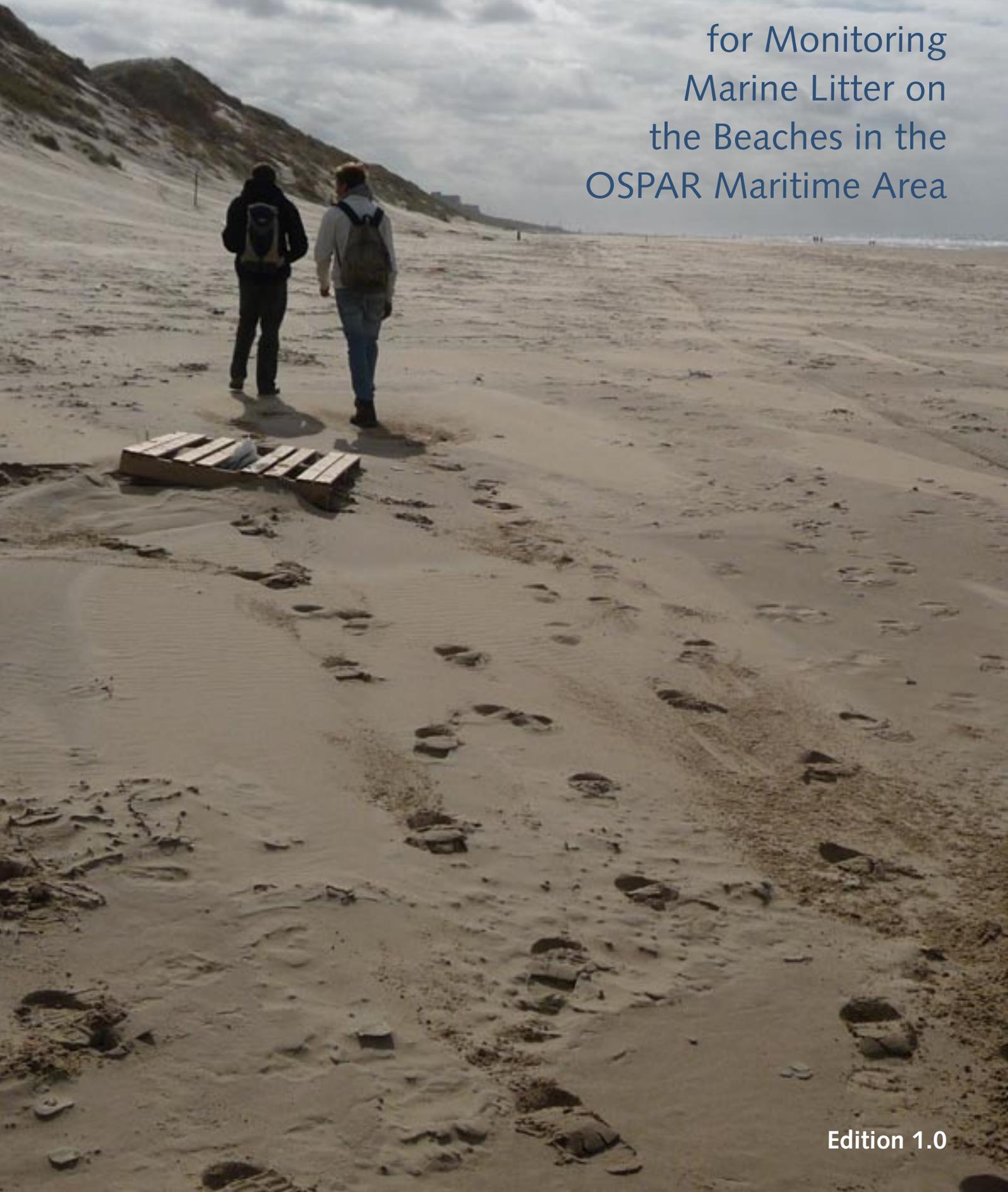




Guideline

for Monitoring
Marine Litter on
the Beaches in the
OSPAR Maritime Area



Preface



photo credit: © Thomas Vollaire

Each year, a vast amount of marine litter finds its way into our oceans, where it may stay for centuries. Litter items, plastics and other man-made objects, come from land-based and maritime activities. Each year the marine and coastal environment is gradually impacted more and more by marine litter: it is found on our beaches and in the open sea as well as on the deep sea-bed, and represents a major threat to marine wildlife.

Solving the marine litter issue will require everyone's cooperation. A key challenge is to identify litter sources and evaluate the amount present in our seas. The OSPAR Commission has designed and prepared these guidelines in order to provide a unique tool to improve our knowledge and understanding of marine litter. They are written for anyone who is involved, or would like to be, in the fight against marine litter. They give practical advice, especially with the photo guide, in 8 languages, for identifying the nature and amount of litter present on beaches.

This information is crucial to take action against the sources of marine litter, and will help OSPAR to design future management measures to tackle this environmental challenge in the North-East Atlantic.

Systematic and consistent monitoring provides decision makers with the evidence needed to take action. If you are involved in beach litter collection operations, take these guidelines with you and you will help the oceans!

Information leads to knowledge, and by knowing the oceans better, we fight for their protection.

Maud Fontenoy

Maud Fontenoy is the Chairwoman of the Maud Fontenoy Foundation, UNESCO Spokesperson for the Oceans and the Vice-chairwoman of 'Conservatoire national du littoral'.

Colophon

OSPAR's vision is of a clean, healthy and biologically diverse North-East Atlantic used sustainably

These guidelines have been prepared by the Netherlands (Barbara Wenneker and Lex Oosterbaan) and the Intersessional Correspondence Group on Marine Litter (ICGML). With special thanks to Bertil Hagerhall & Britt Hagerhall Aniansson.

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Marine litter guide photo credits

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**OSPAR
COMMISSION**

*Protecting and conserving the
North-East Atlantic and its resources*

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Introduction

A guideline for monitoring marine litter on beaches has been developed by OSPAR as a tool to collect data on litter in the marine environment. This tool has been designed to generate data on marine litter according to a standardized methodology.

A uniform way of monitoring allows for regional interpretation of the litter situation in the OSPAR area and comparisons between regions.

The guideline has been designed in such a way that all OSPAR countries can participate, bearing in mind adequate quality assurance of the data generated. It is based on the method developed during the OSPAR pilot project 2000-2006 and complimented with information derived from UNEP's own realisation of a worldwide guideline.

The data collected according to the OSPAR guideline can be fed into the UNEP programme as the methods are compatible.

The first dataset has been analysed and gives an indication of the presence of different types of litter in the marine environment. The assessment 'Marine litter in the North-East Atlantic Region' serves as a background document for the marine litter paragraphs in OSPAR's Quality Status Report (QSR) 2010. For more information: www.OSPAR.org
The method developed provides a practical and cost effective way of monitoring marine litter on beaches and supports the implementation of the Marine Strategy Framework Directive (MSFD), working towards a litter descriptor for the GES (Good Environmental Status).

All OSPAR countries are invited to participate in the litter-monitoring programme.

Objectives for monitoring marine litter on beaches

The collection of data on marine beach litter provides information on amounts, trends and sources of marine litter. This information can be used to focus on effective mitigating measures and to test the effectiveness of existing legislation and regulations. The ultimate aim is that the amount of litter entering the marine environment is minimised.

Marine litter: a definition

"Marine litter (marine debris) is any persistent, manufactured or processed solid material discarded, disposed of, abandoned or lost in the marine and coastal environment"⁽¹⁾. This also includes such items entering the marine environment via rivers, sewage outlets, storm water outlets or winds.

⁽¹⁾ UNEP Regional Seas Programme (2005):
Marine Litter – An analytical overview





Monitoring Methodology

Selection of reference beaches

The following criteria have been identified for selecting reference beaches:

Preferably, the beaches should:

- be composed of sand or gravel and exposed to the open sea;
- be accessible to surveyors all year round;
- be accessible for ease of marine litter removal;
- be a minimum length of 100 metres and if possible over 1 km in length;
- be free of 'buildings' all year round;
- Ideally not be subject to any other litter collection activities.

In each case, these criteria should be followed as closely as possible. However, the coordinators can use their expert judgement and experience of the coastal area and marine litter situation in their particular country when making the final selection of the reference beaches. For example, in some countries the local conditions do not allow for selection of beaches composed mainly of sand, and in some places survey sections of 1 km in length cannot be selected.

Sampling units

Once a beach is chosen sampling units can be identified. A sampling unit is a fixed section of beach covering the whole area between the water edge to the back of the beach.

Two sampling units are used within the OSPAR area:

- 100-metres: for identifying all marine litter items;
- 1-km: for identifying objects generally larger than 50 cm.

For both units a separate survey form has been developed. For the 100-metre survey form see Tab 2. For the 1000-metre survey form see Tab 3.

The 100 metres is the standard sampling unit. The 1-km sampling unit is optional depending on practical issues. The 100-metre stretch must be part of the 1-km stretch but it is free to choose which part of the 1-km. An example is given in the photo on the opposite page.

If more than one sampling unit occurs on a beach the minimum separation distance shall be at least 50 m.

Permanent reference points must be used to ensure that exactly the same site will be monitored for all surveys. The start and end points of each 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 reference beaches. However, as they have a 10-metre deviation, this method is not suitable for the survey.

Beach surveys four times a year

The reference beaches are surveyed 4 times a year. However, 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.

The survey periods are as follows:

1. Winter: Mid-December–mid-January
2. Spring: April
3. Summer: Mid-June–mid-July
4. Autumn: Mid-September–mid-October

Preferably, the surveys should be carried out within the shortest timeframe possible within a survey period for all participating beaches in the classified regions as shown on the opposite page. Coordinators within these regions should arrange the survey dates bilaterally. Furthermore a given beach should be surveyed on the same days each year if possible.

Timing and safety

It is advised monitoring starts one hour after high tide to prevent surveyors being cut off by incoming tide.

It is recommended that a minimum of two people work on remote beaches.

Dangerous or suspicious looking items, such as ammunition, chemicals and medicine should not be removed.

Instead, inform the police or authorities responsible.

Collection and identification of litter

All items found on the sampling unit should be entered on the survey forms provided. On the survey forms, each item is given a unique OSPAR identification number. The survey forms also provide a

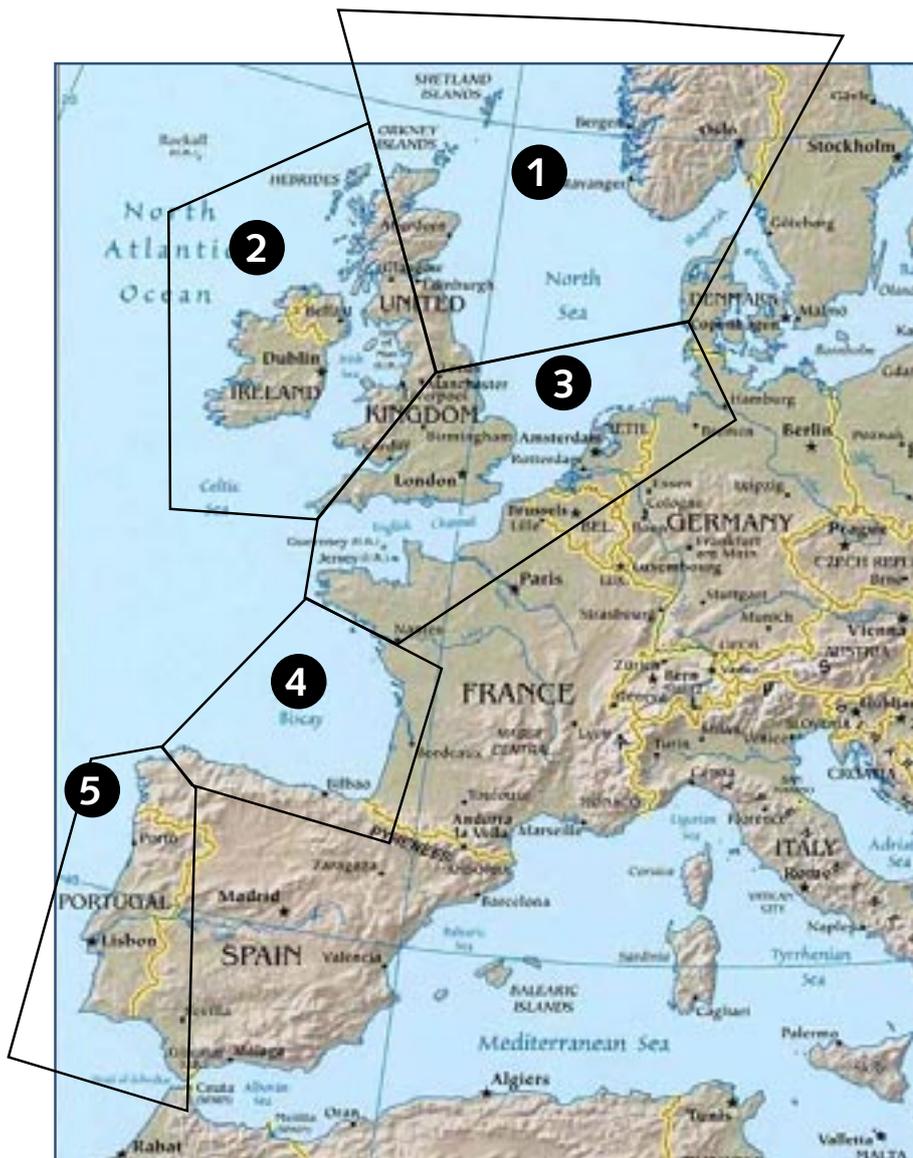
box for a UNEP identification number. This is for UNEP use only.

Unknown litter or items that are not on the survey form should be noted in the appropriate "other item box".

A short description of the item should then be included on the survey form. If possible, digital photos should be taken of unknown items so that they can be identified later and if necessary be added to the survey form.



Survey from water edge to back of beach



1. Northern North Sea
2. Celtic Seas
3. Southern North Sea
4. Bay of Biscay
5. Iberian Coast

Photo guide

A photo guide has been developed to assist the surveyors with the identification and categorisation of litter items.

The photo guide (Tab 4) consists of:

- multilingual photo guide based on the 100-metre survey form, space is left for

regional languages;

- multilingual photo guide based on the 1000-metre survey form, here too space is left for regional languages;
- photo guide for regional, unusual or relatively “new” items. These items are not specified on the survey form

and should be noted in the appropriate *other item box*;

- practical field photo guide to assist the surveyors during fieldwork, focusing on items that may be difficult to identify.

Cleaning and marking of litter items

All litter items should be removed from the beach during the survey. Data should be entered on the survey form while picking up the litter. Collecting the litter first and identifying it later may alter numbers as collected litter tends to get more entangled. Therefore this is not an option.

The litter collected should be disposed of properly. Regional or national regulations and arrangements should be followed. If these do not exist local municipalities should be informed.

Larger items that cannot be removed

(safely) by the surveyors should be marked, with for example paint spray so they will not be counted again at the next survey.

Many municipalities will have their own cleaning programme, sometimes regularly, sometimes seasonal or incident related. Arrangements should be made with the local municipalities so that they either exclude the reference beach from their cleaning scheme or they provide their cleaning schedule so surveying can be carried out a few days before

the municipality will clean the beach. Preferably a set time should be established for each beach between the date when the beach was last cleaned and the date when the survey is carried out. It is advised to contact the municipality before starting your survey to obtain the latest information on beach cleaning activities. Sometimes an incident, for example a storm, will alter their cleaning programme.

How to interpret small pieces of litter and/or entangled litter

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

All pieces of litter that are recognisable as an item should be counted as one item. A few examples:

- Pieces of plastic that are not recognisable as an item should be counted as a plastic/polystyrene piece according to its size.

- Pieces of plastic that are recognisable as a (shopping) bag (number 2 on the survey form) should be registered as such.

- Pieces of plastic that are recognisable as a small plastic bag (number 3 on the survey form) should be registered as such.



Plastic/polystyrene pieces < 2,5 cm

117

Unrecognisable pieces of plastic smaller than 2,5 cm: number 117 on the survey form



Bags (shopping)

2

Piece of plastic bag recognisable as a shopping bag: number 2 on the survey form



Small plastic bags, e.g., freezer bags

3

Piece of plastic bag recognisable as a small plastic bag: number 3 on the survey form

- A few more examples of pieces of plastic that are not recognisable as an

item which should be counted as a plastic/polystyrene piece according to

its size (number 117, 46 or number 47 on the survey form).



Plastic/polystyrene pieces < 2,5 cm **117**

Unrecognisable pieces of plastic smaller than 2,5 cm: number 117 on the survey form



Plastic/polystyrene pieces 2,5 cm > < 50 cm **46**

Unrecognisable pieces of plastic size 2,5 cm - 50 cm: number 46 on the survey form



Plastic/polystyrene pieces > 50 cm **47**

Unrecognisable pieces of plastic bigger than 50 cm: number 47 on the survey form

- All pieces that are recognisably part of a balloon (including the plastic valves,

the plastic ribbons or string tied to the balloon) should be registered as

'balloon' (number 49 on the survey form).



Balloons including plastic valves, ribbons, strings etc. **49**

One valve (with or without a piece of balloon attached) is counted as one balloon: number 49 on the survey form



Balloons including plastic valves, ribbons, strings etc. **49**

A string (with or without a piece of balloon attached) is counted as one balloon: number 49 on the survey form



Balloons including plastic valves, ribbons, strings etc. **49**

Eleven balloons entangled are counted as 11 items: number 49 on the survey form

- Pieces of glass that are recognisable as for example bottles (number 91 on

the survey form) should be registered as such. Pieces of glass that are not

recognisable as an item are not counted.



Bottles **91**

Two pieces of glass, recognisable as pieces from one glass bottle are counted as one item: number 91 on the survey form



Bottles **91**

Part of glass bottle, recognisable as such is counted as one bottle: number 91 on the survey form



Bottles **91**

Pieces of glass, not recognisable as an item: not counted on the survey form

- All pieces of string and cord (nr 32 on the survey form) should be counted. Often a piece of string or cord is found with smaller pieces lying around it that were

obviously part of this rope. However, all these pieces should be counted as single items.



String and cord (diameter < 1 cm) 32

A piece of string, counted as such: 1 x number 32 on the survey form



String and cord (diameter < 1 cm) 32

A piece of string with another similar string lying next to it: counted as 2 pieces of string: 2x number 32 on the survey form

Additional relevant information

The amount and type of litter found on the reference beaches can be influenced by different circumstances. To assure this data is analysed and interpreted properly these circumstances must be recorded.

A few examples:

- 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 or litter was not collected;
- Circumstances that influence data recording. For example tracks (car/ tractor) on the beach, 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.

Space is provided on the survey form to note these comments.

Training of fieldworkers

This guideline operates as a practical guide for monitoring marine litter on beaches. Advice from experienced fieldworkers on how to monitor marine litter has been incorporated into this document to ensure a standard method. However, training of

fieldworkers is still highly recommended. Coordinators or surveyors from OSPAR are available for training. Please contact the OSPAR secretariat for advice.



Data recording and management

All data collected is to be sent to the national coordinator for quality control. The data is then entered into the central database, preferably within a month of surveying.

When, due to circumstances, a survey has not been conducted, this must also be recorded.

For details please contact the OSPAR secretariat for advice.

Documentation characteristics of reference beaches

For each reference beach a questionnaire must be completed by the national coordinator (Tab 1). The questionnaire 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 amounts, types, and composition of marine litter found on that beach, for example, cleaning schemes.

The questionnaire provides background information for the analysis of beach survey data. The coordinator is asked to gather as much relevant information as possible. It is advisable to contact local, regional or national authorities for information on cleaning schemes etc. For questions on the proximity of shipping lanes, river mouths, waste water outlets, etc. please use official data from authorities responsible only.

When circumstances change, for example, the development of a new residential area nearby, the questionnaire must be updated.



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