CEMP Guidelines for marine monitoring and assessment of beach litter

OSPAR Agreement 2020-02[1]

OSPAR Theme: Human activities

OSPAR descriptor: Marine litter

Indicator full name: Abundance, composition and trends of marine litter washed ashore and/or deposited on coastlines, including analysis of its spatial distribution and, where possible, sources.

MSFD correspondence (Commission Decision (EU) 2017/848):

Descriptor: 10 - Marine Litter

Criterion: D10C1 - 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.

Indicator: D10C1.1 – The composition, amount and spatial distribution of litter (excluding micro-litter) on the coastline.

How to cite this document:

OSPAR Beach litter expert group (BLEG), Lacroix, C., André, S., Meland Rød, A., van Loon, W.M.G.M., Blidberg, E., Moura, I., Price, L., Russell, J., Schulz, M., Sepúlveda, P., Strand, J., Zorzo, P., Bjarnadottir, K. (2025) CEMP Guidelines for marine monitoring and assessment of beach litter, OSPAR Agreement 2020-02, update 2025.

[1] Replaces Agreement 2017-05. Update 2025. English only

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List of Abbreviations

ALDFG: Abandoned, Lost or otherwise Discarded Fishing Gear

BLEG: Beach Litter Expert Group

CEMP: Coordinated Environmental Monitoring Programme

CPs: Contracting Parties

CSV: Comma Separated Values (file format)

EC: European Commission

EIHA: Environmental Impacts of Human Activities Committee

EMODnet: European Marine Observation and Data Network

EU: European Union

GES: Good Environmental Status

GLM: Generalised Linear Modelling

GPS: Global Positioning System

ICG-ML: Intersessional Correspondence Group on Marine Litter

ID: Identity

MSCG: Marine Strategy Coordination Group

MSFD: Marine Strategy Framework Directive

NA or N/A: Not Analysed

NEAE: North-East Atlantic Environment

NGO: Non-Governmental Organisation

PPE: Personal Protective Equipment

QSR: Quality Status Report

RAP ML: Regional Action Plan for Marine Litter

RSC: Regional Seas Convention

SUP: Single Use Plastic

TG-ML: Technical Group on Marine Litter

TV: Threshold value

Definitions

Beach: expanse of sand or pebbles along a shore washed by the tide or waves. Beaches can vary between extensive stretches of coastline from many kilometres' length to shorter stretches of coast between headlands or bays between rocky outcrops.

Beach litter: any persistent, manufactured or processed, solid material discarded, disposed of or abandoned in the marine and coastal environment, and encountered on beaches.

Country-region: national marine area, including the coastline, within an OSPAR region (e.g. France-Bay of Biscay or Germany-Southern North Sea) used as the unit for assessment of beach litter data.

Country-subregion: national marine area, including the coastline, within a MSFD subregion used as the unit for assessment of beach litter data.

Marine litter Good Environmental Status (GES): properties and quantities of marine litter do not cause harm to the coastal and marine environment.

Median: middle value of a data series sorted by increasing value.

Survey site: geographic location of the sampling unit.

Sampling unit: fixed section of beach covering the whole area between the water edge to the back of the beach where the monitoring is carried out.

Theil-Sen: a robust statistical trend analysis method which is not sensitive for extreme values.

Total count: total number of litter items > 5 mm collected on the sampling unit per survey, excluding plastic and foamed polystyrene fragments < 2.5 cm. Note that recognizable mesolitter (< 2.5 cm) such as bottle caps and cigarette butts are included in the total macro-litter count (Van Loon et al., 2020).

1. Introduction

1.1. Reducing macro- and microlitter pollution in the marine environment is one of the significant environmental challenges that society faces today.

1.2. Under its North-East Atlantic Environment (NEAE) Strategy 2020-2030, OSPAR has the strategic objective to "prevent inputs of and significantly reduce marine litter, including microplastics, to reach levels that do not cause adverse effects to the marine and coastal environment with the ultimate aim of eliminating inputs of litter" (Strategic Objective 4). These levels, referred to as "Good Environmental Status" (GES), are also the objective set by the European Union (EU) in the Marine Strategy Framework Directive (MSFD, 2008/56/EC).

1.3. Measures to reduce the input of marine litter and to remove litter from the marine environment are presently being implemented through actions at the OSPAR level (OSPAR's second Regional Action Plan for Marine Litter/RAP ML2) and through national actions. For Contracting Parties (CPs) who are EU Member States, EU measures including measures implemented within the scope of the MSFD, also contribute towards this objective. To direct these actions and assess their effectiveness in reducing marine litter pollution, but also to assess if GES and associated threshold values (TVs, Werner et al., 2020) are being achieved, indicators have been developed. Regarding marine litter, one of OSPAR indicators is the "Abundance, composition and trends of marine litter washed ashore and/or deposited on coastlines, including analysis of its spatial distribution and, where possible, sources", referred to as "beach litter". The indicator reflects spatial differences and temporal changes in abundance, composition and sources of marine litter in the coastal environment and is used as a proxy for litter pollution in the OSPAR marine environment.

1.4. Beach litter is defined by OSPAR as any persistent, manufactured or processed, solid material discarded, disposed of or abandoned in the marine and coastal environment, and encountered on beaches. A part of this litter originates from the sea, through deliberate or accidental losses from vessels (including cargos and waste), and transported to and deposited on the coast from the sea by winds and water currents. Another part is directly deposited on the coast by humans, e.g. tourists, fishers or the results of fly-tipping. Litter is also deposited further inland on riverbanks, directly into rivers, in urban areas and in the countryside and is subsequently transported by rivers, rain and wind into the marine environment and onto beaches. In addition, sewage infrastructures discharge litter items directly or indirectly, via rivers and sewage outlets into the sea and these items can be washed ashore.

1.5. The aim of this document is to provide guidelines for the monitoring and assessment programme for the OSPAR beach litter indicator that allows effective (i) detection of spatial differences and temporal changes in abundance, composition and, if possible, sources of litter encountered on beach monitoring sites and within OSPAR regions, (ii) assessment of OSPAR strategic and operational objectives, GES and associated TV achievement, and (iii) evaluation of the effectiveness and efficiency of OSPAR RAP ML actions.

2. Monitoring

2.1. Purpose

2.1.1. The first purpose of OSPAR beach litter monitoring is to provide information on the abundance, composition, spatial distribution and trends of beach litter in the OSPAR area. The abundance reflects the magnitude of the pollution in adjacent waters and coastal areas; composition shows how common are the different litter types (string and cords, cotton bud sticks, caps and lids, cigarette filters, etc.) or litter material categories (plastic, wood etc.). The distribution highlights regional specificities that can relate to regional differences in sources, activities or human habits. Trends in the abundance of total litter, individual litter types or groups of types (i.e. fisheries related items, packaging, material class, etc.) reflect changes in the level of pollution. This information can be used to describe the quality status of the OSPAR area and assess operational objectives and GES achievement. It can also be used to evaluate the effectiveness and efficiency of measures

taken at national, EU and OSPAR levels to reduce marine litter pollution at a wide scale, notably through the OSPAR RAP ML2.

2.1.2. Beach litter monitoring data also supplies information on litter sources. Beach litter is often a mixture of litter from sea-based sources, such as shipping, fisheries and aquaculture; and land-based sources, such as sewage treatment plants, urban areas, harbours & ports, tourism & recreational activities and unprotected waste disposal sites (OSPAR QSR 2010, OSPAR QSR 2023, Veiga et al., 2016). These sources can be local, regional or even distant, as litter may also be transported to a given site or region by ocean currents, rivers and wind drift. The composition of beach litter provides information on the different sources affecting survey sites and variation in composition supplies information on changes in sources. It is important to note that a given survey site or region can be subject to litter pollution from various sources.

2.1.3. The data also provides information concerning the ecological and socio-economic risks induced by marine litter. Marine litter can be harmful to the marine environment and can result in death or severe suffering of marine fauna and deterioration of marine flora (Werner et al., 2016). Some litter types (such as Abandoned, Lost or otherwise Discarded Fishing Gear, also known as ALDFG) can exhibit a higher risk due to their intrinsic properties (e.g: shape, composition…) (Galgani et al., 2019). While the levels of harm caused to ecosystems by marine litter are not yet fully comprehended, marine litter can have an impact upon individuals, or groups of organisms at different levels of biological organisation as well as on habitats in a number of ways. These include entanglement in, or ingestion of litter items, transport of chemicals, microorganisms and invasive biota and alteration or modification of assemblages of species e.g. through smothering or as a substrate. Marine litter is a threat not only to the marine environment but also carries a potential risk to human health and has significant implications for human welfare, impacting negatively on vital economic sectors such as tourism, fisheries, aquaculture or energy supply and bringing economic losses to individuals, enterprises and communities. The higher the number of beach litter items and depending on its composition in the OSPAR area, the greater the potential risk of harm to the marine environment and human welfare.

2.1.4. A last purpose is to produce beach litter data and metadata that are comparable across the OSPAR Maritime Area, through the use of a standardised monitoring protocol, as described in these CEMP guidelines. For European comparability, EU harmonisation and standardisation proposals from the MSFD Technical Group on Marine Litter (TG-ML) guidelines and reports (Hanke et al., 2019; Fleet et al., 2021; MSFD TG-ML, 2023) are taken into account. At a larger scale, the OSPAR beach litter monitoring programme provides data and metadata with a fit-for-purpose quality, which can be downloaded from the OSPAR Litter Database and used by scientists worldwide. This data quality is attained through the use of the standardised OSPAR monitoring protocol (quality assurance), annual data quality control by national beach litter data coordinators and the OSPAR Beach Litter Expert Group (BLEG) and a storage in the OSPAR Litter database.

2.2. Quantitative Objectives

2.2.1. Regarding beach litter, OSPAR has adopted a TV of 20 items per 100 meters of coastline, assessed at the OSPAR regional level, to translate the GES in the OSPAR Maritime Area (OSPAR 23/17/1, §13.31a). This is also the TV set by the European Union in the context of the MSFD. OSPAR also agreed in the context of the operational objectives S4.O4, to establish a reduction target of 70% by 2030[3], for all marine litter on beaches as assessed at the OSPAR Maritime Area level (OSPAR 24151. §9.18a and OSPAR 24/09/05). In addition, OSPAR has the operational objective to reduce by 2025, by at least 50%[2] the prevalence of the most commonly found single-use plastic items and of maritime-related plastic items on beaches in order to contribute to the achievement of relevant regional and EU threshold values building upon requirements for EU Member States in the EU Single Use Plastics Directive (Directive 2019/904), and by at least 75%[3] by 2030 (Operational objective S4.O3).

[2] The baseline years are 2015 and 2016.

2.3. Monitoring Strategy

The assessment of beach litter pollution is based on time-series of abundance of litter categories, individual litter types, groups of litter types and total count of litter items recorded on the OSPAR beach litter survey sites, four times a year.

2.3.1. Litter considered

All beach litter items > 5 mm are surveyed.

Mesoplastic and foamed polystyrene mesofragments (5 mm – 2.5 cm) are not included in the assessment because they are monitored less comparably within the OSPAR Maritime Area due to their small size and the occurrence of very high numbers on some beaches. They are, however, still included in the monitoring, because they represent a considerable risk for the marine environment due to their relatively high numbers and small size which makes them consumable for e.g. seabirds (Van Franeker et al., 2021) and a dedicated monitoring program for this size of beach litter does not yet exist at OSPAR level. However, a dedicated monitoring protocol for plastic pellets and mesoplastic fragments on beaches has been published by TG-ML in 2023 (MSFD TG-ML, 2023). This protocol should be the basis for the development of a monitoring programme dedicated to mesoplastic fragments and pellets on beaches in the OSPAR Maritime Area.

Note that recognizable mesoplastics, such as cigarette butts and bottle caps which may partly fall in the mesoplastic size range, are maintained in the beach litter assessment (Van Loon et al., 2020).

The estimated abundance of the number of pieces of high viscosity and floating chemicals (e.g. paraffins) as well as other chemicals, such as oil, should also be recorded during surveys as the OSPAR Beach litter monitoring program is the only one allowing the collection of data on these chemicals on beaches. Because they are recorded using a different method than the litter items they are not included in their analysis, but should be analysed separately.

2.3.2. Natural dynamics of beach litter

It is important to understand the dynamics of beached litter to understand what assessments of beach litter data can tell us. In between any two beach litter surveys, litter items that have been washed ashore by tides or deposited directly on to the beach can be buried, washed or blown away again by subsequent tides and winds. Also, during strong wave action, buried litter items can resurface (Williams & Tudor, 2001) and litter can be blown onto a site from adjacent land or streets. Therefore, the amount of litter items recorded during one survey will generally constitute a steady state value of deposition and resuspension. However, on beaches in small bays, enclosed for example by rocky promontories, the dynamics of litter is different. Such sites can trap litter, which is subsequently only redistributed within the bay by waves and wind action. Therefore, the amount of litter items recorded during a survey could potentially represent litter accumulation over time.

During surveys in some locations, it is common to find litter items from other continents or regions outside the OSPAR area, due to current and wind patterns. This pollution is referred as “transboundary pollution”. On the other hand, a part of litter produced in the OSPAR Maritime Area can be exported outside the area.

The composition of litter recorded on beaches also reflects its ability to reach the shore. The litter washed ashore is biased towards litter items that float and those that do not disintegrate, dissolve or decay quickly in the marine environment. However, heavier litter objects which are present on the seafloor may also beach in the course of time due to wave action. The main category of litter found on beaches is plastic, which often floats and does not disintegrate rapidly in water (OSPAR Intermediate Assessment 2017, OSPAR QSR 2023, Addamo et al., 2017). The main components of the other common categories all float and/or decay slowly (wood, bottles, jars, light bulbs, tins and cans). Metal and glass from seaborne sources are therefore probably under-represented because they are more likely to sink than items made of plastic, rubber and wood. Paper is probably also underrepresented because it will generally disintegrate more rapidly in water than other materials. On beaches

used intensively for recreation, the greater part of beach litter is often composed of items abandoned by beach visitors (e.g.: sweet, fast-food packaging and cigarette butts) rather than litter washed ashore.

2.3.3. Attribution of litter items to sources or litter types

Assessments are carried out at "litter type" level and types can in some cases be related to sources or specific litter groups. For example, fisheries related items can often be identified easily. The abundance of items can be used to assess the major sources of litter for a given region. Items can also be attributed to specific litter types, which can originate from many sources but that should be combated in every possible sources, e.g. Single Use Plastics (SUP). Changes in the abundance of specific litter types or a selection of litter types, which originate from a given source or are associated with specific uses can be used to assess the effectiveness of measures implemented to reduce litter pollution from those sources or uses.

In some cases, the identification of very specific litter items (e.g. lobster fishing tags) containing information on the production or disposal date, the specific usage location, combined with the information of the most likely beaching date, could be used to improve transatlantic to local modelling tools. This information might also give an opportunity to improve knowledge on the litter transboundary issue, or even to help establish international cooperation towards the implementation of measures outside the OSPAR Contracting Parties jurisdiction.

2.4. Sampling Strategy

2.4.1. Selection of survey sites

2.4.1.1. Survey sites can be located on beaches composed of sand, gravel or pebbles. These can include beaches with different levels of pebble, rock, shingle and vegetation coverage. It is not recommended to situate survey sites on shorelines composed entirely of large boulders or rocks, where litter that has fallen between the boulders cannot be recorded properly.

Beaches, where survey sites are situated, should be selected on the basis of the following criteria:

The beaches should, preferably:

- be composed of sand, gravel or pebbles;
- represent the different types of beaches, classified as remote/natural, semi-urban and urban according to the TG-ML classification (MSFD TG-ML, 2023);
- ideally, be exposed to the open sea;
- be accessible to surveyors all year round;
- be accessible to facilitate the removal of marine litter;
- be a minimum length of 100 metres;
- not be subject to other litter collection activities (i.e. beach cleaning).

The selection of survey sites per country-region (e.g. France-Bay of Biscay) should be representative of the litter sources and cover the spatial variation within that country-region sufficiently. However, it should be noted that in some countries, it may not be feasible to have a representative mix of urban, semi-urban and remote/natural beach types due to different constraints (e.g. cleaning of beaches in urban areas, …).

Although these criteria should be followed as closely as possible, the national coordinators can use their expert judgement, experience and local knowledge of the coastal area and marine litter situation in their country, when selecting the survey sites. For example, in some countries or regions the local conditions do not allow for selection of beaches composed mainly of sand, in others, it may not be possible to find beaches of 100 m length due to the coastal topography. In this special situation, a minimum survey length of 50 m is accepted. In such cases, the resulting data must be normalised to 100 m before entering into the database.

2.4.1.2. Physical characteristics of the survey site influence deposition and retention levels of litter, for example rocky coasts with sandy bays have the potential to accumulate and retain more litter than long open sandy beaches. Furthermore, water currents, weather conditions and prevailing wind conditions have a significant influence on deposition and retention of litter and therefore litter abundance. For these reasons, the location and physical and geographical characteristics of each survey site have to be recorded in detail in the beach description form available both in the OSPAR beach litter field monitoring guidelines and in Appendix 4. The form includes information on the location and the physical and geographical characteristics of each beach, including the proximity of possible sources of marine litter. Also included are questions regarding factors that could help explain the quantity and composition of marine litter found on that beach, for example, cleaning schemes. This form must be completed by the national beach litter coordinator. The coordinator is required to gather as much relevant information as possible. It is advisable to contact local, regional or national authorities for information on cleaning schemes, etc.; when considering the question of the proximity of shipping lanes, river mouths, wastewater outlets, etc. it is advised to use official data from responsible authorities only. When circumstances change, for example, the development of a new residential area nearby, the questionnaire must be updated. This data is stored in the beach description section of the OSPAR Litter database. The information can be added online directly into the database.

2.4.1.3. Survey sites should not be cleaned between surveys. Due to an increasing number of beach clean-ups organised by municipalities, groups and individuals in the OSPAR area, there is a serious concern that these clean-ups may affect the reliability of OSPAR beach litter monitoring. Relevant authorities and local clean up groups, including community groups and/or NGOs potentially involved, should be informed of beach monitoring sites and asked to not clean them. In parallel, the sampling unit could be delimited by signs asking people not to clean the beach between these signs. Information about the monitoring and the importance of not cleaning the sites could be communicated via the organisers of local events or in the media. When cleaning has been observed or is reported to have taken place at a sampling location, there should be a period of at least four weeks before a survey is carried out as four weeks is the minimum period that has been found by Ribic and Ganio (1996) to establish a steady state of deposition and resuspension.

2.4.2. Sampling units

Within the OSPAR area, the standard sampling unit is 100 metres, measured as a line parallel to the back of the beach, or as near to the back of the beach as possible. The back of the beach is preferred to the middle of the beach to measure the survey unit length as the middle of the beach is difficult to define in the OSPAR area due to the tides. The two sides of the sampling unit are lines perpendicular to this line, leading from the back of the beach to the waterline, which forms the front border of the sampling unit. The whole 100 m stretch of beach is surveyed, from the water's edge to the back of the beach, as defined by physical structures such as sea walls, the transition zone to dunes, vegetation, etc. **(Fig. 1).** Permanent reference points must be used to ensure that exactly the same sampling unit is monitored during each survey. The start and end points of the sampling unit can be identified by different methods. For example, numbered beach poles could be identified and registered. Coordinates obtained by GPS or Google Earth are useful information for identifying the survey site. However, as they can have a 10-metre deviation, this method may not be suitable in the field for identifying the start and end points of the sampling unit.

If in a country-region, beaches of 100 m length are lacking or rare, the survey unit can be reduced to a minimum length of 50 m. However, data obtained must be normalised to 100 m when entered in the OSPAR Litter database to ensure a harmonisation of OSPAR beach litter data. Normalisation means dividing the litter item count by the number of metres surveyed and multiplying that number by 100. The precise length surveyed must be indicated in the "Additional comments and observations about this beach" section of the database beach description form; and the tick box indicating that the survey diverts from the 100 m has to be clicked in the database survey form.



Figure 1: examples of 100m sampling units (Credit: Spain and France).

2.4.3. Survey frequency and periods

Surveys are carried out once every 3 months, resulting in four datasets per beach per calendar year (preferably, the surveys on all survey sites within a given region should be carried out inside the shortest time frame possible within a given survey period and, if possible, on the same dates at each location each year. To improve the distribution of the surveys throughout the year, surveys should preferably be carried out in the following periods:

- Winter: January;
- Spring: April;
- Summer: July; and
- Autumn: October.

It must be noted that the survey periods are harmonised with MSFD recommendation (MSFD TG-ML, 2023).

Winter and Spring counts are not possible at some Scandinavian and Arctic sites as well as on some uninhabited islands whereas summer surveys may be not possible in highly touristic areas due to the high occupation of the beach and/or an increased clean-up activity. The seasonality can therefore be adapted.

For example, the Norwegian survey sites are surveyed according to the following structure:

- 2 surveys per year for sites above the Arctic circle
- 3 surveys every 2 months over 6 months (May-July-September) on sites below the Arctic circle

Circumstances may lead to inaccessible and unsafe situations for surveyors: heavy winds, slippery rocks and hazards such as rain, snow or ice, etc. The safety of the surveyors must always come first.

2.4.4. Collection and identification of litter

2.4.4.1. Litter sampling

Although the OSPAR beach litter surveys are mainly carried out for the assessment of macrolitter, all visible litter items larger than 5 mm found on the beach surface within the 100 m sampling unit must be counted during the survey. This includes the mesolitter fragment fraction, although it is recognised that this fraction often cannot

be monitored within a 100 m sampling unit with the same precision as the larger litter items i.e. those larger than 2.5 cm. The litter items to be surveyed include identifiable litter types and associated pieces of these types, unknown items and unknown litter fragments. It is important that every item is counted, including cigarette butts, bottle caps and biofilm support media (in general identifiable mesoplastic items), even if they are smaller than 2.5 cm.

The number of pieces of chemical pollutants (paraffin wax and other pollutants such as oil, which float on the water surface and are deposited on the coast) is estimated for an average one-metre section of the 100 m sampling unit. Note, therefore, that the unit of this pollutant type is number/m (and not number/100 m as for the litter items), and that this value must NOT be normalised to 100 m. It is important to note that paraffin wax and other chemicals cannot be identified with certainty simply based on visual appearance. Chemical analysis has shown that pieces of light-coloured chemicals, which look like paraffin, can be a number of different chemical substances.

In the case of extreme amounts of litter on a survey site when it appears impossible to count all the litter items present on the 100 m section, 5 transects with a width of 1.5 metres at fixed distances (10-30-50-70-90 m.) can be surveyed, summed and normalised to 100 metres before entering the data in the OSPAR Litter database. The use of the exceptional protocol has to be mentioned both in the Survey information form (Appendix 5) and in the "additional information" section of the database survey form (see 2.4.4.5.).

In situations, where large amounts of litter items are found or survey conditions are difficult (rain, heavy winds, snow…), litter collected over the 100 m unit can be stored in bags and sorted and counted in a sheltered place or indoors. In this case, care should be taken to prevent fragmentation and/or entanglement of the litter items, which would affect the number of items counted.

2.4.4.2. Survey data form

All items found on the sampling unit should be sorted and counted using either the OSPAR Beach litter survey list (see Appendix 1 and 6) or the EU Joint list (Fleet et al., 2021; MSFD TG-ML, 2023). The OSPAR list being a reduced Joint list, data obtained under the EU Joint list format can be converted under the OSPAR format using the conversion table provided in Appendix 1.

On the OSPAR survey list, each item is assigned to a unique OSPAR litter type (see Appendix 1). The list of litter types found in the survey data form can be subjected to updates. The OSPAR Beach litter survey list detailed in the present CEMP guidelines is implemented from the 1st of January 2025. In this list, the litter items recorded are assigned to 133 litter types in 10 categories according to the material they are made of (e.g. plastic, wood, metal, etc.) or their use (e.g. medical, sanitary). All litter items found within the sampling unit should be assigned to one of the 133 predefined litter types and materials:

- Plastic (72 litter types);
- Rubber (4 litter types);
- Cloth (5 litter types);
- Paper and cardboard (8 litter types);
- Wood (9 litter types);
- Metal (15 litter types);
- Glass (4 litter types);
- Pottery/ceramics (3 litter types);
- Sanitary waste (8 litter types); and
- Medical waste (5 litter types).

The detailed list of litter categories and types, which are to be surveyed, is presented in Appendix 1. The Survey Data Form to be filled is presented in Appendix 6.

Litter items categorised according to their use as either sanitary or medical are made of plastic, cardboard, glass etc. and can be added to the relevant material categories during analysis if required. For example, sanitary wastes made of plastic (see Appendix 1), e.g *plastic cotton bud sticks*, which are a major component of litter in some regions, will be included in the plastic category for analysis in order to provide a more precise picture of the material composition of litter.

Identifiable litter items, which are not listed in the OSPAR litter-type list, and litter items, which cannot be identified, are registered under the litter type "other" for the given material or use category. What the item actually is or respectively a description of the item, should be recorded on the survey data form. Providing information about non-listed items is important as it allows an identification of possible emerging litter types. It also enables the recording of items, which might be common at a local scale but rare on the scale of the OSPAR region. If possible, digital photos should be taken of unknown items so that they can be identified later.

All fragments that are clearly recognisable as a part of a single item should be counted as one item. Tangles of rope are counted as one item. Plastic fragments which cannot be identified because they are too fragmented, are registered as either plastic or foamed polystyrene under the three different size categories of the litter type "fragments". Foamed polystyrene includes both expanded and extruded polystyrene.

To ensure that all surveyors register items in a similar way, several items that might otherwise lead to misinterpretation are highlighted here:

- Fragments of plastic that are not recognizable as an item should be counted as either plastic or foamed polystyrene fragments according to their size (OSPAR ID 1171, 1172, 461, 462, 471 or 472 on the survey data form).

- Fragments of plastic that are recognizable as a (shopping) bag (OSPAR ID 2 on the survey data form) should be registered as such.

- Fragments of plastic that are recognizable as a small plastic bag (OSPAR ID 3 on the survey data form) should be registered as such.

- All fragments that are recognizably part of a balloon (including the plastic valves, the plastic ribbons or string tied to the balloon) should be registered as "balloon" (OSPAR ID 49 on the survey data form).

- Fragments of glass that are recognizable as for example bottles (OSPAR ID 91 on the survey data form) should be registered as such.

- Glass fragments that are not recognizable as an item are not counted.

- All pieces of string and cord including dolly ropes (OSPAR ID 321 and 322 on the survey data form) should be counted as single items. Often a piece of string or cord is found with smaller pieces lying around it that were obviously part of this rope. All these pieces should be counted as single items.

OSPAR beach litter monitoring records litter types which are targeted by existing measures such as OSPAR RAP ML 1 and 2 actions or the European Directive 2019/904 on the reduction of the impact of certain plastic products on the environment, also known as the single-use plastics and fishing gear Directive. The monitoring of these litter types allows for the assessment of the effect and efficiency of these measures. The relationship between OSPAR litter types and measures is detailed in Appendix 1.

After a RAP ML update, it is recommended to undertake a review of the OSPAR beach litter monitoring survey list to ensure it is coherent with newly implemented measures and it allows an assessment of effect and effectiveness of these measures. If necessary, a new litter type, targeted by a measure, should be included in the survey type list.

Following the COVID-19 pandemic and its related massive use of disposable personal protective equipment (PPE) leading to a new environmental pollution challenge, the survey list has been amended to include the most used disposable plastic PPE, in line with scientific community recommendations (Canning-Clode et al., 2020). These

PPE are single use plastic gloves and single use plastic face masks (respectively OSPAR ID 1051 and 1052 under the category of medical waste). CPs should include these litter types in their national monitoring program and report them in the OSPAR Litter database to allow an assessment of the magnitude of this new pollution source and its associated impact on the marine environment at the OSPAR area level.

2.4.4.3. Photo guide

A photo guide is available to assist the surveyors with the identification and categorisation of litter items. The photo guide is a multilingual catalogue of the litter types on the 100-metre survey data form. It is available in the OSPAR beach litter field monitoring guidelines. A photoguide elaborated by the TG-ML for the EU Joint list is also available online on the TG-ML webpage[3].

2.4.4.4. Removal or marking of items

All litter items should be removed from the beach during the survey and disposed of responsibly after being recorded. Regional or national regulations and arrangements should be followed during disposal of beach litter. Larger items that cannot be removed (safely) by the surveyors should be marked with, for example, environmentally safe paint spray so they will not be counted again during the following survey.

2.4.4.5. Survey information form

The total amount of litter recorded on the survey unit and the types of litter found can be influenced by a number of factors. To assure that data is analysed and interpreted properly, all relevant information concerning the survey must be recorded on the survey information form provided in the OSPAR beach litter field monitoring guidelines and in Appendix 5. This data is stored in the "additional information" section of the database survey form.

Examples of relevant information are:

- When a survey differs from the standard methodology described in this guideline this should be recorded on the survey form. For example, when a different length of beach was surveyed (e.g. in case of extreme amount of litter) or litter was not collected;
- Circumstances that influence data recording. For example, tracks (car/tractor) on the beach, sand replenishment of the beach;
- Events that lead to unusual types and/or amounts of litter on the reference beach. For example, beach events, shipping container losses, overflows in sewage treatment systems;
- Any unusual circumstances or difficult conditions at the time of the survey that might influence the data recording. For example, heavy winds or rain or sand storms.

2.4.5. Sampling timing and safety

It is advised to begin monitoring at least one hour after high tide to reduce the danger of surveyors being cut off by the incoming tide.

It is highly recommended that a minimum of two people work on survey sites for safety reasons but also as it increases the accuracy (recovery) of the surveys. Dangerous or suspicious looking items, such as ammunition, chemicals, medicine and drugs should not be removed. Instead, inform the police or authorities responsible.

It is recommended not to remove heavy items.

It is recommended to have a sharpies box for sharp items such as needles.

[3]Online Photo Catalogue of the Joint List of Litter Categorie
https://mcc.jrc.ec.europa.eu/main/photocatalogue.py?N=41&O=457&cat=all

2.4.6. Training of fieldworkers

The OSPAR beach litter field monitoring guidelines is a practical guide for monitoring marine litter on beaches. Advice from experienced fieldworkers on how to monitor beach litter has been incorporated into this document to ensure that litter recording is standardised within the OSPAR area.

CPs should ensure adequate training for all the fieldworkers who participate in the surveys. Coordinators or surveyors from OSPAR are available for training. Please contact the OSPAR Beach Litter Expert Group or your national coordinator for advice. An experienced person, ideally the person that has carried out surveys on that survey site in the past, should accompany a person carrying out a survey for the first time. Intercalibration exercises should be carried out with neighbouring countries or at OSPAR regional levels to ensure that litter items are attributed to OSPAR litter types

2.5. Data reporting, handling and management

2.5.1. The reporting format includes the Survey Data Form and the Survey Information Form that can be viewed in the OSPAR beach litter field monitoring guidelines and in Appendix 6 and 5.

2.5.2. All data collected and associated information are to be sent to the national data coordinator within weeks following the survey. After the required quality control, the data and associated information are entered into the OSPAR Litter database at a survey site level by national data coordinators, preferably within a month of surveying. For details, please contact the OSPAR Beach Litter Expert Group for advice.

2.5.3. When a survey has been conducted but no litter items were observed, this must be recorded in the database by assigning a zero to all litter types surveyed and indicating it in the Survey Information Form and in the database survey form.

2.5.4. When a survey has not been conducted; this must be recorded in the Annual Quality Control report for the annual documentation of beach litter monitoring activities and the reasons why the survey could not be carried out must be given (Appendix 3).

2.6. Quality Assurance/ Quality Control

2.6.1 National data coordinators of OSPAR beach litter monitoring are required to:

- ensure that monitoring is carried out in compliance with the quality assurance procedure presented in Appendix 2 in order to prevent the entry of incorrect data into the database;
- check the correctness of the data directly before and after entry into the database;
- undertake an annual quality control examination of national beach litter data entered into the OSPAR database, to ensure that it is correct and that it may be used for analysis, e.g. for Indicator Assessments. The annual quality control procedure is detailed in Appendix 2.

2.6.2 As part of the annual quality control, a report for the annual documentation of changes to the prevailing conditions on OSPAR survey sites as well as of organisational changes and problems encountered during the coordination and execution of surveys, which might have affected the results of monitoring (monitoring metadata), is included in Appendix 3. In order to confirm the quality control of monitoring data and metadata, this report has to be filled and sent to the BLEG lead by 30th of June of year n+1 for surveys of year n.

2.6.3 The deadline for controlling and entering the data of year n in the database is fixed to the 30th of June of year n+1 for data of year n. It is important that the data are controlled and uploaded in due time to prevent delays in data analyses or data transfer to other international data repositories (e.g. EMODnet).

3. Assessment

3.1. Aims

The assessment method uses data from OSPAR beach litter monitoring to assess the abundance, composition and trends of litter on the OSPAR beaches and detect spatial differences and temporal changes. It also aims at assessing OSPAR strategic and operational objectives, GES and associated TV achievement, and evaluate the effectiveness and efficiency of EU and OSPAR RAP ML actions.

3.1.1. Threshold value

In 2020, a TV of 20 items/100 m coastline (excluding mesofragments of plastic and foamed polystyrene) was adopted by EU Marine Strategy Coordination Group (MSCG) (Van Loon et al., 2020). This TV has been also adopted at the OSPAR level in 2023, to be assessed at the OSPAR regional level, to quantify the GES in the OSPAR Maritime Area (OSPAR 23/17/1, §13.3).

3.1.2. Operational objectives

In 2024, OSPAR agreed in the context of the operational objectives S4.O4, to establish a reduction target of 70% by 2030, for all marine litter on beaches as assessed at the OSPAR Maritime Area level (OSPAR 24/15/1, §9.18a and OSPAR 24/09/05). In addition, OSPAR has the operational objective to reduce by 2025, by at least 50% the prevalence of the most commonly found single-use plastic items and of maritime-related plastic items on beaches in order to contribute to the achievement of relevant regional and EU threshold values building upon requirements for EU Member States in the EU Single Use Plastics Directive (Directive 2019/904), and by at least 75%[2] by 2030 (Operational objective S4O3). These targets are assessed considering 2015 and 2016 as baseline years in order to be consistent with MSFD baselines.

3.1.3. Effectiveness and efficiency of measures

In Europe and the Regional Seas Conventions (RSCs), many measures have been implemented to reduce marine litter pollution and many more are planned. These measures include the OSPAR RAP ML 1 and 2 actions or the EU single-use plastics and fishing gear Directive (EU 2019/904). It is relevant to monitor and assess if specific measures lead to the desired reduction (decreasing trend or reduction percentage) of specific litter groups and types. The relationship between OSPAR litter types and measures is detailed in Appendix 1.

For example, the EU single-use plastics (SUP) and fishing gear (FISH) directive (EU 2019/904) is expected to lead to reductions of the SUP and FISH items, and, therefore, the abundance and trends of SUP and FISH items should be assessed. Another example is the EU plastic bag directive (EU 2015/720), which should lead to a decreasing trend of plastic bags on coastlines.

In the context of OSPAR assessment to assess efficiency and effectiveness of measures, a minimum of 5 specific categories of litter should be analysed:

- **Category of single-use plastics (SUP)**: Single-use plastic litter types that are targeted by the EU Directive 2019/904, this category is harmonised with the one used at EU level.
- **Extended category of Single-use plastics (SUP+)**: Extended SUP category that includes all single-use plastics identified in the OSPAR survey list (not only the ones targeted by the EU Directive 2019/904).
- **Category of fishing gears (FISH)**: Plastic fishing gear (including aquaculture gear) litter types that are targeted by the EU Directive 2019/904, this category is harmonised with the one used at EU level.
- **Category of maritime-related plastic items ($SEA_{plastic}$)**: Extended FISH group that includes all maritime-related plastic items (not only the ones targeted by the EU Directive 2019/904).
- **Category of maritime-related items (SEA_{all})**: Extended $SEA_{plastic}$ category that includes all maritime-related items (plastic and non-plastic).

The litter types included in these categories are detailed in Appendix 1.

3.2. Assessment methods

The assessment method detailed below is based on previous OSPAR assessment methods (Schulz et al., 2017; Schulz et al., 2019, OSPAR QSR 2023) and recent methodological developments performed by the OSPAR Beach Litter Expert Group (André, 2023 and 2025b and c). To ensure harmonization, all these methodological developments take into consideration assessments methods developed by the EU TG-ML for baselines, TV and trends in the context of MSFD implementation (Hanke et al., 2019; Van Loon et al. 2020; European Commission et al., 2025).

3.2.1. Tools

The tools used are:

- litteR

  The litteR software is the primary tool for OSPAR beach litter data analysis

  https://cran.r-project.org/web/packages/litteR/index.html.

  litteR contains all agreed OSPAR beach litter data analysis methods, and is an improved version of the preceding OSPAR Litter Analyst software.

  It is recommended to read the litteR user manual carefully before using the software for the first time.

- Excel

  Excel is recommended to perform additional post-analyses which are not present in litteR.

  Note however that the Theil-Sen trend analysis can only be easily performed using the litteR package.

3.2.2. Data extraction

All OSPAR beach litter data and metadata can be extracted from the online OSPAR Litter database as a CSV (Comma Separated Values) file by selecting and downloading data according to spatial and temporal selection criteria. Note that if the data file contains survey records from before and after 2010 or before and after 1st April 2021 or before and after 1st January 2025, the old or new litter types which were not monitored in the respective period are entered as NA (or N/A), which indicates missing values. These NA or N/A values will be automatically skipped by litteR, and clear warning messages will make the user aware of these missing values.

3.2.3. Data selection

In order to ensure the robustness of the assessments, survey sites considered are selected according to defined criteria, based on data availability, as described below. However, it should be noted that exception is made for Arctic survey sites with lower data availability due to difficult monitoring conditions, in order to allow the production of assessments for the Arctic Waters region. For this region, all data from all survey sites are generally considered.

It should also be noted that data from Madeira and Porto Santo survey sites are considered in assessments in order to allow a more reliable assessment of the Wider Atlantic region.

The data selection criteria used for assessments are:

- For two-year period assessments (e.g. for calculation of reduction percentages): to be selected, the survey sites should present a minimum of six surveys over the two-year periods with at least three surveys per year.
- For three-year period assessments (e.g. for the assessment of status pollution incl. TV achievement): to be selected, the survey sites should present a minimum of three surveys per year over two years are selected. Note that for the specific country-region, at least 40 surveys are required for a TV assessment.

- For six-year period assessments (e.g. linear trends assessments using the Theil-Sen slopes and Mann-Kendall significance test): to be selected, the survey sites should present a minimum of three surveys per year over six years. In the Arctic region, two surveys per site per year can be used.

3.2.4. Data description

When preparing an OSPAR assessment, it is recommended to include a map with all the survey sites used in the assessment.

A data overview table is made, showing for the complete data period the number of surveys per survey site per year, and the total number of surveys per country-OSPAR region or OSPAR region per year.

3.2.5. Data quality control and clean-up

The data quality control is performed with the litteR software. litteR reports outlying values, which should be investigated by the monitoring party and accepted or corrected if needed.
In the OSPAR data file, the column headers “spatial_code” and “date” are added in the respective columns which give the desired spatial information (beach, country of subregion) and date. By doing this, the litteR software knows precisely which metadata columns to use.

In the litteR type file, the litter types file to be analysed, and the litter groups they are assigned to, are precisely and easily defined.

The plastic and foamed polystyrene fragments < 2.5 cm (OSPAR ID 1171 and 1172) and chemical pollutants data columns are automatically excluded by the litteR software from the data analysis, according to the EU baseline and TV methods (Hanke et al., 2019; Van Loon et al., 2020).

The procedure to do the data quality control is:

- Do a first analysis of the datafile to check the correct technical format of the datafile, and check for duplicated records. LitteR gives detailed warnings and errors in the logfile, which facilitate the correction of the data file if needed. Correct the possible format errors and remove duplicates.
- Do a second analysis of the corrected datafile to detect possible outliers. This outlier analysis should be performed at the beach level to obtain the most relevant information. If outliers are detected, check with your monitoring organisation, who should look at their original monitoring survey list for possible errors. If no clear errors can be found, the statistical outlier should be maintained in the dataset.

3.2.6. Beach litter status assessments

To assess beach litter status, the median is used as assessment metric for its quantitative comparability, robustness against extreme values, transparency and practicality.

Beach litter status assessments aim at describing the pollution in terms of spatial distribution, abundance and composition, including materials, specific categories and top litter types.

For pollution status assessments, a default period of the most recent three years is used as it gives more recent status information which is preferable. A three-year assessment period is also recommended for Quality Status Report (OSPAR QSR 2023) and assessments of the OSPAR and EU threshold value (TV) (European Commission, 2022; André et al., 2023). For other status assessments, the period may be adapted (e.g., two-year status for reduction assessments).

Beach litter status assessments are generally performed at OSPAR Maritime Area and OSPAR region scales. Assessment results can also be reported at OSPAR country-region/MSFD country-subregion or survey site level as complementary data.

3.2.6.1. TV assessment

The TV assessment aims at assessing if the GES is achieved in the OSPAR Maritime area. The method to assess the OSPAR TV has been first described in André et al. (2023).

The OSPAR beach litter TV is officially assessed at the scale of each of the five OSPAR regions: Arctic Waters, Greater North Sea, Celtic Seas, Bay of Biscay and Iberian Coast, Wider Atlantic.

The spatial aggregation of litter data is based on the MSFD threshold value assessment (Van Loon et al., 2020). The medians in total counts of the OSPAR/MSFD-country-subregions are obtained by aggregating all the surveys available (at least 40 surveys needed) of the sites meeting the selection criteria for three-year period assessments (see section 3.2.3).

The threshold value assessment of each OSPAR region is then obtained by calculating the median of the medians obtained for each OSPAR/MSFD-country-subregion over the three-year period of assessment.

The TV assessment is finally made by comparing the aggregated medians of beach litter total count obtained at OSPAR regional scale to the adopted OSPAR threshold value of 20 items/100 m. If the aggregated medians are inferior or equal to the TV, the TV is considered to be achieved.

It should be noted that the determination of a minimum number of surveys per OSPAR/MSFD-country-subregion is derived from MSFD threshold value assessment method (Van Loon et al., 2020) and requires the use of 40 surveys as a minimum requirement for threshold assessment of beach litter at OSPAR/MSFD-country-subregion. It constitutes an optimum point in achieving a reasonable confidence interval width with a feasible number of surveys within a three-year period for an OSPAR/MSFD-country-subregion.

3.2.6.2. Total abundance status

Total abundance status assessments give information on beach litter pollution distribution and level.

The total abundance statuses are assessed at the OSPAR Maritime Area scale and at the scale of each of the five OSPAR regions: Arctic Waters, Greater North Sea, Celtic Seas, Bay of Biscay and Iberian Coast, Wider Atlantic. They can also be provided at OSPAR country-region/MSFD country-subregion or survey site level as complementary data.

The spatial aggregation of litter data differs from the one used for the TV assessment. It includes another intermediate aggregation level at survey site scale, as proposed in the 2023 OSPAR Beach Litter Quality Status Report (OSPAR QSR 2023) and at EU scale (European Commission et al., 2025). The medians in total counts are firstly calculated at survey site scale (site selected according to the selection criteria) by aggregating all the surveys available in the assessment period. The OSPAR/MSFD-country-subregion medians are obtained by aggregating all the survey site medians. Finally, the beach litter statuses are obtained by calculating the medians of the medians obtained for each OSPAR/MSFD-country-subregion.

3.2.6.3. Composition status

The aim of assessing composition status is to provide abundance and relative percentages of specific categories, e. g. the material categories or other categories such as FISH, $SEA_{plastic}$, SEA_{all}, SUP and SUP+ described in 3.1.3.

The composition statuses are assessed at the OSPAR Maritime Area scale as well as at the scale of each of the five OSPAR regions: Arctic Waters, Greater North Sea, Celtic Seas, Bay of Biscay and Iberian Coast, Wider Atlantic. They can also be provided at OSPAR country-region/MSFD country-subregion or survey site level as complementary data.

The spatial aggregation of litter data is similar to the total abundance status and includes intermediate aggregation step at survey site scale and OSPAR/MSFD-country-subregion scale.

In order to calculate the relative parts of the categories, they must be grouped together in a way that all litter types are included. In that respect, material categories cover all litter types. In order to assess single-use plastics

and maritime-related plastic items categories (SUP and $SEA_{plastic}$), a third category (OTHER, equivalent to "not SUP nor $SEA_{plastic}$ items") must be added.

The relative parts are calculated by comparing the litter category status to the sum of statuses of categories grouped together. For example, SUP part is the comparison between SUP status and sum of SUP, $SEA_{plastic}$ and "not SUP nor $SEA_{plastic}$" statuses.

3.2.7. Linear trend analysis

The linear trend analysis aims at certifying significant decreases in total beach litter or specific litter categories such as single-use plastics or maritime-related plastic items.

To assess the linear trends, a combination of Theil-Sen slopes and Mann-Kendall significance test is used as metric for its robustness against extreme values. It is noted that linear trend analysis should not be mistaken with reduction assessments, detailed section 3.2.8. below.

The assessment period of six years is recommended for linear trend analysis, as used in the 2023 OSPAR Beach Litter Quality Status Report (OSPAR QSR 2023).

The beach litter linear trends are assessed at the scale of each of the five OSPAR regions: Arctic Waters, Greater North Sea, Celtic Seas, Bay of Biscay and Iberian Coast, Wider Atlantic.

Linear trends for OSPAR regions, OSPAR/MSFD-country-subregions and higher scales are assessed in two stages. First, robust Theil-Sen slopes and Mann-Kendall significance tests are calculated at survey site level. Then, at higher scales, the trend is calculated through the median of survey sites slopes and the significance is obtained with an adapted Mann-Kendall significance test.

These linear trend analyses are performed by LitteR, specifying in input datasets the aggregated scales to be analysed.

3.2.8. Reduction percentages

The reduction percentages aim at comparing states of the total beach litter pollution of specific litter categories at two different time periods, e.g. for operational objectives assessments.

The assessment of reductions consists in comparing a status to a baseline, both assessed in the same way.

The status (as well as the baseline) is assessed on a two-year period.

The spatial aggregation method is the same as for the three-year status assessments.

Subsequently, reductions are percentages obtained by dividing the difference between the status and the baseline by the baseline, as expressed below. A negative result expresses a decrease whereas a positive result expresses an increase from the baseline to the status.

$$\%X = (([X]_{\text{two-year Status}} - [X]_{\text{two-year Baseline}}) / [X]_{\text{two-year Baseline}}) \times 100$$

X being the total count or a category for which the reduction is assessed.

More information about the method can be found in André et al., (2025a and b).

3.2.9. Asymptotic trend analysis (optional)

An asymptotic trend analysis method for Total Count or specific litter categories with sufficient counts (e.g. SUP), using Generalised Linear Modelling (GLM), has been developed in order to model and forecast beach litter reductions achievable in the OSPAR Maritime area (Walvoort et al., 2021). This method was used, for example, to support the definition of targets in the context of OSPAR operational objectives S4.O3 and S4.O4 (André et al., 2025a and 2025b).

In a first step, the decreasing trend period is investigated and defined using a plot of annual median total count values. Then, the GLM trend analysis method is performed using the individual survey data points in this decreasing trend period.

Minimum data requirements are a trend period of at least five years with at least 50 surveys. An important assumption is that the modelled decreasing trend will be maintained in the future, which will require sustained and possibly additional measures. The uncertainty in the model forecasts, based on the data variation, is reflected in confidence intervals of the forecasts. It should therefore be noted that these model forecasts are only indicative estimations.

This method can be used to provide results at OSPAR Maritime Area and OSPAR regions levels. It can also provide results at OSPAR/MSFD country-subregions as complementary data.

More details about the method are presented in Walvoort et al. (2021).

This optional method is not available in litteR, but is provided in a separate R-script (Walvoort et al., 2021).

3.2.10. Reporting

A selection of results from the extensive litteR reports can be made and copied into a well readable assessment report.

Examples of past beach litter assessments can be found on OSPAR website:

https://oap.ospar.org/en/ospar-assessments/quality-status-reports/qsr-2023/indicator-assessments/beach-litter/

https://oap.ospar.org/en/ospar-assessments/intermediate-assessment-2017/pressures-human-activities/marine-litter/beach-litter/

4. Change Management

4.1. The Environmental Impacts of Human Activities Committee (EIHA) is responsible for policy and resource questions on the acquisition and storage of data. Quality control and analysis and technical aspects are managed by the Intersessional Correspondence Group on Marine Litter (ICG-ML) with the support of the Beach Litter Expert Group (BLEG). It is also responsible for necessary adaptations to the monitoring system in order e.g. to make sure that it fulfils the requirements of OSPAR NEAE Strategy and the MSFD.

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Appendix List

Appendix 1: OSPAR Beach litter survey list (version 2025.01), relation with J-codes, categories to be assessed in Beach litter assessments and links with existing measures (RAP ML 1&2 actions and the European Directive 2019/904 on single-use plastics and fishing gears)

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Appendix 1: OSPAR Beach litter survey list (version 2025.01), relation with J-codes, categories to be assessed in Beach litter assessments and links with existing measures (RAP ML 1&2 actions and the European Directive 2019/904 on single-use plastics and fishing gears)

Description of the categories:

- **SUP**: Single-use plastic litter types that are targeted by the EU Directive 2019/904, this category is harmonised with the one used at EU level.
- **SUP+**: Extended SUP category that includes all single-use plastics identified in the OSPAR survey list (not only the ones targeted by the EU Directive 2019/904).
- **FISH**: Fishing gear (including aquaculture gear) litter types that are targeted by the EU Directive 2019/904, this category is harmonised with the one used at EU level.
- **$SEA_{plastic}$**: Extended FISH group that includes all maritime-related plastic items (not only the ones targeted by the EU Directive 2019/904).
- **SEA_{all}**: Extended $SEA_{plastic}$ category that includes all maritime-related items (plastic and non-plastic).

Legend for measures within the Directive Eu/2019/904:

A Consumption reduction
B Restrictions on placing on the market
C Product requirements
D Marking requirements
E Extended producer responsibility
F Separate collection and product requirements
G Awareness raising

OSPAR beach litter types			Categories					Measures		
OSPAR ID	Types	J-list codes	SUP	SUP+	FISH	$SEA_{plastic}$	SEA_{all}	ML RAP actions 2014-2020	RAP ML2 actions 2022-2030	Directive EU/2019/904
Plastic										
1	4/6-pack yokes	J1	X	X						
2	Bags (e.g. shopping)	J3	X	X				44		E, G
3	Small plastic bags, e.g., freezer bags	J4	X	X						
112	Plastic bag ends	J5	X	X						
4	Drinks (bottles, containers and drums)	J7+J8	X	X				43		C, E, F, G
5	Cleaner (bottles, containers and drums)	J9		X						
610[a]	Food containers incl. fast food containers - plastic	J225	X	X				43		A, E, G
620[a]	Food containers incl. fast food containers - foamed polystyrene	J224	X	X				43/49	A.4.2	A, B, E, G
7	Cosmetics (bottles & containers e.g. sun lotion, shampoo, shower gel, deodorant)	J11+J12		X					A.4.1	
8	Engine oil containers and drums <50 cm	J14		X					A.4.1	
9	Engine oil containers and drums > 50 cm	J15		X					A.4.1	
10	Jerry cans (square plastic containers with handle)	J16							A.4.1	
11	Injection gun containers	J17		X						
12	Other bottles, containers and drums	J13								
13	Crates	J18								

14	Car parts	J19								
151[b]	Caps/lids drink	J21	X	X				43		C, E, F, G
152[b]	Caps/lids non-drink and unknown origin	J22+J23 +J24								
16	Cigarette lighters	J26		X					A.4.1	
17	Pens	J28		X					A.4.1	
18	Combs/hair brushes	J29								
19	Crisp/sweet packets and lolly sticks	J30+J31	X	X				43		E, G
20	Toys & party poppers	J32							A.4.1	
211[a]	Cups - plastic	J227	X	X				43		A, D, E, G
212[a]	Cups - foamed polystyrene	J226	X	X				43/49	A.4.2	A, B, D, E, G
22	Cutlery/trays/straws/stirrers	J228+J229 +J230+J231	X	X				43		B
23	Fertiliser/animal feed bags	J36								
231[b]	Commercial salt packaging	J85			X	X	X			
24	Mesh vegetable bags	J238								
25	Gloves (typical washing up gloves)	J40								
113	Gloves (industrial/professional gloves)	J41								
26	Crab/lobster pots	J42			X	X	X	35/36	B.4.1, B.4.2, B.4.5	E, G
114	Lobster and fish tags	J43				X	X	35/36	B.4.2, B.4.5	E, G
27	Octopus pots	J44			X	X	X	35/36	B.4.1, B.4.2, B.4.5	E, G
28	Oyster nets or mussel bags including plastic stoppers	J45			X	X	X	35	B.4.2, B.4.7	E, G
29	Oyster trays (round from oyster cultures)	J46			X	X	X	35	B.4.2, B.4.7	E, G
30	Plastic sheeting from mussel culture (Tahitians)	J47			X	X	X	35	B.4.2, B.4.7	E, G
31	Rope (diameter more than 1 cm)	J49				X	X	35/36	B.4.1, B.4.2, B.4.5	E, G
321[a]	String and cord (diameter < 1cm) not from dolly ropes or unidentified	J242				X	X	35/36	B.4.1, B.4.2, B.4.5	E, G
322[a]	String and filaments exclusively from dolly ropes	J232			X	X	X	35/36/37	B.4.2, B.4.5	E, G
115	Nets and pieces of net < 50 cm	J53			X	X	X	35/36	B.4.2, B.4.5	E, G
116	Nets and pieces of net > 50 cm	J54			X	X	X	35/36	B.4.1, B.4.2, B.4.5	E, G
1151[b]	Other plastic strings and filaments exclusively from fishery (incl. small net cuttings and repair cords)	J233			X	X	X	35/36	B.4.2, B.4.3, B.4.5	E, G
331[a]	Tangled nets/cord/rope and string without dolly rope or mixed with dolly rope	J234			X	X	X	35/36	B.4.2, B.4.5	E, G
332[a]	Tangled dolly rope	J235			X	X	X	35/36/37	B.4.2 B.4.3, B.4.5	E, G
341[a]	Fish boxes - plastic	J57			X	X	X	36	B.4.2, B.4.5	
342[a]	Fish boxes - foamed polystyrene	J58			X	X	X	36/49	A.4.2, B.4.2, B.4.5	
35	Fishing line (angling)	J59			X	X	X	35/36	B.4.2, B.4.4, B.4.5	E, G

482[b]	Other plastic fisheries related items not covered by other categories (e.g. from recreational fisheries)	J61			X	X	X	35/37	B.4.2, B.4.4, B.4.5	
483[b]	Plastic bait containers/packaging	J92			X	X	X	35/38	B.4.2, B.4.4, B.4.5	
36	Light sticks (tubes with fluid)	J60			X	X	X	35/36	B.4.2, B.4.5	E, G
371[b]	Floats/Buoys from fisheries	J62			X	X	X	35/37	B.4.2, B.4.5	E, G
372[b]	Float/Buoys not from fisheries	J63				X	X			
38	Buckets	J65								
39	Strapping bands	J66		X					A.4.1.	
40	Industrial packaging, plastic sheeting	J67		X					A.4.1.	
41	Fibre glass	J68							B.2.1	
42	Hard hats	J69								
431[b]	Shotgun cartridges (shells)	J70		X				48	A.4.1.	
432[b]	Shotgun cartridges (wads)	J70		X				48	A.4.1.	
44	Shoes/sandals	J102+J136								
45	Foam sponge	J239+J256 +J257								
64	Cigarette butts	J27	X	X				43/48		D, E, G
121	Bagged dog faeces	J101		X						
481[a]	Biofilm support media	J91						48	A.2.1	
1171[a]	Plastic fragments 0.5 - 2.5cm	Ø								
1172[a]	Foamed polystyrene fragments 0.5 - 2.5cm	Ø						49	A.4.2	
461[a]	Plastic fragments 2.5cm >< 50cm	J79								
462[a]	Foamed polystyrene fragments 2.5cm >< 50cm	J82						49	A.4.2	
471[a]	Plastic fragments > 50cm	J80								
472[a]	Foamed polystyrene fragments > 50cm	J83						49	A.4.2	
48	Other plastic items	J25+J64+J72 +J84+J86 +J87+J88 +J89+J90 +J93+J166 +J220+J221 +J222+J223 +J240+J241 +J243								
Rubber										
49	Balloons, including plastic valves, ribbons, strings etc.	J125	X	X				43/48		B (only for the sticks), E, G
50	Boots	J127								
52	Tyres and belts	J249+J251								
53	Other rubber pieces	J126+J131 +J134+J248 +J250								
Cloth										
54	Clothing	J137								
55	Furnishing	J141								
56	Sacking	J140								
57	Shoes (leather)	J138								
59	Other textiles	J139+J143 +J145								

Paper / Cardboard										
60	Bags	J147								
61	Cardboard	J148								
118	Cartons e.g. tetrapak (milk)	J150								
62	Cartons e.g. tetrapak (other)	J151								
63	Cigarette packets	J152								
65	Cups	J244								
66	Newspapers & magazines	J154								
67	Other paper/cardboard items	J245+J247 +J155+J156 +J158								
Wood (machined)										
68	Corks	J159								
69	Pallets	J160								
70	Crates	J162								
71	Crab/lobster pots	J163					X			
119	Fish boxes	J164					X			
72	Ice lolly sticks / chip forks	J165								
73	Paint brushes	J171								
74	Other wood < 50 cm	J167+J171								
75	Other wood > 50 cm	J172								
Metal										
76	Aerosol/Spray cans	J174								
77	Bottle caps	J178								
78	Drink cans	J175								
120	Disposable BBQ's	J179								
79	Electric appliances	J180								
80	Fishing weights	J182					X	35/36		
81	Foil wrappers	J177								
82	Food cans	J176								
83	Industrial scrap	J186								
84	Oil drums	J187								
86	Paint tins	J190								
87	Lobster/crab pots and tops	J184					X	35/36		
88	Wire, wire mesh, barbed wire	J191								
89	Other metal pieces < 50 cm	J181+J188 +J194+J195 +J198+J130 +J193								
90	Other metal pieces > 50 cm	J199								
Glass										
91	Bottles	J200								
92	Light bulbs/tubes	J202+J205								
931[a]	Jars incl. fragments of jars	J201								
93	Other glass items	J210								
Pottery / Ceramics										
94	Construction material e.g. tiles	J204								
95	Octopus pots	J207					X	35/36		
96	Other pottery/ceramic items	J203+J208 +J219								
Sanitary waste										
97[c]	Condoms – plastic	J133		X					A.1.1, A.2.2	
981[a, c]	Cotton bud sticks – plastic	J95	X	X				43/48	A.1.1, A.2.2	B
982[a]	Cotton bud sticks – cardboard	J246						48	A.1.1, A.2.2	
99[c]	Sanitary towels/panty liners/backing strips – plastic	J96	X	X				43	A.1.1, A.2.2	D, G
100[c]	Tampons and tampon applicators – plastic	J144	X	X				43	A.1.1, A.2.2, A.4.1	D, G
101[c]	Toilet fresheners – plastic	J97							A.1.1, A.2.2	

1021[a, c]	Wet wipes – plastic	J237	X	X				43	A.1.1, A.2.2	D, E, G
102[c]	Other sanitary items	J98+J236							A.1.1, A.2.2	
Medical waste										
103[c]	Containers / tubes	J100		X					A.1.1, A.2.2, A.4.1	
104[c]	Syringes	J99							A.1.1, A.2.2	
1051[a, c]	Single use face masks – plastic	J253		X					A.1.1, A.2.2, A.4.1	
1052[a, c]	Single use gloves – plastic	J252		X					A.1.1, A.2.2, A.4.1	
105[c]	Other medical items (swabs, bandaging etc.)	J211							A.1.1, A.2.2	

[a] Added litter types in the 2020 update of the CEMP guidelines

[b] Added litter types in the present (2025) update of the CEMP guidelines

[c] Sanitary or medical litter types made of plastic that can be added to the plastic category during analysis to provide a more precise picture of the litter material composition.

Appendix 2: Quality control procedure for OSPAR beach litter monitoring data and metadata on the survey sites

To improve and guarantee the quality of beach litter data, and to ensure the regular updating of the information on the characteristics of the beaches on which the survey sites are situated (metadata), the quality assurance procedure presented below should be followed.

National beach litter data coordinators

All OSPAR Contracting Parties nominate national data coordinators, who are responsible for beach litter surveys, quality control and processing of the data from beach litter surveys in their country.

The tasks of the national data coordinators include:

- Quality control of the beach litter data.
- The uploading of monitoring data into the OSPAR Litter database by the deadline defined by ICG-ML. **The deadline for entering data of year n has in the database is the 30th of June of year n+1**. This task can be carried out by the national coordinators themselves or by persons under the supervision of the national coordinators.
- The collection of data on changes to the characteristics of the beaches on which the survey sites are situated (metadata).
- The collection of data on factors, which might have affected the results of surveys.
- To act as national contact persons with regard to enquiries from the OSPAR secretariat and the OSPAR Beach Litter Expert Group (BLEG).

National data coordinators can and should preferably be members of the BLEG.

National data coordinators, as well as persons working on OSPAR beach litter survey data under the supervision of the national coordinators, should be familiar with beach litter surveys and the results of the surveys in their given region.

National beach litter data coordinators play a central role in the quality control of the national beach litter data. The OSPAR secretariat, the database manager and the OSPAR BLEG lead should have clear information on who the national beach litter coordinators are, in case advice or action is needed. A national beach litter data coordinator can organise or perform corrective actions on national data sets in the database when needed.

In order to provide good quality data, the national data coordinators should ensure that surveys are carried out in compliance with the CEMP Guidelines for marine monitoring and assessment of beach litter (OSPAR Agreement 2020-02, update 2025)

To ensure comparability of data between survey sites:

- The length of the sampling unit must be exactly 100 m (in the particular case of absence of a 100 m length beach in the country-region, data obtained on shorter sampling units must be normalised to 100 m).
- All litter encountered on the sampling unit must be recorded during every survey.
- Surveys should be performed by two surveyors, who can complement and check one another.
- Surveys should take place within the survey periods laid down by the guidelines. National coordinators must make sure that the correct date is entered into the database. Survey dates are very relevant when carrying out trend analysis. Occasional deviation from these monitoring periods may occur, but should be kept to a minimum, in order to keep a good equidistance in time between the individual surveys.
- National data coordinators should ensure that on each site no more than one survey per survey period (4 per a year) is carried out.

To ensure comparability of data between surveys on the same survey site:

- Monitoring of exactly the same 100 m stretch of beach during each successive survey is required. This means strict adherence to the start- and end-points of the 100 m sampling unit.

To ensure correct allocation of litter items to the litter types on the OSPAR beach litter protocol.

- School field workers on using the field protocol and provide them with a photo guide. Make sure they are acquainted with protocol before the survey begins. Use experienced beach litter surveyors to train new staff in the field.
- In case of doubts about correct allocation of litter items, contact a member of the BLEG.
- Take photos of unusual or unknown litter items for later consultation.
- Use a measuring tape to assess the size of litter items classified according to their size.

To reduce the effects of beach cleaning on data acquisition:

- Keep in touch with your local municipality, plan surveys in advance, so they do not coincide with or take place immediately after beach cleaning activities.
- If the beach has been cleaned, postpone the beach survey to at least 4 weeks after the beach cleaning has taken place.

To ensure that the information on the characteristics of the survey sites is correct and up-to-date

- Enter all the required information on the characteristics of the survey sites into the database. This information provides an indispensable basis for the interpretation of the results of the beach litter surveys.
- Ensure that the GPS coordinates of the start- and end-points of the survey site are expressed in the correct geodetic system (WGS84), entered into the database and that they indicate the exact position of the site correctly in maps. The location of the sampling unit (begin point and end point) is important to ensure that always the correct unit is monitored through the years, it provides information on potential sources affecting the site and allows for a better interpretation of the results of the surveys.
- Update the information in the database at regular intervals. The updating interval should coincide with the reporting periods for Indicator Assessments. The update should include information on measures, which could have influenced the litter on the survey site

In order to prevent the entry of incorrect data into the database; national data coordinators must check the correctness of the data directly before and after entry into the database

Checking the data before entering it in the database

- Unusual entries (litter items not usually recorded for that region) or unusual numbers of items for a given litter type (examples are large numbers of plastic-bag-ends, because surveyors mistake this type for fragments of plastic bags, and large numbers of “other glass”, because surveyors include all glass fragments) must be confirmed with the surveyors before entry into the database.

Checking the data after entry into the database

- The person who uploads the data into the database should check the correct transmission of the data from the survey data form into the database and correct any inconsistencies, using the “edit” function of the database, immediately after data entry. After entering and saving the data in the OSPAR database all the information, which has been uploaded for a given beach code and date, is presented in condensed form, which enables the person who has entered the data to check quickly if the data is correct. This is very important, because input mistakes “always” do happen.

In order to ensure that the national data entered into the database is the data set, which is to be used for analysis of beach litter data e.g. for Indicator Assessments, the national data coordinator should perform an annual quality control of new beach litter data.

This annual quality control includes both the filling of the checklist presented in Appendix 3 and a national data control.

National beach litter data can be downloaded from the OSPAR Litter database. Beach litter data is exported as a CSV-file, and can be read into Excel for easy reading and quality control.

The national data coordinator should contact the persons who carried out the surveys or uploaded the data to clarify any inconsistencies found with the data. National coordinators should perform any necessary corrections to data in the OSPAR database.

Common problems encountered with data in the OSPAR Litter database are:

- Duplicate records: Duplicate records are when two or more entries are made for the same OSPAR beach code on the same date. Duplicate records can be completely identical (all data is identical) or partially identical (i.e. the litter data are duplicate, but some details are different (i.e. in survey conditions, comments, dead animals etc.). The national beach coordinator must decide which of the records is the correct entry and must delete any incorrect entries.
- Empty records: Empty records can occur when a new entry form is opened and saved without entering survey data. The database default value is zero, so even if data is not entered into the entry form, the database will enter zero values for all litter types on the list. As it is also possible that during a survey no litter items are recorded, it is important to check to see if a record, which only contains zero values, is correct.
- Too many records for individual survey sites in one year. Three (in countries, where winter surveys are impossible) to four surveys a year are mandatory.

The corrected data set can then be analysed using litteR to ensure that the data is compatible with that software. LitteR automatically performs quality checks too and reports its results e.g. double records.

Timing of the annual quality control procedure

The quality control should be performed in spring, on the previous year's beach litter data.

The national quality control and data correction of the previous year's data dataset must be completed before June 30th.

The national data coordinator reports successful completion of the quality control procedure to BLEG, via email or sharepoint.

Appendix 3: Format of the annual quality control report (checklist)

The checklist for annual quality control of beach litter data, presented below, includes annual reporting criteria aimed at improving the overall quality of beach litter data. The annual documentation will enable the updating of information collected on survey sites (beach questionnaires) and will provide an incentive for national coordinators, at the end of the monitoring year, to check that all surveys have been carried out and that all relevant information has been collected and entered into the OSPAR Litter database.

National Annual Report OSPAR Beach Litter Monitoring					
YEAR					
COUNTRY					
NUMBER OF SITES SURVEYED					
NATIONAL COORDINATOR: Institute, phone number, email					
MONITORING ORGANISATION: Contact person, institute, phone, email					
EXECUTION OF MONITORING yes (y) / no (n)					
Site code					
Site name					
April					
June/July					
September/October					
December/January					
REASONS FOR MISSING SURVEYS					
INCIDENTAL CIRCUMSTANCES, WHICH COULD HAVE EFFECTED THE SURVEYS					
OCCURRENCE OF NEW TYPES OF LITTER (which might require an amendment of the OSPAR Beach Litter Monitoring Protocol in the future)					
FACTORS WHICH MIGHT HAVE INFLUENCED THE DATA					
GENERAL OBSERVATIONS					
IS THE DATA ENTERED IN TO THE DATABASE yes (y) / no (n)					
PROBLEMS ASSOCIATED WITH ORGANISING THE SURVEYS					

An example of a national report

National Annual Report OSPAR Beach Litter Monitoring						
YEAR	2016					
COUNTRY	Germany					
NUMBER OF SITES SURVEYED	4					
NATIONAL COORDINATOR: Institute, phone number, email	David M. Fleet LKN-SH (49) 04861 61643 david.fleet@lkn.landsh.de					
MONITORING ORGANISATION: Contact person, institute, phone, email	David M. Fleet LKN-SH (49) 04861 61643 david.fleet@lkn.landsh.de					
EXECUTION OF MONITORING yes (y) / no (n)						
Site code	**DE01**	**DE02**	**DE03**	**DE05**	**DE**	**DE**
Site name	**Sylt**	**Scharhörn**	**Minsener Oog**	**Juist**		
April	n	y	y	y		
June/July	y	y	y	y		
September/October	y	y	n	y		
December/January	y	n	y	y		
REASONS FOR MISSING SURVEYS	Lost survey form	winter survey not possible on uninhabited island	surveyor was sick			
INCIDENTAL CIRCUMSTANCES, WHICH COULD HAVE EFFECTED THE SURVEYS	sand enrichment carried out at the site in July					
OCCURRENCE OF NEW TYPES OF LITTER (which might require an amendment of the OSPAR Beach Litter Monitoring Protocol in the future)	the remains of wrecked drones					
FACTORS WHICH MIGHT HAVE INFLUENCED THE DATA	Easterly winds were more frequent in 2016 than in previous years	Easterly winds were more frequent in 2016 than in previous years	Easterly winds were more frequent in 2016 than in previous years	Easterly winds were more frequent in 2016 than in previous years		
GENERAL OBSERVATIONS				birds entangled in fishing nets were especially common		
IS THE DATA ENTERED IN TO THE DATABASE yes (y) / no (n)	y	y	y	y		
PROBLEMS ASSOCIATED WITH ORGANISING THE SURVEYS	lost survey form in April	none	the person responsible for the surveys changed in August	none		

Appendix 4: OSPAR Beach Description Form (v2025.01)

OSPAR Beach Litter CEMP Guidelines

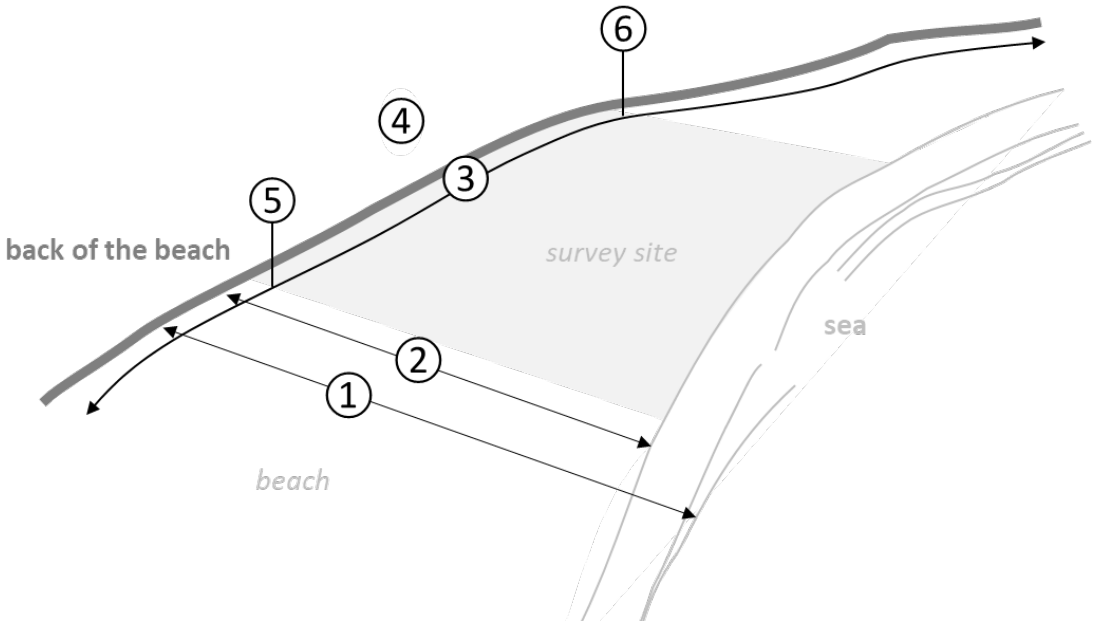
Beach Description Form

Version 2025.01

Survey site name: .....

OSPAR survey site ID: .....

Country: ..... To be filled by national coordinators



① Beach width at mean low spring tide: .....(m) ② Beach width at mean high spring tide: ..... (m)

③ Total length of beach: .....(m) ④ Back of beach (example dunes): .....

⑤ GPS coordinates start 100 m (WGS84): .....

⑥ GPS coordinates end 100 m (WGS84): .....

Date position measured: ..... / ..... / ..... (d/m/y)

Prevailing currents off the beach (tick one or two boxes): ☐ N ☐ E ☐ S ☐ W

Prevailing winds (tick one or two boxes): ☐ N ☐ E ☐ S ☐ W

When you look from the beach to the sea, what direction is the beach facing (tick one or two boxes): ☐ N ☐ E ☐ S ☐ W

Type of beach material (% coverage): ..... *(e.g. sand 60%, pebbles 40%)*

Beach topography: ..... *(e.g. slope 20%)*

Are there any objects in the sea (e.g. a pier) that influence the currents: .....

Type of beach: ☐ remote/natural ☐ semi-urban ☐ urban

Major beach usage (local people, swimming and sunbathing, fishing, surfing, sailing etc):

1. seasonal or whole year round:.....
2. seasonal or whole year round:.....
3. seasonal or whole year round:.....

Access to the beach: ☐ Vehicle ☐ Pedestrian ☐ Boats

please use official data only for the following questions

What is the distance to nearest town: .....

What is the position of town in relation to survey area: .....

What is the (seasonal) population size of this town

☐ Residential: .....

☐ Residential and tourist: ..... winter

spring.....

summer.....

autumn.....

☐ Tourist: ..... winter

spring.....

summer.....

autumn.....

Is there any development behind the beach: ☐ No ☐ Yes, please describe

.....

Is there any buildings on the beach: ☐ No ☐ Yes, please describe

.....

Are there food and/or drink outlets on the beach:☐ No ☐ Yes

What is the distance from the survey area to the food and/or drink outlet: ..... (km)

Present all year round: ☐ Yes ☐ No, please specify month: .....

Position of food and/or drink outlet in relation to the survey area e.g. (tick one or two boxes): ☐ N ☐ E ☐ S ☐ W

What is the distance from the beach to the nearest shipping lane: ..... (km)

What is the estimated traffic density: ..... *(number of ships/year)*

Is it used mainly by merchant ships, fishing vessels or all kinds: .....

Position of shipping lane in relation to survey area (tick one or two boxes): ☐ N ☐ E ☐ S ☐ W

What is the distance from the beach to the nearest harbour: ..... (km)

What is the name of the harbour: .....

Position of harbour in relation to survey area (tick one or two boxes): ☐ N ☐ E ☐ S ☐ W

Type of harbour: .....

Size of harbour (number of ships): .....

What is the distance from the beach to the nearest river mouth: ..... (km)

What is the name of the river: .....

Position of river mouth in relation to survey area (tick one or two boxes): ☐ N ☐ E ☐ S ☐ W

Is the beach located near a discharge or discharges of waste water: .....

What is the distance from the beach to the discharge points: ..... (km)

Position of discharge in relation to survey area (tick one or two boxes): ☐ N ☐ E ☐ S ☐ W

How often is the beach cleaned:

All year round: ..... X ☐ Daily ☐ Weekly ☐ Monthly ☐ Other: .....

Seasonal, please specify months: .....

X .....☐ Daily ☐ Weekly ☐ Monthly ☐ Other:

What method is used: ☐ Manual ☐ Mechanical

Who is responsible for the cleaning: .....

Additional comments and observations about this beach: .....

Please include:

1. A map of the beach
2. A map of the beach and the local surroundings. When relevant please mark on this map the following:

☐ Nearest town ☐ Food/drink outlets ☐ Nearest shipping lane

☐ Nearest harbour ☐ Nearest river mouth ☐ Discharge or discharges of waste water

3. A regional map

Is this an amendment to an existing questionnaire: ☐ Yes ☐ No

Date questionnaire is filled in: ..... / ..... / ..... (d/m/y)

Name: .....

Phone number: .....

E-mail: .....

Appendix 5: OSPAR Survey Information Form (v2025.01)

OSPAR Beach Litter CEMP Guidelines

Survey Information Form

Version 2025.01

Survey site name: .....

OSPAR survey site ID: .....

Country: .....

Date of survey: ..... / ..... / ..... (d/m/y)

Name of surveyor 1: .....

Phone number: .....

E-mail address: .....

Name of surveyor 2: .....

Phone number: .....

E-mail address: .....

Additional Information

Was litter observed during this survey: ☐ Yes ☐ No

Was litter collected during this survey: ☐ Yes ☐ No

When was the beach last cleaned: ..... / ..... / ..... (d/m/y)

Did you divert from the predetermined 100 metres survey units: ☐ No..... ☐ Yes, please specify

Did any of the following weather conditions affect the data of the survey? If so, please tick appropriate box:

☐ Wind ☐ Rain ☐ Snow ☐ Ice ☐ Fog ☐ Sand storm ☐ Exceptionally high tide

Did you find stranded or dead animals: ☐ Yes ☐ No If so, how many: .....

Please describe the animal, or not the species name if known: .....

☐ Alive ☐ Dead

Sex of animal (if known): .....

Age of animal (if known): .....

Is the animal entangled in litter: ☐ Yes ☐ No

If so, please describe nature of the entanglement and type of litter: .....

Were there any circumstances that influenced the survey? For example, tracks on the beach (cleaning or other), recent replenishment of the beach or other.

Please specify: .....

Were there any events that lead to unusual types and/or amounts of litter on the beach? For example, beach events or other.

Please specify: .....

Appendix 6: OSPAR Survey Data Form (v2025.01)

OSPAR Beach Litter CEMP Guidelines

Survey Data Form

Version 2025.01

[a] items added in 2021

[b] *items added in 2025*

OSPAR ID	Types	MSFD Joint-List ID (J-Code)	Count (nb/100 m)	Comments
	Plastic			
1	4/6-pack yokes	J1		
2	Bags (e.g. shopping)	J3		
3	Small plastic bags, e.g., freezer bags	J4		
112	Plastic bag ends	J5		
4	Drinks (bottles, containers and drums)	J7+J8		
5	Cleaner (bottles, containers and drums)	J9		
610[a]	Food containers incl. fast food containers - plastic	J225		
620[a]	Food containers incl. fast food containers - foamed polystyrene	J224		
7	Cosmetics (bottles & containers e.g. sun lotion, shampoo, shower gel, deodorant)	J11+J12		
8	Engine oil containers and drums <50 cm	J14		
9	Engine oil containers and drums > 50 cm	J15		
10	Jerry cans (square plastic containers with handle)	J16		
11	Injection gun containers	J17		
12	Other bottles, containers and drums	J13		
13	Crates	J18		

OSPAR ID	Types	MSFD Joint-List ID (J-Code)	Count (nb/100 m)	Comments
14	Car parts	J19		
151[b]	*Caps/lids drink*	*J21*		
152[b]	*Caps/lids non-drink and unknown origin*	*J22+J23+J24*		
16	Cigarette lighters	J26		
17	Pens	J28		
18	Combs/hair brushes	J29		
19	Crisp/sweet packets and lolly sticks	J30+J31		
20	Toys & party poppers	J32		
211[a]	Cups - plastic	J227		
212[a]	Cups - foamed polystyrene	J226		
22	Cutlery/trays/straws/stirrers	J228+J229+J230+J231		
23	Fertiliser/animal feed bags	J36		
231[b]	*Commercial salt packaging*	*J85*		
24	Mesh vegetable bags	J238		
25	Gloves (typical washing up gloves)	J40		
113	Gloves (industrial/professional gloves)	J41		
26	Crab/lobster pots	J42		
114	Lobster and fish tags	J43		
27	Octopus pots	J44		
28	Oyster nets or mussel bags including plastic stoppers	J45		
29	Oyster trays (round from oyster cultures)	J46		
30	Plastic sheeting from mussel culture (Tahitians)	J47		
31	Rope (diameter more than 1 cm)	J49		

OSPAR ID	Types	MSFD Joint-List ID (J-Code)	Count (nb/100 m)	Comments
321[a]	String and cord (diameter < 1cm) not from dolly ropes or unidentified	J242		
322[a]	String and filaments exclusively from dolly ropes	J232		
115	Nets and pieces of net < 50 cm	J53		
116	Nets and pieces of net > 50 cm	J54		
1151[b]	*Other plastic strings and filaments exclusively from fishery (incl. small net cuttings and repair cords)*	*J233*		
331[a]	Tangled nets/cord/rope and string without dolly rope or mixed with dolly rope	J234		
332[a]	Tangled dolly rope	J235		
341[a]	Fish boxes - plastic	J57		
342[a]	Fish boxes - foamed polystyrene	J58		
35	Fishing line (angling)	J59		
482[b]	*Other plastic fisheries related items not covered by other categories (e.g. from recreational fisheries)* Please specify in comments	*J61*		
483[b]	*Plastic bait containers/packaging*	*J92*		
36	Light sticks (tubes with fluid)	J60		
371[b]	*Floats/Buoys from fisheries*	*J62*		
372[b]	*Float/Buoys not from fisheries*	*J63*		
38	Buckets	J65		
39	Strapping bands	J66		
40	Industrial packaging, plastic sheeting	J67		
41	Fibre glass	J68		
42	Hard hats	J69		

OSPAR ID	Types	MSFD Joint-List ID (J-Code)	Count (nb/100 m)	Comments
431 [b]	*Shotgun cartridges (shells)*	*J70*		
432 [b]	*Shotgun cartridges (wads)*	*J70*		
44	Shoes/sandals	J102+J136		
45	Foam sponge	J239+J256+J257		
64	Cigarette butts	J27		
121	Bagged dog faeces	J101		
481[a]	Biofilm support media	J91		
1171[a]	Plastic fragments 0.5 - 2.5 cm	Ø		
1172[a]	Foamed polystyrene fragments 0.5 - 2.5 cm	Ø		
461[a]	Plastic fragments 2.5cm >< 50 cm	J79		
462[a]	Foamed polystyrene fragments 2.5cm >< 50 cm	J82		
471[a]	Plastic fragments > 50 cm	J80		
472[a]	Foamed polystyrene fragments > 50 cm	J83		
48	Other plastic items Please specify in comments	J25+J64+J72+J84+J86 +J87+J88+J89+J90 +J93+J166+J220+J221 +J222+J223+J240+J241 +J243		
	Rubber			
49	Balloons, including plastic valves, ribbons, strings etc.	J125		
50	Boots	J127		
52	Tyres and belts	J249+J251		
53	Other rubber pieces Please specify in comments	J126+J131+J134+J248 +J250		
	Cloth			
54	Clothing	J137		
55	Furnishing	J141		
56	Sacking	J140		

OSPAR ID	Types	MSFD Joint-List ID (J-Code)	Count (nb/100 m)	Comments
57	Shoes (leather)	J138		
59	Other textiles Please specify in comments	J139+J143+J145		
	Paper / Cardboard			
60	Bags	J147		
61	Cardboard	J148		
118	Cartons e.g. tetrapak (milk)	J150		
62	Cartons e.g. tetrapak (other)	J151		
63	Cigarette packets	J152		
65	Cups	J244		
66	Newspapers & magazines	J154		
67	Other paper/cardboard items Please specify in comments	J245+J247+J155+J156 +J158		
	Wood (machined)			
68	Corks	J159		
69	Pallets	J160		
70	Crates	J162		
71	Crab/lobster pots	J163		
119	Fish boxes	J164		
72	Ice lolly sticks / chip forks	J165		
73	Paint brushes	J171		
74	Other wood < 50 cm Please specify in comments	J167+J171		
75	Other wood > 50 cm Please specify in comments	J172		
	Metal			
76	Aerosol/Spray cans	J174		
77	Bottle caps	J178		
78	Drink cans	J175		

OSPAR ID	Types	MSFD Joint-List ID (J-Code)	Count (nb/100 m)	Comments
120	Disposable BBQ's	J179		
79	Electric appliances	J180		
80	Fishing weights	J182		
81	Foil wrappers	J177		
82	Food cans	J176		
83	Industrial scrap	J186		
84	Oil drums	J187		
86	Paint tins	J190		
87	Lobster/crab pots and tops	J184		
88	Wire, wire mesh, barbed wire	J191		
89	Other metal pieces < 50 cm Please specify in comments	J181+J188+J194+J195 +J198+J130+J193		
90	Other metal pieces > 50 cm Please specify in comments	J199		
	Glass			
91	Bottles	J200		
92	Light bulbs/tubes	J202+J205		
931[a]	Jars incl. fragments of jars	J201		
93	Other glass items	J210		
	Pottery / Ceramics			
94	Construction material e.g. tiles	J204		
95	Octopus pots	J207		
96	Other pottery/ceramic items Please specify in comments	J203+J208+J219		
	Sanitary waste			
97	Condoms – plastic	J133		
981[a]	Cotton bud sticks – plastic	J95		
982[a]	Cotton bud sticks – cardboard	J246		
99	Sanitary towels/panty liners/backing strips – plastic	J96		

OSPAR ID	Types	MSFD Joint-List ID (J-Code)	Count (nb/100 m)	Comments
100	Tampons and tampon applicators – plastic	J144		
101	Toilet fresheners – plastic	J97		
1021[a]	Wet wipes – plastic	J237		
102	Other sanitary items Please specify in comments	J98+J236		
	Medical waste			
103	Containers / tubes	J100		
104	Syringes	J99		
1051[a]	Single use face masks – plastic	J253		
1052[a]	Single use gloves – plastic	J252		
105	Other medical items (swabs, bandaging etc.) Please specify in comments	J211		

High Viscosity and Persistent Floating Chemicals

OSPAR ID	MSFD Joint-List ID (J-Code)	Size of pieces or lumps (*estimates*)	Frequency (*estimated number per meter of strandline*)	Comments
	Paraffin-like pieces			
108	J217	0 - 1 cm		
109	J217	1 - 10 cm		
110	J217	>10 cm		
	Other pollutants (e.g. tar)			
111	J216+J218	Other Please specify in comments		