



Beach litter washed on shore - Bostelmann

Marine Litter in the Wadden Sea

Background, legal framework and inventory of activities in the three TWSC countries and recommendations

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Marine litter in the Wadden Sea - background, legal framework and inventory of activities in the three Trilateral Wadden Sea Cooperation countries

Problem

Strategy and actions concerning marine litter in the Wadden Sea have partly been dealt with in accordance with the preconditions as laid down in [the Wadden Sea Plan 2010](#) and the [Leeuwarden Declaration](#). It still needs a stringent manner that might include stakeholders, professional organizations as well as Non-Governmental Organizations, researchers, public authorities etc. at the same time as many of these have developed their own agendas and profiling attempts.

[The Marine Litter Quality Status Report \(QSR\)-2017](#) (Fleet et al., 2017) section 4 (recommendations) states the following regarding research: “Current knowledge on macro- and microlitter in the Wadden Sea is still fragmentary”. It is also stated that an intensified data collection will provide basis for further research in the coming years, and with that it will be possible to apply appropriate methodology for the identification and quantification of microplastics from environmental samples. In this context are also mentioned that socio economic effects arising from marine litter within the Wadden Sea (WS) ought to be addressed with research.

With regard to recommendations on management the QSR report refers to actions and measures according to the European Marine Strategy Framework Directive (MSFD) and the OSPAR regional action plan for the Northeast Atlantic.

Together this has resulted in a situation where Trilateral Wadden Sea Cooperation (TWSC) will need to find the strength of a common source to sink approach for the cooperation on marine litter, including collaboration with relevant partners and stakeholders, complementary and well-coordinated with existing strategies and ongoing activities f. e. at OSPAR level and the implementation of the MSFD or the Water Framework Directive (WFD).

Background

Marine litter has basically been on the Trilateral agenda since the inception of [The Wadden Sea Plan 2010](#) (Section 2, “Water and Sediments”, followed by the [Tønder Declaration \(2010\)](#), Annex 5, PSSA Operational Plans that addresses marine litter briefly.

Also, there is a very intensive cooperation between the Netherlands, Denmark and Germany regarding marine litter within the framework of OSPAR, more specifically the marine litter group and also at the technical group at EU-level. This work includes monitoring and measures.

OSPAR (ICG-ML) is, amongst others, presently building up to its QSR (Quality Status Reports) 2023 and is also presently updating its monitoring guidelines (CEMP guidelines), developing new indicators (e.g., microlitter) and currently revised its RAP (Regional Action Plan).

The EU Technical Group on Marine Litter is presently revising its guidelines on monitoring litter and is in the process of collecting data with the aim of producing baselines for seabed, sea surface and micro plastic litter. It has recently produced reports on “harm” (D10 MSFD), baselines for beach litter and has produced a report on as well as agreed upon a threshold value for beach litter. It is also producing a new joint list of litter items for monitoring in the EU.

The preamble of [The Leeuwarden Declaration](#) (2018) reads: *“Acknowledging the problem of marine litter in the Wadden Sea ecosystem, and committing to the circular economy as one important approach to preventing introduction of litter to the sea and contributing to the implementation of respective strategies developed on national and international level;”*

In section 2.2 of the Leeuwarden Declaration (“Sustainable Development”) a target is set up: *“**Strive** to substantially reduce the amount of marine litter in the Wadden Sea by the year 2030;”*

Section 2.3 reads: *“Instruct the Wadden Sea Board to make use of all relevant existing monitoring and action programmes, as well as existing action plans, taking into account local, national and multilateral initiatives to gain and exchange adequate additional knowledge on sources and impacts of marine litter (such as micro plastics) on the Wadden Sea ecosystem and stimulate and support appropriate measures;”*

At WSB-31 the board noted the following information by TG-M:

At WSB 30, TG-M had informed on an inventory on activities based on a Danish initiative/template which should contain corresponding information on UN, EU and OSPAR level under lead of Rijkswaterstaat (RWS). Due to interruption of RWS contribution to trilateral work, this information could not be presented [in a summarizing document] for WSB 31 as originally planned.

This note thus picks up from WSB-31.

Common European and international legal framework on marine litter

In the 1970s and 1980s, regulations were introduced to prevent litter from entering the marine environment globally e.g., was the introduction of plastic waste into the oceans by ships banned as early as 1988 in Annex V of the International Convention for the Prevention of Pollution from Ships (MARPOL).

EU Marine Strategy Framework Directive

In 2008 EU MSFD was introduced with the goal to maintain or achieve Good Environmental Status (GES) of EU marine waters by 2020. In Annex I of the Directive, eleven qualitative descriptors describe what the environment will look like when GES is achieved, among them descriptor 10 “marine litter”. The MSFD is not implemented for the Dutch Wadden Sea however. Alternative actions like monitoring of the seabed and re-use of marine litter, are undertaken for this part of the Wadden Sea.

The implementation of the MSFD includes (1) an assessment of the baseline situation (“Initial Assessment”),

(2) the establishment of indicators to assess the situation on a regular basis, (3) the setting of targets for the GES, (4) the introduction of monitoring to assess whether or not GES has been achieved and (5) development and implementation of measures.

As described by the European Commission, a task group - *MSFD Task Group 10 on Marine Litter* - consisting of experts nominated by EU Member States was created in 2009, in order to review the technical state-of-the-art¹ and to

¹ Marine Strategy Framework Directive - Task Group 10 Report - Marine Litter, 2010

support the development of criteria and methodological standards on GES of marine waters².

(1) As the characteristics and pressures of the North Sea ecosystem are not within the range of good status in the available assessments under Community law, OSPAR and TWSC, the German North Sea does not achieve GES (Initial Assessment 2012). Following this first assessment, the reports delivered by the member states have been analysed for their technical content. The so-called in-depth assessment³ has been used in order to identify problematic issues and to plan a way forward. The initial assessment, as well as the environmental objectives, were reviewed and updated in 2018.

(2) *Descriptor 10: Properties and quantities of marine litter do not cause harm to the coastal and marine environment. More detailed indicators (Commission Decision (EU) 2017/848) as follows:*

Table 1. Marine litter criteria descriptors and priority of marine litter in EU Marine Strategy Framework Directive.

Criteria	Priority	
D10C1	Primary	The composition, amount and spatial distribution of litter on the coastline, in the surface layer of the water column, and on the seabed, are at levels that do not cause harm to the coastal and marine environment. Member States shall establish threshold values for these levels through cooperation at Union level, taking into account regional or subregional specificities
D10C2	Primary	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 Member States shall establish threshold values for these levels through cooperation at Union level, taking into account regional or subregional specificities.
D10C3	Secondary	The amount of litter and micro-litter ingested by marine animals is at a level that does not adversely affect the health of the species concerned. Member States shall establish threshold values for these levels through regional or subregional cooperation.
D10C4	Secondary	The number of individuals of each species which are adversely affected due to litter, such as by entanglement, other types of injury or mortality, or health effects. Member States shall establish threshold values for the adverse effects of litter, through regional or subregional cooperation.

² Criteria and methodological standards on GES of marine waters; Commission Decision 2010/477/EU, this decision was repealed by Commission Decision (EU) 2017/848

³ In-Depth Assessment of the EU Member States' Submissions for the Marine Strategy Framework Directive under articles 8, 9 and 10, 2014

For supporting the implementation of the D10 MSFD a Technical Group on Marine Litter (“*TG Litter*”) was set up on request by the EU Member States under the MSFD Common Implementation Strategy. Aim and purpose of *TG Litter* is exchange of information, discussion forum, providing guidance and to give advice to policy. Importantly, it acts as interface between science and policy. It involves the Regional Sea Conventions, like OSPAR, and supports EU global commitments, such as G7, G20 and UN activities. A very intensive cooperation exists between the Netherlands, Denmark and Germany regarding marine litter, in *TG Litter* but also in the OSPAR marine litter group (ICG ML).

The *TG Litter* has produced the following reports:

- [Marine Litter - Technical Recommendations](#)
- [Guidance for the Monitoring of Marine Litter](#)
- [Identifying Sources of Marine Litter](#)
- [Harm caused by Marine Litter](#)
- [Monitoring of Riverine Litter](#)
- [Top Marine Beach Litter Items](#)
- [EU Marine Beach Litter Baselines](#)
- [Marine Litter Threshold Values](#)
- [EU Threshold Value for Macro Litter on Coastlines](#)

The *TG Litter* is - like stated above - presently revising its Guidelines on monitoring litter and is in the process of collecting data with the aim of producing baselines for seabed, sea surface and microplastic litter. It has recently produced reports on “harm” caused by marine litter, baselines for beach litter and has produced a report on “[A European Threshold Value and Assessment Method for Macro Litter on Coastlines](#)”. It is also producing a new joint list of litter items for monitoring in the EU.

(3) Targets like environmental targets were developed on national level (see the following information by the states). At the EU level, threshold values have been developed for litter on the coast and litter in the stomachs of fulmars.

(4) Monitoring guidelines are worked on EU/OSPAR level, but the concrete monitoring is dealt with on national level (see the following information by the states).

(5) There is a number of measures worked on OSPAR level, that are presented in the Regional Action Plan (2014, see OSPAR RAP below). The Wadden Sea states develop measures and present them in a so called programme of measures (POM). There is a very close cooperation between the Netherlands, Germany and Denmark on measures within the OSPAR ICG-ML (see OSPAR RAP below).

OSPAR

In the Bergen Statement (2010) the OSPAR Ministers declared, that “We note that quantities of litter in many areas of the North-East Atlantic are unacceptable, and therefore we will continue to develop reduction measures and targets, taking into consideration an ambitious target resulting in a reduction in 2020”. The Cascais Statement of 2021 strengthens this by declaring that “ We aim to achieve zero pollution by 2050 and commit to reduce single-use plastic items and maritime-related plastic items on our beaches by 50% by 2025 and 75% by 2030. “This is in line with the § 22 of the Leeuwarden Declaration to “Strive to substantially reduce the amount of marine litter in the Wadden Sea by the year 2030”.

In the Strategy for the protection of the Marine Environment of the North East Atlantic (NEAES) 2030 was an OSPAR strategic objective for marine litter described: Prevent inputs of and significantly reduce marine litter, including microplastics, in the marine environment to reach levels that do not cause adverse impacts to the marine and coastal environment with the ultimate aim of eliminating inputs of litter.” Several operational objectives are concretising this objective. This OSPAR objective is in line with D10 MSFD.

In June 2022 the Second [Regional Action Plan \(RAP ML 2\) for Prevention and Management of Marine Litter in the North-East Atlantic \(2022-2030\)](#) was adopted, which deals with the prevention and management of marine litter. It sets out the policy context for OSPAR’s work on marine litter, describes the priority thematic areas that OSPAR will work on over the coming years to contribute to delivering the respective objectives of the NEAES , also addressing new and emerging issues . The RAP is an outstanding example for regional effort supporting multiple regional and global commitments, as it also serves to implement the MSFD, more specifically to achieve the GES with regard to marine litter.

The RAP identifies a number of actions from small to large scale (with e.g., transboundary character), these actions should also be considered in the national MSFD POM.

An Intersessional Correspondence Group on Marine Litter (ICG ML) deals with the work on marine litter on OSPAR level. The three Wadden Sea states work closely together in this group. ICG ML is, amongst others, presently building up to its QSR (Quality Status Report) 2023 and is also presently updating its monitoring guidelines ([Coordinated Environmental Monitoring Programme, CEMP](#)), developing new indicators (e.g., microplastics in sediments) and revising its RAP.

EU Directive on Single Use Plastics (2019/904/EU)

From 2021, single-use plastic products (that have alternatives made from other materials) will be banned e.g., cotton swabs, plastic cutlery and plates, drinking straws, stirring sticks, balloon holders, cups and food containers made of polystyrene for immediate consumption. In addition, the manufacturers of food containers, foils, plastic bottles, cups, plastic bags, wet wipes, balloons and tobacco products as well as fishing gear will take a share in the costs of cleaning, transport and disposal of these products (extended producer responsibility). Furthermore, recycling should be improved and there should be more emphasis on information and awareness raising among consumers to promote responsible consumer behaviour.

Further EU regulations

Further EU regulations target a variety of entry routes for marine litter and contain relevant specifications for reducing marine litter.

- Waste Framework Directive (2008/98/EC)
- Directive on the Reduction of the Consumption of Light Plastic Carrier Bags (2015/720/EU)
- Directive on port reception facilities for the delivery of waste from ships (2019/883)
- In addition, some legislative acts of the European Union are being revised, also with regard to their relevance for marine litter.

Policy, monitoring, clean-up activities, prevention and communication aimed at reducing the marine litter load in the trilateral marine area and the respective beaches

Denmark:

1. Policy:

The Ministry of Environment and food protection Denmark wants to move Denmark towards more recycle less waste and litter production. The Municipalities play an important role in contributing and reaching the goal. The municipalities are in charge of the practical part concerning cleaning the beaches, and they can contribute in the ways that are best suited for them, as long as the goal is met. With guidance and an appropriation to keep the beaches clean from the government, they can do it in ways suited best for each municipality. Many organizations are collaborating with the policymakers and the municipalities. The collaborators are; Havmiljøvogterne, Dansk Sejlunion, Danmarks Fiskeriforening PO, Dansk Sportsdykker Forbund, Danmarks Amatørfiskerforening, Hold Danmark Rent, Danmarks Sportsfiskerforbund, Danske Tursejlere and KIMO International.

2. Monitoring:

The beaches in Denmark are visited very well during summer, and municipalities are in charge of checking and replacing the garbage bins on the beaches and keeping the surroundings clean. Through winter, many storms are raging and many litters' end on land. Because of the harsh weather, the beaches will not be cleaned before spring, when the storms have passed. A lot of cleaning is done throughout springtime. In areas with wide flat beaches, machinery is used to collect litter. In areas with dikes and slopes, the collecting of litter is done manually by hand. The municipalities have a crew collecting litter, but many organizations and volunteers are helping cleaning the beaches as well. The statistics estimates 1.000 ton of litter are collected on the beaches along the west coast every year.

- [KIMO Denmark](#) is an international environmental organization for local authorities and municipalities with beaches along coastal areas. The organization has a broad international and nationally network and they cooperate with NGOs, national and international authorities and research institutions. Through KIMO the Danish municipalities get guidance and help in case an environmental catastrophe occurs, and KIMO helps the affected municipalities in presenting a case to the authorities and politicians for quicker action.

3. Clean-up activities:

Many different organizations organize days or activities where the seas, beaches and ports are cleaned, and litter is collected. It can be a day where they encourage people to come and collect litter at the beaches, school classes go out and collect litter from the beaches and learn, what can be recycled. Some use it in art class and so on. Some of the organizations organizing activities are; Havmiljøvogterne, Danmarks Amatørfiskerforening, Hold Danmark Rent og Sportsdykker Forbund.

- Marine environment patroller: are often yachtsmen, anglers, surfers, divers and rowers, who are active around or on the sea. A number of Danish amateur aviators also keep an eye on the sea from the air. Defense Command Denmark monitors ships from the time they sail into Danish, until they leave again. Planes, ships, coastal radar and AIS (Automatic Identification Systems) carry out the surveillance. The Naval Home Guard and commercial sailors, who have a duty to report their observations, support them. (<http://en.xn--havmiljovogter-hnb.dk/>)

4. Prevention/ Communication / Education:

The plastic industry is trying to reduce their release of plastic to nature and the seas. They do so by implementing stricter rules at the workplace so less plastic ends up in nature.

- Operation Clean Sweep: aims to combat waste of plastic granules from production companies to the environment. It comes with ways to avoid plastic being a source of pollution and the solution is a part of the overall “Marine Litter Solutions”, started by industry of association for plastic companies around the world to contribute to solving the world’s marine environment problems. Marine Litter Solutions has been signed by 68 68 organizations from 35 countries and works for a cleaner environment, increased recycling, local collection and information campaigns on the consequences of plastic pollution of the sea. <https://plast.dk/operation-clean-sweep-undgaa-plastraavarender-havet/>.
- Project plastic free oceans: is a partnership between the plastic industry, plastic change (NGO) and the Ecological Council (NGO). Over DKK 11 million is allocated to four different projects that will contribute to solutions to problems with plastic in the seas. <https://plast.dk/projekt-plastfrit-hav-plastindustrien-NGOer-faelles-kamp-plast-havet/>

The Ministry of environment and food protection made a campaign in 2018 about litter in the oceans to inform people about the consequences regarding litter. Different organizations either do similar information with the public, through campaign, educating schoolchildren or involve volunteers. Some of them are described below:

- The Ministry of Environment and food protection in 2018 performed a campaign against waste and litter in the oceans surrounding Denmark. The campaign is called “Together for an ocean without litter” and approached ‘us whom use the oceans, beaches and harbors must stand together – and work together – for an ocean without litter’. The campaign works together with different organizations, NGOs, people who walk, and uses the beaches. The campaign was used to make people aware of the negative consequences of litter in the oceans, and give practical advice to inform people alternatives, to avoid their waster to end up in the oceans. <https://mst.dk/natur-vand/vandmiljoe/havet/havmiljoe/sammen-om-et-hav-uden-affald/>.
- Keep Denmark Clean is an organization that informs the Danish people what to do with their waste. They have a sub-group called “Strandet” who collect waste and litter along the west coast of Jutland, and they go further and recycle the collected litter. Throughout sharing their knowledge, tests and innovative product development they wish to inform that litter do not belong in nature and the seas, but is a resource, which can and must be recycled. <https://www.strandet.io/> , <https://www.holddanmarkrent.dk/article/5020-Strandet-affald-faar-nyt-liv>.
- Danish amateur anglers: a group of anglers who corporates with schools and kindergartens and inform the children about the sea and wildlife there. In connection with this, they also talk with the children about litter and the consequences it has on wildlife. http://danskefritidsfiskere.dk/?page_id=792.

The Netherlands:

1. Policy:

The mainstream of activities regarding marine litter in the Dutch Wadden Sea can be distinguished into three different categories:

- EU-Directives
- Volunteers, NGOs, individual smaller companies, local site-managers
- Community Plasticfree Wadden Sea

All of these have different kind of relationships depending on the activity like monitoring, recycling or the like. Overall, it has to be acknowledged that mainly volunteers, NGO's and individual companies clean-up for the most and have put the problem on the agenda of Rijkswaterstaat (RWS). To support these activities the Community Plastic Free Wadden Sea is set up by RWS (see plasticvrijewaddenzee.nl for more information).

The Marine Framework Directive has led to the most attention to the problem of marine litter in the North Sea and adjacent rivers and Wadden Sea.

Currently, the EU-Marine Framework is the most important framework. The Dutch government has defined two goals in the Marine Strategy for 2020 to reduce the amount of marine litter on the coast and the impact in marine organisms. These targets are: 1) The amount of visible litter on the coast has diminished according to EU threshold values and 2) there is a downward trend of marine litter in marine organisms.

For the North Sea the Marine Strategy of 2015 is the basis for an overall approach in the Netherlands. This Strategy is the implementation of the Marine Framework Directive in the Netherlands. More specific the Program of Measures, part of the Marine Strategy, contains three Green Deals which are relevant in this perspective:

- Green Deal Clean Beaches aimed at reducing marine litter on beaches by cleaning and facilities near beaches. This will be replaced by a Program Clean Beaches in 2022.
- Green Deal Fishing for a clean sea to search for alternative methods, like for example fish fluff which is used to protect fishing gear and for recycling of fishing gear. RWS is financing and coordinating this search. This Green Deal will be replaced by a cooperation Fishing for a clean sea as of 2022.
- Green Deal Ship Waste Chain to diminish the amount of litter when supplying ships and to separate waste in the harbour for better recycling.

Also, a policy program on micro plastics has started in 2018 with the aim to reduce emissions to surface- and drinking water which includes like for example the ban of micro plastics in paint and cosmetics. These policies are aiming at reduction of pollution of the North Sea, but will also effect the Wadden Sea.

The Netherlands aim at prevention by means of an integral measure at the source, communication and raising awareness and closing of production chains (for example via Green Deals, product regulations and litter policy). Also, mitigation of the effects like beach clean-ups and [Fishing for Litter](#) is part of the policy. By means of this program of measures this contributes towards the UN Sustainable Development Goal (SDG) 14 of the UN regarding sustainable use of oceans, seas and marine sources.

Implementation of the EU Directive on Single Use Plastics (SUP): this EU-directive will lead to ban on products which are found on the beach, like straws, balloon sticks, plastic cutlery as well as plastic bags. Also products made of so-called oxo-degradable plastic will be forbidden. Producers of products like cigarette filters and balloons will have to pay for cleaning of litter as of January 2023 and 2024. Fishing gear is also part of this Directive, meanly aiming at the collection of used fishing gear.

Program on microplastics with projects aimed at litter in rivers: prevention by means of behavioural pilots regarding recreational and inland shipping litter, pilots with litter-collecting systems in rivers and the development of a monitoring system.

As of mid-2021 the new EU-Directive on harbour intake facilities (EU/2019/883) has to be implemented. This means 100% indirect financial means for litter, fishing nets and passively fished litter (Fishing for Litter). Per ship a contribution on litter will be demanded depending on the amount of litter. Facilities for fishing for litter will be obliged in harbours.

In the framework of MARPOL ships sailing between Gibraltar and Northern Norway have to deposit paraffin rests via washing of tanker hulls in harbours by the beginning of 1st of January 2021.

2. Monitoring:

When it comes to monitoring in the Wadden Sea this is going on now for three years, started in 2018. On three uninhabited islands/sandbanks in the Dutch Wadden Sea marine litter is monitored three times per year whereby the OSPAR-method is the standard. Monitoring does not take place during the breeding or migrating season for birds. The OSPAR-method had to be adjusted, because of the absence of large beaches on these sites. This kind of monitoring gives a rough indication on the development of the amount of

marine litter in the Waddensea. Therefore a so-called Litter-ID has been carried out on the basis of marine litter collected on the uninhabited bird island of Griend near Harlingen. This type of monitoring gives more insight into the sources and probable routes of the different types of litter.

On the beach of Terschelling monitoring takes place every year as part of the OSPAR-program.

3. Clean-up activities:

Municipalities clean up the beaches on the Wadden islands, mainly near beach entrances. There are different local parties who organize clean-up activities on a more regular basis also on the more remote parts of the islands.

National NGO's like Stichting de Noordzee organize yearly the Boskalis Beach Clean-up Tour where all the beaches in the Netherlands are cleaned with the help of volunteers during a two-week campaign. And special dedicated NGO's organize also clean-up campaigns, also with the aim to help people who are unemployed.

A lot of fishermen are involved in the program Fishing for litter which aims at bringing to the shore the litter fishermen find in their nets when fishing at sea, partly on the Dutch Wadden Sea. KIMO Netherlands is the coordinator for this program.

Lots of volunteers and NGO's organize clean-up activities alongside dikes and salt marshes bordering the Wadden Sea.

Water boards clean up their dikes bordering the Wadden Sea whereby marine litter as well as organic matter is being removed a few times per year. This also counts for Rijkswaterstaat regarding the Afsluitdijk, sometimes helped by volunteers.

In some cases, an entrepreneur goes out sailing on the Wadden Sea with paying guests, where also cleaning up is part of the program.

To try to help each other with solutions to get rid of marine litter, Rijkswaterstaat started the Community Plastic Free Litter NGO Wadden Sea in the beginning of 2019. This is a consequence of the fact that there are a lot of stakeholders and NGO's who, each in their own way, are cleaning up the Wadden Sea and are willing to do more. Like for example the ban of so-called single-used plastics in restaurants, café, beach bars and the like on the Wadden islands.

4. Prevention / Communication / Education:

Bubble barrier: the municipality of Harlingen is investigating with the Province of Fryslan and Rijkswaterstaat the use of a bubble barrier before the sluice near Harlingen where the Frisian surface water runs into the Wadden Sea.

Different parties are trying to reduce the riverine input towards the sea by organizing clean-up activities. Also, in the harbour of Amsterdam a bubble barrier is constructed in 2019, while in the harbour of Rotterdam a waste collector is already working for a few years now.

Balloons: more than 60% of the municipalities in the Netherlands have a ban or restriction on ballooning (only small ones) and mostly all municipalities surrounding the Wadden Sea have a ban on balloons.

Recreational fishing lead: the target is to reduce the use of recreational fishing lead by 30% in 2021. After evaluation of this goal perhaps new measures will be developed for a complete ban in 2027.

As part of the Community Plastic Free Wadden Sea the website Plasticvrijewaddenzee.nl is being developed as part of the website Waddenzee.nl.

People working for parties like Staatsbosbeheer and Groningen Seaports give lessons at different schools for children regarding the topic of marine litter, partly in their spare time. Also, at NHL/Stenden (a bachelor institute in Leeuwarden) a lot of attention is being given to the subject and one of the teachers takes actively part in the Community Plastic free Wadden Sea.

At Terschelling the so-called Jutfabriek has started to produce new products out of marine litter found on the island of Terschelling and by doing so also demonstrate this to different school classes.

Germany:

1. Policy

The topic of marine litter and how to deal with it is a very topical issue in Germany that is being addressed by federal and state authorities as well as stakeholders and NGOs. One of the most important legal regulations on marine litter is the MSFD and its implementation at regional (Germany as a member state of OSPAR) and national level. All information regarding the implementation of the MSFD in Germany including information on status, indicators, targets, monitoring and measures is available at meeresschutz.info.de.

Germany developed seven national overarching environmental objectives (Umweltziele, UZ) to achieve GES in the marine waters. Each of which is concretized by a set of operational objectives (operative Ziele), with all environmental objectives serving to achieve GES for descriptors 1, 4 and 6. The environmental objectives were reviewed and updated in 2018.

The environmental goal regarding marine litter is UZ 5 Oceans without waste pollution with three operational goals, which are as follows

- I. Continuously reduced inputs and a reduction in the amount of waste already present lead to a significant reduction in waste harmful to the marine environment on beaches, on the sea surface, in the water column and on the seabed. Indicators of this are the number of litter items of different materials and categories.
- II. Detected harmful waste in marine organisms (especially from microplastics) is approaching zero in the long term. The indicator for this is litter in bird stomachs (e.g., fulmar) and other indicator species.
- III. Other adverse ecological effects (such as entanglement and strangulation in litter items) are reduced to a minimum. Indicators for this are the number of entangled birds in breeding colonies and the records of entangled birds and other indicator species.

Other indicators are currently being developed in research and development projects.

In addition to the measures worked on OSPAR level (OSPAR RAP), Germany developed measures and present them in their [programme of measures \(POM\)](#). The POM is being updated at the moment (2022).

The measures cover the following topics:

1. Anchoring the topic of marine litter in educational objectives, curricula and teaching materials
2. Modification/substitution of products taking into account an eco-balanced overall consideration
3. Avoidance of the use of primary microplastic particles
4. Reduction of inputs of plastic waste, e.g. plastic packaging, into the marine environment
5. Waste related measures on fishing nets and gear
6. Establishment of the "Fishing for Litter" concept
7. Reduction of already existing waste in the sea
8. Reducing the amount of plastic through municipal regulations
9. Reduction of the emission and input of microplastic particles

In Germany, the Round Table Marine Litter (“Runder Tisch Meeressmüll”) supports the coordinated implementation of the MSFD measures on marine litter (as well as the regional action plans on OSPAR). It brings together approx. 130 experts and stakeholders from the fields of fishing, shipping, industry (plastics, cosmetics, tires), science, education, tourism, environmental associations, authorities, politics and art and deals with measures on the national as well as on regional and local levels. Information on the progress of the Round Table's work and the wide range of activities undertaken by its members is available at <http://www.muell-im-meer.de>.

2. Monitoring

Monitoring of marine litter in Germany is dealt with at the Federal/State level in the working group “Erfassen und Bewerten (ErBe)⁴” (data collection and evaluation) and its subordinate specialist group “Fach AG Abfälle im Meer” (marine litter). Monitoring on marine litter on beaches and in the stomachs of Fulmars in the Wadden Sea follows the methods agreed at OSPAR level. Monitoring of litter on the seabed follows a method developed by ICES and is used during fish surveys. The suitability of further monitoring is currently investigated, addressing aspects like e.g., mesolitter on beaches, remote sensing of litter, (micro-)litter in fish and marine mammals, entanglement of northern gannets in a breeding colony on the island of Helgoland and occurrence of paraffin wax. The aim is the development of a coherent

⁴ Reports produced by “ErBe” are presented here <https://www.meeresschutz.info/msrl.html>

monitoring for the assessment of all criteria under D10 of the MSFD (EU) 2017/848.

OSPAR marine litter experts are part of the EU Technical Group on Marine Litter (TG Litter) ensuring that methods are aligned and used in the wider European and global context. As described above ICG ML is currently updating its monitoring guidelines (Coordinated Environmental Monitoring Programme, CEMP). Currently assessed by ([OSPAR Intermediate assessment 2017](#)).

- IV. Beach Litter: There are seven survey sites at the German Wadden Sea coastline⁵; at each survey site all litter items on a 100-m stretch of coastline should be recorded four times a year using the OSPAR beach litter monitoring protocol. Monitoring is taking place since 2002
- V. Seabed Litter: Litter data is gathered by existing fisheries trawl surveys; the data is submitted to the International Council for the Exploration of the Sea (ICES), which holds these data. Seafloor litter monitoring data, generated through existing fisheries trawl surveys, was requested from 2012 onwards.
- VI. Plastic Particles in Fulmar stomachs. Corpses of dead beached birds or accidentally killed specimens are mostly collected by volunteer networks and processed at experienced laboratories. Stomach contents are taken and sorting under a binocular microscope.

There is a very close cooperation between Denmark, Germany and the Netherlands on measures within the OSPAR ICG-ML.

⁵ Sylt (island, SH), Scharhörn (island, HH), Minsener Oog (island, LS), Juist (LS), Sylt Hörnum North (SH), Mellum West (LS), Juist Wilhelmshöhe (LS)

3. Clean-up activities

There is a wide variety of activities on national, regional and local level on the topic of marine litter that are relevant to the Wadden Sea. The following are only examples.

An overview of some of the activities in Germany related to marine litter is given on the [website of the German round table marine litter](#). Here the organisations represented at the round table, are given the opportunity to list their own activities related to marine litter. The actions can be assigned to the following subject areas⁶:

- Identification of sources and transport routes for recommendations for action
- Campaigns on top litter items / single-use items
- Product design, reduction / optimization of packaging
- Returnable / return system
- Waste prevention, waste management and waste treatment
- Avoidance of the industrial use of microplastic particles
- Reduction of the entry of microplastic particles
- Biodegradability of plastics
- Fishing / aquaculture
- General information campaigns / educational campaigns
- Educational projects / educational material
- Competitions / exhibitions
- Knowledge transfer
- Cleaning actions/Clean-up activities
- Shipping
- Others

⁶ <https://muell-im-meer.de/aktivitaeten>; only in German

Exemplary description of the clean-up activities

General note: Many coastal towns regularly clean their beaches and coasts of marine litter. Flotsam and jetsam contain large amounts of litter. The Schleswig-Holstein Agency for Coastal Defence, National Park and Marine Conservation (LKN.SH) regularly collects and disposes of the litter in the drift line on the state-owned dikes, especially after storm events. In Lower-Saxony this is carried out by the ‘Deichverbände’, corporative associations for coastal protection. In the Hamburg Wadden Sea this is carried out by Hamburg Port authority (HPA).

In Schleswig-Holstein the beach clean-up events take place for the most part outside of the Wadden Sea National Park. In Lower Saxony and Hamburg, beach clean-up events mainly take place on the islands and thus in the Wadden Sea National Park. The German National Park Administrations have published some material on that subject, like guidelines on “Coastal Cleanups in the Wadden Sea National Park”, a brochure on beach garbage boxes or an information brochure on paraffin finds on the beaches.

Many coastal towns and organisations participate in the annual Coastal Cleanup Day. Amongst others, NABU (Naturschutzbund Deutschland e. V.; a green NGO) is committed to this nationwide⁷.

On all East-Frisian islands, in some areas of the mainland in Lower-Saxony and at St. Peter-Ording and Büsum in Schleswig-Holstein guests can dispose of marine litter that they may collect on the tideline or on the beaches in the "beach garbage boxes". But these should not to be used for the disposal of marine litter from clean-up events. Due to the large quantities of litter from these events, the disposal must be (and is) organised independently.

Fishing for litter: The “Fishing for litter” project offers fishers the opportunity to deposit litter that is caught in their nets as bycatch in a number of fishing ports in Germany. Containers are available here for disposal free of charge. The litter is examined more closely to obtain information on its composition and origin. These findings can be used to develop measures to reduce the discharge of litter into the sea. Fishing for Litter at the German North Sea coast is currently financed by EU-funds (EMFF), flanked by funding from Schleswig-Holstein and Lower-Saxony. The initiative is coordinated and implemented by NABU⁸

⁷ www.nabu.de/natur-und-landschaft/aktionen-und-projekte/meere-ohne-plastik/cleanup/index.html

⁸ <https://www.nabu.de/natur-und-landschaft/aktionen-und-projekte/meere-ohne-plastik/fishing-for-litter/index.html>

Currently up to 9 harbours on the German North Sea coast with 131 vessels participating in this project (as of 2020).

4. Prevention/ Communication / Education

The German Federal Ministry of Research is currently funding a major research focus on “Plastics in the Environment” (the research focus is not only but it also includes prevention). A wide variety of issues are being investigated in a total of 18 consortia⁹.

A lot of prevention is done via communication and education. In this way, the entry of litter into the seas should be reduced.

General communication on marine litter on various online websites of the responsible authorities, but also by NGOs (like NABU¹⁰, BUND¹¹, WWF¹²) etc. Also noteworthy is the website of the EUCC - The Coastal Union Germany e.V. (<http://meeresmuell.de/>).

The aim of such website is: connect actors with each other; present the activities of authorities, schools, NGOs, associations and scientific institutions; provide information on public actions and events in which residents and tourists can participate.

There are numerous information centers in and for the Wadden Sea National Parks in Germany that offer good and comprehensive information on the topic of marine litter. The centers offer e.g., ‘Marine Litter Research Boxes’ or a learn programme on marine litter, which can be booked by school classes and other groups on request.

Particular attention is also paid to educational measures in the fisheries and shipping sectors:

- Since February 2017, one-day training events on the subject of marine litter are organised by LKN-SH once a year with the 2nd year of the fishing school for coastal fishing and small deep-sea fishing in Rendsburg, Schleswig-Holstein. They are held in the Schleswig-Holstein Wadden Sea and in the Multimar Wattforum, Tönning.
- In October 2019, a course on "Marine Environmental Awareness" (<https://www.prosea.info/marine-awareness/>) was provided on the Elsfleth campus of the Jade University, Lower-Saxony. Students from nautical science, maritime transport as well as port management took part. The aim of the training program was to form a concrete basis

⁹ <https://bmbf-plastik.de/de/home>

¹⁰ <https://www.nabu.de/natur-und-landschaft/meere/muellkippe-meer/>

¹¹ <https://www.bund.net/meere/mikroplastik/>

¹² <https://www.wwf.de/themen-projekte/meere-kuesten>

for [marine awareness](#) that is needed to take personal responsibility in the transition towards a sustainable maritime sector. The course was initiated by the Lower Saxony Water Management, Coastal Defence and Nature Conservation Agency in cooperation with the Jade University and given by the Dutch non-profit organization ProSea from the Netherlands. Further courses are planned.

Marine litter in the Wadden Sea - recommendations

There are two main aims litter-associated types of activities:

1. Reduction of litter pollution in the marine environment
2. Prevention of marine litter by working towards a plastic-free Wadden Sea region

The recommendations as laid down in the following, should be orientated on these two aims.

The basis is the monitoring and assessment of litter in the Wadden Sea environment including the identification of the main sources and pathways of litter pollution in the Wadden Sea. This includes the identification of Wadden–Sea-specific problems, see QSR chapter Marine Litter (Fleet et al., 2017).

Monitoring, research and assessment

1. Maintain present ambitions regarding marine litter monitoring and QSR-reporting, based on existing work done on MSFD and OSPAR level (as described in the QSR-chapter Marine litter, (Fleet et al., 2017));

Collaborate within existing structures

2. Closely follow and contribute to, as appropriate via the national representations, the work at EU and OSPAR level. Information could be provided directly by the national representations, as invited guests (the representative of one of the Wadden Sea states could inform TGM, CWSS and other relevant groups);
3. Support the implementation of existing strategies and action plans especially the OSPAR regional action plan;
4. Organisation of a trilateral seminar/workshop to support implementation of recommendations for activities;

Reduction of litter pollution in the marine environment

5. Identification and mitigation of Wadden –Sea-specific problems using the results of existing monitoring and research activities. A possible action could be for example communicating a list of litter items commonly found in the Wadden Sea environment (see also monitoring), the use of which can be avoided;
6. Awareness raising and education for sustainable development are the activities in which the TWSC can be most effective. Awareness raising via communication and dissemination of information within the framework of the trilateral communication strategy;

Prevention of marine litter by working towards a plastic-free Wadden Sea region

7. Encourage strategic partners within the Trilateral Partnership in support of the Wadden Sea World Heritage to initiate common transboundary projects, f. e. on a plastic –free Wadden Sea Region, facilitated by the Partnership Hub;
8. Supplement and actively participate in strategies/initiatives from other stakeholders, based on existing work done on MSFD and OSPAR level or on regional/local level as described in the inventory e.g., participate in existing activities regarding alternatives for dolly ropes.