

Feeder Report 2021 - Production and Consumption of Plastics

Introduction

1.1 This report deals with the production, use and disposal of plastics in the OSPAR area¹ (/en/ospar-assessments/quality-status-reports/qsr-2023/other-assessments/production-and-consumption-plastics/#1). It describes general measures relating to waste prevention and management, including some relating to marine litter. Feeder reports on shipping, aquaculture, fisheries, agriculture and waste water cover initiatives to address plastic waste from those sources.

1.2 Distribution of plastic litter in OSPAR waters is not covered in this feeder report; it is dealt with in a separate part of the Quality Status Report (QSR).



(/en/ospar-assessments/quality-status-reports/qsr-2023/)

Distribution, intensity and trends

2.1 This section gives information on the production of plastics, their uses, and the generation and treatment of plastic waste in Europe as a whole, as well as for OSPAR countries. It also refers to global growth in plastics.

2.2 Plastics have been in use for over 100 years, but since the 1950s there has been a rapid growth in plastics production and use. This is due to the properties of plastics, such as a high strength to weight ratio, impermeability to liquids, resistance to physical and chemical degradation, and their versatility suiting a wide variety of applications. Societal and environmental benefits include their use in protecting and preserving foodstuffs; use in vehicles, where their lighter weight lowers fuel consumption; water savings through their use in infrastructure; and reductions in land cover change and biodiversity loss through plastics substituting for natural materials. At the same time, plastics have environmental impacts such as greenhouse gas emissions, loss of resources, and pollution from badly managed waste. Plastics in the ocean have impacts on ecosystem health, including harm to wildlife through entanglement or ingestion, and economic impacts on sectors such as coastal tourism and fisheries. There may also be risks to human health through accumulation of plastics in the food chain. The longevity of plastics in the environment, and uncertainty about the magnitude of their impact, given that significant amounts have been introduced into the environment relatively recently, mean that they merit particular attention (OECD, 2018).

Production of plastics and plastic goods

2.3 Annual analyses from the trade association PlasticsEurope summarise plastics production, industrial demand, and the trade balance between the European Union (EU) and the rest of the world (data in paragraphs 2.3 – 2.7 taken from PlasticsEurope, 2011; PlasticsEurope, 2020a). Plastics production in 2019 in the 28 EU member states² (/en/ospar-assessments/quality-status-reports/qsr-2023/other-assessments/production-and-consumption-plastics/#2), Norway and Switzerland, was approximately 58 million tonnes. This was lower than in 2018 (61,8 million tonnes), and slightly more than in 2010 (57 million tonnes)³ (/en/ospar-assessments/quality-status-reports/qsr-2023/other-assessments/production-and-consumption-plastics/#3). Global plastics production increased over the same period, from 265 million tonnes in 2010 to 368 million tonnes in 2019.

2.4 Demand for plastic from converters (manufacturers of plastic products) in the EU28, Norway and Switzerland in 2019 was 50,7 million tonnes, up from 46,4 million tonnes in 2010⁴ ([/en/ospar-assessments/quality-status-reports/qsr-2023/other-assessments/production-and-consumption-plastics/#4](https://en.ospar-assessments/quality-status-reports/qsr-2023/other-assessments/production-and-consumption-plastics/#4)), and slightly lower than in 2018 (51,2 million tonnes). Germany accounted for nearly one quarter of total European demand in 2019. Of other OSPAR countries, the largest proportions of total demand were from France (9,5%), Spain (7,8%), the United Kingdom (7,1%), Belgium/Luxembourg (4,5%) and the Netherlands (4,4%).

2.5 PlasticsEurope reported that the value of extra-EU exports from plastics manufacturing and plastics processing was over €41,6 billion, over €13 billion more than the value of extra-EU imports.

2.6 Nearly 40% of the demand from European converters in 2019 was for manufacture of packaging materials; about 20% for building and construction; nearly 10% for automotive uses; and smaller proportions for other functions including electrical, household, agricultural, leisure and sports uses. These proportions were similar to those in 2010.

2.7 Of the types of polymer used by converters, the largest proportions in 2019 were:

1. polypropylene (19,4%) - uses include food wrapping, hinged caps, microwave containers, pipes, and automotive parts;
2. low density polyethylene and linear low density polyethylene (17,4%) - uses include reusable bags, trays and containers, agricultural film, and food packaging;
3. high and medium density polypropylene (12,4%) - uses include toys, milk bottles, shampoo bottles, and pipes;
4. polyvinyl-chloride (10%) - uses include window frames, floor and wall covering; piles and insulation;
5. polyurethane (7,9%) - uses include insulation, pillows and mattresses;
6. polyethylene terephthalate (7,9%) - uses include bottles for water and soft drinks;
7. polystyrene/expanded polystyrene (6,2%) - uses include food packaging, building insulation and electronics.

2.8 The remaining 18,8% comprised a wide range of plastics and multiple uses, including in the automotive, aerospace, telecommunications, and medical sectors. Proportions of the main plastics were all within 2% of those in 2010; the largest changes were for polyvinyl-chloride (down from 12% in 2010), polyethylene terephthalate (up from 6% in 2010) and polystyrene (down from 8% in 2010). The length of time for which a plastic product remains in use varies enormously - from decades for some uses to short-term, one-off functions such as packaging.

2.9 The vast majority of plastics are derived from oil and gas, but can be produced from renewable raw materials, such as biomass or organic waste. In Europe, the share of bio-based plastics is small - between 0,5% and 1,0% in 2016. Whether bio-based plastics are a more sustainable source depends on overall life cycle considerations. Many bio-based plastics substitute for conventional plastics and have similar properties; they are not the same as biodegradable plastics, which can be broken down to water, naturally occurring gases and biomass (European Commission, 2018a).

2.10 Annual per capita plastic consumption has reached 100 kg in western Europe (European Commission, 2018a). Amounts of plastic waste have also increased. Post-consumer plastic waste collected in the EU28, Norway and Switzerland rose between 2006 and 2018 from 24,5 million tonnes to 29,1 million tonnes (PlasticsEurope, 2019). Of this waste:

1. the amount sent to landfill fell, from 12 million tonnes to 7,2 million tonnes;
2. the amount sent for energy recovery rose from 7 million tonnes to 12,4 million tonnes;
3. the amount sent for recycling rose from 4,7 million tonnes to 9,4 million tonnes, 81% of which was handled within the EU.

2.11 The amount of plastic waste exported from the EU fell by 39% between 2016 and 2018 (PlasticsEurope, 2019). A major factor influencing the fall was the introduction of import restrictions in China (EEA, 2020a).

2.12 Recycling rates for post-consumer plastic waste in 2018 varied between OSPAR countries; the highest (over 40%) were in Norway and Spain (PlasticsEurope, 2019). For non-recycled waste, there were substantial variations between the proportions going to landfill or energy recovery. The highest proportions going to landfill were in Spain (nearly 40%) followed by Portugal, France and the United Kingdom; the lowest (zero) were in Switzerland and the Netherlands.

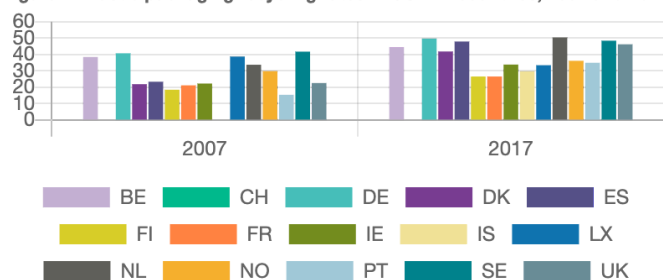
2.13 Because of its short-life function, packaging waste comprises the largest proportion of post-consumer plastic waste. The amount of post-consumer plastic packaging waste collected in the EU28, Norway and Switzerland rose between 2006 and 2018 from 14,9 million tonnes to 17,8 million tonnes⁵ ([/en/ospar-assessments/quality-status-reports/qsr-2023/other-assessments/production-and-consumption-plastics/#5](https://en.ospar-assessments/quality-status-reports/qsr-2023/other-assessments/production-and-consumption-plastics/#5)). Of this waste:

1. the amount sent to landfill fell from 7,2 million tonnes to 3,3 million tonnes;
2. the amount sent for energy recovery rose from 3,8 million tonnes to 7 million tonnes;
3. the amount sent for recycling rose from 3,9 million tonnes to 7,5 million tonnes.

2.14 Recycling rates ranged from 26% to around 50% in OSPAR countries (PlasticsEurope, 2019).

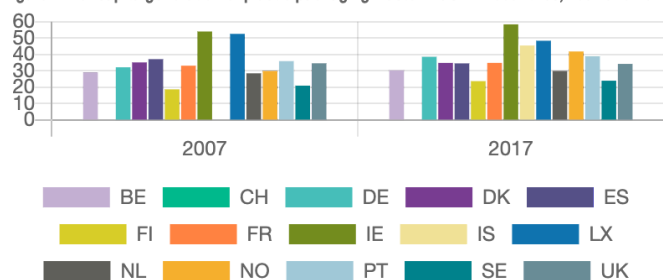
2.15 Eurostat has information on packaging waste generated in OSPAR countries, including per capita waste generation and the proportion of packaging waste recycled or recovered (Eurostat, 2020a; Eurostat, 2020b). Details in 2010 and 2017 (<https://en.ospar.org/en/ospar-assessments/quality-status-reports/qsr-2023/other-assessments/production-and-consumption-plastics/#6>) are in the figures below.

Figure 1: Plastic packaging recycling rates in OSPAR countries, 2007 and 2017



Unit: Percentage (Source Eurostat 2020a)

Figure 2: Per capita generation of plastic packaging waste in OSPAR countries, 2007 and 2017



Unit: Kilograms per capita (Source Eurostat 2020b)

2.16 The routes by which plastic waste may enter the sea are varied. A European Commission report (European Commission, 2018a; referring to Jambeck et al, 2015) referred to an estimate of 0,15 – 0,5 million tonnes of plastic waste entering EU seas in 2015, within a global estimate of 4,8 – 12,7 million tonnes entering the seas and oceans. The Commission lists major land-based sources of plastic marine litter as storm water discharges, sewer overflows, tourism-related litter, wastes released from dumpsites near the coast or river banks, illegal dumping, industrial activities, improper transport, consumer cosmetic products, synthetic sandblasting media or polyester and acrylic fibres from washing clothes. Plastic pollution also occurs from marine activities such as shipping, fishing, aquaculture and offshore industry.

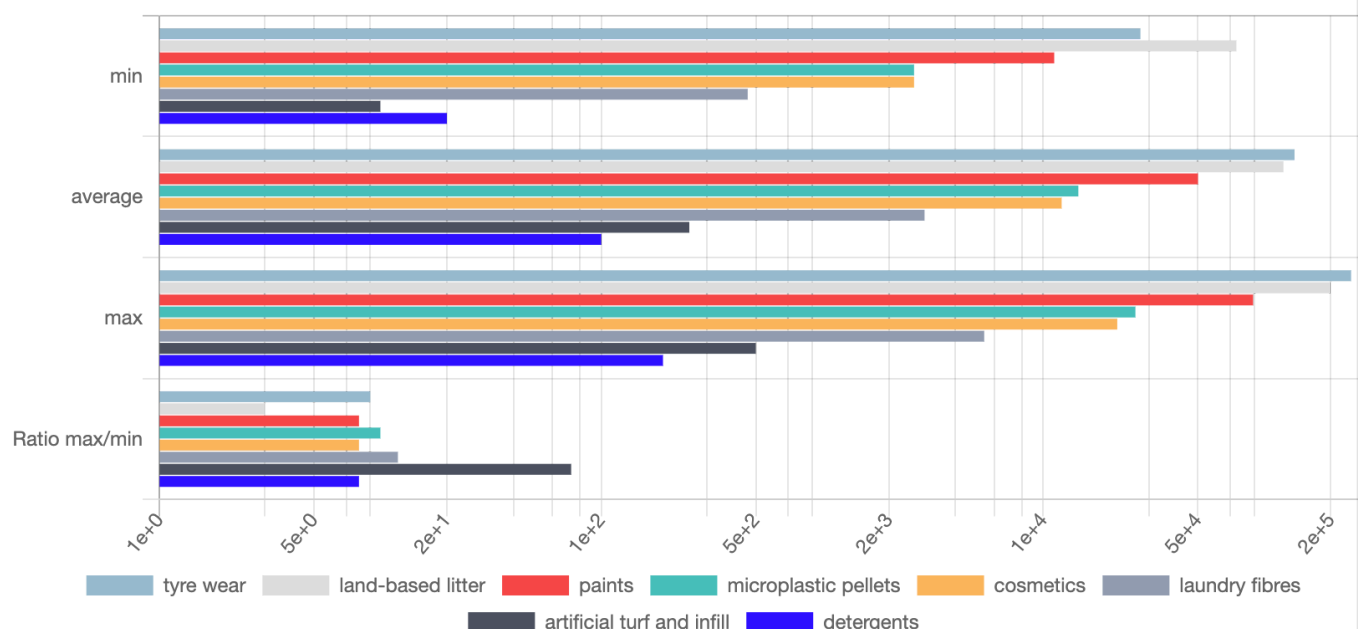
2.17 The COVID-19 pandemic has created issues relating to littering of personal protective equipment (PPE), such as face masks and disposable gloves, and PPE items have appeared in beach litter surveys (e.g. Patrício Silva et al, 2020; Marine Conservation Society, 2020).

Microplastics

2.18 Microplastics - plastic particles less than 5 mm - have been an area of increasing interest in recent years. OSPAR has published an assessment of land-based inputs into the marine environment (OSPAR, 2017), as part of follow up to the OSPAR Regional Action Plan on Marine Litter. The assessment categorises microplastics as either primary (manufactured to be of small size) or secondary (resulting from the breakdown of larger items). Primary microplastics include microbeads in cosmetic products, industrial 'scrubbers', rubber granules in artificial grass pitches, and pellets used in plastics manufacturing and transport of the basic material. Secondary microplastics are created intentionally or unintentionally during production, use, or waste phases of the plastic lifecycle, including through breakdown of littered material. Sources include the wearing down of tyres and roads, paint and textiles. A source of intentional secondary microplastics is so-called oxo-degradable plastic bags, which decompose to small plastic fragments.

2.19 The OSPAR assessment (OSPAR, 2017) discussed methodologies for assessing the amount of microplastics entering OSPAR catchments. The figure below is taken from that assessment.

Figure 3: Sources of microplastics entering OSPAR catchments



Unit: Tonnes/year (Source OSPAR 2017)

2.20 OSPAR has also summarised evidence on the production and loss of plastic pellets (OSPAR, 2018). This report estimated that pellet loss in the OSPAR maritime area in 2015 was between 3 100 and 31 000 tonnes. The report summarised routes by which pellets can enter the environment. The main sources of loss were thought to be from producers, intermediary facilities and processors. Losses can occur through general handling at any point in the supply chain from producer to end product and waste disposal, including points of transport (e.g. losses during loading and storage). Shipping incidents can also result in pellets being lost from containers, although shipping losses were a relatively small part of the overall estimated input. Examples of shipping incidents include losses from the MSV ZOE in January 2019 (BSU, 2020) and the Trans Carrier in February 2020 (Norwegian Coastal Authority, 2020). Losses of containers have been looked at in a workshop by the European Commission (European Commission, 2019); recommendations on issues such as technical standards for container ships and on route-specific risks were also made in reports on the loss of containers from MSC ZOE (BSU, 2020; DSB, 2020).

Economic status

3.1 According to PlasticsEurope, the European plastics industry directly employed 1,6 million people in 2019, within 60 000 companies, with a turnover of over €360 billion. This covered plastics raw materials producers, plastics converters, plastics recyclers and plastics machinery manufacturers in the EU28 Member States. The industry had a positive trade balance in 2018 of €9,4 billion for plastics manufacturing and €5,8 billion for plastics processing (PlasticsEurope, 2019).

3.2 For OSPAR countries, 2017 figures for number of enterprises, persons employed and total value added for the manufacture of plastics and of plastic products are given below (data from Eurostat, 2020c).

Table 1: Manufacture of plastics and plastic products: enterprises, employees and value added

	Manufacture of plastics in primary form			Manufacture of plastic products		
	Number of enterprises	Persons employed	Value added at factor cost (million Euro)	Number of enterprises	Persons employed	Value added at factor cost (million Euro)
Belgium	77	7 148	1 374	758	22 167	2 095
Denmark	15	266	23	437	12 294	1 137
Finland	24	1 747	247	469	10 503	714
France	120	11 799	1 638	2 704	107 652	7 362

	Manufacture of plastics in primary form			Manufacture of plastic products		
	Number of enterprises	Persons employed	Value added at factor cost (million Euro)	Number of enterprises	Persons employed	Value added at factor cost (million Euro)
Germany	424	49 324	6 895	5 920	356 052	22 145
Iceland	0	0	0	32	304	27
Ireland	N/A	N/A	N/A	410	8 941	621
Luxembourg	2	N/A	N/A	18	2 633	256
Netherlands	141	9 182	2 729	1 308	29 842	2 562
Norway	10	712	109	305	4 062	371
Portugal	47	1 699	305	951	21 777	802
Spain	299	10 061	1 680	3 654	73 238	4 274
Sweden	39	4 358	753	1 294	17 773	1 189
Switzerland	N/A	N/A	N/A	512	20 591	2 299
United Kingdom	370	9 548	1 153	5 283	162 399	9 152

Future trends

4.1 Reviews by the European Environment Agency (EEA) and European Commission concluded that it is very likely that the plastic consumption and waste issues will intensify in the future, and that global annual plastics production is expected to reach up to 1,2 billion tonnes by 2050 (EEA, 2019; European Commission, 2020a). According to the Commission, cheap prices for plastic mean that reuse and recycling of end-of-life plastics remain low, and future actions need to emphasise waste prevention as well as resource-efficient and long-term circular use of plastic products. Measures to prevent and manage waste are discussed further below. These include European targets in areas such as recyclability and recycling of plastics, although their potential impact on total plastics consumption and marine pollution from plastic waste are not defined quantitatively.

4.2 PlasticsEurope reported that COVID-19 led to a sharp drop in primary plastics production in Europe in the first half of 2020, with some recovery later in the year. PlasticsEurope also noted that the speed of recovery would depend on the impact of COVID-19 on demand in industries such as automotive manufacture and construction, and that the pre-COVID-19 production level was not expected to be reached before 2022 (PlasticsEurope, 2020a).

Quality Status Report 2010 and Intermediate Assessment 2017

5.1 QSR 2010 said little about plastics production and consumption, while noting that improved waste management, including waste reduction and recycling, would reduce marine litter. IA 2017 reported the wide distribution of litter, in particular plastics, in the OSPAR area, but did not discuss waste management measures. Plastic fragments were the most abundant type of beach litter across OSPAR survey sites, followed by packaging (e.g. food containers, plastic bags, caps/lids, crisp and sweet packets). Drinks bottles and containers were among the most recorded items in most areas. Other littered items containing plastic included cotton bud sticks, cigarette butts and balloons.

5.2 In another assessment of the position in the middle of the 2010s, analysis by the European Commission of 585 beach surveys in the North-East Atlantic area found an average of 62 litter items from single-use plastics per 100 m of beach surveyed in 2015-2016, about a quarter of the average total abundance of 233 litter items (plastic and non-plastic) per 100 m (Hanke et al, 2019).

Measures and Impacts

OSPAR initiatives

6.1 The OSPAR Regional Action Plan for Marine Litter contains a range of national and common actions to be taken by OSPAR Contracting Parties to combat marine litter (OSPAR, 2015)⁷ ([/en/ospar-assessments/quality-status-reports/qsr-2023/other-assessments/production-and-consumption-plastics/#7](https://en.ospar-assessments/quality-status-reports/qsr-2023/other-assessments/production-and-consumption-plastics/#7)). Some of these are covered in other feeder reports on shipping, fisheries, aquaculture, waste water and tourism, but others dealt with general action on plastics, waste management, and litter.

Actions included:

1. highlighting waste prevention and management practices that impact significantly on marine litter, and engaging with industry and authorities on best practice;
2. encouraging recyclability and reuse of plastic products;
3. sharing best practice on preventing litter entering water/river systems;
4. assessment of instruments to reduce single-use items, including reduction of consumption of single-use plastic bags;
5. evaluation of sources and pathways of primary microplastics and acting to reduce their impact, including phase out of their use in personal care products, and best practice to aim at zero pellet loss in the plastics manufacturing chain;
6. investigating the impact of expanded polystyrene in the marine environment, and engaging with industry on reducing impacts;
7. exploring with industry the development of design improvements to assist in reduction of negative impacts of plastics products entering the marine environment.

6.2 Many of these actions are long term in nature and are still in progress. A background document on waste management practices and best practice is to be published; OSPAR is on the advisory boards of the EU INTERREG funded Clean Atlantic and OceanWise projects, which are looking at specific aspects of marine litter; work has been carried out on monitoring of riverine litter. OSPAR (2018) outlined ways in which plastic pellet loss could be reduced, and a Recommendation on pellet loss reduction is to be considered for adoption by the OSPAR meeting in 2021. OSPAR has also reviewed ways to reduce stormwater related litter (OSPAR, 2019); this will be covered in the separate feeder report on waste water. More information on OSPAR actions, including implementation tables summarising progress on individual areas of work, can be found in OSPAR (2020).

European and national action

6.3 The European Strategy for Plastics in a Circular Economy (European Commission, 2018a; European Commission, 2018b) sets out a vision for a 'new plastics economy' within which plastics and plastic products are designed for greater durability, reuse and high quality recycling. It aims for all plastic packaging placed on the EU market by 2030 to be either reusable or easily recyclable in a cost-effective way, and for more than half of plastic waste to be recycled within the same timescale, with recycled plastics being a valuable feedstock for industries. Alternative feedstocks and innovative materials for plastics production should be encouraged. The amount of plastic entering the natural environment as pollution should decrease drastically. The Strategy sets out actions for achieving this vision, covering issues such as design for recycling and boosting recycled content through legislation on packaging and eco-design; improved collection and sorting of waste; legislation on single-use plastics and on fishing gear containing plastics; rules on compostable and biodegradable plastics; action on microplastics; and investment in innovation.

6.4 As well as the Strategy, European actions have included⁸ ([/en/ospar-assessments/quality-status-reports/qsr-2023/other-assessments/production-and-consumption-plastics/#8](https://en.ospar-assessments/quality-status-reports/qsr-2023/other-assessments/production-and-consumption-plastics/#8)):

1. a 2015 directive on plastic bags requiring EU member states to take measures to reduce the consumption of lightweight plastic bags, which could include targets, restrictions on use, and charges (European Union, 2015);
2. new legislation in 2018 on waste management and prevention, including a recycling target for plastic packaging waste of 55% by 2030 (European Union, 2018a and 2018b);
3. the 'single-use plastics directive' (European Union, 2019), which introduces a ban by 2021 on certain single-use products made of plastic, including cotton bud sticks; cutlery; plates; straws; and cups, food and beverage containers made of expanded polystyrene. It also prohibits all products made of oxo-degradable plastic, requires measures to reduce consumption of other plastic food containers and cups; introduces new collection targets and design requirements for plastic bottles; and includes measures on extended producer responsibility and labelling.

- It also introduces measures regarding fishing gear, including extended producer responsibility schemes and reporting requirements;
4. the 'port reception facilities directive' (Directive (EU) 2019/883);
 5. restriction of the use of microplastics in products (e.g. cosmetics, detergents etc) and from products (e.g. pellets, tyres textiles) – under preparation;
 6. launch of the Circular Plastics Alliance, including key industry stakeholders, as a way to improve the economics and quality of plastics recycling in Europe, in particular by strengthening the match between supply and demand for recycled plastics (European Commission, 2020c).

6.5 Plastics are also covered by EU legislation on the management of waste electrical and electronic equipment (WEEE) and end of life vehicles (ELV), although in the latter case, the European Commission's analysis supporting the 2018 Strategy reported that the proportion of ELV plastics being recycled was low (European Commission, 2018a).

6.6 The EU's Circular Economy Action Plan (European Commission, 2020a; 2020b) describes a wide range of ambitions related to sustainable product policy, including issues such as durability and reusability, increasing recycled content of products, and reduction of hazardous chemicals in products. Actions related specifically to plastics include review of the 1994 Directive on packaging and packaging waste (European Union, 1994; consolidated text with amendments at European Union, 2018c), including reinforcement of packaging requirements with a focus on reducing packaging, design for reuse and recyclability, and reducing the complexity of packaging materials. To increase uptake of recycled plastics more generally, the Commission will propose requirements for recycled content and waste reduction measures for products such as packaging, construction materials, and vehicles. There will also be a policy framework on use of bio-based plastics, including where use results in genuine environmental benefits, and on use of biodegradable or compostable plastics. A summary of issues related to biodegradable and compostable plastics is given in EEA (2020b.)

6.7 The EEA has reviewed initiatives to prevent plastic waste in Europe (EEA, 2019). These included production-based measures (e.g. on smart packaging design or to ban specific plastic products) as well as consumption-orientated initiatives (e.g. fees for specific products such as plastic bags, or information campaigns). Good practice examples from OSPAR countries cited by the EEA included plastic bag charges; the use of fees to finance collection and recovery of packaging waste; voluntary agreements with industry; the use of packaging regulations; and bans on certain single-use plastics and on microbeads in personal care products. While some waste prevention measures were legislative (e.g. on bags), the majority of measures identified by EEA were voluntary agreements among stakeholders, and informative instruments.

6.8 The EEA reports that these initiatives have had some success. For example, plastic bag charges have led to substantial drops – over 80% or more in some cases - in the numbers of plastic bags used. At that stage, some targets for future reductions in plastic waste had been set, although relatively few countries had quantitative targets. The EEA concluded that, despite measures that are being taken, efforts to prevent waste needed to be intensified. Priority needed to be given to the plastic types and products with most impact (e.g. those that are short-lived or non-recyclable) and more diverse measures needed to be put in place, to drive better design, increased durability or reduction in hazardous substances. Better monitoring and evaluation of measures was also considered necessary. A report by the European Court of Auditors also concluded that there is a risk of some Member States missing plastic packaging recycling targets, and that concerted action across the value chain will be necessary (ECA, 2020).

6.9 A European threshold value for marine litter under the Marine Strategy Framework Directive has been developed and agreed. The value is for 20 litter items / 100 m of beach length, estimated to be a value at which harm from beach litter is reduced to a sufficiently precautionary level. Achievement of this threshold value is likely to require sustained measures over a long period (Van Loon et al, 2020).

6.10 In the Arctic, the Protection of the Arctic Marine Environment Working Group (PAME) of the Arctic Council is working on the development of a regional action plan on marine litter. Other regional seas conventions across the world have also adopted litter action plans. On the global level there is on-going work under the United Nations Environment Assembly towards a global agreement for marine litter, supported by some OSPAR Contracting Parties and by the Nordic Council of Ministers (Nordic Council of Ministers, 2020).

6.11 Several OSPAR governments or ministries⁹ ([/en/ospar-assessments/quality-status-reports/qsr-2023/other-assessments/production-and-consumption-plastics/#9](https://en/ospar-assessments/quality-status-reports/qsr-2023/other-assessments/production-and-consumption-plastics/#9)) are signatories to the New Plastics Economy Global Commitment, which brings together businesses, governments and other organisation behind a common vision and targets to address plastic waste. It is led by the Ellen MacArthur Foundation in collaboration with the United Nations Environment Programme (New Plastics Economy, 2020).

6.12 OSPAR action on microplastics is referred to above. In the EU, the Circular Economy Action plan sets out ambitions to restrict intentionally added microplastics, measures to reduce unintentional release of microplastics, improved measuring of microplastic release, especially from tyres and textiles, and increasing knowledge on the risk and occurrence of microplastics in the environment, drinking water and foods. OSPAR Contracting Parties have also considered potential means for reducing microplastic inputs, e.g. Miljødirektoratet, 2016; National Institute for Public Health and the Environment, 2017; Swedish guidelines (Swedish Environmental Protection Agency, 2021) and CEN standard (European Committee for Standardisation, 2020) for artificial turf.

6.13 Operation Clean Sweep® (OCS) is an industry campaign promoting zero pellet, flake and powder loss during plastic resin handling operations. It was originally developed in the United States of America, but now incorporates the Zero Pellet Loss initiative from PlasticsEurope. The most recent report from PlasticsEurope on progress highlighted that around 700 companies and associations in the plastics value chain in Europe have become signatories to the OCS programme, including all PlasticsEurope member companies. An OCS certification scheme will be fully operational by 2022 (PlasticsEurope, 2020b). In Sweden guidelines were recently developed on measures to minimize emissions of microplastics from manufacturing and management of plastics. The purpose of the guidelines is to create awareness about the problems with material loss as well as provide examples of appropriate measures. Sweden has worked with industry and relevant stakeholders during the development of the guidelines.

Conclusions

7.1 Key messages¹⁰ ([/en/ospar-assessments/quality-status-reports/qsr-2023/other-assessments/production-and-consumption-plastics/#10](https://en.ospar.org/en/ospar-assessments/quality-status-reports/qsr-2023/other-assessments/production-and-consumption-plastics/#10))

1. facilities for the production of plastics and plastic products are widespread across OSPAR countries, with the greatest number of enterprises in Germany, the United Kingdom and Spain;
2. OSPAR may wish to be aware of any significant changes in plastics production (e.g. alternative new feedstocks or innovative materials, including bio-based plastics) and their implications for the marine environment;
3. it will be important in future to keep a close eye on how the EU Strategy for Plastics and Circular Economy Action Plan are taken forward, aiming at maximizing synergies with OSPAR measures, and their effect in practice on the inputs of plastic to the sea, and consider whether additional OSPAR measures are needed. It may be useful for more quantitative targets and indicators on overall consumption/waste/litter to be developed;
4. OSPAR could consider how to improve data on potential inputs of plastics into the marine environment, including types of plastic as well as overall numbers, for example from abandoned, lost or otherwise discarded fishing gear (ADLFG);
5. OSPAR may wish to refine its understanding of whether specific sources/types of plastic waste are of particular concern for the marine environment (e.g. because of volume, harm or toxicity), and consider whether action can be taken to tackle these;
6. there may be scope for OSPAR to enhance cooperation with initiatives to reduce plastic inputs, such as the New Plastics Economy Global Commitment, or Operation Clean Sweep;
7. continued work on the issue of microplastics would seem to be valuable, including follow up to the forthcoming OSPAR Recommendation on pellet loss and work on microplastic loss from tyres, taking also into account related developments at EU level.

Distribution and intensity of activity

7.2 Based on demand for plastic from converters (manufacturers of plastic products), Germany is the largest producer of plastic products among OSPAR countries, producing almost three times more than the next largest country (France). Spain and the United Kingdom are also substantial producers, followed by Belgium / Luxembourg and the Netherlands. (Paragraph 2.4)

7.3 Nearly 40% of the demand from European converters in 2019 was for manufacture of packaging materials; about 20% for building and construction; and nearly 10% for automotive uses. The types of plastic most used by converters were polypropylene and polyethylene. (Paragraphs 2.6, 2.7)

7.4 Per capita plastic consumption across Europe is over 100 kg annually. There are substantial differences between OSPAR countries in the proportions of plastic waste sent for recycling, energy recovery or landfill. (Paragraphs 2.9 – 2.12)

Trends

7.5 Primary plastics production in Europe was slightly higher in 2019 than in 2010, although lower than in 2018. Similarly, the demand for plastic by converters in Europe has risen gradually since 2010, although was lower in 2019 than in 2018. (Paragraphs 2.3 - 2.4)

7.6 Post-consumer plastic waste in Europe rose by nearly 19% between 2006 and 2018. The total amount of waste sent for recycling doubled in that period, and the amount sent for energy recycling also increased, while the amount sent to landfill fell. The amount of packaging waste rose by a similar percentage over the same period, with increases in recycling and energy recovery and a fall in landfill. (Paragraphs 2.9, 2.11)

Economic value

7.7 The European plastics industry directly employed 1,6 million people in 2019, within 60 000 companies, with a turnover of over €360 billion. Of OSPAR countries, Germany has the largest figures for persons employed and value added. (Paragraphs 3.1-3.2)

Pressures and impacts

7.8 Analysis referred to by the European Commission estimated that 0,15 – 0,5 million tonnes of plastic waste entered EU seas in 2015. OSPAR estimates of microplastic inputs averaged over 300 000 tonnes. (Paragraphs 2.13, 2.16)

Measures

7.9 The OSPAR Regional Action Plan for Marine Litter highlights a range of measures to address plastic pollution. The 2018 European Strategy for Plastics in a Circular Economy, and related legislation, set out measures on matters such as reducing single-use plastics and increasing recycling. (Paragraphs 6.1, 6.3)

Regional Summary

Production of plastics

	OSPAR REGIONS ¹¹ (/en/ospar-assessments/quality-status-reports/qsr-2023/other-assessments/production-and-consumption-plastics/#11)				
	I	II	III	IV	V
Relative intensity ¹² (/en/ospar-assessments/quality-status-reports/qsr-2023/other-assessments/production-and-consumption-plastics/#12)	L	H	M	H	L
Trend since 2010 ¹³ (/en/ospar-assessments/quality-status-reports/qsr-2023/other-assessments/production-and-consumption-plastics/#13)	↔				
Forecast trend to 2030	?				

Collected plastic packaging waste

	OSPAR REGIONS				
	I	II	III	IV	V
Relative intensity ¹⁴ (/en/ospar-assessments/quality-status-reports/qsr-2023/other-assessments/production-and-consumption-plastics/#14)	↑				
Trend in collected plastic packaging waste since 2010	↑				
Forecast trend to 2030	↓				

Footnotes

¹Except where stated, data in this report are for entire countries, and do not separate out OSPAR regions

²Including the UK

³2010 figure is for EU 27 (not including Croatia), Norway and Switzerland.

⁴2010 figure is for EU27 (not including Croatia), Norway and Switzerland. Croatian demand in 2019 was less than 0,5 million tonnes

⁵Includes household, industrial and commercial packaging

⁶Includes household, industrial and commercial packaging; this Eurostat data does not include Switzerland

⁷The current RAP ML was agreed by OSPAR for implementation between 2014 and 2021. The implementation and effectiveness of the RAP will be reviewed up until spring 2021, after which OSPAR will work on the development of a new or updated RAP.

- ⁸ EU actions addressing plastic waste from shipping and fisheries are covered in more detail in the feeder reports on those activities.
- ⁹ As at September 2020 these were France, the Netherlands, Portugal, United Kingdom, as well as the Catalanian, Scottish and Walloon governments.
- ¹⁰ The views expressed on key messages are those of the assessor and do not necessarily represent the views of the OSPAR Commission
- ¹¹ For the delineation of OSPAR regions see <https://www.ospar.org/convention/the-north-east-atlantic> (<https://www.ospar.org/convention/the-north-east-atlantic>)
- ¹² Low/medium/high
- ¹³ Trend is for Europe as a whole from 2010-2019; 2020 saw a drop due to the COVID-19 pandemic
- ¹⁴ Eurostat 2020b shows an increase in plastic packaging waste in kg/capita since 2010 for all OSPAR countries other than the United Kingdom. Data for Switzerland is not included.

References

⊕ Expand to view references



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