DG Environment
Marine Environment Service

Action Plan on Marine Litter

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Foreword

'If we don't do anything today, by 2050 there will be more waste plastic in our oceans than fish'

(Ellen MacArthur Foundation, World Economic Forum Davos, 2016)

This warning from the World Economic Forum a few months ago caused something of a stir. And although some question the accuracy of the estimate, one thing is certain: it is high time we tackled the international pollution of our seas and oceans.

Our blue planet is an important driver of economic activity: no less than 75% of the European Union's external trade and 37% of internal trade runs via the sea. The so-called 'blue economy' currently provides around 40,000 jobs in our country.

There will be enormous economic and ecological challenges for the North Sea policy in the coming years. I am therefore putting my weight behind '*blue growth*' whereby economic developments in the Belgian part of the North Sea are stimulated and expanded within a sustainable framework.

As Secretary of State responsible for the North Sea, I aim to take the reins and ensure that we can all continue to enjoy the stunning North Sea. We are already doing this by harmonising all of the activities in the Belgian area by means of the Marine Spatial Plan[1] and cooperating on a collective vision until 2050.

However, I believe that the marine litter issue requires a specific approach. It not only affects our marine ecosystem in the long-term, but also our food chain and economic activity.

If we genuinely want to prevent our North Sea from containing more litter than fish, a focused policy is vital for the Belgian part of the North Sea. I am thinking in terms of an overall approach whereby we work in a multi-dimensional and multi-level manner. This action plan on marine litter is the first step in this direction and focuses on various aspects: tackling the source, cleaning up, monitoring, control, communication and, last but not least, cooperation.

Together with you, I would like to embrace the challenge to realise the full potential of this action plan. This will involve 'quick wins' as well as actions which will require additional resources or even broader support.

So, in conclusion, I would like to appeal to every coastal enthusiast to take an active part in the various activities and spread this message far and wide. It sounds like a cliché but in terms of this problem it really is true: only together we can make a difference.

Philippe DE BACKER
State Secretary for the North Sea

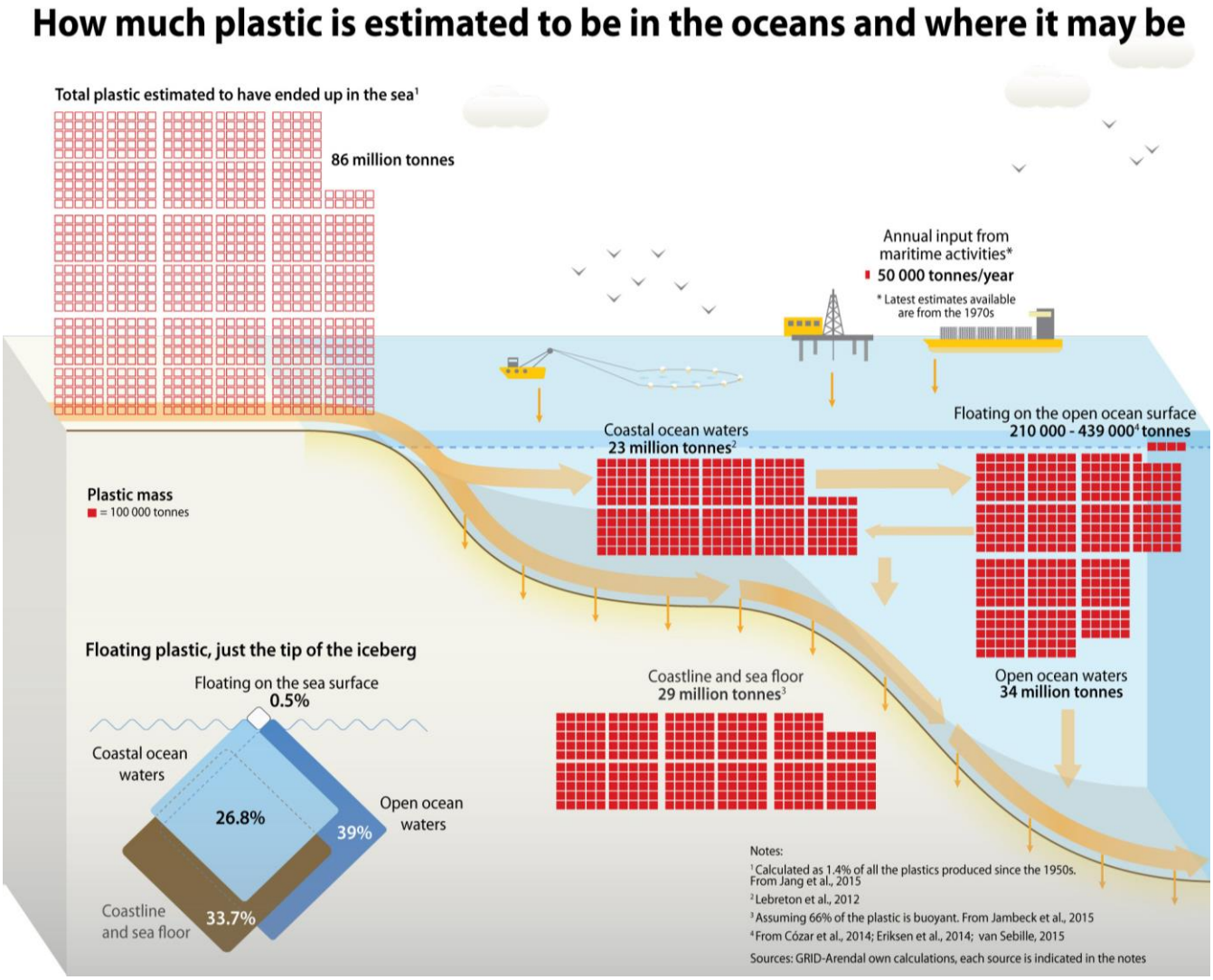
[1] Royal Decree of 20 March 2014 establishing the marine spatial plan

1 Problem

Definition

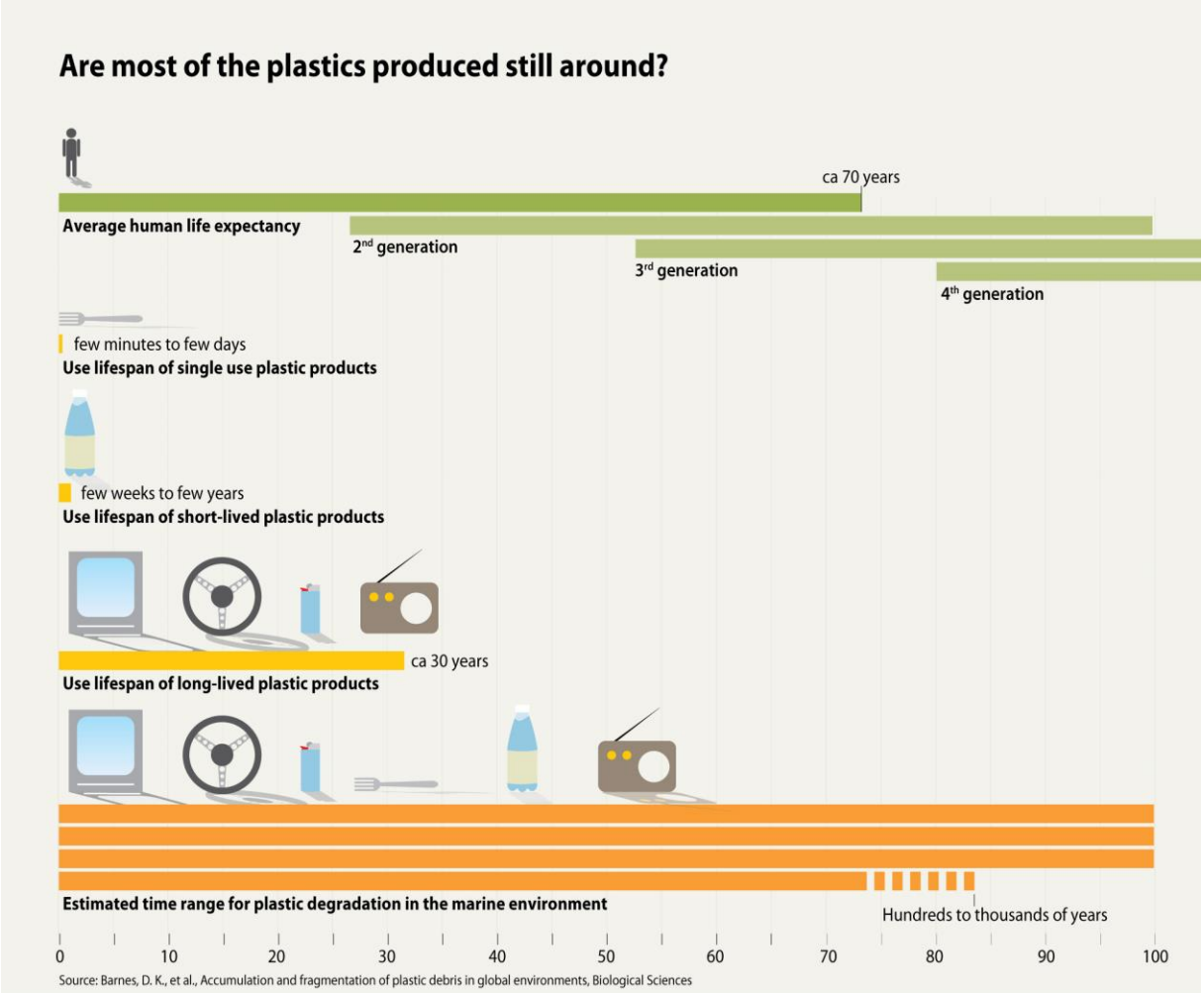
Marine litter is a growing problem for all seas and oceans, and is regarded as a considerable threat to our environment. Marine litter is defined as human-created waste that has deliberately or accidentally been released into the marine environment. Marine litter is essentially waste that comes from activities at sea and on land. Activities at sea that could create marine litter include shipping, fishing and aquaculture. Abandoned fishing nets are also a major issue in this context. Litter from the land can end up in the marine environment via rivers, sewers, water purification installations or simply be blown in by the wind. An increasing source of beach waste is tourist activity, such as fireworks, festivals, sports competitions, beach bars, etc. and the tourists themselves who leave large quantities of litter on the beach.

The North Sea is struggling with the issue of marine litter, the majority of which is made up of plastic waste. A study of marine litter in all sectors (beach, surface water and the seabed) of the Belgian part of the North Sea conducted by Ghent University in the context of a Belspo project (Claessens et al, 2012 and 2013) demonstrated that around 90% of all marine



litter was plastic. Plastics are polymer-based synthetic substances that are known for their durability and long lifespan and remain in the environment for a very long time. Together with a continuous stream of additional plastic litter, this will create an accumulation in the marine environment that will be around for decades and even millennia to come.

Plastic also fragments into very small particles called micro and nanoplastics.
According to figures from the United Nations Environment Programme (UNEP),
an estimated 13,000 plastic particles float in every square metre of ocean (worldwide), and these figures are set to rise.
Another recent publication indicated that between 5 and 12 million tons of plastic ends up in the oceans worldwide, year in, year out.



Consequences

The negative consequences of marine litter are numerous. Marine fauna may become caught up in the waste and choke or could mistake the waste for food and eat it. Marine fauna may also transfer microplastics into the human body via the food chain. Marine litter also corresponds to an important economic cost for a range of industries. It can cause damage to port infrastructure, for example, power stations and fishing equipment. Floating plastic also contains a variety of organisms and can introduce invasive species via ocean currents, to areas where they have not previously been found. This upsets existing ecosystems.

The subsequent costs for cleaning and decontamination are extremely high. Tourism is also facing up to various negative effects; marine litter can reduce the appeal of beaches and the sea for leisure, sport and relaxation.

2 Belgian situation

General

The Belgian part of the North Sea covers a surface area of 3,454 km² and is often referred to as our 11th province. Despite its limited area, it is one of the busiest seas in the world. Shipping, tourism, fishing, sand extraction, energy production, military exercises and so on all take place within its boundaries. This industriousness, however, puts huge pressure on the area. Different activities may encroach on their respective areas and also impact on the marine environment.

In order to harmonise all activities effectively, a Marine Spatial Plan was ratified in 2014. The Plan provides an overview of our North Sea and its users and endeavours to reconcile the corresponding spatial impact. Our country is taking a pioneering role in this context,

Source: Brochure 'Er beweegt wat op zee: een marien ruimtelijk plan voor onze Noordzee' (FOD Volksgezondheid, Veiligheid van de Voedselketen en Leefmilieu, 2015) [Brochure 'There's movement at sea: a marine spatial plan for our North Sea' - FPS Health, Food Chain Safety and Environment]

particularly when you consider the corresponding permit policy.

Within this policy area, the impact of specific activities on the marine environment is already actively monitored and, where necessary, prevented. Also, the Scientific Service Management Unit of the Mathematical Model of the North Sea (MUMM) is responsible for following-up the various statutory obligations (and rights) and their implementation directives for managing the marine environment.

Marine waste in the Belgian part of the North Sea

In order to accurately estimate the litter problem in the Belgian part of the North Sea, it is important to set out current scientific data within this action plan. The policy-informing memorandum 'Summary of the research landscape and the scientific information relating to marine litter and microplastics in Flanders' (Overzicht van het onderzoekslandschap en de wetenschappelijke informatie inzake marien zwerfvuil en microplastics in Vlaanderen) (Devriese, L.; Janssen, C.; 2017) outlines the issue of litter in the North Sea and on the Belgian beaches as follows:

a. Litter in the North Sea

Floating litter: In 2011, floating litter (> 1 mm) in the Belgian part of the North Sea was inventoried (Van Cauwenberghe et al., 2013). This study estimated the prevalence of floating litter to be an average of 3,875 floating items per km2, of which 95.7% was plastic.

Litter on the seabed: Annual ILVO (Institute for Agricultural and Fisheries Research) monitoring of the North Sea has demonstrated that, depending on the location, there are between 0 and 20,000 items of litter (> 22 mm) per km² on the seabed (Lauwaert et al., 2016). It is estimated that there are 3,125 items of litter per km² on the seabed (Van Cauwenberghe et al., 2013).

The interim assessment by the OSPAR commission has shown that plastic is the most common item on the seabed and that the quantity of marine litter in the northern North Sea is lower than in the English Channel, the southern Celtic Sea and the eastern part of the Bay of Biscay (OSPAR D10, 2017).

An evaluation of the marine litter collected at several reference locations near the coast in 2010 (Claessens et al., 2013) and 2012-2016 (Lauwaert et al., 2016; Platteau et al., 2016) confirmed that in 2010 96% and in 2012-2016 90% of the retrieved waste was plastic. In general, it is suggested that 60 to 80% of the litter in the European seas is plastic. Plastic is generally considered to be the most persistent and problematic item, particularly on the seabed. According to estimates, 94% of the plastic in the sea will ultimately end up on the seabed (Eunomia, 2016). Most of the plastic in the North Sea is made up of plastic packaging or bags and bits of fishing net.

All of this macro-waste fragments in the sea to form much smaller microplastics. This process has not yet been adequately researched and, as a result, nobody knows exactly how long it takes for macroplastics to degrade and fragment into microplastics (Jahnke et al., 2017). The sediment on the beds of seas and oceans, however, is known to be an accumulation zone for microplastics (Van Cauwenberghe et al., 2015).

A European research project called MICRO showed that the sediment in the Belgian part of the North Sea could contain 54 – 330 microplastics per kg of dry sediment (Maes et al., 2017). A scientific study from 2011 had previously reported similar quantities of microplastics in sediments in the Belgian part of

the North Sea (average 97.2 microplastics per kg of dry sediment) (Claessens et al., 2011). Sediment from the port of Ostend contains up to 3,146 microplastics per kilogram of dry sediment (Maes et al., 2017). These microplastics are primarily made up of small synthetic fibres; many spherical microplastics are also found in the sediments just off the coast and port (Maes et al., 2017).

b. Litter on the beach

The interim assessment by the OSPAR commission (2014-2015) showed that an average of 3,110 items per km were found on the beaches of the southern North Sea (OSPAR D10, 2017). Beach observations in the period 2010-2011 found an average of 64.3 items per meter (i.e. 64,290 items per km). This equates to an average of 92.7 g waste per meter (Claessens et al., 2013, Van Cauwenberghe et al., 2013). Around 95.5% of the beach waste was plastic, primarily industrial plastic pellets (5-92%)

The quantity of beach waste that is cleaned from beaches in the summer varies widely from municipality to municipality. In Ostend, for example, it adds up to over 80 tons per month in the summer. In the winter, this reduces to 5 tons per month. Other municipalities such as Middelkerke collect around 20 tons of waste per month during the summer months. If these figures are averaged out per linear kilometre of beach, Ostend collects 1-17 tons, De Panne 2-3 tons and Middelkerke 3 tons (Belpaeme, 2003).

In the sand on Flemish beaches, the quantity of microplastics can vary widely from place to place. This is clear from two scientific studies; Claessens et al. (2011) reported an average quantity of 92.8 microplastics per kg of dry sediment, and Van Cauwenberghe et al. (2013) noted an average quantity of 13 microplastics per kg of dry sediment.

Collected marine litter

In order to combat marine litter, our country is taking an active part in the 'Fishing for Litter' project. This project involves fishermen bringing the waste that they catch when fishing, back to land. The federal government, and more specifically the Marine Environment service, provides 'big bags' and ensures that these waste bags can landed easily. The waste is then easily recycled.

The three aims of the Fishing for Litter project are:

- making the fisheries sector more aware of the issue of marine litter;
- encouraging the fisheries sector to manage its waste more effectively;
- gradually removing marine litter from the fishing grounds so that pressure on the marine environment reduces.

Between 2012 and 2014, participating ships brought a total of 129 big-bags back to the shore, equating to around 11,654 kg. The average quantity of collected marine litter per participating ship, is roughly equivalent to the waste that a fishing vessel loses in wear and tear from its fishing nets (3-40 kg per month in Europe).

3 Objectives

As a result of the presence of marine litter in the Belgian part of the North Sea, the federal government decided to join the fight against this issue. The first phase was a general action plan.

The priority targets for this action plan are as follows:

1. **Raising awareness** of the marine litter problem among sea enthusiasts and users;

2. Realising an **active reduction in the flow of marine litter** in the Belgian part of the North Sea;

3. **Increasing expertise and monitoring** in relation to marine waste issue in Belgium;

4. **Coordination of and collaboration** between all existing and new initiatives;

5. **Increasing the number of clean-up activities** both on land and at the seaside.

In view of these priority targets, the action plan contains both measures for preventing marine litter at the source as well as measures for cleaning the sea. There will also be an emphasis on collaboration, whereby all stakeholders, whether national, international, governmental or industrial, will be invited to take their own responsibilities. This action plan will also support the realisation of UN goals regarding sustainable development, and provide a response to federal actions relating to the development of a circular economy.

4 Measures and actions

Following the instructions from the 'Marine Litter Legislation – a Toolkit for policy makers' drafted by the United Nations Environment Programme (UNEP) in 2016, the measures in the action plan will be **formulated as specifically as possible**.

They will be divided into the following themes:

1. Coordination: foundation of a national working group on marine litter

2. Tackling the source

3. Cleaning

4. Communication & raising awareness

5. Monitoring: measuring and knowing

6. Monitoring & control

7. Collaboration

The policy context, however, is complex and depends on many other policy domains. In 2018, therefore, there will be an interim evaluation of the measures contained in the plan, as suggested by the UNEP toolkit. There will also be an analysis of any gaps in relation to actively managing the issue of marine litter. This is a new policy plan which requires the participation of various stakeholders in order to realise effective implementation. In 2018, we will focus on ensuring that each of them is well-acquainted with the issue within their own area of expertise and has set up measures in order to implement this plan.

This action plan covers a total of 55 actions. On the basis of the monitoring table in the appendix, the implementation of the actions will be followed-up and evaluated. Of these 55 actions, 7 have been selected as priority actions which are considered to offer the greatest added value in the fight against marine litter.

The 7 priority actions are:

Coordination: Foundation of national working group on marine litter

Waste generated at sea: Research into the replacement of synthetic fishing nets with alternatives in order to prevent these becoming a hazard to fish and other marine life when they are lost

Cleaning: Research into the option of taking the filtered waste retrieved during dredging work or sand extraction back to land

Communication and raising awareness: Offering support to vocational training for the fisheries sector regarding the marine litter issue and creating collaboration with the 'Zeevissersfonds' (Deep-Sea Fishermen's Fund) to add marine waste as a topic covered in the Periodieke Scholing Zeevisserij (Periodic Sea Fishing Training)

Monitoring and control: Evaluation of the Marine Environment Act which encompasses national regulations regarding the protection of the marine environment

Cooperation: Concluding 'Blue Deals' with various sectors

The permit conditions for all activities and marine testing in the Belgian part of the North Sea will include the provision that a waste management plan must be set up

Priority actions

4.1 Coordination: foundation of a national working group on marine litter

Priority action

Marine litter is essentially waste that comes from activities at sea and on land. Both federal and regional governments as well as local authorities such as the province of West-Flanders and the coastal municipalities must take measures to tackle this problem. Both expertise and a suitable policy are currently being developed, from local to international levels. On a national level, **there must be discussions between the various bodies which are currently taking action**.

To this end, the Marine Environmental service of the FPS Health, Food Chain Safety and Environment has set up a **national working group on marine litter** with the following mandate:

The national working group on marine litter focuses on tackling marine litter, which is defined as human-created waste that has deliberately or accidentally been released into the marine environment. Marine litter is essentially waste that comes from activities at sea and on land. This group incorporates federal and regional governments as well as the province of West-Flanders, which also represents coastal municipalities. Experts and scientists who are active in the marine litter domain will also be invited to join in, depending on the agenda. This working group will coordinate Belgian efforts and activities regarding marine litter.

It is **tasked** with:

- Guaranteeing structural cooperation between the competent authorities in the approach to and prevention of marine litter
- Developing an overall policy framework with the aim of systematically eliminating all sources of litter in the aquatic environment

- Harmonising the measures and goals of the various action plans regarding marine litter
- Coordinating and, where possible, collectively implementing actions regarding communication and raising awareness
- Maintaining an overview of Belgian representation in various international forums regarding marine litter and reporting thereupon
- Maintaining an overview of the various monitoring and research activities by Belgium and reporting thereupon
- Offering support to initiatives that fit into the policy framework, such as beach clean-up campaigns
- Conducting detailed research of measures and supporting their realisation if possible and desirable, e.g. including the issue of ocean litter in the ongoing curriculum in primary and secondary education
- Identifying the need for and supporting the foundation of ad hoc collaborative links in order to implement actions with external stakeholders

The participants in the working group undertake to include the decisions and action points within their own fields and communicate the corresponding progress with the members of the working group. The effectiveness of this group will be evaluated in the context of developments involving the issue itself and (inter)national policy. Additional targets may arise as a result of the working group's actions at any time.

4.2 Tackling the source

Marine litter comes from a range of sources, both at sea and on land. That is why measures for tackling marine litter must focus on the various geographical locations (at land and sea), and also the various sectors and activities that create it. The most significant sources at sea are shipping, fishing and offshore installations (Joint Research Center, Technical Report, Identifying sources of marine litter). Important sources on land include tourism and the flow of waste via rivers and storm water.

The project 'Assessment of Marine Debris on the Belgian Continental shelf: occurrence and effects – AS MADE' (2009-2011) highlighted the fact that around 95% of all of the waste in the Belgian part of the North Sea and on Belgian beaches is plastic. OSPAR monitoring of 3 beaches over the period 2001-2016 showed that around 80% of the objects found were plastic and other synthetics. Beach monitoring in 2010 and 2011 identified the following plastic items as most frequently found on the beach: industrial pellets, small plastic fragments, monofilament fishing lines and fishing nets, bottle and caps, cigarette butts, sweet packaging, plastic bags, plastic cutlery, straws and cups. OSPAR monitoring also showed that balloons and the resulting litter from them are also commonly found; plastic bags containing dog excrement have become more prevalent in the past few years.

There are no or very few ways to remove litter from the marine environment; marine litter will only be eliminated from the environment as it breaks down. The best way to prevent litter ending up in the marine environment is to **stop it at the source** (Lansink's ladder principle). In this context, the federal authorities have developed three groups of measures which focus on **macroplastics, primary microplastics** and **waste generated at sea**.

4.2.1 Macroplastics

When plastics end up in the (marine) environment, they remain there for many years. Large plastic items such as bottles or bags are referred to as macroplastics and degrade into small fractions which can spread far and wide and which are easily mistaken by birds or fish as food. The impact of this ingestion largely depends on the organism and the quantity of plastic that remains in the body but varies from reduced food intake to delayed reproduction or shorter lifespan because the organism is unable to produce energy as efficiently. Monitoring programmes are ongoing in relation to small and large fauna and will also be used as indicators or targets: one of the targets of the marine strategy is to find 0.1g (or more) of plastics in less than 10% of Northern fulmars by 2020.

The following actions will be implemented in relation to macroplastics:

4.2.1.1 Federal authorities concerned with product standards will provide a framework for bringing products to market. The provisions that limit the use thereof in particular areas are the responsibility of regional authorities. **Effective harmonisation between the regulations** on use and those concerning product introductions is an effective approach to tackling pollution caused by specific products.

4.2.1.2 The **EU Ecolabel** is the official European environmental label which is recognised by all European Union countries and Norway, Liechtenstein and Iceland. It identifies quality products which are better for the environment. The label was introduced in 1992 and aims to reduce the negative impact of production and consumption on the environment, public health, the climate and natural resources. In order to obtain the EU Ecolabel, products must fulfil a whole series of criteria, including some relating to packaging. The packaging on certain products must also state that they may not be flushed down the toilet. The EU Ecolabel will be further supported by Belgium.

4.2.1.3 A **strategy** will be developed to bring about **a reduction in the use of single-use (disposable) products by government bodies**.

4.2.2 Primary microplastics

As mentioned, this action plan not only focuses on macroplastics but also on microplastics. Macroplastics are the larger plastic items that end up in the ocean, such as bottles or bags. In contrast, microplastics are small plastic fragments, which can be just a few micrometres in size, which float around in seawater and accumulate in sediment.

The chemical and cosmetic industries use very small synthetic particles as a raw material. These are so-called primary microplastics, i.e. small plastic particles that are intentionally used as a raw material or are added to products. When they are used as a raw material, they are referred to as 'plastic pellets'. Microplastics that are added to products, for example in certain cosmetic products, toothpaste, detergents, etc., are referred to as 'microbeads'. They end up in the sea via household and commercial waste water. Microplastics are also created due to wear and tear on car tyres, synthetic clothing (fibres) and so on. These various types are collectively known as primary microplastics.

Belgium has supported a policy to **reduce the use of microplastics** since 2013 and, since 2015, has been part of actions 46[2] and 47[3] regarding microplastics from the Regional Marine Waste action plan, in the context of the OSPAR Treaty (which aims to protect the marine environment in the northern Atlantic Ocean). In this setting, the FPS Public Health (DG Environment) set up a self-test in 2015 for businesses, in order to help them prevent primary microplastics ending up in the environment. The following sectors/products are eligible: the production of plastic granules and the use thereof to manufacture plastic objects, the production of cosmetics, lubricants, pigment carriers, water softeners, thermoplastic adhesives and industrial sand-blasting.

The following actions will be implemented in relation to microplastics:

4.2.2.1 Microplastics are used in cosmetics and, to a lesser extent, in detergents. Alternatives are available for some applications. The European cosmetics sector is committed to a **voluntary phasing out of certain types of microplastics**. The initiative requires follow-up in Belgium.

4.2.2.2 The above voluntary phasing out process, however, does not cover all types of microplastics. A **sector-wide accord** will be drawn up with the Belgian **cosmetics sector** in order to eliminate microplastics from cosmetics. This accord will also ensure that the situation in terms of expertise on this topic is monitored, with the aim of adding provisions to reduce the presence of microplastics in other products. A system of monitoring and supervision for this sector-wide accord will be developed.

4.2.2.3 Belgium will continue to urge the competent European bodies to introduce a ban on the use of primary microplastics in cosmetics and detergents.

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[2] **Action 46**. *Evaluate all products and processes that include primary micro plastics and act, if appropriate, to reduce their impact on the marine environment*

[3] **Action 47.** *Engage with all appropriate sectors (manufacturing, retail etc.) to explore the possibility of a voluntary agreement to phase out the use of microplastics as a component in personal care and cosmetic products. Should a voluntary agreement prove to be insufficient, prepare a proposal for OSPAR to urge the EU to introduce appropriate measures to achieve a 100% phasing out of microplastics in personal care and cosmetic products.*

4.2.2.4 In 2015, on behalf of the federal government, a **self-test**[4] was developed for businesses that would like to inventory emissions of microplastics as a raw material and then reduce them. This instrument will be further promoted as a resource for businesses that wish to tackle primary microplastics.

4.2.2.5 Urge the regions to compel businesses to **prevent the leakage** of microplastics as a raw material, by means of:

- An infrastructure that captures any leaks during storms
- A downstream capture system that prevents leaks into the environment
- Transport of pellets in closed and sealed containers during all stages of transport and storage
- An infrastructure that captures any leaks during loading and unloading
- Provision of a system for rapidly cleaning up any leaks
- A legal framework for the voluntary Zero Pellet Loss project, a voluntary initiative which aims to drastically reduce emissions, or the 'loss' of plastic pellets that are used in the chemical industry.

4.2.3 Waste generated at sea

This action plan must specifically focus on waste that is created by fishing and shipping. Fishing nets become caught on fixed structures in the sea and are often lost. Broken fishing nets are even occasionally thrown overboard. Fauna in the sea is then trapped in these abandoned fishing nets, a phenomenon that is referred to as ghost-fishing. Intact fishing nets also lead to the problem of 'spekking' (see later). Ship waste is also dumped at sea, both legally and illegally. The impact of this on the marine environment must be tackled in this action plan.

4.2.3.1 Dumping and the loss of fishing nets must be prevented in order to combat **ghost fishing**. All of the options will be investigated, including the replacement of synthetic fishing nets with alternatives which are manufactured from natural materials or a substance that degrades in seawater, recycling fishing nets, the introduction of a deposit system for fishing nets or tagging the nets. The implementation of solutions will also be encouraged. This is a measure for implementing the Belgian Marine Strategy[5] in the context of the European Marine Strategy Framework Directive in order to realise a good ecological status in the sea (29B). This measure will be implemented in 2018. Priority action

4.2.3.2 **Fishing sinkers** are used in recreational fishing and end up on the seabed when they are lost. Lead damages the environment and accumulates in the food chain. The search for and introduction of alternatives to fishing sinkers will be stimulated. This is a measure for implementing the Belgian Marine Strategy in the context of the European Marine Strategy Framework Directive in order to realise a good ecological status in the sea (29D). This measure will be implemented by 2021.

Art. 13, https://www.health.belgium.be/nl/programma-maatregelen-krms-2015

[4] https://www.health.belgium.be/en/microplastics-manual-en

[5] Programme of measures for the Belgian marine waterways, Marine Strategy Framework Directive.

4.2.3.3 **The term 'spekking'** refers to loose ropes on the cod-end of the trawler net which protect it against wear and tear as it is dragged along the seabed. These ropes, which become damaged or are disposed of at sea after use, are made of polyethylene and are a significant source of plastic pollution in the North Sea. The SPEKVIS (BE) and PLUIS (NL) projects have already examined alternatives to polyethylene spekking. This search will continue. Another route could involve modifying net design so that there is less damage and, in turn, less spekking is used. This is a measure for implementing the Belgian Marine Strategy in the context of the European Marine Strategy Framework Directive in order to realise a good ecological status in the sea (29C).

4.2.3.4 Supporting the **waste policy for sea ports** regarding port reception installations where ships dispose of their waste. This EU guideline has been implemented in various ways across the EU member states and had led to confusion in terms of shipping complying with the regulations. In the context of OSPAR, efforts are now being made to harmonise this area across the European region.

4.2.3.5 Working towards a **ban on discharging paraffin at sea** under MARPOL-legislation[6]. Paraffin is a component of crude oil that is transported by tankers, in bulk. Paraffin pollution is similar to mineral oil in terms of the damage it causes: sea birds are generally the victims, and die as a result of exhaustion and hypothermia due to being unable to float. Spilt paraffin also washes up on beaches and leads to high clean-up costs. Since 2004, paraffin has been included in the IMO list of environmentally hazardous substances but it is not subject to a discharge ban (Ecomare, 2015). Paraffin residues may be discharged in small quantities outside the 12 mile zone.

4.3 Cleaning

Despite preventative actions, it will still be necessary to take targeted actions to remove the waste that already exists. This concerns litter that can be found in the sea, floating at the surface or accumulating on the seabed, as well as litter on beaches and waterways, originating from land and flushed out to sea.

The federal government is taking the following action in relation to active cleaning:

4.3.1 In 2017, the DG Environment began research into the option of **taking filtered waste retrieved during dredging work or sand extraction back to land**.

Priority action

4.3.2 **Fishing for Litter**: This initiative was introduced in 2007 in Belgium and is still facilitated and supported. Fishing For Litter (FFL) is part of the OSPAR Regional Action Plan on Marine Litter. FFL aims to eliminate waste from the marine environment and raise awareness within the fishing industry. Participating fishing vessels will be

[6] The International Convention for the Prevention of Pollution From Ships (MARPOL) is a convention promoted by the International Maritime Organisation (IMO) to prevent shipping pollution. It came into force in 1983.

provided with big-bags so that they can collect any waste that is gathered during fishing activities on the deck. When they go back to the quay, these big-bags can be deposited for free in the corresponding facility. The options for recycling the collected waste will be further examined in collaboration with the competent bodies.

4.3.3 From 2017 we will also strive to expand **Fishing for Litter** to other organisations such as diving clubs, dredgers, wind farms and recreational boats. The options for this expansion must be researched and stimulated. At first glance, recreational shipping seems to have huge potential in this context as these persons spend long periods at sea and because around 100 ships are already equipped with equipment for fishing waste out of the water. In contrast to professional fishing boats, however, they moor in marinas that have specific waste regulations.

4.3.4 With the resources of the environmental compensation fund from the wind farms at sea, a **wreck on the seabed will be cleaned of all of its marine litter, including fishing nets and lead** in 2018. Shipwrecks form artificial reefs that benefit certain marine species but they are also fixed structures that can accumulate a great deal of marine litter, such as fishing nets. As a result, they can become a threat to marine life for many years. A systematic clean-up will be organised for the West-Hinder wreck, which is recognised as a protected heritage site. Thereafter, there will be an investigation into how the condition of this wreck can be monitored and protected against marine litter.

4.3.5 Encouraging and supporting local authorities, organisations and NGOs to organise **clean-up campaigns on the beach**.

Beach clean campaign by Federal Truck in Koksijde © *Municipality of Koksijde*

4.3.6 Supporting improved cooperation with ports and waterways managers regarding the structural clean-up of marine litter.

4.4 Communication & raising awareness

The approach to marine litter requires broader support, so it is vital to raise awareness of the issue across the country. In view of the fact that every authority level actively communicates about their particular policy, it is also important to mention the campaigns from other levels in order to reinforce the message.

The federal plan covers the following actions:

4.4.1 Using the **Federal Truck** over several years during the summer months to conduct an information campaign about topics such as marine litter. This campaign was tested for the first time in 2016 and will be repeated every year from 2017.

4.4.2 **Communicating about every measure** that is included in this action plan. There will also be an active search for related topics that can be used to highlight the problem of marine litter, such as the possible impact of marine litter and microplastics on human health and the stranding of marine mammals.

4.4.3 Offering continual support to numerous valuable initiatives by local authorities, associations, NGOs and other organisations and also coming up with, evaluating and setting up possible new initiatives.

4.4.4 Offering support to the **general environmental education** concerning marine litter, that is organised by the Province of West-Flanders and regional/local authorities (such as the existing Planeet Zee (Planet Sea) education pack about litter from the Flanders Marine Institute (VLIZ) - the Institute for Agriculture and Fisheries Research (ILVO)) and which is intended for schools across the country.

4.4.5 **Supporting professional training for the fisheries sector** regarding the issue of marine litter. Previous surveys have shown that there is room for a 3 hour course on the issue of marine litter in the second grade, 20 hours in the third grade and 20 hours in the seventh year of fishery training. Marine Environment Service, VLIZ (Flanders Marine Institute) and ILVO (Institute for Agricultural and Fisheries Research) provided input for these lesson hours in 2016. The topics are: general knowledge about marine litter, the impact of fishing on marine litter and the impact of marine litter on fishing. The tutors at the fishery school develop the lesson package further. The programme will be introduced from 2017 and will be monitored. In 2017 and 2018, in collaboration with the Zeevissersfonds (Deep-Sea Fishermen's Fund), there will also be an investigation into whether marine litter could be added as a topic into Periodic Sea-fishing courses.

Priority action

4.5 Monitoring: measuring and knowing

The more accurate the definition of the marine litter problem, the greater the potential for implementing targeted and suitable measures. Not only do we need **more comprehensive, overall monitoring** in order to demonstrate the enormity of the marine litter problem, there is also a **lack of expertise regarding the impact of this litter**, particularly in relation to the impact of (micro and nano[7]) plastics on ecosystems, human health, animals and the environment, and the safety of the food chain.

<u>The actions in this context will be split into two areas: 'monitoring' and 'scientific research'.</u>

4.5.1 Monitoring

4.5.1.1 A great deal of systematic monitoring is already being carried out.

- Monitoring of beach waste by the Royal Belgian Institute of Natural Sciences (RBINS) in the context of OSPAR and the Marine Strategy Framework Directive (MSFD) and an analysis of specific indicators within this monitoring can be linked to specific sources of marine litter. OSPAR is the owner of a corresponding online database.
- Monitoring of macroplastics by the RBINS in the stomachs of stranded sea mammals
- Monitoring of Seafloor litter (AS-MADE project)

4.5.1.2 The RBINS organised a pilot project in 2017 in relation to the **monitoring of microplastics**. Thereafter, there will be a review of whether this monitoring system could be introduced on a systematic basis.

4.5.1.3 Federal information regarding marine litter will be added to VLIZ's '**integrated database'**.

4.5.1.4 Any gaps in the current monitoring programme will be identified and systematically eliminated.

4.5.2 Scientific research

4.5.2.1 **Monitoring and/or initiating research regarding the presence of microplastics in foodstuffs**, in line with the example of research into the presence of microplastics in commercial sea salt conducted in 2016 by ILVO on behalf of the DG Environment.

4.5.2.2 **Monitoring and/or initiating research regarding the risks of micro and nanoplastics** for the marine ecosystem or for the health of man and animals. This not only concerns risks from the substances themselves, but also their behaviour and origin in the environment (as well as the release of additives or metabolites) and their capacity to attract viruses, bacteria or hazardous substances.

4.5.2.3 Marine litter is caused by and has an impact on many sectors. The contours of this issue are not yet defined and there are sometimes surprising new areas of information. For example, agriculture has only been identified as a potentially significant source of microplastics due to the use of controlled release fertilisers (GESAMP,

[7] Microplastics are about 0.1 to 5000 micrometres (µm), or 5 millimetres, in size. Nanoplastics are 0.001 to 0.1 micrometre in size.

2016) since 2016. That is why it is important to monitor ongoing research and, where possible, urge competent authorities to conduct well-founded investigations within their areas of expertise.

4.6 Supervision and control

Regulation, commitments and agreements in relation to the prevention and clean-up of marine litter mean that a system of supervision and controls on compliance must also be created. Various federal partners supervise the sea in terms of compliance with regulations on marine litter. Regional partners organise similar supervision on land.

The actions that will be set up within this framework will be divided according to the following themes:

1. Controls at sea and in ports
2. Targeted campaigns and exercises
3. Prosecution

4.6.1 Controls at sea and in ports

4.6.1.1 A **collaborative agreement between the Marine Environment Service and the Navy (Defence**) was drafted in 2014. Joints patrols at sea are carried out in the context of this collaboration.

4.6.1.2 A similar **collaborative agreement was concluded in 2016 between the Marine Environment Service and the Maritime Police** in relation to conducting targeted checks on board ships. These ensure that ships' crews are complying with regulations on an administrative and technical basis. In the first instance, there will be a review of whether the ship's waste is being managed effectively and not dumped at sea. The checks also offer an opportunity to raise awareness among crews regarding the environmental aims of the regulations and provide good practical examples.

4.6.1.3 The **checks at sea** in terms of violations of marine litter legislation will be **gradually stepped-up**. There will be a particular focus on the provision of information and raising awareness. In the event of anyone being 'caught in the act', legal proceedings will be initiated and administrative fines will be an option.

4.6.1.4 In the context of the Coastguard structure, there is already collaboration between various partners with authority at sea when it comes to conducting checks at sea and in ports. There will be a review of whether this **collaboration could be intensified** or new collaborations could be created with new partners.

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4.6.1.5 Examining the options for collaboration with various services that conduct

checks on ships and in ports, e.g. information exchange and training.

4.6.1.6 The Marine Environment Act encompasses national regulations regarding the protection of the marine environment. The issue of waste is included herein. This **legislation will be evaluated in 2018**, when there will be a review of whether regulations, standards and permits correspond with the current reality and whether checking compliance with these is realistic. There will also be an investigation into which tools and agreements are necessary in order to ensure the checks are both efficient and transparent. On the basis of the result of this evaluation, there will be a further review of whether the legislation can be amended.

Priority action

4.6.2 Targeted campaigns and exercises

4.6.2.1 Targeted campaigns and exercises to prevent marine pollution will also be organised. All of the competent authorities will be encouraged to take part. Disaster scenarios, involving actual or potential environmental damage, can then be set out in advance. This will enable the preparation and distribution of instructions that can be followed in the event of a disaster in order to prevent or limit environmental damage. Various types of exercise will be organised; in or nearby wind farms or at sea and with or without international coordination.

4.6.3 Prosecution

Any violations of the marine litter legislation could then lead to legal proceedings, prison sentences and (administrative) fines.

4.6.3.1 In order to improve prosecution in the event of MARPOL violations, a **strategy** has already been drafted in a collaboration between the various federal administrations that are authorised in relation to **preventing pollution by ships**. The use of this strategy will be further supported. The strategy will be evaluated twice a year and improved where necessary, on the basis of experience gained within this domain.

4.7 Collaboration

As already mentioned, the approach to the marine litter problem is complex and spread across a range of domains. Additional collaboration on various levels is of vital importance and we have therefore decided to dedicate a separate chapter to this topic. The action plan strives to reinforce cooperation between public services and industry and also at an international, European and regional level.

4.7.1 Collaboration between public services

4.7.1.1 An important form of collaboration in the context of the fight against marine litter is the creation of the **Marine Litter national working group**, as defined in chapter 4.1 of this action plan. This working group was founded in 2016 and meets on a regular basis.

4.7.1.2 A second important form of **collaboration is between the Marine Environment service and the Product policy service**, both federal public bodies that belong to the DG Environment of the FPS Health, Food Chain Safety and Environment but which fall under the authority of different ministers. The collaboration between these two services has resulted in various measures for tackling the problem at the source, and the sector-wide 'microplastics' accord as set out in chapter 4.2 of this action plan.

4.7.1.3 A third important form of collaboration is between the **federal government services in relation to supervision and controls**, which operate within the Coastguard structure. The Coastguard is responsible for the coordination of and discussions between the administrations that have authority over the North Sea. This type of coordination and discussion is of huge importance when it comes to supervision and control of the marine litter legislation.

4.7.2 Collaborating with industry

4.7.2.1 **'Blue deals'** will be concluded with various sectors. These 'blue deals' will encourage companies in each sector to make voluntary efforts to tackle marine litter. Sectors that will be covered include wind farms, dredging, sand extraction, fishing, aquaculture and so on.

Priority action

4.7.2.2 **Voluntary initiatives and no-obligation tools** such as the **self-test** for companies to prevent the emission of plastic pellets, and the **Zero Pellet Loss** initiative are expected to be further supported and promoted within a legislative framework. **Voluntary collaborative partnerships** such as those involving the Antwerp port community where producers, logistics companies and transporters in the port of Antwerp have made agreements to prevent plastic granules ending up in the environment, will also be encouraged.

4.7.2.3 The commitment regarding the Belgian cosmetics sector which aims to phase out the use of microplastics in a specific number of products signifies genuine progress. This commitment will be further formalised on the basis of a sector-wide accord, as set out in 4.2.2.2.

4.7.2.4 The **permit conditions** for all activities and marine testing in the Belgian part of the North Sea will include the provision that a **waste management plan** must be set up in order to ensure that waste generated by that activity will not end up in the sea.

4.7.2.5 The Province of West-Flanders will provide support in terms of concluding

green agreements for low-waste events on the beach and low-waste beach bars.

4.7.3 International collaboration

Marine litter is also high on the international political agenda. Belgium will continue to invest in international collaborations for tackling the problem of marine litter. This will involve European, regional and global levels.

Priority action

European level

4.7.3.1 The European Commission, in its **Action plan Circular Economy**, announced the creation of a 'Plastic Strategy' by the end of 2017. This strategy will explicitly cover the issue of marine litter. Belgium will follow this strategy.

4.7.3.2 The **European Marine Strategy Framework Directive (MSFD)** was ratified on 11 December 2007 by the European Council and the European Parliament. This strategy creates a framework for member states to achieve a 'good environmental status' for marine waters by 2020. Litter is considered to be a priority within this framework directive. Within the context of the MSFD, a technical working group on marine litter will be created and Belgium will take part in this.

4.7.3.3 Belgium will continue to urge the competent European bodies to introduce a **ban on the use of primary microplastics** on an international level.

4.7.3.4 Belgium will closely monitor developments within Europe with a view to adding targets regarding the **elimination of microplastics in waste water** to the **European Water Framework Directive**. This directive has been in force since 22 December 2000 and concerns a uniform water policy across the European Union. One of the aims of this Water Framework Directive is to guarantee water stocks and quality in Europe.

Regional level

4.7.3.5 Belgium is a member of the **OSPAR commission** and has the role of deputy chairman of OSPAR in 2017 and 2018. Participation in the Intersessional Correspondence Group on Marine Litter (ICG ML) and the Regional Action Plan on Marine Litter (RAP ML), will enable Belgium to continue to support the activities of OSPAR in relation to marine litter. Belgium welcomes OSPAR ICG ML for a meeting on the RAP ML in November 2017.

4.7.3.6 In December 2017, Belgium will discuss the action plan's relevant points at the plenary meeting of the **Scheldt and Meuse Treaties**

Global level

4.7.3.7 Belgium will continue to make its contribution towards the **UN environment programme**. The United Nations Environment programme (UNEP) is an organisation created by the United Nations (UN) which coordinates UN activities. UNEP stimulates and assists developing countries with implementing environmentally-friendly policy via sustainable developments and plays an important role in developing international environmental treaties

and agreements at a regional and worldwide level.

4.7.3.8 Belgium is taking part in **UNEP's Global Marine Litter Campaign 'Clean Seas'** which was launched at the start of 2017 and will last for 5 years.

La mer, le grand unificateur, est le seul espoir de l'homme.
Maintenant, comme jamais auparavant, la vieille phrase a un sens littéral : nous sommes tous dans le même bateau. »

Jacques Yves Cousteau

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