Standardization of methods to measure plastic pollution by 2024?

EUROqCHARM faces up to the challenge

@EUROqCHARM

Contact: Amy Lusher
EUROqCHARM Project Manager
EUROqCHARM@niva.no
Norwegian Institute for Water Research (NIVA)

EUROqCHARM is using a multi-stakeholder approach to identify and develop cost-effective monitoring strategies for plastics (nano-, micro-, macro-) in all environmental matrices.

EUROqCHARM is facilitating developments for European plastic monitoring programmes and the realization of international best-practices.

Goals:

- Provide a platform to discuss and validate methods for monitoring of plastics in environmental samples.
- Develop blueprints for standardization.
- Recommend revision of current EU policies and instruments.

How?

- EUROqCHARM will evaluate existing methods for the assessment of plastic pollution.
- Harmonize these methods on a European level - with rigorous quality control - and reinforce European monitoring capacities.

Why?

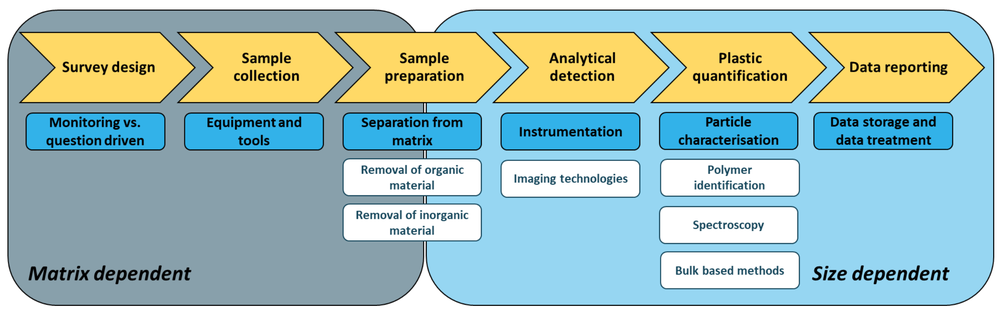
- Major actions to evaluate, optimize and harmonize monitoring and assessment of plastic pollution are urgently needed.
- This will support substantial improvements in international environmental sustainability and socio-economic development

EUROqCHARM will deliver the necessary methodological harmonization to successfully implement long-term strategies for combating plastic pollution.

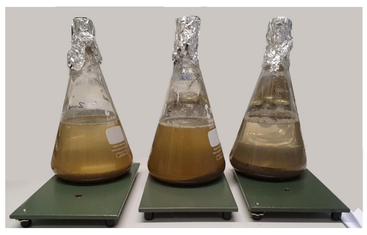
Scan to access
www.euroqcharm.eu
and sign up for our newsletter

Screening and analysis of methods used for plastic analysis (WP1)

- A **Systematic Review** was carried out to analyse the matrix- and size- adapted methods reported in the literature. Methodological steps were arranged in Reproducible Analytical Pipelines (RAPs) and assessed for the Technological Readiness Level, which may eventually (if not already) be incorporated into plastic monitoring programmes.
- Through this work we defined the most used methods and protocols for analysis, and identified the properties of the fundamental steps in the analytical process and the methods and protocols that are more widely used for monitoring.



- *Main outputs:* Aliani, S., et al., Reproducible pipelines and readiness levels in plastic monitoring. Nature Reviews Earth & Environment, 4(5), 290-291.
- Report series on Water, Sediment, Biota and Air methodologies – Available on Zenodo.



Testing sediments for their suitability as test material for the ILC

Validation of methods (WP2)

Scan for microplastic reference materials

- *Aim*: Harmonising sample preparation, analysis and data reporting formats as recommendations for standards.

Tablets containing different types of polymer. These have been used as test materials for water samples in the ILC.

- *Main output*: Production of candidate reference materials and organisation of a worldwide interlaboratory comparison (ILC) study on the analyses of microplastics
  → 67 laboratories participated and results indicated the need for fit for purpose method development.
- For further details see: Martínez-Francés, et al. Innovative reference materials for method validation in microplastic analysis including interlaboratory comparison exercises. Analytical and Bioanalytical Chemistry 415.15 (2023): 2907-2919.

Harmonization (WP3)

- *Aim:* to internationally harmonize monitoring methods and data reporting so that they can be used by stakeholders to formulate and implement policy and legislation.
- *Key outputs:* Recommend most appropriate protocols and methods for monitoring programmes; Identify appropriate monitoring strategies in terms of indicators; Recommend procedures for policy and legislation; Align European procedures with global strategies for data management and reporting.
- *Main output:* Galgani, F., Lusher, A.L., Strand, J., Haarr, M.L., Vinci, M., Jack, E.M., Kagi, R., Aliani, S., Herzke, D., Nikiforov, V. and Primpke, S., 2024. Revisiting the strategy for marine litter monitoring within the European marine strategy framework directive (MSFD). Ocean & Coastal Management, 255, p.107254.

Capacity building (WP4)

- **WP4** has been specifically designed to facilitate the acceleration and adoption of developed standards and guidelines in Member States by bring together a critical mass of actors to draw synergies between environmental monitoring.
- *Main tasks*: 1) Establish an Operational Network for plastic monitoring; 2) Workshop facilitation; 3) Transnational Joint Actions.
- *Main activities:* Workshops and training

This project has received funding from the European Union's Horizon 2020 coordination and support action under grant agreement No. 101000805 (EUROqCHARM). This output reflects only the author's view and the European Union cannot be held responsible for any use that may be made of the information contained therein.