Inspire
marine pollution

Global monitoring of plastic/marine litter
A plead: Let‘s get started!

Georg Hanke

EC-JRC

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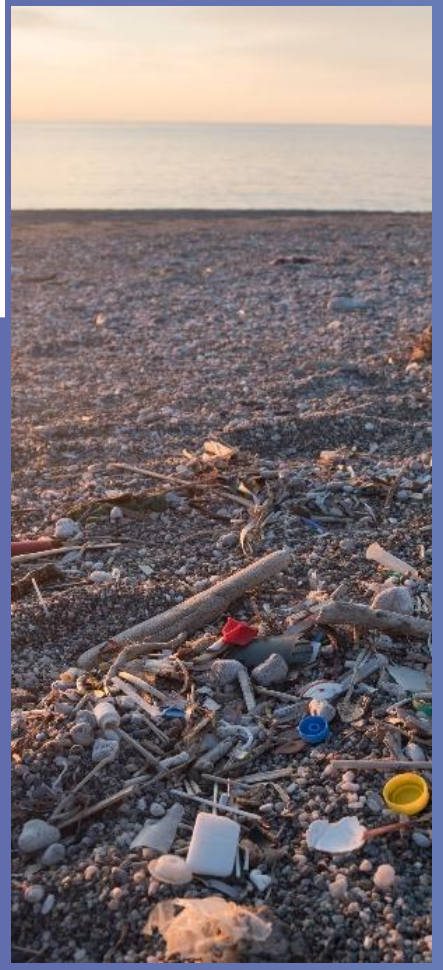

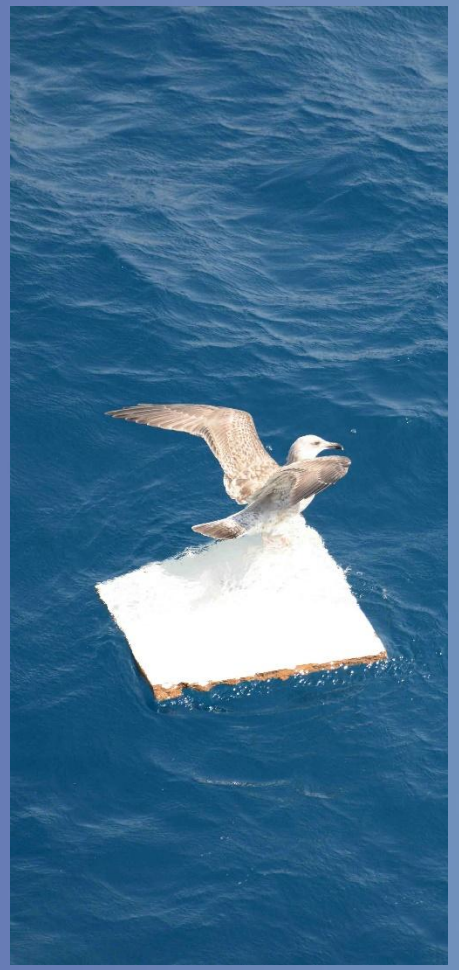

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Marine Pollution UNOC3 Side Event,
La Baleine, Nice, France

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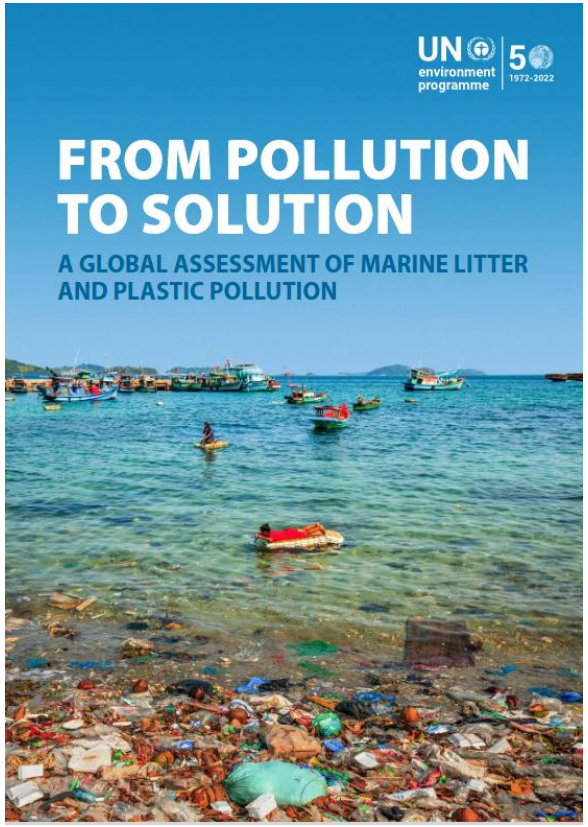
The background

- Policy development and implementation requires scientific evidence.
- Fit-for-purpose and accessible data are key to prioritisation of mitigation measures and verification of success.
- Large scale policies require large scale comparable datasets, as transboundary pollution and global dimensions are concerned.
- Global plastic and marine litter pollution is leading to action at global level (INC Global Treaty on Plastic Pollution, next Session 5.2, begin of August 2025).
- Monitoring is needed to support the related processes!



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Monitoring to support plastic/litter mitigation

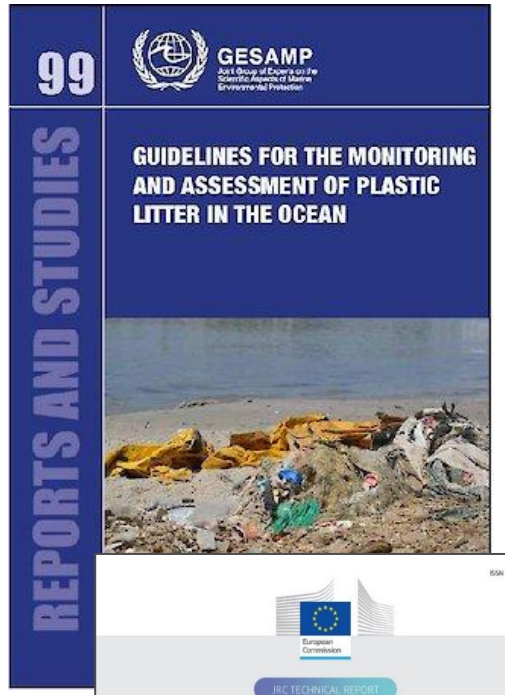
Different types of monitoring are needed

- Monitoring of socioeconomic parameters (production, waste generation, recycling rates, etc.).
- Monitoring of policy implementation (preparation and adoption of legislation, enforcement, etc.).
- Monitoring of environmental plastic/marine litter pollution concentration (measuring environmental concentrations of plastic/marine litter in different environmental compartments and matrices).

Here discussing the global environmental monitoring of plastic/marine litter as an urgent need!

Requirements for getting started

- Simple cost efficient methods (e.g. based on observations).
- Harmonisation of „vocabularies“ and approaches where needed, based on existing guidance.
- Possibility to include „citizen science“ in the process (with caution!).
- Larger scale experience is available (RSCs, countries, EU, etc.).
- (Federated) Data systems to ingest and manage data.
- Enabling aggregated data products as output to inform policy (as the Global Platform on Plastic and Marine Litter, GPML).



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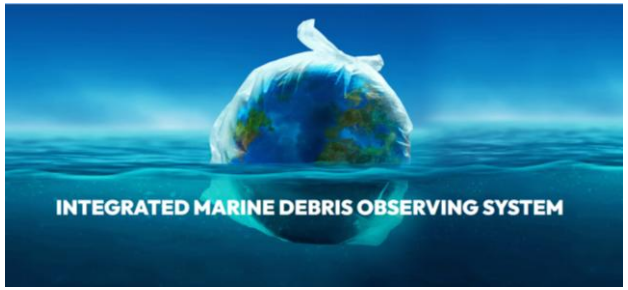
Where are we?

- Development of an environmental monitoring system can start!
- Experience and guidance from ca. 20 years of marine litter monitoring and mitigation activity are available.
- The European Union (activities by DG ENV, DG MARE, DG RTD, JRC and EU Member States) is supporting the efforts to develop global monitoring of plastic/marine litter (methods, data templates, etc.) through an EU Voluntary Commitment at UNOC3!
- Methods are available and ready!

How to start?

- Identify priority compartments/matrices/litter types, candidates:
  - Coastline Macrolitter
  - Floating Macrolitter (Rivers and Sea), including landlocked countries!
  - Seafloor Macrolitter
  - Microlitter (selected matrices)
- Identify open issues and address harmonisation needs.



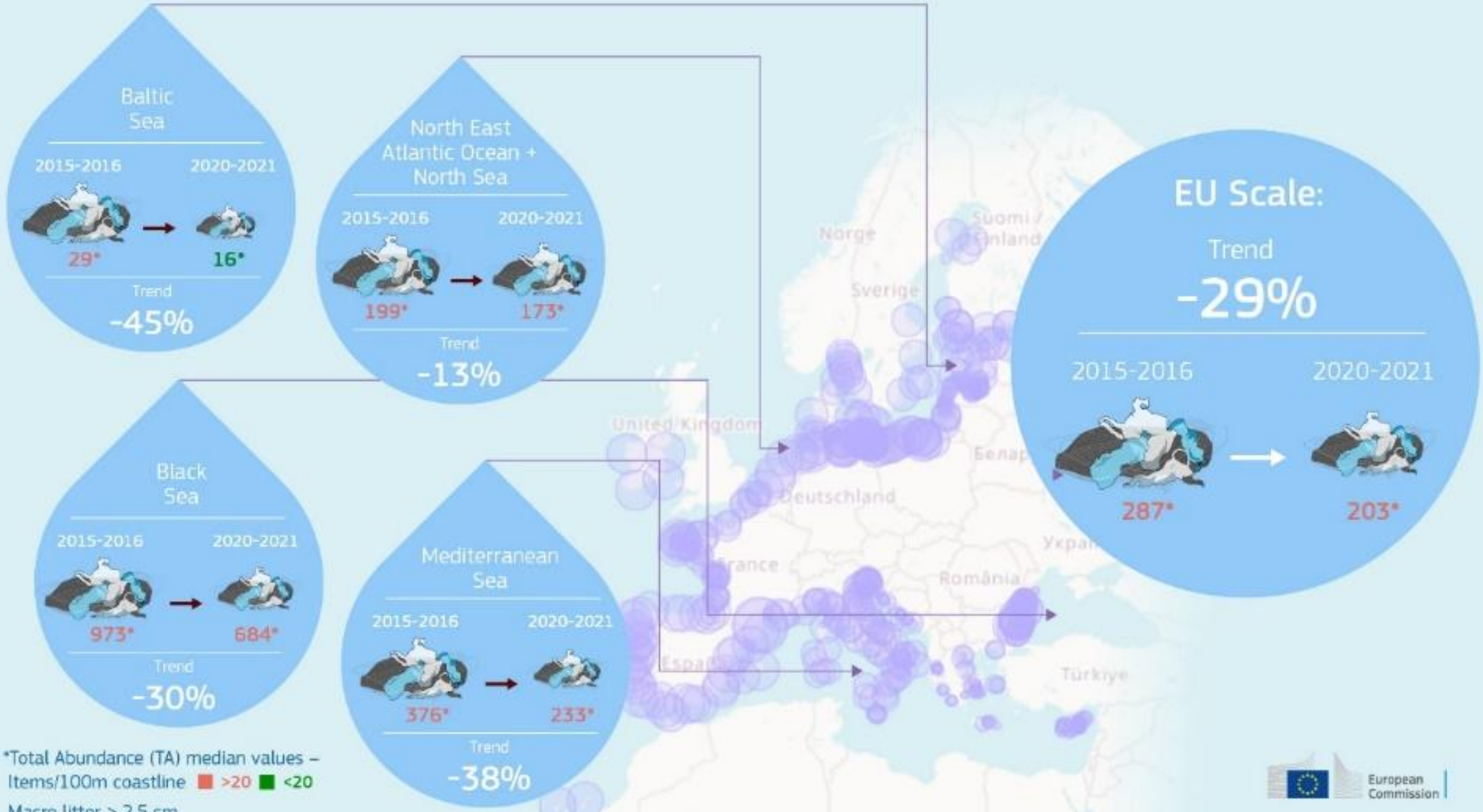
- IMDOS, the Integrated Marine Debris Observing System, as important discussion platform, providing unbiased advice, https://imdos.org/).
- Terrestrial litter monitoring needs to be developed too.

Monitoring Coastline Macrolitter

- Simple and cost efficient, ca. 4 surveys of selected 100 m coastline/year, with removal of items.
- A common approach to describe macro litter items is needed (see Joint List of Litter Categories System): https://mcc.jrc.ec.europa.eu/main/dev.py?N=41&O=459)
- Ca. 1000 surveys/year performed in EU.
- Implemented in EU and RSCs (mostly aligned).
- Calculation of trends are based on comparable beaches.

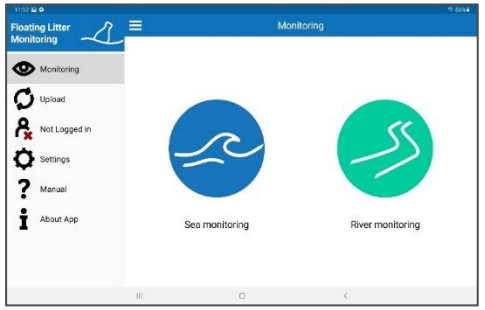
Link: https://mcc.jrc.ec.europa.eu/main/dev.py?N=41&O=468

Marine Macro Litter on EU Coastlines



Floating Macrolitter Monitoring at Sea and on Rivers

- A tool for the harmonised quantitative monitoring of floating macro litter (> 2.5 cm in longest dimension) in the marine and riverine environment.
- Observers document floating litter objects from ships or bridges through a mobile computer app, data are transmitted to central data storage. Users manage their own data.
- Initial implementation through authorities, institutes, NOGs and projects (citizen involvement possible)
- App and data management website have been published!
- Remote sensing (e.g. from drones) may become available in future, River bank monitoring may be complementary



Link to FLM system:

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Seafloor Macrolitter Monitoring

- Cost efficient if based on available observations/images.
- Includes citizen science (SCUBA) and opportunistic ROV/AUV/HOV approaches.
- Set-up of an agreed system to quantify litter as items/km².
- Development work at global scale is ongoing.
- Expert Community (led by EC JRC, IFREMER, JAMSTEC, AWI, Univ. Barcelona, Univ. Patras, Univ. Azores, East China Univ.) is at work.
  https://iopscience.iop.org/article/10.1088/1748-9326/abc6d4

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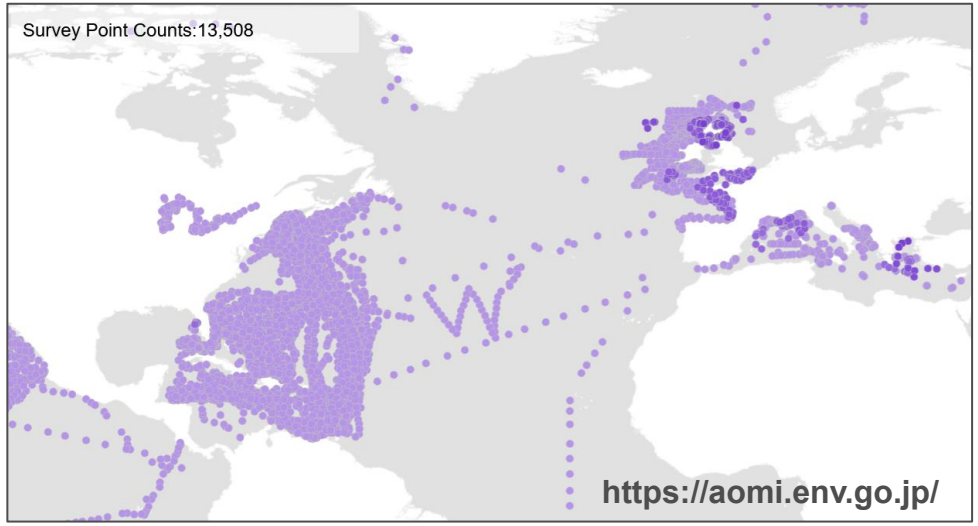
AOMI Floating Microlitter at Sea

- Initiative by the Japanese Ministry of Environment.
- Monitoring floating microlitter by Manta Trawl.
- Close interaction between different monitoring/data systems, bringing them to a single platform.
- System is up and running!
- Link: https://aomi.env.go.jp/



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Next steps?

- Trigger the development process for global plastic/litter monitoring through large scale support by Countries and through RSCs at UNOC3!
- Review existing experiences and provide unbiased scientific advice (IMDOS).
- Select and propose few initial indicators.
- Agree on guidance, data structure and options for data ingestion and management system.
- Launch monitoring!
- Provide first baselines in 3 years!?

Let‘s get started!

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Thank you

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