

Summary of progress to consider best practice to prevent litter entering the marine environment via rivers

Regional Action Plan for Marine Litter (RAP ML)

OSPAR's marine litter objective is "to substantially reduce marine litter in the OSPAR Maritime Area to levels where properties and quantities do not cause harm to the marine environment". OSPAR 2014 agreed a Regional Action Plan for Marine Litter for 2014-2021; this will be reviewed at the end of this period until spring 2021 after which OSPAR will work on the development of a new or updated RAP.

The RAP ML (2014-2021) defines the four key areas (themes) of actions to be implemented:

- A. Reduction of litter from sea-based sources
- B. Reduction from land-based sources
- C. Removal of existing litter
- D. Education and outreach

The full Regional Action Plan and its outputs can be accessed via <https://www.ospar.org/work-areas/eiha/marine-litter/regional-action-plan>

This Action Briefing Note focuses on Action 41. It sets out the issue, its relevance for OSPAR and the North-East Atlantic Ocean, the work that has been completed by regional action under OSPAR and finally highlights possible next steps which could be taken forward to the revision of the OSPAR Regional Action Plan on Marine Litter.

The Action

Action 41 was to exchange experience on best practice to prevent litter entering into water systems and highlight these to River or River basin Commission.

This action is a component of Theme B of the RAP ML to combat land-based sources of marine litter to address the reduction of sewage and stormwater related waste. The action was co-led by Netherlands, France and Germany with the assistance of Belgium.

Geographic scope: Relevant to all OSPAR Contracting Parties

The issue

Why is litter in rivers a problem for the marine environment?

One of the major pathways for litter to enter the marine environment is via terrestrial waterways, i.e. rivers and other tributaries. Although information about the amount of litter being transported through rivers into the sea is limited, initial estimations suggest that globally, between 1.15 and 2.41 million tonnes of plastic waste enters the ocean every year, with over 74% of emissions occurring between May and October¹. Therefore, it can be assumed that riverine litter input is a major contributor to marine litter. Little is known about the pathways and sources and transport mechanisms

¹ Lebreton, L., van der Zwet, J., Damsteeg, JW. et al. River plastic emissions to the world's oceans. Nat Commun 8, 15611 (2017). <https://doi.org/10.1038/ncomms15611>

for litter within rivers, and litter pathways within riverine systems are complex. It is also thought that riverine litter input will vary greatly depending on the specifics of a particular catchment area, or vary seasonally depending on rainfall.

What has been done by OSPAR to address the issue?

The following outputs have been produced to support the implementation of Action 41:

1. Inventory of knowledge and actions on riverine litter (2016);
2. European Conference on Plastics in Freshwater Environments (2016);
3. Work session in 2017 on riverine and marine litter; and
4. Workshop in 2019 on monitoring methods.

In addition, several OSPAR countries have been working nationally on the issue of riverine litter. A summary of the key points and conclusions from each output is presented in the sections below.

Inventory of knowledge and actions concerning riverine litter relevant for the OSPAR area

In 2016, a questionnaire was developed and sent to river commissions to find out about their (policy) approach to reduce riverine litter for the European rivers. The results of the questionnaire were used to inform an [inventory of knowledge and actions concerning riverine litter relevant for the OSPAR area](#).

The 2016 inventory report concluded that, at the time of production, riverine litter was not high on the agenda within the respective river commissions. However, there was already an increasing effort to include the impact of riverine litter as a source for marine litter in the action programmes of the river commissions, and there were already mechanisms in place for exchanging information on the topic (e.g. meetings, conferences, and sharing of studies between contracting parties). River commissions were at the time considering both macroplastics and microplastics, but with more emphasis on microplastics. Knowledge regarding quantities of litter in rivers was limited, and the sources and pathways were largely unknown. In 2016 there was no regular monitoring of plastic or litter in rivers by river commissions, and there were no standard accepted methods for monitoring riverine litter.

In terms of identifying best practice, the report concluded that the best way of reducing litter in the rivers is to reduce litter at the source, with a focus on preventing litter from reaching rivers by improved terrestrial waste and resource management. Looking forward, the report suggested that future collaboration between marine and riverine communities should take place at an international, national or regional level. River commissions welcomed the idea of exchange of information between OSPAR and the river commissions, with a need for a particular focus on monitoring and the possible impacts of litter, e.g. on human health, ecosystems and organisms.



Photos of riverine litter taken from the 'Inventory of knowledge and actions concerning riverine litter relevant for the OSPAR area report (2016)

European Conference on Plastics in Freshwater Environments (2016)

A European conference on Plastics in Freshwater Environments was organised in 2016, in Berlin, Germany. The main outcomes of the conference were that plastic pollution of freshwater environments is ubiquitous, and although some reduction / removal measures had already been implemented, there was a need to identify the roadblocks that were preventing a universal application of measures to reduce riverine litter. The conference highlighted that there was a need for better networking between European water and environment agencies, and also that there was a need for a common approach for monitoring methods and data reporting in regards to riverine litter. The conference also considered the fact that plastics were not yet included in the EU's Water Framework Directive, but that there may be scope for this in the future (for detailed outcome see <https://www.umweltbundesamt.de/publikationen/european-conference-on-plastics-in-freshwater>).

In preparation for the European Conference on Plastics in Freshwater Environments, Germany undertook a survey on plastics in European freshwater environments. The key conclusions from the 2016 survey were that the monitoring studies that had been undertaken to date mainly covered individual rivers or lakes, there were no standardized definitions of size which hampered progress towards harmonized monitoring, there was limited knowledge on pathways, sinks, fragmentation and sources of riverine litter, and there was limited data on riverine loads and inputs to the sea.

Work session 1 (2017)

Building on the results of the 2016 report, an [OSPAR riverine and marine litter work session](#) was organised in Germany, in 2017. Colleagues of international river basin commissions, OSPAR, HELCOM, environment ministries, governmental agencies, scientific institutions and several NGO's, came together to exchange knowledge and best practices and to strengthen the cooperation.

During the work session, participants agreed that riverine litter as source of marine litter is a problem which should be addressed with monitoring and prevention actions. Setting up a harmonized monitoring system for microplastics and for macrolitter would be necessary for closing knowledge gaps and for generating the necessary awareness and political support for addressing the issue. Strengthening the cooperation between the riverine and marine communities (i.e. river commissions and regional sea conventions such as OSPAR) contributes to avoiding double work and to increasing effectiveness.

The work session recognised that a first step for implementing harmonized monitoring of macrolitter could be the consideration of supporting and/or participating in the riverine monitoring project from the North Sea Foundation. For monitoring microplastics, experts from the riverine and marine communities could be brought together in order to identify the best monitoring method and focus. The participants of the workshop also supported considering taking prevention actions.

Work session 2 (2019)

A follow up workshop was organised in 2019 to discuss [monitoring methods relative to the input of riverine litter into the sea](#). The work session acted as a platform to share results and methodologies from existing projects which sought to analyse riverine plastic pollution. The outputs of this workshop were an exchange of knowledge, improved relations between researchers and NGOs running riverine litter monitoring projects and a [summary of the advantages and disadvantages of every method discussed during this workshop](#).

The majority of the projects presented considered macroplastics distribution in freshwater environment, with floating litter observation and river bank monitoring the two methods most applied. The workshop suggested that a way forward could be to establish a working group at the EU level together with a platform to exchange information.

Barriers to progress

Although there has been a lot of work undertaken by OSPAR Contracting Parties to address Action 41 of the OSPAR RAP ML, there have also been a number of issues that have prevented progress from being made. These include questions regarding the mandate and competence of OSPAR, and specifically ICG-ML, in terms of addressing issues related to litter

in terrestrial riverine environments, which although have a definite impact on the marine environment, occur upstream. It is often the case that government agencies and bodies are divided by environmental compartment (i.e. focusing on terrestrial or marine environments) and so coordinating and collaborating across these divisions is challenging. Therefore, it has been difficult to ensure that appropriate terrestrial water colleagues are engaged in discussions and challenging to align the different views in terms of the role OSPAR should take concerning riverine issues, as opposed to the role that the river commissions should take.

Furthermore, the EU Water Framework Directive is a key piece of legislation for the management of water quality in rivers in Europe, and it currently has no reference to litter (macro, meso or micro). This could also explain the fairly passive approach and low level of ambition in relation to addressing riverine litter taken by river commissions to date.

Potential options for future work (next steps)

For any future work to address the issue of riverine litter as a source of marine litter in the North-East Atlantic, there must be close cooperation and collaboration with the various river commissions, or the appropriate national responsible bodies. Furthermore, collaboration with work underway at the EU level is essential for the success of any initiative or proposed way forward, with consideration of and discussion on the benefits of a more harmonized approach to monitoring for the Water Framework Directive and the Marine Strategy Framework Directive.

ICG-ML has agreed to work towards a harmonised approach for monitoring shoreline riverine litter, based on OSPAR beach litter monitoring (in collaboration with the river commissions, etc). This could potentially be included as a specific action in the next RAP ML. OSPAR could also play a role in collecting and exchanging knowledge on riverine litter and on developing monitoring protocols for riverine litter (including floating litter, microplastics, etc). This information could be brought to the attention of the river commissions. An event such as a workshop could help to keep the riverine litter network active. A further action for possible inclusion could be to promote initiatives of best practises aiming at preventing litter entering into water systems and rivers.

Finally, there are a number of ongoing projects in Europe and in Contracting Parties of OSPAR (such as France and Switzerland) which are considering riverine litter, including work being undertaken by Germany to review the results of the European conference on plastics in freshwater environment, with the potential for an updated survey, and the possibility of linking MSFD requirements with freshwater environments. Any future work should be cognisant of the existing initiatives underway and seek to collaborate and where possible add value to these existing initiatives.