on microplastics in nature and society"

Pathways/Fate of (micro-)litter

Sources and sinks, where does all the litter go?

- **Source attribution (land, sea, source activity,....)**
- **Transport to the sea (atmospheric, riverine, run-off)**
- **Transport in the sea (vertical/horizontal transport, currents, accumulation zones)**
- **Changes in buoyancy (weathering, biofouling, ...)**
- **Degradation + timescales (mechanical, chemical, biological)**
- **Final sinks (seafloor, water, CO₂)**

Fundamental knowledge need for management and mitigation!

Micro-Litter types

Litter types related to source type (relevant for management)

- **Primary**
 - **Emission of produced micro-particles (ion exchange beads, cosmetic beads, production pellets, etc.)**
- **Secondary**
 - **Physical degradation products from larger litter items (disintegration or abrasion)**
 - **Abrasion particles/fibers from use (textiles, paint particles, rope/net fibers, tires, etc.)**

Quantitative source apportioning is needed, requires monitoring!

Marine Micro-Litter Position Paper

Currently scientific knowledge on micro-litter is evolving fast, is scattered and sometimes controversial.

- **Need to identify within the MSFD implementation strategy the issues that can be agreed upon now and**
- **Highlight, indicating possibly a way forward, those that are under development or need further discussion.**

Provide the basis for development of guidance and protocols for micro-litter assessments within MSFD and related frameworks

Micro-Litter Position Paper

Close collaboration with JPI Ocean microplastics projects

- **BASEMAN** - Defining the baselines and standards for microplastics analyses in European waters (Gunnar Gerdts, AWI, Paula Sobral, Univ. Lisbon)
- **EPHEMARE** - Ecotoxicological effects of microplastics in marine ecosystems (Ricardo Beiras, Univ. Vigo, Francesco Regoli, Univ. Ancona)
- **PLASTOX** - Direct and indirect ecotoxicological impacts of microplastics on marine organisms (Andy Booth, SINTEF)
- **WEATHER-MIC** - How microplastic weathering changes its transport, fate and toxicity in the marine environment (Annika Jahnke, UFZ)



- Intermediate project meeting 2017
- TG ML annual meeting 2018
- Micro2018 conference

First 4 projects are finished end 2018. New call is open.

Micro-Litter position paper topics

Position paper topics:

- **Description and definition**
- **Scope of MSFD concerning micro-litter**
- **Micro-litter properties (size, morphology, etc.)**
- **(Micro-)Litter pathways**

Monitoring and assessment

- **Micro-litter sampling + analysis**
- **Quality assurance/quality control, proficiency testing**
- **Micro-litter data reporting and databases**

Thresholds (effects, SAPEA input,...)

Micro-Litter size + morphology

Micro-litter size ranges/reporting borders in discussion

Note: Marine litter ranges from shipping container size down to molecular size in a continuous spectrum.

- **5 mm reporting border between micro/meso litter (to 25 mm)**
- **1 mm presumed lower border for visual identification**
- **330 μm mesh size of readily available plankton net**
- **100 μm**
- **10/20 μm lower boundary for quantification**
- **1 μm**
- **...**

Monitored fraction and matrix depends on scope and data need!

Monitoring methodologies for marine Micro-Litter

“Fit-for-purpose” data quality is fundamental!

The good news:

Analysis of micro-litter is possible ! (e.g. JPI Oceans BASEMAN project)

Data Quality Assurance/Quality Control frameworks are needed and being set-up:

- **Elements for data quality assessment have been developed**
- **proficiency testing schemes/reference materials (JRC Dir F. has started development)**
- **standardization (after procedural agreements and pre-normative research)**

Marine Micro-Litter data management and databases

Large scale databases for litter are needed as they:

- **Evidence data (non-)availability**
- **Facilitate data accessibility**
- **Evidence validation and data quality control need**
- **Provide common reporting format (metadata!)**
- **Enable assessments of transboundary issues**

Databases are available in MS, RSCs, projects...

DG MARE EMODNET Marine Data portal. Template for micro-litter data collection provided by EMODNET chemistry module.



Conclusions/Outlook

- **Position paper used for next steps in MSFD litter guidance update, leading towards harmonized assessments**
- **The marine environment is a (micro-)litter sink**
- **Pathways and fate of marine litter are still not known (particular importance, as the deep sea environment itself is largely unknown)**
- **Impact and effects on wildlife (+ humans) are current research topics (precaution is required)**
- **Societal rejection of (micro-)litter in the environment is evident (it has been the driver for the fast policy development)**
- **The science-implementation gap: need of large scale collaborative projects to provide good data for decision making**

Many thanks to JPI Oceans, TG Marine Litter and the Micro2018 conference for the good collaboration!

