Harmonizing Marine Litter Monitoring in the Wider Caribbean Region: A Hybrid Approach

2021 Edition

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SWEDISH INTERNATIONAL DEVELOPMENT COOPERATION AGENCY

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Glossary of Terms and Abbreviations

AWS	Amazon Web Services, a cloud computing service
Beach cast	Material that has been deposited on beaches after being washed up by wave action, storm or tidal movement.
Benthic	On the sea-bed – benthic litter is litter found sitting on or entangled with objects on the seabed.
Cartagena Convention	The Cartagena Convention has been ratified by 26 United Nations Member States in the Wider Caribbean Region. It covers the marine environment of the Gulf of Mexico, the Caribbean Sea and the areas of the Atlantic Ocean adjacent thereto, south of 30 north latitude and within 200 nautical miles of the Atlantic Coasts of the States. The Convention for the Protection and Development of the Marine Environment in the Wider Caribbean Region (WCR) or Cartagena Convention is a regional legal agreement for the protection of the Caribbean Sea. The Convention was adopted in Cartagena, Colombia on 24 March 1983 and entered into force on 11 October 1986. The Convention is supported by three technical agreements or Protocols on Oil Spills, Specially Protected Areas and Wildlife (SPAW) and Land Based Sources of Marine Pollution (LBS).
CCB	Clean Coast Bonaire - pilot program funded by WWF to bring OSPAR Marine Litter Survey methodology to Bonaire.
CSV file	In computing, a comma-separated values (CSV) file is a delimited text file that uses a comma to separate values. A CSV file stores tabular data (numbers and text) in plain text. Each line of the file is a data record. Each record consists of one or more fields, separated by commas.
DAD	Dive Against Debris – Project AWARE program for benthic marine litter removal and survey by volunteer scuba divers.
Debris	See Litter – although the words “litter” and “debris” are sometimes used to indicate “rubbish” with different sources in this document the two words are taken to be inter-changeable. Note also that the UN resolution A/60/L.22 and supporting documents used the term “debris” but subsequent UN programmes and documentation have used the term “litter”.
EIHA	Environmental Impact of Human Actives committee within OSPAR Biodiversity Strategy
EPA	US Environmental Protection Agency
Flux rate	Flux rate is the amount of litter that accumulates on a given length of beach over a given period of time expressed as [unit quantity of litter] per [unit length of beach] per [unit time]. See also standing crop.
GCFI	Gulf and Caribbean Fisheries Institute
GESAMP	Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection
GPML	Global Partnership on Marine Litter

ICC	International Coastal Cleanup - Annual event, celebrated on the 3rd Saturday of September. The world's largest volunteer effort for ocean and waterways.
IOC of UNESCO	Intergovernmental Oceanographic Commission of United Nations Educational, Scientific and Cultural Organization
LBS	Land Based Sources of Marine Pollution
LitteR/Litter Analyst	A tailor-made software for analysing the results of beach litter surveys
Litter Characterization	System used to classify different types of litter. Many different systems have been used in the literature including grouping litter based on its material composition (e.g. plastic vs wood vs metal), form (e.g. bottles vs crates vs sheets) or source (e.g. recreational activities vs fishing vs commercial transport). In this report a comprehensive litter characterization scheme has been developed that uses both material composition and form.
Litter Monitoring	Repeated surveys of beaches, seabed and/or surface waters to determine litter quantities such that information can be compared with baseline data to see if changes occur through time and/or in response to management arrangements.
Litter Survey	Structured set of procedures to provide a quantitative assessment of the amount of litter in a given location.
Marine Litter	Waste, discarded or lost material resulting from human activities – marine litter is any such material that has made it into the marine environment, including material found on beaches or material that is floating or has sunk at sea.
MARPOL	International Convention for the Prevention of Pollution from Ships
MCS	Marine Conservation Society
MDMAP	Marine Debris Monitoring and Assessment Project developed by NOAA in the USA.
Microplastics	Plastic fragments less than 5mm in diameter. Primary Microplastics: Produced for a specific use (i.e. nurdles). Secondary Microplastics: Formed from the breakdown of larger plastic materials (i.e. bottle fragmentation).
MSFD	Marine Strategy Framework Directive (of the European Union)
MySQL	An open source relational database management system. The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements. MySQL was owned and sponsored by a single for-profit firm, the Swedish company MySQL AB, now owned by Oracle Corporation. For proprietary use, several paid editions are available, and offer additional functionality. MySQL is also used in many high-profile, large-scale websites such as Facebook and YouTube.
NGO	Non-Governmental Organization
NOAA	National Oceanic and Atmospheric Administration
NMDMP	National Marine Debris Monitoring Program developed by the Ocean Conservancy in the USA.

OC	The Ocean Conservancy - A non-profit environmental advocacy group based in Washington, D.C., United States. The organization helps formulate ocean policy at the federal and state government levels based on peer reviewed science. It is an NGO receiving funding from foundations and corporations.
OSPAR	The 1992 OSPAR Convention is the current instrument guiding international cooperation on the protection of the marine environment of the North-East Atlantic. It combined and up-dated the 1972 Oslo Convention on dumping waste at sea and the 1974 Paris Convention on land-based sources of marine pollution.
PADI	Professional Association of Dive Instructors
PPE	Personal protective equipment
Project AWARE	Registered non-profit organization working with volunteer scuba divers.
RAP	Regional Action Plan
RAPMaLi	Regional Action Plan for Marine Litter
RCU	Regional Coordinating Unit for any of the various UNEP Regional Seas Programmes (see RSP).
RDS	Relational Database Service, a cloud based relational database service provided by Amazon.
RSP	The UNEP Regional Seas Programme
SDG14	Sustainable Development Goal (SDG) 14 - Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
SIDS	Small Island Developing States
Standing crop	Standing crop is a measure of the amount of litter on the beach expressed as the [unit quantity of litter] per [unit length of beach]. See also Flux rate.
TFS	Trash Free Seas - program of Ocean Conservancy in charge of ICC, Clean Swell and TIDES database
TIDES	Trash Information and Data for Education and Solutions (Ocean Conservancy website www.coastalcleanupdata.org)
UNEP/UN Environment	United Nations Environment Programme
UNEP Regional Seas Programme	The Regional Seas Programme was launched in 1974 in the wake of the 1972 United Nations Conference on the Human Environment held in Stockholm, Sweden. Currently, eighteen regions are covered by the Regional Seas family. In total more than 140 countries participate in regional programmes thus the RSP is one of the most globally comprehensive initiatives for the protection of marine and coastal environments.
UNEP-CAR/RCU	UNEP's Caribbean Regional Coordinating Unit
UNEP-CEP	UNEP's Caribbean Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
WCR	Wider Caribbean Region
WWF	World Wide Fund for Nature

Foreward – 2021 Edition

The first edition of this report was prepared in 2019. Since then, the global community has shown increased awareness in marine litter, resulting in additional capacity, collaboration, and technology. The goal of regional harmonization must also fulfil the requirements for global harmonization.

To achieve a harmonized marine litter monitoring network within in the Wider Caribbean Region that also fits within the global context, the recommendations contained in this report have been updated to include the most up to date methodology that is consistent with global harmonization instruments.

The main updates are as follows:

- The publication of the 2021 Joint List of Litter Categories for Marine Macrolitter Monitoring by the Joint Research Centre, which combines the litter types from different marine litter monitoring lists (including OSPAR and UNEP) into one list for the purposes of global scale harmonization
- In April 2021, OSPAR's Coordinated Environmental Monitoring Programme launched the updated beach litter survey list dividing items between plastic and expanded polystyrene and adding new fisheries and COVID-19 related items.
- In July 2020, the Clean Swell App added new commonly found litter and COVID-19 related items.

It is envisaged that all these updates will improve comparability of marine litter data across the globe. Changes in production and consumption patterns resulting in the introduction of new types of litter may necessitate future updates.

Introduction

All around the world, Non-Governmental Organizations are launching a growing number of cleanups as part of awareness raising programs. While people are becoming increasingly aware of the magnitude and risks of the plastic debris found in our oceans, policy development is still at an early stage.

Increased public awareness has helped to drive new policies that are aimed at preventing plastics from entering the ocean. A key question is whether in fact these policy measures, such as bans on certain single-use products or policies aimed at better waste management in ports, are actually working. In order to assess the effectiveness of regional, national and local measures, policy makers need a new robust monitoring scheme that delivers good quality data.

Apart from monitoring the effectiveness of policies, such a monitoring system could also lead to a better understanding of the amounts, types, sources, and potential impacts of marine litter in the Wider Caribbean Region (WCR), thereby enabling the development of targeted measures to reduce plastic and other types of marine litter pollution.

This study aims to contribute to the development of a monitoring scheme for marine litter in the WCR, with a focus on monitoring visible marine litter on the shoreline - litter that derives from rivers, ocean currents, waves and wind, or is left behind by tourists. This report aims to assess leading initiatives and provide recommendations to policymakers and experts in the WCR.

On 18 and 19 October 2018, the UN Environment's Caribbean Environment Programme (UNEP-CEP), and the Gulf and Caribbean Fisheries Institute (GCFI), co-hosted a workshop in Miami focused on harmonizing marine litter monitoring in the WCR. The workshop was a direct result from a commitment made by the OSPAR Commission and CEP at a United Nations (UN) Conference held in New York in June 2017, about the implementation of Sustainable Development Goal 14 (#OceanAction17198). Apart from the direct connection by sea, the Cartagena Convention and OSPAR Commission share several common Contracting Parties including The Netherlands, France and the United Kingdom. A variety of approaches for both the collection of information, as well as the cataloging of data were presented. The participants in the workshop recognized the value of a concentrated number of approaches for collecting and cataloging this information and agreed that the next steps should focus on determining the most appropriate methodology. A pilot project about testing the OSPAR Marine Litter Monitoring methodology, a monitoring scheme used by constituent member countries of the OSPAR Commission, as well as various NGO driven initiatives were presented to participants in the workshop.

UNEP 2009

Operational Guidelines for Comprehensive Beach Litter Assessment

A comparative analysis of information from around the world on existing experience and methods for surveys, monitoring, reporting protocols and assessment of marine litter.

- **Objectives**
- **Beach selection & characterization**
- **Sampling units**
- **Sampling frequency**
- **Laying out a typical survey**
- **Litter classification**
- **Data sheets**
- **Quality assurance**
- **Data management platform**
- **Equipment needs**

This assessment is one of the tasks identified during the workshop and focuses on two priority objectives:

1. Evaluate a hybrid approach to data collection methods employed by OSPAR and Ocean

Conservancy for the Wider Caribbean Region. This includes identifying the pros and cons of each methodology by comparing the different survey methods, field forms and databases, as well as governance of the initiatives.

2. Evaluate the technical merits of marine litter data housing by comparing different databases currently used to collect data.

This study compared three initiatives in the Caribbean region and the OSPAR marine litter monitoring methodology against a set of predetermined criteria. These criteria were adapted from a previous assessment made by UNEP in 2009 (UNEP 2009). Furthermore, a case study is described from Bonaire, where the authors initiated and employed a hybrid approach to cleaning the coast and monitoring the litter according to different existing initiatives. A short questionnaire was sent to the initiatives about data management, including data housing and data ownership.

There are significant distinctions between the methodologies employed. One important difference is the aim of the monitoring. Where the OSPAR marine litter monitoring methodology serves to inform policymakers about progress on policy measures in the North East Atlantic Region, most of the other initiatives have as primary aim to raise awareness, engage with citizens and to inform policymakers. There are also differences in the governance of the initiatives.

Regarding the methodology, there are differences in location selection, frequency, items on the field forms and in people who perform the surveys. These aspects have consequences on the type of analyses that can be made from the data gathered. To analyze trends, for example, it is key to have frequent monitoring on the same site over a predetermined distance and preferably surveyed by trained surveyors to avoid bias. While this approach is ideal for monitoring, it may not serve well for engaging citizens and raising awareness. The authors therefore suggest adopting a hybrid approach that allows for engagement with citizens for monitoring, while ensuring good quality data collection on certain preselected sites. To ensure that the marine litter monitoring methodology used for harmonization of the Wider Caribbean Region is consistent with global harmonization instruments, the methodology and litter items should be reviewed and updated periodically.

Regarding the data collection and data housing, the recommendation is not to reinvent the wheel, but to make use of existing IT infrastructure and/or learn from existing databases from successful initiatives. Some capacity and resources would be needed to develop a consistent monitoring program in the Wider Caribbean Region. As a first step, an action plan could be drafted, including the establishment of a three-year pilot program. The pilot would identify potential pilot countries, build on the experience in Bonaire and include a follow-up regional marine litter harmonization workshop.

Section 1 provides background on marine litter in the Wider Caribbean Region, followed by an overview of marine litter monitoring activities in Section 2. Section 3 describes the OSPAR Marine Litter Monitoring program. A description of the method followed during this assessment in Section 4. Sections 5 gives the results of the analysis. Section 6 explains the enhancement of data collection by using the global Joint List of Litter Categories for Marine Macrolitter Monitoring. Conclusions and recommendations are in Sections 7 and 8.

1. Marine Litter in the Wider Caribbean Region

1.1 Impact

The global issue of marine litter has had a significant impact on countries of the Wider Caribbean Region, in particular on Small Island Developing States. SIDS have a higher proportion of coastline and a significant reliance upon coastal ecosystems for tourism, fishing, and transportation than in other regions. The tropical climate is conducive to tropical cyclones in addition to year-round beach and water recreational activities, causing more waste production and potential marine litter. Prevalence of marine litter is detrimental to the economy, human health and safety, habitats, and wildlife of SIDS. There is also increasing concern about microplastics and their impact on health.

1.2 Governance & Actions

There are many international agreements in place to address marine litter, however, the Cartagena Convention is the only agreement that governs marine litter issues specific to the Wider Caribbean Region. It does this through the Protocol Concerning Pollution from Land-Based Sources and Activities (LBS Protocol). The Caribbean Sea is a Special Area under MARPOL Annex V relating to discharge of ship-generated waste. The Caribbean Node for Marine Litter is co-hosted by GCFI and the Secretariat for the Cartagena Convention as a regional platform for implementing the Regional Action Plan and supporting the objectives of the Global Partnership on Marine Litter. As of July 2018, the Cartagena Convention and its LBS Protocol has been ratified by fourteen (14) WCR countries. The Regional Action Plan for Marine Litter (RAPMaLi) serves to set priorities and achieve the objectives of the LBS Protocol. The RAPMaLi for the Wider Caribbean Region was originally developed in 2007 as a project under the directive of the United Nations Environment Programme (through its Regional Seas Program).

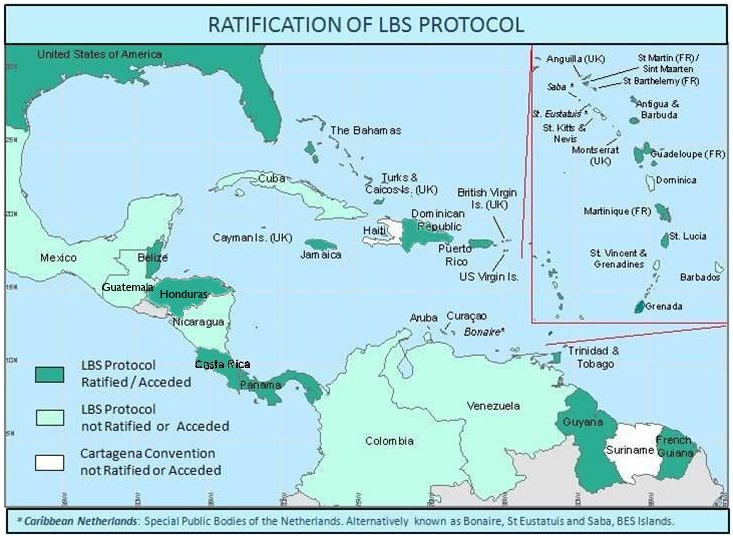

Figure 1: Map of WCR with Contracting Parties

In 2014, the UNEP-CEP prepared an update to the 2008 RAPMaLi called "CEP Technical Report 72: Regional Action Plan on Marine Litter Management (RAPMaLi) for The Wider Caribbean Region 2014." The RAPMaLi concluded that many of the islands in the WCR have programmes to address marine litter. However, there is still the need for the establishment of national marine litter monitoring programmes to provide for a continuous assessment of coastal areas and seas. The following two action points were recommended in RAPMaLi 2014 regarding marine litter monitoring:

ACTION 1: *Design and implement a strategy to develop national marine litter monitoring pilot projects in the WCR, including standardised methods for data collection and reporting within the framework of UNEP Regional Seas Global Marine Litter Monitoring Guidelines.*

ACTION 2: *Develop a regional, web-based database as a clearinghouse for marine litter information and research.*

2. Marine Litter Monitoring in the Caribbean

2.1 Ocean Conservancy – Trash Free Seas

Historic reports and online research show that the main data source for marine litter in the WCR is from surveys by the Ocean Conservancy and partners. The Ocean Conservancy is at the forefront of marine litter monitoring in terms of longevity, popularity, accessibility, ease of use and innovation. The volume of litter removed from the environment and amount of awareness raised regarding the subject of marine litter by the OC's Trash Free Seas program is an enormous contribution to the WCR. There are now three different survey methods managed by the OC with data that is compiled on the TIDES website www.coastalcleanupdata.org.

- **International Coastal Cleanups** have been occurring in 32 different countries in the WCR since 1989.
- **Project AWARE Dive Against Debris** survey methodology has been used during underwater clean-ups to remove and record benthic debris in 29 WCR countries since 2011.
- In 2016, the Ocean Conservancy added another useful citizen science tool to collect marine litter data with the development of the **Clean Swell App**.

2.2 OSPAR – A Recent Arrival to the Caribbean

In 2018, a pilot project was initiated by the WWF to test the feasibility of applying the OSPAR Marine Litter Monitoring Survey protocol on the island of Bonaire. The OSPAR protocol is a uniform, high resolution marine litter survey conducted by trained surveyors in the countries of the OSPAR region since 2000 (see Section 3 for more detail). The pilot program was the first time that the OSPAR protocol was tested in the Caribbean. The program was well attended with ample volunteer interest to support the survey needs. It was determined to be a successful pilot by the WWF organizers and

therefore the pilot continued and is currently ongoing (as of August 2021). A few minor modifications and additions were made to the OSPAR protocol to adapt it to the region. Once such modification was to reduce the length of beach required to be cleared due to heat, sun and large volume of debris. An addition to the protocol was to add the presence and volume of sargassum because (while not 'marine litter' by definition) it is an issue of concern in the region. A complete case study of the pilot can be found in Appendix A.

2.3 Other Marine Litter Survey Methodologies

Other marine litter surveys are used in the WCR, including but not limited to: EPA Trash Free Seas, NOAA MDMAP, and Marine Debris Tracker App. However, these methodologies do not appear to be prevalent and were not included in scope of this report.

A list of WCR countries and marine litter monitoring activity can be found in Appendix C.

3. OSPAR

3.1 The OSPAR Convention

The OSPAR (Oslo Paris) Convention is the legislative instrument regulating international cooperation on environmental protection in the North-East Atlantic (OSPAR 2018). The implementation of the OSPAR Convention is organized through several Committees. Marine Litter is part of the Environmental Impacts of Human Activities Committee (EIHA).

Figure 2: The OSPAR Maritime Area

3.2 OSPAR Marine Litter Monitoring Protocol

In order to monitor progress on reducing litter entering the marine environment, OSPAR assesses beach litter, seabed litter and plastic particles in Fulmars stomachs indicators. For Beach litter, OSPAR developed a uniform Marine Litter Monitoring protocol from 2000 onwards for all contracting parties. The monitoring programs enable for the abundance, trends and composition of marine litter to be determined.

The monitoring results are used by policymakers to assess the effectiveness and assist in the implementation of policies and measures at regional and national levels, such as the EU's Marine Strategy Framework Directive (MSFD) and OSPAR's Regional Action Plan for Marine Litter (EU, 2008, OSPAR Commission, 2014). The MSFD is an EU Directive aimed at achieving Good Environmental Status in European seas (EU, 2008). Marine Litter is one of the descriptors used to assess whether European seas are in a Good Environmental Status.

By monitoring in a uniform way across the OSPAR region, data can be interpreted and compared throughout the region.

The methodology is developed to enable participation by all OSPAR member countries in a cost-effective manner while considering quality assurance of the data gathered (OSPAR Guideline, 2010).

The method is based on an OSPAR pilot project from 2000 to 2006 and complemented by marine litter monitoring guidelines from UNEP, making the OSPAR method compatible with the UNEP guidelines.

3.3 Governance

The OSPAR Marine Litter surveys are done by all countries in the OSPAR region. Every country has a national coordinator, usually a government representative, or this is contracted to a third party. The national coordinator is responsible for a quality check on the data and timely reporting into the OSPAR Marine Litter Database, which is publicly accessible through https://beachlitter.ospar.org/. The data are owned by the constituent OSPAR member countries, new data becomes publicly available after consideration by the EIHA Committee. Communication between national coordinators and surveyors is done through meetings of the ICGML and through an online platform provided by OSPAR. Coordinators receive notification on milestones for data entering. Furthermore, work in progress as well as information on litter items are shared through the online platform. All surveys are carried out by trained people to ensure consistency in the data gathering.

3.4 Data Analysis

A tailor-made software package called Litter Analyst was developed to perform the assessments of marine litter (van der Meulen and Baggelaar, 2016). The software provides statistical analysis and delivers evaluation tables and graphs on items, sources, material composition, trends and the significance of trends (P-values). In fall 2018, a new version was developed called LitteR, with more functionalities.

4. Evaluation Method

This chapter describes how the different beach litter data gathering, and cleanup initiatives were evaluated.

A variety of approaches for both the collection of information as well as the cataloging of the data were presented. The participants in the workshop recognized the value of a limited number of approaches for collecting and cataloging this information and agreed that the next steps should focus

on determining the most appropriate methodology.

This assessment follows from the workshop in October 2018 and focuses on two priority objectives:

1. Evaluate a hybrid approach to data collection methods employed by OSPAR and Ocean Conservancy for the Wider Caribbean Region. This includes identifying the pros and cons of each methodology by comparing the different survey methods, field forms and databases as well as the governance of the initiatives.

2. Evaluate the technical merits of marine litter data housing by comparing different databases currently used to collect the data.

This study compared ICC, Clean Swell, Dive Against Debris and the OSPAR marine litter monitoring methodology against a set of predetermined criteria. These criteria were largely adapted from a previous assessment made by UNEP (UNEP 2009). Furthermore, a case study is described from Bonaire, where the authors initiated and employed a hybrid approach to cleaning the coast and monitoring the litter according to different existing initiatives.

Research data was compiled in the following ways:

- A desk search was carried out in order to gather information on the initiatives to compare.
- Testing all initiatives' field forms, apps and databases in Bonaire.
- Case study OSPAR application in Bonaire.
- A short questionnaire, listed in Appendix D, was sent to all initiatives about the IT infrastructure and the governance of the data gathered.

This experience and information lead to the information presented in Appendices E-N containing survey summaries, data collection forms and report output. Then, in Appendices O-V all four surveys were compared to each other using an evaluation matrix. Some criteria from the UNEP 2009 study were found not to be relevant for this evaluation where others were added.

5. Comparison of Survey Methodologies

In 2009, the UNEP/IOC Guidelines for Survey and Monitoring of Marine Litter were developed. The objectives were to develop a set of standardized operational guidelines for the conduct of beach, benthic and floating litter assessments.

The UNEP Guidelines identify many key points that provide the basis of comparison between OSPAR, ICC, Dive Against Debris and Clean Swell. To summarize, the criteria have been divided up in the following questions to see the main points of similarity and difference between the surveys by topic.

5.1 Key Objectives of the Surveys

All initiatives aim to gather data on marine debris. A difference is that OSPAR is developed for and by policymakers in order to identify priorities and to track progress of implemented policies, where the other initiatives are primarily used to raise community awareness and engage with citizens and corporations. Side by side comparisons are found in Appendix O.

5.2 Survey Requirements

The survey requirements were evaluated by looking at the sampling frequency, site selection and sampling unit. OSPAR requires consistent sampling units with respect to site and length of survey, requirement that all litter items are cleared from a survey site (including all small pieces to the extent possible), consistent sampling intervals and supervision. TFS does not have these requirements. OSPAR surveys measure flux rates. This type of information is important as it determines the type of data analysis that can be done. More detail can be found in Section 5.8. Side by side comparison found in Appendix P.

5.3 Survey Conditions (on the day of sampling)

OSPAR and DAD collect information regarding weather conditions. OSPAR collects date of last clean and other circumstances that could impact the volume of marine litter, TFS does not. TFS collects number of participants, OSPAR does not. Side by side comparisons are found in Appendix Q.

5.4 Site Information

OSPAR collects significantly more information regarding the depositional nature of the beach. For example: topography, prevailing wind/currents, location in relation to litter sources. Side by side comparison found in Appendix R.

5.5 Litter Items and Categorization

The main difference is the level of resolution. Regarding source tracing by user group, it should be noticed that in the more detailed list of items in OSPAR, there is a greater ability to differentiate user groups, for example: items that relate to shipping and fishing industry (i.e. injection gun containers, cleaning agents). Side by side comparison found in Appendix S.

5.6 Quality Assurance

ICC/Clean Swell are easily accessible to recruit the maximum amount of citizen science volunteers. Dive Against Debris requires dive training and recommends a specialty training course. OSPAR requires more supervision, training, and quality control, which limits participation but ensures high quality and usability of data. Use of trained personnel allows for higher resolution surveys and has

been proven to reduce bias, ensure consistency in data sampling and identification of litter sampling. Side by side comparison found in Appendix T.

5.7 Data Management

Database housing, management and technology is similar. However, the data entry is restricted to regional coordinators for OSPAR. The significant difference is in the ownership of the data: OSPAR data is owned by the constituent countries of the region; TFS data is owned and controlled by NGOs.
Side by side comparison found in Appendix U. All data of the compared initiatives can be accessed by anyone who is interested.

For OSPAR, data can be retrieved through https://beachlitter.ospar.org/survey. A unit of time, country and area can be selected after which raw data can be downloaded as a csv file. If a country or region is not selected, all data of all countries is given for the selected time period. There is also a possibility to retrieve pie charts (click 'survey data reports') about the material composition and the different sources.

The data of Trash Free Seas can be accessed through https://www.coastalcleanupdata.org. This database is user friendly for the general public and provides different options for creating online reports, such as a summary report and a "Top 10" list of most commonly found items. The data for these reports can be downloaded as an xlx file.
Both OSPAR and TFS provides access to analysed and published online reports and to the actual raw data, either at a national, regional level or even at the survey site level.

5.8 Reports and Data Analysis

All initiatives provide top ten most found items, entanglement, and abundance. Because OSPAR also measures flux rates, the data can be used to analyse trends in greater detail using tailor-made software. Side by side comparison found in Appendix V.

Flux Rate

To measure flux rates, one must calculate the rate at which litter accumulates, i.e., the amount of litter arriving on a given length of beach over a given period of time expressed as [unit quantity of litter] per [unit length of beach] per [unit time], as opposed to standing crop which measures the amount of material on the beach, i.e. [unit quantity of litter] per [unit length of beach]. This distinction between the assessment of flux rate rather than standing crop is one of the fundamental differences between the comprehensive and rapid assessment protocols (UNEP 2009).

5.9 Survey Advantages and Limitations

All four surveys have inherent benefits and are known to be effective methods of data collection. They are, however, useful in different ways as described by the two different classes of surveys defined comprehensive and rapid by UNEP 2009.

UNEP defines a **comprehensive survey** as a protocol that is targeted at the collection of highly resolved data to support the development and/or evaluation of mitigation strategies in coastal and marine systems. The protocol for these surveys includes a highly structured framework for observations at regional, national, and international scales.

UNEP defines a **rapid survey** as a protocol comprised of a simplified version of the comprehensive beach survey, targeted primarily at developing public awareness and education about marine litter issues and is thus not constrained by the need to fit within a broader spatio-temporal comparison framework. Such surveys may be used as a vehicle for broader based community engagement and in building community capacity when working towards inclusion within the comprehensive survey framework. Unfortunately, the rapid survey approach has limited applicability when assessing flux rates.

International Coastal Cleanup

Advantages: Popularity, longevity, accessibility. Currently established in the WCR as the main source of marine litter information. Existing volunteer base. Awareness raising. Fulfils the requirements of a Rapid Beach Assessment by the definition of UNEP 2009.
Limitations: One time per year. No consistency in sampling units for assessing flux rate of accumulation. Ownership of data by NGO with funding from corporations (such as The Coca-Cola Foundation) could be construed as conflict of interest.

Clean Swell

Advantages: Ease of use, accessibility. Can be used on any coast, by anyone at any time. Existing volunteer base. Awareness raising.
Limitations: No consistency in sampling units for assessing flux rate of accumulation. Ownership of data by NGO with funding from private corporations (such as The Coca-Cola Foundation) could be construed as conflict of interest.

Dive Against Debris

Advantages: Can be used by volunteer divers to collect benthic debris data at any site at any time. Existing network of PADI dive centers actively recruiting volunteers and organizing events. Awareness raising. Could be adapted as a "Rapid Benthic" as a modified classification of UNEP 2009 (see Section 6.3).

Limitations: No consistency in sampling units for assessing flux rate of accumulation. Cost-prohibitive for all volunteers with respect to scuba tanks, dive equipment, boat transport to dive sites if not accessible from shore.

OSPAR

Advantages: Currently established in OSPAR region as the main source of marine litter information. Strict data collection protocol with respect to sampling units, training, supervision, and higher resolution of data allows for credible and comprehensive trend analysis. Ownership of data by constituent countries puts data directly in the hands of policy makers, ensures support for action plan, and has no conflict of interest. Proven track record of multi-national network enabling knowledge sharing between countries through regional coordinators. Fulfils the requirements of a Comprehensive Beach Assessment (with a few additions – see Section 5.10) by the definition of UNEP 2009.

Limitations: Requires training and supervision. Time consuming on heavily littered beaches due to level of detail and requirement of total clearance. Higher cost in terms of human and technical resources.

5.10 Comparison of OSPAR to UNEP Guidelines

When the UNEP 2009 standards are reviewed side by side with OSPAR Marine Litter Survey methodology, as outlined in Appendix W, there are a few points that are recommended by UNEP that are not currently present in the OSPAR Survey.

In summary, by adding the following, OSPAR can be adapted to fulfil the criteria for a Comprehensive Beach Litter Survey as outlined by UNEP 2009:

- additional survey data to collect: weight of all items collected, start/end times, width of beach at time of survey, large items not removed, number of persons
    - divide plastic and polystyrene into two separate categories (OSPAR intends to make this change in the future)
- additional site data to collect: beach curvature, estimated number of person visits, shape of beach profile (horizontal)
- add different litter exposures to site selection criteria
- add low to moderate slope to site selection criteria
- develop workshop/standardized training program for coordinators and surveyors
    - revise OSPAR photo guide for regional items
- establish regional coordinator and location managers

In the interest of consistency, adaptations to the OSPAR forms should be applied before regional implementation and would be accomplished by creating amended forms for site, survey, and litter collection (see Appendix Y).

Achieving the organizational recommendations from UNEP 2009 could be accomplished by designating a regional coordinator to:

- prepare training program
- outreach to stakeholders in constituent countries
- provide training for location managers and volunteers
- assist with selection of appropriate sites
- oversee management of database
- ensure quality control
- network with location managers

6. Joint List of Litter Categories for Marine Macrolitter Monitoring

In 2021, Joint Research Centre (JRC), the European Commission's science and knowledge service published the report, *A Joint List of Litter Categories for Marine Macrolitter Monitoring*. The list was prepared by the Marine Strategy Framework Directive Technical Group on Marine Litter, in close collaboration with EU Member States and the Regional Sea Conventions.

The Joint List combines the litter types from different marine litter monitoring lists (OSPAR, ICES, UNEP, etc.) into one for the purposes of providing a high-resolution classification system for litter items enabling them to be recorded in a clear, unambiguous, and harmonised way.
Although it was developed to enable comparable monitoring of marine litter across the European Seas and beyond and across different compartments of the marine environment and to support EU Member States (MS) in the implementation of monitoring programmes and plans of measures to act upon marine litter, it can also be used for the purpose of enhancing harmonization at a global scale.

Additional intended functions of the Joint List include:

- enabling compatibility and comparability of data obtained with marine litter recording schemes that are characterised by different levels of detail
- informing other parties in support of the set-up of comparable monitoring frameworks
- providing an updated, refined, comprehensive and fine-tuned list of litter items that are found in the coastal and marine environment
- allowing for the selection of the detail, which is appropriate or necessary for the needs of the monitoring programme

The Joint List is based on a hierarchical system, which means that litter items characterised by different levels of detail can be recorded and analysed, including the following categories:

- Material categories
  - Chemicals
  - Clothes/textile
  - Food waste (organic)
  - Glass/ceramics
  - Artificial polymers/plastic
  - Paper/cardboard
  - Rubber
  - Processed/worked wood
- Use categories
  - Agriculture related
  - Aquaculture related
  - Clothing
  - Building and construction related
  - Food consumption related
  - Fisheries related
  - Personal hygiene and care related
  - Medical related
  - Undefined use
  - Recreation related
  - Smoking related
  - Vehicle related
  - Hunting related
- Litter type groups (examples – not an exhaustive list)
  - Bags
  - Bottles and containers
  - Crates, boxes, baskets
  - Cans
  - Cups and cup lids
  - Generally dark-coloured oil-like chemicals
  - Rope, string, cord
  - Tableware

The Joint List has clear-cut and comprehensive definitions of litter items (Attachment Z) with a corresponding *Online Photo Catalogue of the Joint List of Litter Categories*.

The Joint List establishes a coding system and provides unique, unmistakeable codes so that they can be compared to well-established data sets (such as OSPAR and the Master List G-Codes from the European MSFD). The coding system is based on 2-4 letter litter codes concatenated with an underscore. The codes are not intended for use on field data recording sheets, but for archiving and/or comparison of data between different monitoring programs.

This system can also easily accommodate the introduction of new litter items when required. Taking into account that the composition of litter in the marine environment can change over time due to changes in production and consumption patterns, resulting in the introduction of new types of litter and the disuse of others, the Joint List presents a proposal for an updating mechanism.

For new monitoring projects, the Joint List recommends that the selection of litter types is linked with policy needs. In most cases, this will mean selecting the highest level of detail available in the Joint List to provide precision and the ability to attribute litter items to specific sources and activities. (Fleet, D., Vlachogianni, Th. and Hanke, G., 2021)

7. How to Combine Successful Tools

7.1 A Hybrid System

Almost 10 years after the UNEP 2009 Guidelines were established, the combination of ICC, Dive Against Debris and Clean Swell have come to the forefront as the most commonly used with respect to popularity and longevity in the WCR. These crowd-sourced programs provide an easily accessible format for volunteers to record and share data regarding beach, benthic and floating marine litter. However, the very nature of their ability to be completed anywhere by any number of people that makes them so popular, widespread, and effective in the region, preclude it from being able to fulfil the requirements of a comprehensive survey. All three surveys are successful tools fitting into the framework of the UNEP 2009 Guidelines as Rapid Assessments.

In the interest of incorporating a Comprehensive Beach Litter Assessment to the WCR, the OSPAR method is the recommended method for several reasons.

- Can be fully compliant with UNEP 2009 Guidelines with few modifications
- Proven track record in OSPAR constituent countries
- Better ability to trace sources of marine litter
- Used for 19 years in 9 separate countries
- Tailor-made statistical tools in place that can be applied
- Data is owned and controlled by the national authorities
- Used to monitor policy progress
- Cost effective to copy methodology and IT infrastructure in the Wider Caribbean Region

In the WCR, marine litter is abundant along many kilometres of coastline. While it is not pragmatic to clean and survey every kilometre, by combining successful tools with proven track records in a complimentary manner, it is possible to maximise the volunteer base, the volume of litter collected, and the effectiveness of data collected.

To achieve that goal, the following is recommended:

- Encourage use of ICC/Clean Swell/Dive Against Debris for data collection using beach, benthic and floating litter removal
- Outreach to ICC and other marine litter coordinators and stakeholders in the WCR
- Establish regional manager network similar to OSPAR using existing contacts
- Add the modified OSPAR method incorporating corresponding J-List codes (Appendix Y) at targeted sites
- Develop action plan for implementation, including: timeline, training, regional team development, country capacity and budget needs

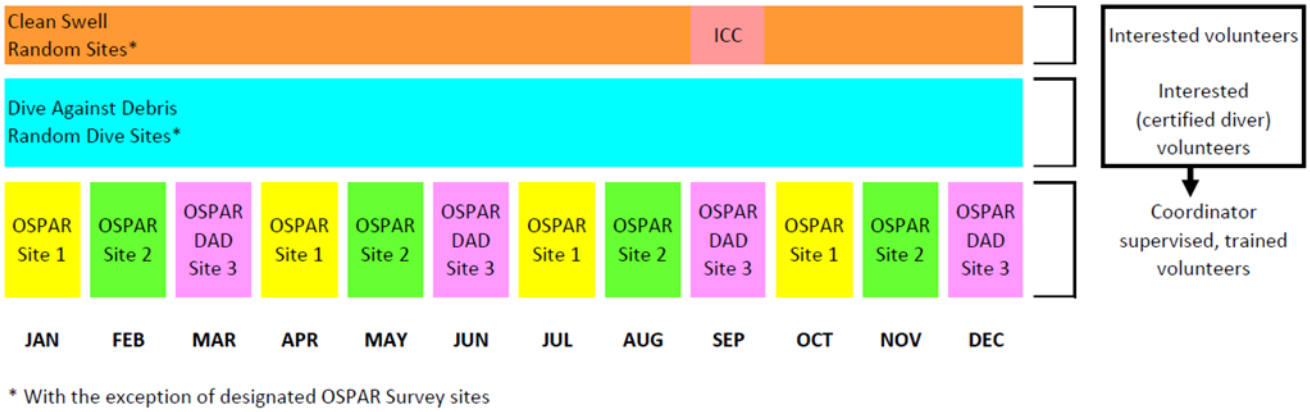

Figure 3: Suggested Schedule of Hybridized Methodologies

7.2 Data Collection Differences

In order to generate statistically viable trend analysis reports, consistent data needs to be collected in a consistent manner over a period of time.

In a side-by-side comparison of litter characterization by item, there are significant differences between the item lists, namely:

- **Level of Resolution** Clean Swell has 28 items, ICC has 42, Dive Against Debris has 100 and OSPAR has 130, the Joint List has 183. In a comprehensive beach litter survey, a higher level of resolution allows for a greater ability to differentiate user group sources, such as fishing, shipping or recreational. It is also important to allow data collection forms to evolve. Commonly listed items in the "Other" Category will be added to the OSPAR Survey Form following periodic reviews.

- **Item Description/Grouping of Items** In many instances, the item descriptions do not match closely enough to allow for combination. For example, on the OSPAR Survey Form, Plastic "Cutlery/Trays/Straws" are grouped together because they are all a source of single use food/beverage consumption. On the ICC Data Form, "Straws/Stirrers" and "Forks/Knives/Spoons" are separate items, but the composition is not noted.

In a side-by-side comparison of data collection methods, there are significant differences between the methods, namely:

- Supervision
- Requirement of clearance
- Intervals of time between surveys
- Standardized sampling units

While it is conceivable to consolidate the more detailed and numerous OSPAR items into the ICC categories (as shown in Appendices B & X), it is inadvisable to combine the datasets because the data has been collected with a different method. To do so would negate the ability to create higher level trend analysis output.

7.3 Benthic Data Collection with Scheduled Dive Against Debris Surveys

Many items of marine litter are negatively buoyant or entangled in substrate (i.e., discarded fishing materials). Therefore, it is of interest to remove and record data regarding benthic marine litter. Because of the temperate water and popularity of scuba diving with tourists, the potential for regularly scheduled benthic surveys is higher in the Caribbean than in other regions. There is a network of PADI dive centers in place that are actively organizing Dive Against Debris surveys. Although the Dive Against Debris Survey Guide recommends quarterly surveys to be repeated at consistent sites, it is not a requirement. Data collected by volunteer divers on any dive can be reported to the Dive Against Debris database (linked to the ICC database via TIDES).

By applying a schedule and consistent sampling unit, the Dive Against Debris survey data could constitute a "rapid benthic" survey and used to evaluate the flux rate accumulation of benthic litter at selected sites. If the OSPAR schedule and sampling unit protocol are applied, then the survey data could be incorporated into the database and analysed for trends. This process is currently being tested in the CCB pilot study.

7.4 Data Management

The TIDES Database is a privately funded and managed crowd-sourced database. It is a useful database that is accessible online to anyone with an interest. It houses valuable, historic, and current

data regarding volumes, percentages and volunteers. It provides the cornerstone for marine litter monitoring data in the WCR and should be supported and encouraged.

The higher resolution of OSPAR and some categorization differences make it difficult to convert completely from one to the other without significant changes. (see Appendix X for a detailed comparison)

Data collected using the modified OSPAR methodology should be housed in a different database. The most cost-effective means of establishing a new database would be to request a copy of existing database currently used by OSPAR and making any necessary modifications and additional data fields, including the additional litter items and unique item codes from the Joint List. It is compatible with the Litter Analyst/LitteR software. The host server ownership and control of the data should be managed by the Cartagena Secretariat.

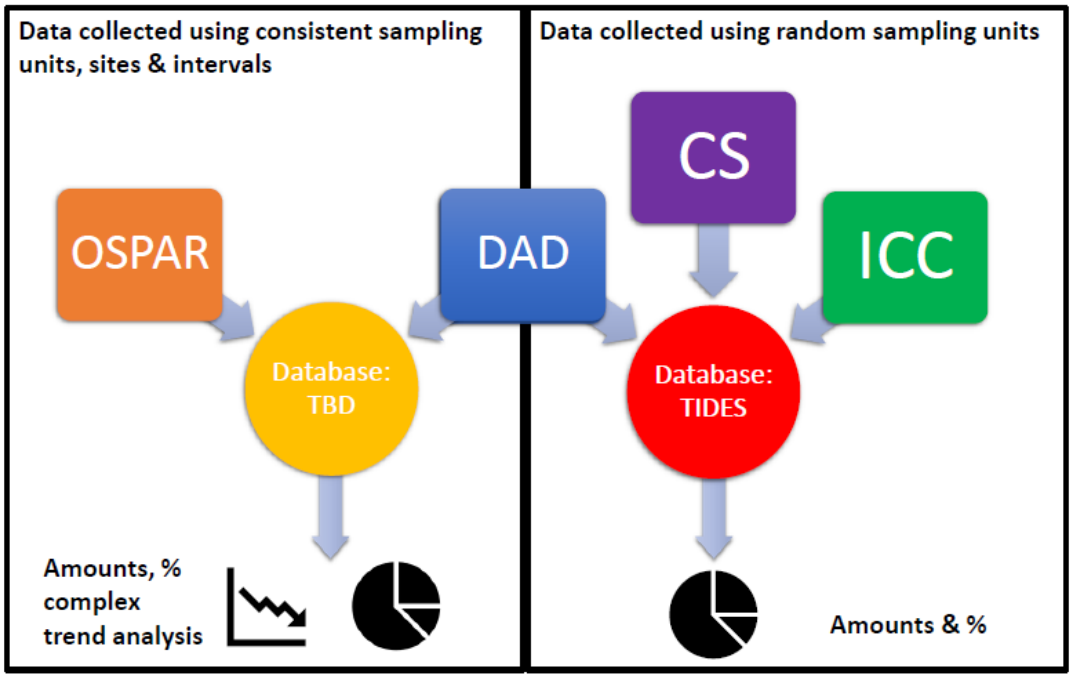

Figure 4: Suggested Data Management Pathways

7.5 Technological Developments on Data Collection

Innovative data collection techniques and (digital) technology in the field of monitoring are strongly in development. In the long run, they have the potential to be a reliable means of generating monitoring data at low cost. We are not there yet but recommend keeping an eye on these developments.

Examples of promising innovations that are currently in the test phase:

- Capturing images with hyperspectral cameras and Artificial Intelligence with which a distinction can be made between types of waste.
- Using Near Infrared (NIR) sensors to objectively determine the type of material, especially the type of plastic.

8. Conclusions & Recommendations

There are significant distinctions between the methodologies employed. One important difference is the objective of the monitoring. Where the OSPAR marine litter monitoring methodology serves to inform policymakers about progress on policy measures in the North East Atlantic Region, the other initiatives have as primary aim to raise awareness, engage with citizens and corporations, and to inform policymakers. There are also differences in the governance of the initiatives. Regarding the methodology, there are differences in location selection, frequency, items on the field forms and in people who perform the surveys. These aspects have consequences on the type of analyses that can be made from the data gathered. For example, in order to generate reliable trend analysis, it is key to have frequent monitoring on the same site over a predetermined distance and preferably surveyed by trained surveyors to avoid bias. While this approach is ideal for monitoring, it may not serve well for engaging with citizens and raise awareness. It also makes combining databases between divergent methodologies inadvisable.

There is a regionally acknowledged need for the establishment of national marine litter monitoring programmes to provide for a continuous assessment of coastal areas and seas. The OSPAR method including database and statistical tool is well established and comprehensive, has political relevance in the EU and can also be applied by the countries in the Wider Caribbean Region.

To achieve the RAPMaLi goals, the authors recommend:

1. A hybrid approach where:
    a. pre-selected sites are chosen for modified OSPAR surveys
    b. existing ICC surveys are encouraged to continue with increased interaction with UN Environment or similar enabling agency

2. Data are catalogued within database structure that is robust to the specific outputs generated by the OSPAR and ICC surveys. This may require a relational structure to the database. Ideally, data would be electronically aggregated from existing sources of data in formats that require no further editing.

3. Analyses and reports are generated automatically with the technical assistance of OSPAR.

4. Raw data are made publicly available after quality control process has been completed.

We further recommend adopting a hybrid approach that allows for engagement with citizens for monitoring while ensuring good quality data collection on certain pre-selected sites. Continue support of the Trash Free Seas programs and actively promote them in the WCR. Introduce the modified OSPAR Marine Litter Monitoring Methodology throughout the region on selected, targeted sites.

Regarding the data collection and data housing, the recommendation is not to reinvent the wheel but to make use of existing IT infrastructure by adapting and modifying databases from successful initiatives.

Some capacity and resources would be needed to develop a consistent monitoring program in the WCR. As a first step, an action plan could be drafted. The Cartagena contracting parties could consider adopting a concrete action plan with a step wise approach towards developing a consistent monitoring scheme. The action plan should entail:

- make efficient use of existing initiatives and capacity
- identify and inventory potential participating countries
- develop a pilot plan for a period of 3 years
- appoint a national representative who is responsible for implementing the pilot
- estimate extra capacity, budget and resources needed
- outreach to experts
- create training program for national experts
- organize regional monitoring workshop
- identify reference sites
- appoint surveyors
- adapt and modify the database format from OSPAR incorporating the J-List Coding System
- create a database space
- establish a governance structure where constituent members of the Cartagena convention have ownership and control of the data that is managed by the Cartagena Secretariat
- establish a regional manager network similar to OSPAR (building on relations through ICC and Dive Against Debris)
- continue to build trans-national collaboration between OSPAR and Cartagena through visiting each other's meetings, the ICGML Basecamp Platform and frequent communication with OSPAR to stay up to date with updates to the program
- review and update the methodology and litter items periodically to ensure that the marine litter monitoring methodology is up to date with global harmonization instruments

Achieving the goal of an effective and harmonized approach to marine litter monitoring in the Wider Caribbean Region is feasible. The tools are already here. Adopting a hybrid approach will be the most cost effective and efficient means of harmonizing data collection and maximizing litter removal. This will take us one step closer to our unified goal of reducing marine debris worldwide.

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

The Ocean Conservancy (Trash Free Seas) https://oceanconservancy.org/trash-free-seas/

The Ocean Conservancy (ICC) https://oceanconservancy.org/trash-free-seas/international-coastal-cleanup/
The Ocean Conservancy (Clean Swell) https://oceanconservancy.org/trash-free-seas/international-coastal-cleanup/cleanswell/

The Ocean Conservancy (TIDES) https://www.coastalcleanupdata.org/

Project AWARE (Dive Against Debris) https://www.projectaware.org/diveagainstdebris

US EPA Trash Free Waters https://www.epa.gov/trash-free-waters/international-initiatives-address-marine-debris

Appendix A – Case Study: Clean Coast Bonaire

Bonaire Facts

Governance: Special Municipality of the Kingdom of the Netherlands
Population: 19,000+ (from 2016 survey)
Languages: Papiamentu, Dutch, English, Spanish
Size: 288 square kilometres (38.8km long)
Location: Southern Caribbean, 80 kilometres north of Venezuela (12.2019° N, 68.2624° W)
Coastal Management: Stichting Nationale Parken Bonaire (STINAPA)

Marine Litter Monitoring History on Bonaire

Beach and underwater clean ups are conducted by various organizations and individuals, such as: Sea Turtle Conservation Bonaire, STINAPA, Tene Boneiru Limpi, Selibon, One Hour Clean Up Power, Debris Free Bonaire. However, the focus is mainly on litter clearance rather than data collection. Historic data-sets available were collected using the methodology from the Ocean Conservancy group (ICC/Dive Against Debris). In 2011, there was a baseline assessment of beach debris and tar contamination conducted at 21 sites. (Debrot 2013)

Project Objectives

- Determine feasibility of application of OSPAR Marine Litter Monitoring Survey methodology in the Wider Caribbean Region
- Remove litter from coastline
- Identify litter sources
- Evaluate the amount and type of litter present
- Establish long-term, systematic, and consistent data collection protocol to determine regional trends
- Raise island-wide awareness regarding marine litter

Project Description

Clean Coast Bonaire was initiated in August 2018 to implement the OSPAR Marine Litter Monitoring survey protocol on Bonaire. The project is currently funded by The World Wide Fund for Nature in the Netherlands and supported by a local organization on Bonaire called Boneiru Duradero.

Expected Results

The expected results of this program were to:

1. Implement a standardized protocol for use in marine litter surveys.
2. Build partnerships with community groups and obtain their commitment to participate in marine litter surveys.
3. Select beaches for monitoring and delimit monitoring areas for continuity.
4. Ensure the proper use of the OSPAR Marine Litter Monitoring Survey by training groups in data collection.
5. Conduct ongoing monitoring activities at selected beaches.
6. Collect and share data.
7. Identify problems to be resolved for continued development of the program.

Project Activities

Stakeholders including the public, government, NGOs and community groups were invited to training workshops. The workshops consisted of a classroom session to explain the OSPAR purpose and methodology followed by a hands-on beach clean-up and survey.

Three geographically disparate sites were selected and designated as survey sites. Two of the sites are on the eastern, windward coast where the debris is beach-cast, drifting in from off-shore. Site #1 - Boka Onima, to the north-east, is a low-slope, sandy pocket beach. Site #2 - Piedra Pretu is on the south-east coast and has a medium-slope with a mix of gravel and sand. Site #3 - Te Amo Beach is on the western, leeward coast and is a low-slope, sandy beach. It is a popular, recreationally used beach. Surveys are scheduled once a month, with each site being surveyed every three months.

Figure 5: Map of Bonaire with Survey Sites

During the stakeholder meetings, two additional data items were suggested and incorporated.

- Due to an increase in events, it was suggested that collection of regular data regarding sargassum presence would be useful. The OSPAR data collection forms have been modified to include if sargassum is present, and if so the depth of the accumulation and distance from the high-water mark.
- A stakeholder also requested that the width of the beach be recorded. A measurement from the waterline to the designated back of the beach will be taken at each survey.

Results

Training workshops were well attended, with over 30 participants from various organizations. Subsequent surveys have had turnouts ranging between 12 to 16 volunteers. The most prevalent

items on the two windward sites were pieces of plastic/polystyrene under 2.5cm. On the leeward, recreational site, cigarette butts were the most common item. Government supported action to raise awareness regarding improper cigarette butt disposal has been initiated due to the survey results. Surveys are ongoing. Survey data is compiled into Excel spreadsheets (with cloud-based backup) for future use. Survey results are posted via social media and using a GDPR compliant mailing list. Thus far, insufficient data has been collected to determine trends.

Challenges and resolutions

Challenge: The level of detail involved in the OSPAR survey combined with the volume of debris and requirement for complete clearance, made it difficult for volunteers to complete the 100m survey within a reasonable amount of time. Clean Coast Bonaire surveys are scheduled to take place in the morning for approximately two hours in order to avoid the mid-day heat and sun and prevent volunteers from becoming exhausted.

Resolution: During the pilot program training, it was determined that 50m can be cleared within two hours, so the sampling unit was reduced. Although a minimum of 100m is recommended in the UNEP/IOC Guidelines to ensure diversity of litter items, surveys of 50m are yielding between 55 to 72 unique litter items. This is above average when compared to other recorded surveys.

Challenge: Not all trained volunteers attend every survey session. New volunteers and visiting tourists also want to participate.

Resolution: The CCB coordinator is present at every survey to supervise. Untrained volunteers are given a detailed briefing and paired up with more experienced surveyors. The 50m beach area also makes it so the coordinator is immediately accessible for any questions from volunteers.

Challenge: Organizations with a current involvement in beach and/or underwater surveys are supportive, but not inclined to change from ongoing efforts.

Resolution: Incorporate existing programs, as follows:

International Coastal Clean Up Day is celebrated by Selibon, Bonaire's privatized waste management organization, as a day to raise awareness and conduct clean-ups all around the island. In September, Clean Coast Bonaire partnered with Selibon and Sea Turtle Conservation Bonaire so that the scheduled OSPAR survey of Te Amo Beach would coincide with ICC. Although the debris data was collected by volunteers using the OSPAR methodology, the data was also recorded as an ICC clean up event and entered into the ICC database. This process involved condensing the data from 2,422 total items collected as 60 separate item types on the OSPAR survey form into their corresponding 35 separate item types on the ICC survey form. There were 25 item types (148 pieces in total) that did not have a corresponding type and were entered at "Items of Local Concern" in lieu of an "Other" category. (see Appendix B for side by side item comparison) When generating a summary report of

the survey from the Ocean Conservancy TIDES online database, those 148 items are not counted as part of the total. (See Appendix J for TIDES generated report)
Dive Against Debris is a popular activity offered by several dive shops as part of their eco-campaigns. There is a solid volunteer base and a high level of awareness. Several public piers that allow fishing have a large volume of line that need to be removed on a regular basis in order to prevent marine life entanglement. Dive Against Debris surveys are conducted on a quarterly basis as well as sporadically at various other sites around Bonaire. Of the three CCB sites, the two on the windward coast do not normally have safe diving conditions, but Te Amo Beach is an easy and popular site for divers. CCB is incorporating a Dive Against Debris underwater survey at Te Amo Beach to coincide with the regularly scheduled beach survey.

Challenge: The perception that marine litter should be removed from coastal areas whenever possible. This opinion has a positive outcome of frequent beach clean ups around Bonaire by various organizations and individuals. However, it can be difficult to explain why litter should be allowed to accumulate at survey sites for 3 months and why clean-up efforts are focused only on those specific sites.

Resolution: Providing an alternative citizen science program that is easily accessible to all and can be completed on any beach at any time. Encouraging volunteers to install the Clean Swell App on their mobile devices to use for other clean-ups around the island serves this purpose. Use of the app keeps the momentum going, collects data, raises awareness and recruits potential volunteers. For example, the STINAPA Junior Rangers have adopted a beach called Lagun for regular clean-ups. It was evaluated as a potential site for OSPAR surveys in collaboration with the Jr. Rangers. However, due to the level of detail and requirement for complete clearance it was decided that the Lagun site would not be used as a designated OSPAR survey site. The Clean Swell App has been recommended for data collection.

Challenge: Incorporating all Joint List litter items into a printable survey form whilst retaining ease of use for surveyors. To accommodate multiple surveyors collecting data during a survey, the 4-page survey forms are printed and taped onto a folding clipboard.

Resolution: In the interest of space and formatting of the forms, the following 9 items from the Joint List are not listed on the printable document but are contained on the corresponding spreadsheet (if found and listed as a write-in, they can still be entered into the database):

- Plastic sheeting from greenhouses
- Plastic irrigation pipes
- Other plastic items from agriculture
- Plastic flower pots

Figure 6: Photo of Clipboard & 4 Page Survey Form

- Trays for seedlings of foamed plastic
- Plastic oyster trays
- Plastic mussels/oyster mesh bags, net sack, socks
- Plastic biomass holder from sewage treatment plants and aquaculture

Similar items are grouped together within composition categories (i.e., bags, bottles, eating and drinking, fisheries) All regionally prevalent items are included on the Modified OSPAR Survey Forms. Engage in periodic reviews with feedback of users.

Conclusion

On Bonaire, there is currently a great deal of awareness regarding marine litter. Volunteer momentum is high and there are successful and established citizen science programs in place that are mutually beneficial to Clean Coast Bonaire. Clean Coast Bonaire supports, advertises, and encourages island residents and visitors to participate in ICC, Dive Against Debris and Clean Swell. These three programs raise awareness and recruit potential volunteers for Clean Coast Bonaire. The beaches are cleaned, and data is collected in a variety of ways. The number of volunteers and debris removal is maximized**.**

The OSPAR survey methodology was easily incorporated to the requirements of the region with only a few small modifications:

- Shortened beach length
- Addition of sargassum presence and beach width

The OSPAR data collection forms were revised to:

- reflect the above-mentioned modifications
- show corresponding Joint List litter classification numbers
- include Joint List items that are not contained in OSPAR survey (with the exception of non-regional items)
- incorporate additional information recommended by the UNEP 2009 Comprehensive Beach Litter Assessment

The support of the WWF has been a crucial part of the program. The program has been relatively low-budget, but there are several expenses, including: training workshop, supplies and reimbursement of the CCB coordinator. The CCB coordinator supervises every survey for quality control, compiles the survey data, conducts volunteer outreach and communication with stakeholders. A minimum of three years of data needs to be collected in order to be useful for trend analysis using the Litter Analyst software. Therefore, continued funding and support for the project is required.

Due to the data collected by CCB regarding cigarette butts, a government supported plan is already in place to install awareness raising signs on several beaches to address the issue of improper disposal. In short, implementing the OSPAR method on Bonaire is feasible (and existing) and endorsed by local stakeholders. It can be used as an example to scale up in the region.

Appendix B – Entry of Items Collected Using OSPAR Survey Into ICC/TIDES

OSPAR Items	Total	TIDES Item	Total
Cigarette butts	1345	Cigarette Butts	1345
Crisp/sweet packets and lolly sticks	24	Food Wrappers	54
Foil wrappers	28		
Other paper items ** food wrapper - 2*	2		
Food containers incl. fast food containers	1	Take Out/Away Containers (Foam)	1
Caps/lids (Plastic)	119	Bottle Caps (Plastic)	119
Bottle caps (Metal)	358	Bottle Caps (Metal)	358
Cutlery/trays/straws	107	Straws, Stirrers	50
		Forks, Knives, Spoons	57
Drinks (bottles, containers and drums)	2	Beverage Bottles (Plastic)	2
Bottles	13	Beverage Bottles (Glass)	13
Drink cans	10	Beverage Cans	10
Bags (e.g. shopping)	11	Grocery Bags (Plastic)	11
Small plastic bags, e.g., freezer bags	1	Other Plastic Bags	1
Bags (Paper)	1	Paper Bags	1
Cups (Paper)	1	Cups, Plates (Paper)	1
Cups (Plastic)	6	Cups, Plates (Plastic)	6
Nets and pieces of net > 50 cm	1	Fishing Net & Pieces	4
Tangled nets/cord/rope and string	3		
Fishing line (angling)	5	Fishing Line (1 yd/m = 1 piece)	5
Rope (diameter more than 1 cm)	3	Rope (1 yd/m = 1 piece)	13
String and cord (diameter less than 1 cm)	10		
4/6-pack yokes	3	6-pack holders	3
Industrial packaging, plastic sheeting	2	Other Plastic/Foam Packaging	2
Cleaner (bottles, containers and drums)	1	Other Plastic Bottles (oil, bleach, etc.)	2
Other bottles, containers and drums	1		
Strapping bands	12	Strapping Bands	12
Cigarette packets	2	Tobacco Packaging/Wrap	2
Balloons, including plastic valves, ribbons, strings etc.	4	Balloons	4

Cigarette lighters	1	Cigarette Lighters	1
Construction material e.g. tiles	1	Construction Materials	1
Other plastic/polystyrene items *firework cartridge - 1*	1	Fireworks	1
Tyres and belts	1	Tires	1
Toys & party poppers	5	Toys	6
Other rubber pieces *ball - 1*	1		
Condoms	1	Condoms	1
Tampons and tampon applicators	2	Tampons/Tampon Applicators	2
Plastic/polystyrene pieces 0 - 2,5 cm	91	Foam Pieces	45
		Plastic Pieces	46
Other glass items **unidentifiable*	94	Glass Pieces	94
Other plastic/polystyrene items **watering nozzle - 1; electrical tape - 2; birthday candle - 1; tie wraps - 2*	6	Items of local concern	148
Other rubber pieces ** rubber band - 2; o-ring - 3; scuba mask strap - 1; snorkel keeper -1*	7		
Pens	4		
Light sticks (tubes with fluid)	1		
Shoes/sandals	1		
Foam sponge	3		
Plastic/polystyrene pieces 2,5 cm > < 50 cm	33		
Clothing	1		
Other textiles ** hair tie - 11; piece of cloth - 1; shoe lace -1*	13		
Cardboard	1		
Cartons e.g. tetrapak (milk)	2		
Newspapers & magazines	2		
Corks	5		
Pallets	1		
Ice lolly sticks / chip forks	14		
Other wood < 50 cm *(please specify in other item box*)*	6		

Other wood > 50 cm ** unidentifiable - 1; clothes peg - 2; kebab skewer - 3*			
Wire, wire mesh, barbed wire	7		
Other metal pieces < 50 cm *(please specify in other item box*) unidentifiable - 7; kebab skewer - 1; jewelry - 3*	11		
Other metal pieces > 50 cm ** unidentifiable - 4; metal pipe - 1*	5		
Sanitary towels/panty liners/backing strips	10		
Other sanitary items ** wet wipes - 6*	6		
Containers / tubes	1		
Other medical items (swabs, bandaging etc.) ** plaster - 4; disposable contact lens package - 1*	5		
Other paper items *unidentifiable*	3		
	2422		2422
Types: 60		**Types: 35**	

Appendix C – List of WCR Countries & Survey Methods

	ICC 2006-2013	ICC/Clean Swell 2016-present	DAD 2011-present	OSPAR	NOAA MDMAP	Marine Debris Tracker	EPA Trash Free Waters
Anguilla (UK)	x						
Antigua & Barbuda							
Aruba (NL)	x		x				
Bahamas	x	x	x		x		
Barbados	x	x	x				
Belize	x	x	x				
Bonaire (NL)	x	x	x	x			
British Virgin Islands (UK)	x	x	x				
Cayman Islands (UK)	x	x	x				
Colombia	x	x	x				
Costa Rica	x	x			x		
Cuba	x	x	x				
Curacao (NL)	x	x	x				
Dominica	x		x				
Dominican Republic	x	x	x				
Grenada	x	x	x				
Guadeloupe (FR)							
Guatemala	x						
Guyana	x	x					
Haiti			x				
Honduras	x		x				
Jamaica	x	x	x				x
Martinique (FR)							
Mexico	x	x	x				
Montserrat (UK)	x		x				
Nicaragua	x	x	x				
Panama	x	x	x				x
Puerto Rico (US)	x	x	x			x	
Saba (NL)	x	x					

St. Barthelemy (FR)		x					
St. Eustatius (NL)	x	x					
St. Kitts & Nevis	x	x	x				
St. Lucia	x		x				
Saint Martin (FR)		x					
Saint Maarten (NL)	x		x				
St. Vincent & Grenadines	x	x					
Suriname		x					
Turks & Caicos			x				
Trinidad & Tobago	x	x	x				
U.S. Virgin Islands (US)	x	x	x				
Venezuela		x	x				
Total Number of Countries	**32**	**28**	**28**	**1**	**2**	**1**	**2**

Appendix D – Questionnaire About IT Infrastructure & Governance

1. What type of database is used, and why? (sql, etc)
2. Who has access to the data?
3. Is there a form of quality control on data submitted in place?
4. Please briefly explain the data entry process
5. What type of output does the database generate?
6. How is the data is secured? Are backups being made?
7. How is the data analyzed?
8. Who has ownership over the data?

Appendix E – OSPAR Summary

Survey Name	**OSPAR Marine Litter Monitoring Survey**
Developed By	Commission for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Commission)
Partners	Cartagena Convention
Key Objectives	-Allow the abundance, trends & composition of marine litter in the OSPAR Maritime Area to be determined -Inform policymakers on amounts, types, sources and trends over time in beach litter
Description	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.
Active Since Year	2000
No. of Countries Using in Region	1
Regional Languages Available	English, Spanish, French, Dutch
Sites	Marine
Schedule	4x per year (minimum) per site
Sampling Frequency	Flux accumulation
Sampling Unit	Fixed sites/length
Clearance	Required
Site Selection Criteria	- composed of sand or gravel - 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 & if possible over 1 km in length -be free of 'buildings' all year round -ideally not be subject to any other litter collection activities
Groups/Individuals	both
Website	https://beachlitter.ospar.org/
Registration	contact OSPAR to request Login credentials
Data Entry Access	Registration for data entry is granted by MCS, through OSPAR and approved by the constituent countries, to surveyors, national coordinators, policy officers and NGOs participating in the monitoring.
Data Entry Procedure	direct input and by csv file upload
Quality Control	- Professional surveyors, appointed coordinators or national authority submit the data in the online database - Field forms are kept and stored - Limit on number of items submitted to avoid errors - Check on the data by the national authority when drafting national annual reports and OSPAR intermediate assessment

Data Access	public (after data has signed off by OSPAR EIHA committee)
Data Ownership	OSPAR
Database Type	MySQL
Data Security	System access by registered user/password
Data Backup	- Data backups are taken by an IT /Technical team - Some countries are also storing data in national databases - Original field forms are kept in hard copy
Output format	csv files, reports and on screen data
Reports Generated	- Material types by amount/percentage - Material sources by amount/percentage **Trend analysis via Litter Analyst:(trends & significance)** -average total abundance of litter items per 100m of coast -average composition of litter items per 100m of coast -trends in the abundance of litter items per 100m of coast
Source Tracing (point of manufacture or origin)	no
Source Tracing (user group)	yes
Training	training & participation in surveys with experienced surveyors (recommended workshop)
Training Materials	Guideline for Monitoring Marine Litter on the Beaches in the OSPAR Maritime Area
Name of Data Collection Form	OSPAR Marine Litter Monitoring Survey Form
Survey Data	- Date - Beach Name - OSPAR Beach ID - Country - Was litter collected - Date of last beach clean - Weather conditions affecting data of survey - Other circumstances or events
Surveyor Data	Names & contact info of coordinators
Supervision	Coordinator
Site Location	GPS coordinates

Site Characterization	- Beach width at mean low/high spring tide - Total length- Composition of back of beach - Prevailing currents - Prevailing winds - Direction facing - Type of beach material - Topography/gradient - Objects influencing currents - Beach usage - Access to beach - Distance to nearest town & population - Development of beach - Food/drink outlets on beach - Distance to nearest shipping lane/harbour/river mouth/discharge of waste water - Cleaning schedule/method/responsibility - Comments/observations - Map of beach/local surroundings/region
Litter Characterization	Categorized by: Composition/Source Number of Categories: 11
Number of Items	130
Plastic/Polystyrene	65
Rubber	4
Cloth	5
Paper/Cardboard	8
Wood (machined)	9
Metal	15
Glass	4
Pottery/Ceramics	3
Sanitary waste	8
Medical waste	5
Faeces	1
Other pollutant	4
Litter Quantification	Counted by item
Entanglement Data Collected	- Species or description - Amount - Alive/Dead - Age - Gender - Nature of entanglement and type of litter
Additional Info	collected with survey data
Photos	submit via email

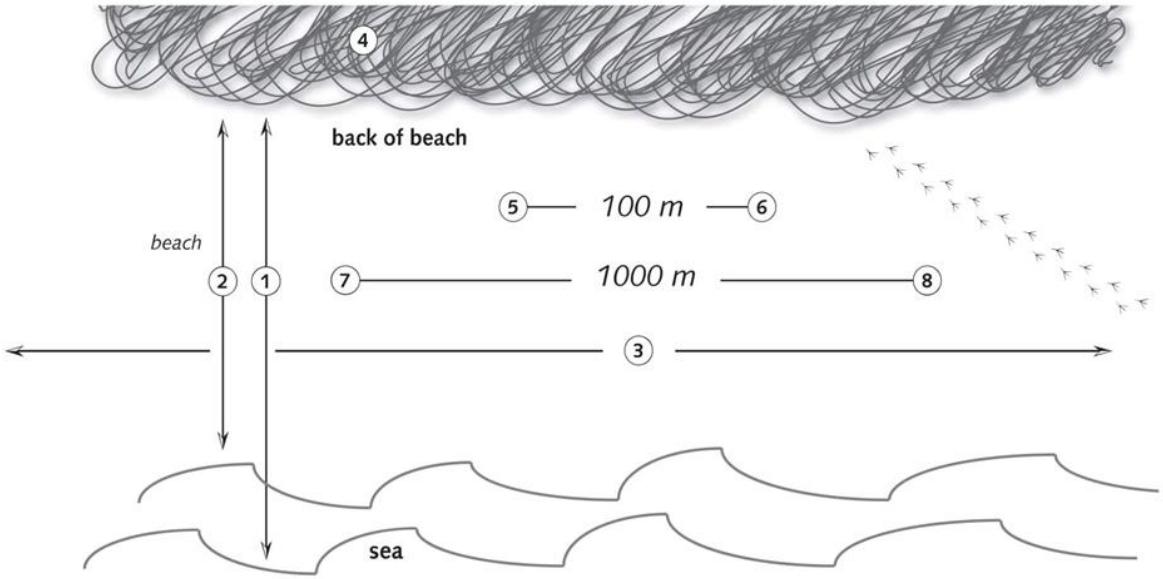
Appendix F – OSPAR Marine Litter Monitoring Survey Form

OSPAR Marine Litter Beach Questionnaire

Name of beach: .....

OSPAR beach ID: .....

Country: ..... to be filled in 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: .....

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

(7) GPS coordinates start 1 km: .....

(8) GPS coordinates end 1 km: .....

Coordinate system used: ..... Date position measured: ...../...../..... (d/m/y)

Prevailing currents off the beach*: ☐ N ☐ E ☐ S ☐ W Prevailing winds*: ☐ N ☐ E ☐ S ☐ W

When you look from the beach to the sea, what direction is the beach facing*: ☐ 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: .....

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 *you may tick one or two boxes

1/3 pages

OSPAR Beach Questionnaire 2010.010

OSPAR Marine Litter Beach Questionnaire

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 ..... ☐ Tourist: winter .....

spring ..... spring .....

summer ..... summer .....

autumn ..... autumn .....

Is there any development behind 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 in month: .....

Position of food and/or drink outlet in relation to the survey area e.g.*: ☐ 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*: ☐ 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*: ☐ 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*: ☐ 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 points in relation to survey area*: ☐ N ☐ E ☐ S ☐ W

*you may tick one or two boxes

OSPAR Beach Questionnaire 2010.011

2/3 pages

OSPAR Marine Litter Beach Questionnaire

How often is the beach cleaned: .....

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

Seasonal, please specify in 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: .....

3/3 pages

OSPAR Beach Questionnaire 2010.012

OSPAR Beach Litter Monitoring Guideline
Survey Information Form

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 collected during this survey: Yes No
When was litter last cleaned: / / (d/m/y)
Did you divert from the predetermined 100 metres survey unit: No Yes, please specify:
Did any of the following weather conditions affect the data of the survey? If so please circle appropriate conditions: 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 note 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:

OSPAR COMMISSION

Protecting and conserving the North-East Atlantic and its resources

OSPAR Beach Litter Monitoring Guideline
Survey Data Form

Litter data form (nb/100m)

[a] items added in 2021

OSPAR ID	Types	Counts (nb/100m)	Comments
	Plastic		
1	4/6-pack yokes		
2	Bags (e.g. shopping)		
3	Small plastic bags, e.g., freezer bags		
112	Plastic bag ends		
4	Drinks (bottles, containers and drums)		
5	Cleaner (bottles, containers and drums)		
610[a]	Food containers incl. fast food containers - plastic		
620[a]	Food containers incl. fast food containers - foamed polystyrene		
7	Cosmetics (bottles & containers e.g. sun lotion, shampoo, shower gel, deodorant)		
8	Engine oil containers and drums <50 cm		
9	Engine oil containers and drums > 50 cm		
10	Jerry cans (square plastic containers with handle)		
11	Injection gun containers		
12	Other bottles, containers and drums		
13	Crates		
14	Car parts		
15	Caps/lids		
16	Cigarette lighters		
17	Pens		
18	Combs/hair brushes		
19	Crisp/sweet packets and lolly sticks		

20	Toys & party poppers		
211[a]	Cups - plastic		
212[a]	Cups - foamed polystyrene		
22	Cutlery/trays/straws		
23	Fertiliser/animal feed bags		
24	Mesh vegetable bags		
25	Gloves (typical washing up gloves)		
113	Gloves (industrial/professional gloves)		
26	Crab/lobster pots		
114	Lobster and fish tags		
27	Octopus pots		
28	Oyster nets or mussel bags including plastic stoppers		
29	Oyster trays (round from oyster cultures)		
30	Plastic sheeting from mussel culture (Tahitians)		
31	Rope (diameter more than 1 cm)		
321[a]	String and cord (diameter < 1cm) not from dolly ropes or unidentified		
322[a]	String and filaments exclusively from dolly ropes		
115	Nets and pieces of net < 50 cm		
116	Nets and pieces of net > 50 cm		
331[a]	Tangled nets/cord/rope and string without dolly rope or mixed with dolly rope		
332[a]	Tangled dolly rope		
341[a]	Fish boxes - plastic		
342[a]	Fish boxes - foamed polystyrene		
35	Fishing line (angling)		
36	Light sticks (tubes with fluid)		
37	Floats/Buoys		
38	Buckets		
39	Strapping bands		

40	Industrial packaging, plastic sheeting		
41	Fibre glass		
42	Hard hats		
43	Shotgun cartridges		
44	Shoes/sandals		
45	Foam sponge		
121[a]	Bagged dog faeces		
1171[a]	Plastic fragments 0-2.5cm		
1172[a]	Foamed polystyrene fragments 0-2.5cm		
461[a]	Plastic fragments 2.5cm >< 50cm		
462[a]	Foamed polystyrene fragments 2.5cm >< 50cm		
471[a]	Plastic fragments > 50cm		
472[a]	Foamed polystyrene fragments > 50cm		
481[a]	Biofilm support media		
64	Cigarette butts		
48	Other plastic items *(please specify in the comment box*)*		
Rubber			
49	Balloons, including plastic valves, ribbons, strings etc.		
50	Boots		
52	Tyres and belts		
53	Other rubber pieces *(please specify in the comment box*)*		
Cloth			
54	Clothing		
55	Furnishing		
56	Sacking		
57	Shoes (leather)		
59	Other textiles *(please specify in the comment box*)*		
Paper / Cardboard			
60	Bags		

61	Cardboard		
118	Cartons e.g. tetrapak (milk)		
62	Cartons e.g. tetrapak (other)		
63	Cigarette packets		
65	Cups		
66	Newspapers & magazines		
67	Other paper/cardboard items *(please specify in the comment box*)*		
	Wood (machined)		
68	Corks		
69	Pallets		
70	Crates		
71	Crab/lobster pots		
119	Fish boxes		
72	Ice lolly sticks / chip forks		
73	Paint brushes		
74	Other wood < 50 cm *(please specify in the comment box*)*		
75	Other wood > 50 cm *(please specify in the comment box*)*		
	Metal		
76	Aerosol/Spray cans		
77	Bottle caps		
78	Drink cans		
120	Disposable BBQ's		
79	Electric appliances		
80	Fishing weights		
81	Foil wrappers		
82	Food cans		
83	Industrial scrap		
84	Oil drums		
86	Paint tins		
87	Lobster/crab pots and tops		

88	Wire, wire mesh, barbed wire		
89	Other metal pieces < 50 cm *(please specify in comments box*)*		
90	Other metal pieces > 50 cm *(please specify in comments box*)*		
Glass			
91	Bottles		
92	Light bulbs/tubes		
931[a]	Jars incl. fragments of jars		
93	Other glass items *(please specify in the comment box*)*		
Pottery / Ceramics			
94	Construction material e.g. tiles		
95	Octopus pots		
96	Other pottery/ceramic items *(please specify in the comment box*)*		
Sanitary waste			
97	Condoms – plastic		
981[a]	Cotton bud sticks – plastic		
982[a]	Cotton bud sticks - cardboard		
99	Sanitary towels/panty liners/backing strips – plastic		
100	Tampons and tampon applicators – plastic		
101	Toilet fresheners – plastic		
1021[a]	Wet wipes – plastic		
102	Other sanitary items *(please specify in the comment box*)*		
Medical waste			
103	Containers / tubes		
104	Syringes		
1051[a]	Single use face masks - plastic		
1052[a]	Single use gloves - plastic		
105	Other medical items (swabs, bandaging etc.) *(please specify in the comment box*)*		

High Viscosity and Persistent Floating Chemicals (nb/m)

OSPAR ID	Size of pieces or lumps *(estimates)*	Frequency *(estimated number per meter of strandline)*	Comments
		Paraffin –like pieces	
108	0 - 1 cm		
109	1 - 10 cm		
110	>10 cm		
		Other pollutants (e.g tar)	
111	Other (please specify in the comment box*)		

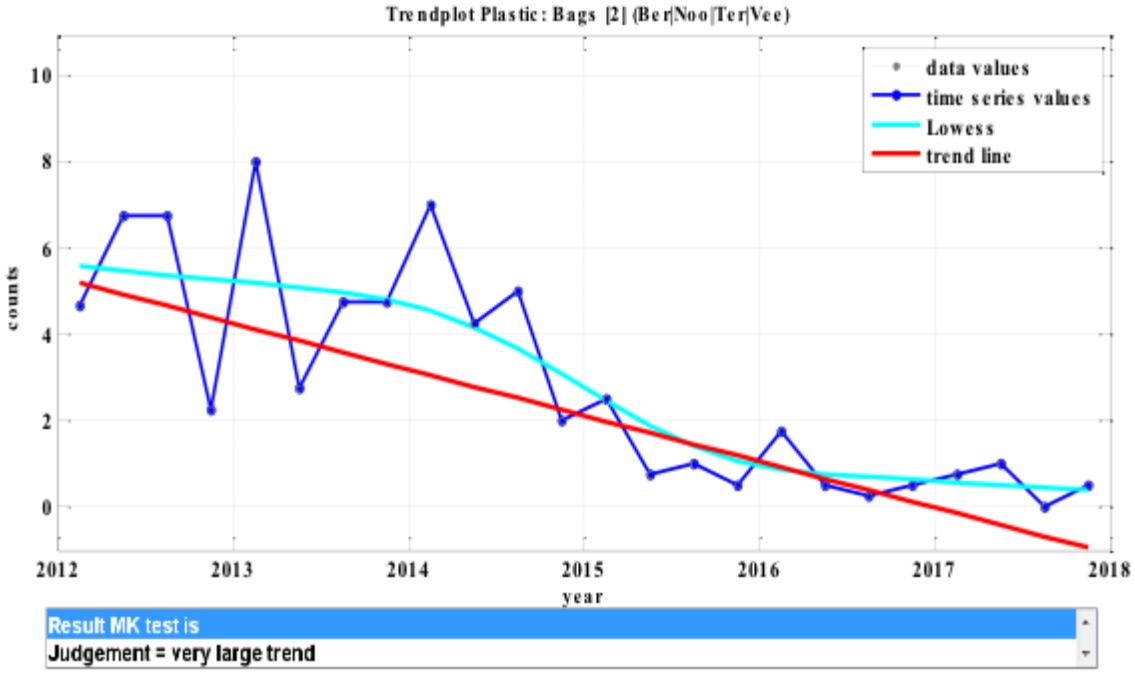
Industrial Plastic Pellets (presence/absence)

Presence of Industrial Plastic Pellets (nurdles):
Yes ☐
No ☐
Comments

Appendix G – Sample OSPAR Report

The below trend is from measurements at 4 reference beaches in NL. A ban on plastic bags was introduced in EU in 2016.

Trend plot Plastic bags in period 2012-2017 with decreasing significant trend (Boonstra & Hougee 2018)



Appendix H – ICC Summary

Survey Name	**International Coastal Cleanup®**
Developed By	Ocean Conservancy
Website	https://www.coastalcleanupdata.org/
Partners	Project AWARE Dive Against Debris https://oceanconservancy.org/trash-free-seas/international-coastal-cleanup/partners/
Registration	create account with email & password
Data Entry Access	log in and enter via website
Data Entry Procedure	direct input into web based database
Quality Control	appear immediately in database, subject to regular checks by TFS staff
Data Access	public - access directly on website
Data Ownership	Ocean Conservancy (NGO)
Database Type	MySQL
Data Security	RDS database instance is currently locked down, only allowing access from the Beaconfire RED offices, the Lambda function that performs the data export the Node server that manages Clean Swell and TIDES itself. External access via IP Address is not currently configured.
Data Backup	RDS supports rollback and snapshots. Snapshots are taken of this RDS instance every day (maintaining rolling 8 backups), and database rollback allows user to roll back to a specific minute in time.
Output format	csv and on-screen data
Reports Generated	Summary Top Ten Unusual Items People, Pounds, Miles GPS/PPM/Item Items of Local Concern Entangled Animals
Source Tracing (point of manufacture or origin)	no * but might be added in future*
Source Tracing (user group)	yes

Active Since Year	1986
No. of Countries Using in Region	29 (see Appendix C for list)
Regional Languages Available	English, Spanish, French
Key Objectives	-Raise community awareness -Engage with citizens -Remove debris -Identify most found items -Set agenda for policymakers
Description	In partnership with volunteer organizations around the globe, Ocean Conservancy's International Coastal Cleanup mobilizes individuals to have an immediate and tangible impact on the health of our ocean. Volunteers remove millions of pounds of trash from beaches and waterways worldwide while fostering awareness of the marine debris issue and a sense of stewardship for one of our planet's greatest natural resources.
Sites	Any (ocean, lake, river, quarry, etc.)
Schedule	Once a year (3rd Saturday in September)
Sampling Frequency	Flux accumulation (if conducted using consistent sampling units) or Standing crop (at random sites)
Sampling Unit	Random
Clearance	Not required
Site Selection Criteria	Beaches or waterways that: -could be cleaned -safe and accessible
Groups/Individuals	Both
Training	No formal program requirements but guidelines can be accessed on website https://oceanconservancy.org/trash-free-seas/international-coastal-cleanup/start-a-cleanup/
Training Materials	ICC Coordinator Handbook
Name of Data Collection Form	Volunteer Ocean Trash Data Form
Survey Data	Date Distance

Surveyor Data	Number of Adults Number of Children
Supervision	Not required
Site Location	Location: select on map; click to pinpoint or enter latitude/longitude
Site Characterization	Land (beach, shoreline, inland)/Underwater/Watercraft (powerboat, sailboat, kayak or canoe)
Litter Characterization	Categorized by: Prevalence/Composition/Source/Size Number of Categories: 8
Number of Items	42
Most Likely to Find Items	18
Fishing Gear	4
Packaging Materials	5
Other Items	8
Personal Hygiene	4
Tiny Trash Less than 2.5cm	Foam Pieces Glass Pieces Plastic Pieces
Items of Local Concern	open field
Litter Quantification	Count by Item Weight Number of bags
Entanglement Data Collected	Animal Status Entanglement Debris
Additional Info	Unusual Items
Photos	

Appendix I – ICC Ocean Trash Data Form

VOLUNTEER
OCEAN TRASH DATA FORM

Ocean Conservancy

Ocean and waterway trash ranks as one of the most serious pollution problems choking our planet. Far more than an eyesore, a rising tide of marine debris threatens human health, wildlife, communities and economies around the world. The ocean faces many challenges, but trash should not be one of them. Ocean trash is entirely preventable, and data you collect are part of the solution. The International Coastal Cleanup is the world's largest volunteer effort on behalf of ocean and waterway health.

HERE IS HOW IT WORKS:

SITE INFORMATION:

Cleanup Site Name:

State or Province:

Zone or County:

Country:

Nearest Crossroad or Landmark:

NUMBER OF VOLUNTEERS WORKING ON THIS CARD:

adults

children (under 12)

MOST UNUSUAL ITEM COLLECTED:

TYPE OF CLEANUP:

Land: ☐ Underwater: ☐ Watercraft: ☐

Please return this form to your area coordinator.
If you are unable to do so, please mail or email it to:

Ocean Conservancy
Attn: International Coastal Cleanup
1300 19th Street, NW, 8th Floor
Washington, DC 20036
cleanup@oceanconservancy.org

Trash Free Seas: www.oceanconservancy.org/cleanup
Be a Green Boater: www.oceanconservancy.org/do-your-part/green-boating
Sponsors: www.oceanconservancy.org/cleanupsponsors

International COASTAL Cleanup

TRASH COLLECTED

Citizen scientist: Pick up all trash and record all items you find below. No matter how small the items, the data you collect are important for Trash Free Seas.®

EXAMPLE: TOTAL #

Plastic Bags: 𝍸 III = 8

Please DO NOT use words or check marks. Only **numbers** are useful data.

MOST LIKELY TO FIND ITEMS:

TOTAL #

Cigarette Butts: =
Food Wrappers (candy, chips, etc.): =
Take Out/Away Containers (Plastic): =
Take Out/Away Containers (Foam): =
Bottle Caps (Plastic) =
Bottle Caps (Metal) =
Lids (Plastic) : =
Straws/Stirrers: =
Forks, Knives, Spoons: =

Beverage Bottles (Plastic): =
Beverage Bottles (Glass): =
Beverage Cans: =
Grocery Bags (Plastic): =
Other Plastic Bags: =
Paper Bags: =
Cups & Plates (Paper): =
Cups & Plates (Plastic): =
Cups & Plates (Foam): =

FISHING GEAR:

TOTAL #

Fishing Buoys, Pots & Traps: =
Fishing Net & Pieces: =
Fishing Line (1 yard/meter = 1 piece): =
Rope (1 yard/meter = 1 piece): =

PACKAGING MATERIALS:

TOTAL #

6-Pack Holders =
Other Plastic/Foam Packaging: =
Other Plastic Bottles (oil, bleach, etc.): =
Strapping Bands: =
Tobacco Packaging/Wrap: =

OTHER TRASH:

TOTAL #

Appliances (refrigerators, washers, etc.): =
Balloons: =
Cigar Tips: =
Cigarette Lighters: =
Construction Materials: =
Fireworks: =
Tires: =

PERSONAL HYGIENE:

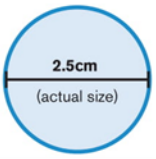
TOTAL #

Condoms: =
Diapers: =
Syringes: =
Tampons/Tampon Applicators: =

TINY TRASH LESS THAN 2.5CM:

TOTAL #

Foam Pieces =
Glass Pieces =
Plastic Pieces =



DEAD/INJURED ANIMAL	STATUS	ENTANGLED	TYPE OF ENTANGLEMENT ITEM
	Dead or Injured	Yes or No	

ITEMS OF LOCAL CONCERN:

1. 2. 3.

CLEANUP SUMMARY (circle units)

Number of Trash Bags Filled: | Weight of Trash Collected: lbs/kgs | Distance Cleaned: miles/km

Appendix J – TIDES Report (Applies to ICC/Clean Swell/Dive Against Debris)

Summary — Bonaire, Caribbean Netherlands

Clean Up Summary	Land	Underwater	Watercraft	Total
People	130	203	0	**333**
Kilograms	242.16	579.88	0	**822.04**
Kilometers	47.16	8.18	0	**55.34**
Total Items Collected	12732	2466	0	**15198**

Categorized Items	Land	Underwater	Watercraft	Total Items	Percentage of Total
Most Likely to Find Items					
Cigarette Butts	4063	5	0	**4068**	33.39%
Food Wrappers (candy, chips, etc.)	232	49	0	**281**	2.31%
Take Out/Away Containers (Plastic)	70	8	0	**78**	0.64%
Take Out/Away Containers (Foam)	78	0	0	**78**	0.64%
Bottle Caps (Plastic)	1393	6	0	**1399**	11.48%
Bottle Caps (Metal)	951	20	0	**971**	7.97%
Lids (Plastic)	103	2	0	**105**	0.86%
Straws, Stirrers	220	3	0	**223**	1.83%
Forks, Knives, Spoons	228	26	0	**254**	2.09%
Beverage Bottles (Plastic)	154	44	0	**198**	1.63%
Beverage Bottles (Glass)	228	447	0	**675**	5.54%
Beverage Cans	41	117	0	**158**	1.30%
Grocery Bags (Plastic)	193	8	0	**201**	1.65%
Other Plastic Bags	3	2	0	**5**	0.04%
Paper Bags	2	0	0	**2**	0.02%
Cups, Plates (Paper)	1	0	0	**1**	0.01%
Cups, Plates (Plastic)	87	33	0	**120**	0.99%
Cups, Plates (Foam)	0	0	0	**0**	0.00%
Category Totals	8047	770	0	8817	72.39%
Fishing Gear					
Fishing Buoys, Pots & Traps	0	8	0	**8**	0.07%
Fishing Net & Pieces	4	2	0	**6**	0.05%
Fishing Line (1 yard/meter = 1 piece)	8	911	0	**919**	7.54%
Rope (1 yard/meter = 1 piece)	35	53	0	**88**	0.72%
Fishing Gear (Clean Swell)	214	0	0	**214**	1.76%
Category Totals	261	974	0	1235	10.14%
Packaging Materials					
6-Pack Holders	3	0	0	**3**	0.02%
Other Plastic/Foam Packaging	4	0	0	**4**	0.03%
Other Plastic Bottles (oil, bleach, etc.)	3	0	0	**3**	0.02%
Strapping Bands	25	29	0	**54**	0.44%
Tobacco Packaging/Wrap	10	0	0	**10**	0.08%
Other Packaging (Clean Swell)	972	0	0	**972**	7.98%
Beverages Sachets	0	0	0	**0**	0.00%
Category Totals	1017	29	0	1046	8.57%
Other Items					
Appliances (refrigerators, washers, etc.)	0	0	0	**0**	0.00%
Balloons	32	0	0	**32**	0.26%
Cigar Tips	0	0	0	**0**	0.00%
Cigarette Lighters	1	2	0	**3**	0.02%
Construction Materials	2	7	0	**9**	0.07%
Fireworks	33	2	0	**35**	0.29%
Tires	1	2	0	**3**	0.02%
Toys	64	6	0	**70**	0.57%
Other Trash (Clean Swell)	773	0	0	**773**	6.35%
E-cigarettes	0	0	0	**0**	0.00%
Other tobacco (packaging, lighter, etc.)	0	0	0	**0**	0.00%
Category Totals	906	19	0	925	7.58%
Personal Hygiene					
Condoms	9	0	0	**9**	0.07%
Diapers	0	0	0	**0**	0.00%

Syringes	0	0	0	**0**	0.00%
Tampons/Tampon Applicators	2	1	0	**3**	0.02%
Personal Hygiene (Clean Swell)	147	0	0	**147**	1.21%
Gloves & Masks (PPE)	0	0	0	**0**	0.00%
Category Totals	158	1	0	159	1.3%
Total Items Collected (Excluding Appendix)	**10389**	**1793**	**0**	**12182**	**100.00%**
Appendix: Tiny Trash Less Than 2.5 cm					
Foam Pieces	124	0	0	**124**	4.11%
Glass Pieces	157	148	0	**305**	10.11%
Plastic Pieces	2062	525	0	**2587**	85.78%
Total Appendix Items Collected	2343	673	0	3016	100%

Appendix K – Clean Swell Summary

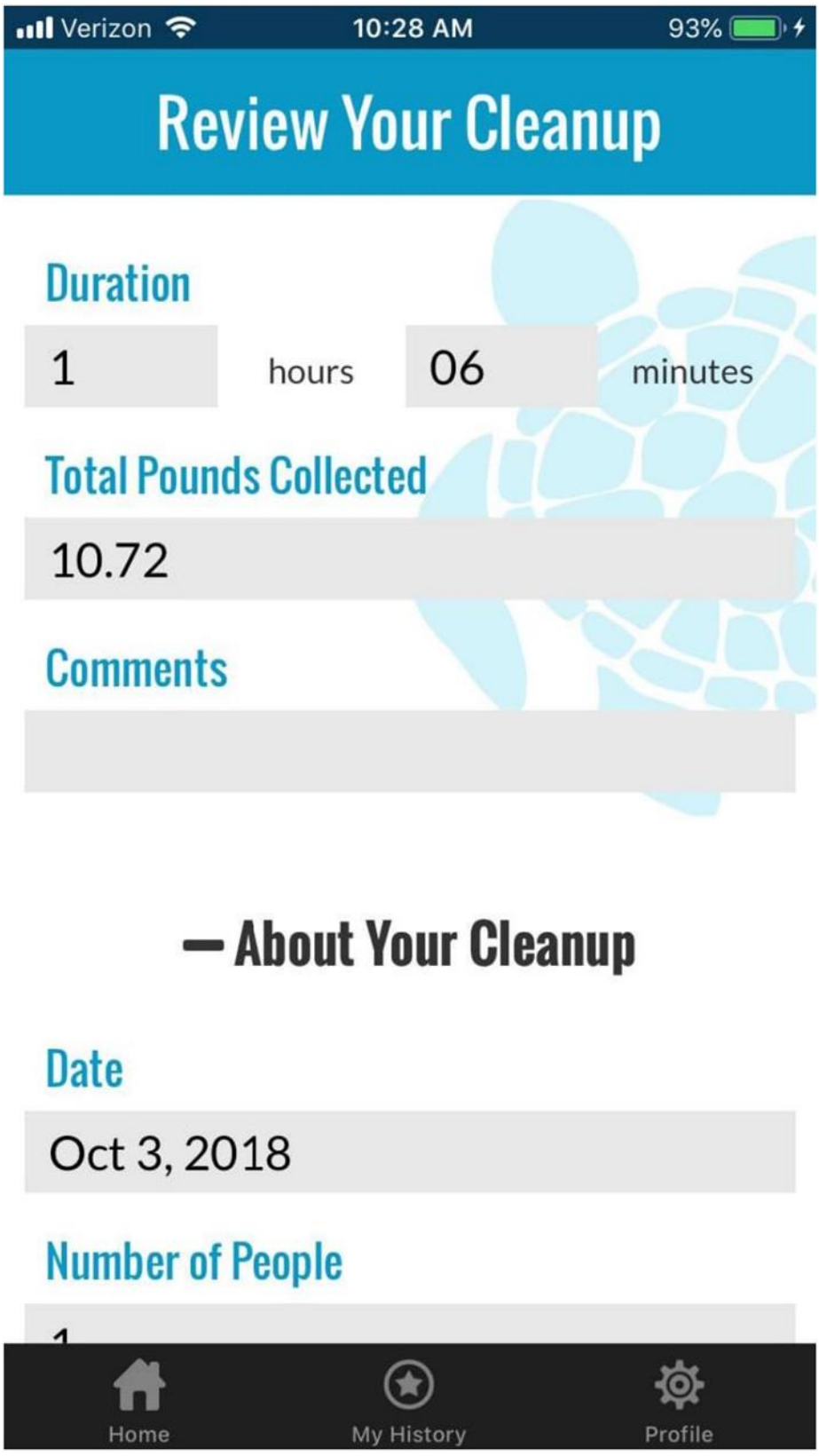
Survey Name	**Clean Swell**
Developed By	Ocean Conservancy
Website	https://www.coastalcleanupdata.org/
Partners	Ocean Conservancy International Coast Clean Up
Registration	public - download the app by submitting name, email, organization, home country, language
Data Entry Access	via App (iOS or Android)
Data Entry Procedure	direct input into app
Quality Control	appear immediately in database, subject to regular checks by TFS staff
Data Access	public - access directly on website https://www.coastalcleanupdata.org/
Data Ownership	Ocean Conservancy (NGO)
Database Type	MySQL
Data Security	RDS database instance is currently locked down, only allowing access from the Beaconfire RED offices, the Lambda function that performs the data export the Node server that manages Clean Swell and TIDES itself. External access via IP Address is not currently configured.
Data Backup	RDS supports rollback and snapshots. Snapshots are taken of this RDS instance every day (maintaining rolling 8 backups), and database rollback allows user to roll back to a specific minute in time.
Output format	csv and on-screen data
Reports Generated	Summary Top Ten Unusual Items People, Pounds, Miles GPS/PPM/Item Items of Local Concern Entangled Animals
Source Tracing (point of manufacture or origin)	no
Source Tracing (user group)	yes

Active Since Year	2016
No. of Countries Using in Region	29 (see Appendix C for list)
Regional Languages Available	English, Spanish
Key Objectives	-Raise community awareness -Engage with citizens -Remove debris -Identify most found items -Set agenda for policymakers
Description	With Clean Swell, simply "Start Collecting" trash wherever you are around the world and the data you collect will instantaneously upload to Ocean Conservancy's global ocean trash database. These data deliver a global snapshot of ocean trash, providing researchers and policy-makers insight to inform solutions. Join the thousands of International Coastal Cleanup® volunteers who are working for a cleaner ocean by picking up the millions of pounds of trash that wash onto beaches around the world. Even check out your Cleanup history, so anytime, anywhere you can see the impact you've had on making our ocean a cleaner and healthier ecosystem.
Sites	Any (ocean, lake, river, quarry, etc.)
Schedule	Any time
Sampling Frequency	Standing crop
Sampling Unit	Random
Clearance	Not required
Site Selection Criteria	None
Groups/Individuals	Individuals (Groups with one device per buddy pair, with group name used)
Training	No formal program requirements but guidelines can be accessed on website https://oceanconservancy.org/trash-free-seas/international-coastal-cleanup/cleanswell/
Training Materials	Clean Swell Poster https://oceanconservancy.org/wp-content/uploads/2017/04/OC-Clean-Swell-Poster-form.pdf
Name of Data Collection Form	Clean Swell App

Survey Data	Date Time Spent Cleaning Up (recorded automatically by device) Distance covered (recorded automatically by GPS in device)
Surveyor Data	Number of participants Group name
Supervision	Not required
Site Location	Location: recorded by GPS location in device
Site Characterization	
Litter Characterization	
Number of Items	28
Litter Quantification	Counted by item Pounds of Trash Cleaned Up (estimated by items amounts/types recorded)
Entanglement Data Collected	
Additional Info	

Appendix L – Clean Swell App – updated 2021 (data entry screen)


96% 15:15
Beverage Cans
Bottle Caps (Plastic)
Bottles (Plastic)
Bottles (Glass)
0
Cups, Plates
0
Lids
0
Straws
0
Utensils
0
Plastic/Foam Pieces
0
Personal Hygiene
0
Other Packaging
0
Gloves & Masks (PPE)
0
Beverages Sachets
0
E-cigarettes
0
Bottle Caps (metal)
0
Strapping Bands
0
Construction Materials
0
Tires
0
Other tobacco (packaging, lighter, etc.)
0
Other Trash


Verizon
10:28 AM
93%
Review Your Cleanup
Duration
1
hours
06
minutes
Total Pounds Collected
10.72
Comments
About Your Cleanup
Date
Oct 3, 2018
Number of People
Home
My History
Profile

Appendix M – Dive Against Debris Data Summary

Survey Name	**Dive Against Debris®**
Developed By	Project AWARE
Website	https://www.projectaware.org/DiveAgainstDebrisData https://www.coastalcleanupdata.org/
Partners	PADI Ocean Conservancy
Registration	create account with email & password
Data Entry Access	log in and enter via website or via App (iOS or Android)
Data Entry Procedure	direct input into web based database
Quality Control	review by AWARE staff before addition to database
Data Access	public - access directly on website
Data Ownership	Project AWARE (NGO)
Database Type	MySQL
Data Security	RDS database instance is currently locked down, only allowing access from the Beaconfire RED offices, the Lambda function that performs the data export the Node server that manages Clean Swell and TIDES itself. External access via IP Address is not currently configured.
Data Backup	RDS supports rollback and snapshots. Snapshots are taken of this RDS instance every day (maintaining rolling 8 backups), and database rollback allows user to roll back to a specific minute in time.
Output format	csv and on-screen data
Reports Generated	Composition amounts Entangled Animals Debris Free Sites Adopted Dive Sites Individual Survey Reports https://www.projectaware.org/debris-survey/south-pier-6
Source Tracing (point of manufacture or origin)	no
Source Tracing (user group)	yes
Active Since Year	2011

No. of Countries Using in Region	29 (see Appendix C for list)
Regional Languages Available	English, Spanish, French, Dutch
Key Objectives	-Raise community awareness -Engage with citizens -Remove underwater debris -Identify most found items -Set agenda for policymakers
Description	Project AWARE's flagship citizen-science program, Dive Against Debris®, empowers scuba divers to remove marine debris from the ocean and report data on the types, quantities and locations of materials collected.
Sites	Any -Benthic Underwater only (ocean, lake, river, quarry, etc.)
Schedule	Any time
Sampling Frequency	Standing crop
Sampling Unit	Random
Clearance	Not required
Site Selection Criteria	-can return to regularly -known to have marine debris -within the dive skills and experience of all participants (can include fresh water lakes and rivers)
Groups/Individuals	both
Training	recommended diver specialty training (not required)
Training Materials	Dive Against Debris Survey Guide, AWARE Dive Against Debris Distinctive Specialty
Name of Data Collection Form	Dive Against Debris Data Card
Survey Data	Date Debris to report (yes/no) Dive Center/Organization Weather conditions for previous week Survey duration (in minutes) Survey depth (min/max) Survey area m2 Wave conditions

Surveyor Data	Number of participants
Supervision	Not required
Site Location	Location: select on map; click to pinpoint or enter latitude/longitude
Site Characterization	Ecosystem (coral reef, rocky reef, mangroves, kelp, seagrass, other) Dominant substrate (sand, silt, gravel, rock, coral, seagrass, other)
Litter Characterization	Categorized by: Composition Number of Categories: 9
Number of Items	100
Plastic Materials	43
Glass & Ceramic Materials	8
Metal Materials	21
Rubber Materials	6
Wood Materials	5
Cloth Materials	6
Paper/Cardboard Materials	4
Mixed Materials	7
Other Debris Items	open field
Litter Quantification	Counted by item; Weight of all debris collected (estimated/measured)
Entanglement Data Collected	Mammals, Birds, Turtles, Sharks/Rays, Other Fishes, Crustaceans, Other Animals Species or common name Number Dead/Injured/Released Unharmed Type of Debris Comments
Additional Info	Are you aware of an event that could have contributed to the debris you documented? Most unusual item found What were the most problematic debris items found in your location? Comments/Feedback Additional Information
Photos	can be uploaded at end of survey

Appendix N – Dive Against Debris Data Card

Dive Against Debris® Data Card

Dive Against Debris® is a survey of underwater marine debris. Only report debris you find underwater while on SCUBA through Dive Against Debris®. Survey leaders should record all diver findings for the same individual survey dive, onto one Data Card. Then, for all English data submissions report your data online at www.projectaware.org/DiveAgainstDebrisData, for all other languages, please email your completed Data Card to diveagainstdebris@projectaware.org. See the **Dive Against Debris® Survey Guide** for instructions on using this form.

Survey Date (DD/MM/YYYY)

Survey Site Name

Organisation/Dive Centre

Survey Site Location (nearest landmark to help verify location i.e. adjacent road name, nearest city/town, state/province, country)

Number of Participants

Survey Site GPS Coordinates Latitude Longitude

(Set your GPS Map Datum to WGS84) (Take your readings in decimal degrees)

Survey Duration (in minutes)

Survey Depth Range (circle one: metres or feet) _____max _____ min

Area surveyed (circle one: m² or ft²)

Total weight of all Debris Collected (circle one: kg or lb) Estimated: _____ OR Measured: _____

OR ☐ **Our Survey Site Was Free Of Debris**

Survey Leader Name

Survey Leader Email

Dominant Substrate (circle one)
- Sand
- Silt
- Gravel
- Rock
- Coral
- Seagrass
- Other (please describe)

Ecosystem (circle one)
- Coral reef
- Rocky reef
- Kelp
- Mangroves
- Seagrass
- Other (please describe)

Waves (circle one)
- Calm (0-0.1 metres/0-4 inches high)
- Smooth (0.1-0.5 metres/4-19 inches high)
- Slight (0.5-1.25 metres/19 inches-4 feet high)
- Moderate (greater than 1.25 metres/4 feet high)

Weather Conditions from Previous Week

Did You Find Entangled Animals? Identify animal(s) found

Identify debris item

Record number of each Entangled Animal

Was the animal: dead? ☐ injured? ☐ released unharmed? ☐

Are you aware of an event that could have contributed to the debris you have documented? YES ☐ NO ☐

If so, describe and provide verification – link to the news, etc

Items of Local Concern

List the top three debris items you consider a problem in your location and tell us why

1.
2.
3.

What is the most unusual item found?

Photos ☐ Yes Entangled Animals, marine debris impacts, items you cannot identify, items you did not remove, etc. See the Survey Guide for more info.

Count all debris items as one, regardless of size. See **Too Small to Count** in the **Dive Against Debris® Survey Guide** for counting large quantities of small pieces. Debris items are listed under the main material of construction. List items that do not fit into a category here:

Other Debris Items (Identify Material)	Tally (𝍸 I = 6)

PROJECT AWARE®

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Plastic Materials	Tally (𝍸 I= 6)
01. bags: grocery/retail (plastic)	
02. bags: trash (plastic)	
03. bait containers/packaging	
04. balloons	
05. balls	
06. baskets, crates	
07. beverage bottles: less than 2 litres (plastic)	
08. beverage bottles: 2 litres or more (plastic)	
09. bottles: bleach, cleaner	
10. bottles: oil/lube	
11. buckets, drums & jerry cans: 2 litres or more	
12. buoys & floats (plastic & foamed)	
13. caps & lids (plastic)	
14. carpet (synthetic)	
15. cigarette filters	
16. cigarette lighters	
17. cigar tips	
18. containers: fast food, lunch boxes & similar	
19. cotton bud sticks	
20. cups, plates, forks, knives, spoons (plastic)	
21. diapers/nappies	
22. fishing: line	
23. fishing: lures, rods/poles	
24. fishing: nets & pieces of nets	
25. fishing: traps & pots	
26. foam insulation & packaging	
27. food wrappers (plastic)	
28. furnishings (plastic)	
29. gloves (latex)	
30. light sticks/cyalumes	
31. mesh bags: fruit, vegetable, shellfish	
32. pipes (plastic/PVC)	
33. rope (plastic/nylon)	
34. scuba & snorkel gear, masks, snorkels, fins	
35. sheeting: tarpaulin, plastic sheets, palette wrap	
36. six-pack rings, ring carriers	
37. strapping bands (plastic)	
38. straws, stirrers	
39. syringes (plastic)	
40. tampon applicators	
41. tobacco packaging & wrappers	
42. toothbrushes	
43. plastic fragments	
Glass & Ceramic Materials	
44. beverage bottles (glass)	
45. buoys (glass)	
46. cups, plates, tableware, dishes (glass & ceramic)	
47. fluorescent light tubes	
48. jars: food (glass)	
49. light globes: bulbs, etc	
50. syringes (glass)	
51. glass & ceramic fragments	

Metal Materials	Tally (𝍸 I = 6)
52. aerosol/spray cans	
53. appliances: household	
54. batteries: AA, AAA, C & D, 6V, 9V, etc	
55. batteries: car or boat	
56. beverage cans (aluminium)	
57. cans: food, juice, other (tin)	
58. caps & lids (metal)	
59. cars & car parts	
60. cups, plates, tableware, dishes (metal)	
61. drums: 55 gallon	
62. fishing: sinkers, lures, hooks	
63. fishing: traps & pots	
64. forks, knives, spoons (cutlery)	
65. gas bottles/cylinder, drums: more than 4 litres	
66. pipes & rebar	
67. pull tabs: beverages	
68. scuba weights	
69. strapping bands (metal)	
70. wire, wire mesh, barbed wire	
71. wrappers (foil/metal)	
72. metal fragments	
Rubber Materials	
73. condoms	
74. gloves (rubber)	
75. inner-tubes & rubber sheets	
76. rubber bands	
77. tires/tyres	
78. rubber fragments	
Wood Materials	
79. fishing: traps & pots	
80. furnishings (wood)	
81. lumber (processed or cut/milled wood)	
82. pallets	
83. wood fragments	
Cloth Materials	
84. bags (burlap/hessian)	
85. bags (cloth)	
86. gloves (cloth)	
87. rope & string (cloth)	
88. towels, rags	
89. cloth fragments	
Paper/Cardboard Materials	
90. bags (paper)	
91. cardboard: packaging & cartons	
92. paper: books, newspapers, magazines, etc	
93. paper/cardboard fragments	
Mixed Materials	
94. bricks, cinderblocks, chunks of cement	
95. clothing	
96. computer equipment & other electronic devices	
97. fireworks	
98. shoes, flip flops, sandals, tennis, etc	
99. tampons	
100. toys	

Having trouble identifying a debris item?
Refer to the **Dive Against Debris® Marine Debris Identification Guide**
for images of all debris items.

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Appendix O – Key Objectives of the Surveys

What are the key objectives of the survey? (Section 5.1)

	Trash Free Seas		
OSPAR	**ICC**	**Clean Swell**	**Dive Against Debris**
-Allow the abundance, trends & composition of marine litter in the OSPAR Maritime Area to be determined -Inform policymakers on amounts, types, sources and trends over time in beach litter	-Raise community awareness -Engage with citizens -Remove debris -Identify most found items -Set agenda for policymakers	-Raise community awareness -Engage with citizens -Remove debris -Identify most found items -Set agenda for policymakers	-Raise community awareness -Engage with citizens -Remove underwater debris -Identify most found items -Set agenda for policymakers

Appendix P - Survey Requirements

What are the survey requirements? (Section 5.2)

		Trash Free Seas		
	OSPAR	**ICC**	**Clean Swell**	**Dive Against Debris**
Sampling Schedule	4x per year	1x per year	Random	Random
Sampling Units - Site	Fixed site(s)	Random	Random	Random
Sampling Units - Beach Length/Area surveyed	Fixed length	Random	Random	Random
Sampling Unit Clearance	Required	Not required	Not required	Not required
Sampling Frequency	Flux accumulation	Standing crop*	Standing crop	Standing crop
Site Selection Criteria	- composed of sand or gravel - 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 & if possible over 1 km in length -be free of 'buildings' all year round -ideally not be subject to any other litter collection activities	Beaches or waterways that: -could be cleaned -safe and accessible	none	-can return to regularly -known to have marine debris -within the dive skills and experience of all participants (can include fresh water lakes and rivers)
Supervision	Coordinator	Not required	Not required	Not required

**Note: due to its regularly scheduled intervals, if conducted at the same site yearly, ICC could be classified as Flux Accumulation*

Appendix Q – Survey Conditions On the Day of Sampling

What data is collected about the survey? (Section 5.3)

		Trash Free Seas		
	OSPAR	**ICC**	**Clean Swell**	**Dive Against Debris**
Survey Data	- Date - Beach Name - OSPAR Beach ID - Country - Was litter collected - Date of last beach clean - Weather conditions affecting data of survey - Other circumstances or events	- Date - Distance	- Date - Time Spent Cleaning Up - Distance covered	- Date - Debris to report - Dive Center/Organization - Weather conditions for previous week - Survey duration (in minutes) - Survey depth (min/max) - Survey area m2 - Wave conditions
Surveyor Data	Names & contact info of coordinators	- Number of Adults - Number of Children	- Number of participants - Group name	Number of participants

Appendix R – Site Information

What data is collected about the site? (Section 5.4)

		Trash Free Seas		
	OSPAR	**ICC**	**Clean Swell**	**Dive Against Debris**
Site Characterization	- Beach width at mean low/high spring tide - Total length - Composition of back of beach - Prevailing currents - Prevailing winds - Direction facing - Type of beach material - Topography/gradient - Objects influencing currents - Beach usage - Access to beach - Distance to nearest town & population - Development of beach - Food/drink outlets on beach - Distance to nearest shipping lane/harbour/river mouth/discharge of waste water - Cleaning schedule/method/responsibility - Comments/observations - Map of beach/local surroundings/region	- Land (beach, shoreline, inland) - Underwater - Watercraft (powerboat, sailboat, kayak or canoe)	- Land (beach, shoreline, inland) - Underwater - Watercraft (powerboat, sailboat, kayak or canoe)	- Ecosystem (coral reef, rocky reef, mangroves, kelp, seagrass, other) - Dominant substrate (sand, silt, gravel, rock, coral, seagrass, other)
Site Location	GPS coordinates	Location: select on map; click to pinpoint or enter latitude/ longitude	Location: recorded by GPS location in device	Location: select on map; click to pinpoint or enter latitude/ longitude

Appendix S – Litter Items & Categorization

What data is collected about the litter? (Section 5.5)

		Trash Free Seas		
	OSPAR	**ICC**	**Clean Swell**	**Dive Against Debris**
Litter Classification	Resolution: High Items: 117	Resolution: Medium Items: 42	Resolution: Medium Items: 20	Resolution: High Items: 100
Litter Quantification	count	count & weight (measured or estimated)	count (app generates approximate weight based on amount & items collected)	count & weight (measured or estimated)
Source Tracing (point of manufacture or origin)	no	no	no	no
Source Tracing (user group)	yes	yes	yes	yes
Composition	yes	yes	no	yes
Entanglement	yes	yes	no	yes

Appendix T – Quality Assurance

How is the quality of the data ensured? (Section 5.6)

		Trash Free Seas		
	OSPAR	**ICC**	**Clean Swell**	**Dive Against Debris**
Quality Control	- Professional surveyors, appointed coordinators or national authority submit the data in the online database - Field forms are kept and stored - Limit on number of items submitted to avoid errors - Check on the data by the national authority when drafting national annual reports and OSPAR intermediate assessment	appear immediately in database, subject to regular checks by TFS staff	appear immediately in database, subject to regular checks by TFS staff	review by AWARE staff before addition to database
Training	training & participation in surveys with experienced surveyors	No formal program requirements but guidelines can be accessed on website	No formal program requirements but guidelines can be accessed on website	recommended diver specialty training (not required)
Training Materials	Guideline for Monitoring Marine Litter on the Beaches in the OSPAR Maritime Area	ICC Coordinator Handbook & website	Clean Swell Poster & website	Dive Against Debris Survey Guide, AWARE Dive Against Debris Distinctive Specialty

Appendix U – Data Management

How is the data managed? (Section 5.7)

		Trash Free Seas		
	OSPAR	**ICC**	**Clean Swell**	**Dive Against Debris**
Governance/ Ownership	OSPAR	OC (NGO)	OC (NGO)	Project AWARE (NGO)
Data Housing	Marine Conservation Society	TIDES website	TIDES website	TIDES & AWARE websites
Type of Database	MySQL	MySQL	MySQL	MySQL ??
Access to reports	public (after data has signed off by OSPAR EIHA committee)	public	public	public
Data Entry Access	Registration for data entry is granted by MCS, through OSPAR and approved by the constituent countries, to surveyors, national coordinators, policy officers and NGOs participating in the monitoring.	public (after registering with email address/password)	public (after registering with email address)	public (after registering with email address/password)
Data Entry Procedure	direct input and by csv file upload	direct input into web based database	direct input into app	direct input into web based database
Output format	csv files, reports and on screen data	csv and on-screen data	csv and on-screen data	csv and on-screen data

Data Security		Locked down. External access via IP Address is not currently configured.	Locked down. External access via IP Address is not currently configured.	Locked down. External access via IP Address is not currently configured.
Data Backups	Data backups are taken by an IT / Technical team. Some countries are also storing data in national databases. Original field forms are kept in hard copy.	daily snapshots with 8 rolling backups allowing rollback to specific minute	daily snapshots with 8 rolling backups allowing rollback to specific minute	daily snapshots with 8 rolling backups allowing rollback to specific minute

Appendix V – Reports and Data Analysis

What reports/analysis can be generated with the data? (Section 5.8)

		Trash Free Seas		
	OSPAR	**ICC**	**Clean Swell**	**Dive Against Debris**
Amounts	yes	yes	yes	yes
Percentages of total	yes	yes	yes	yes
Trends over time and significance of trends with P-value	yes	no	no	no
Reports Generated (see Appendix G & J for samples)	- Material types by amount/percentage - Material sources by amount/percentage **Trend analysis via Litter Analyst: (trends & significance)** -average total abundance of litter items per 100m of coast -average composition of litter items per 100m of coast -trends in the abundance of litter items per 100m of coast	- Summary - Top Ten - Unusual Items - People, Pounds, Miles - GPS/PPM/Item - Items of Local Concern - Entangled Animals	- Summary - Top Ten - Unusual Items -People, Pounds, Miles -GPS/PPM/ Item - Items of Local Concern - Entangled Animals	-Composition amounts - Entangled Animals - Debris Free Sites - Adopted Dive Sites - Individual Survey Reports

Appendix W – Comparison of OSPAR to UNEP Guidelines

Note: When the UNEP 2009 standards are reviewed side by side with OSPAR Marine Litter Survey methodology, as outlined below, there are a few points that are recommended by UNEP that are not currently present in the OSPAR Survey. These points have been underlined.

	OSPAR Marine Litter Monitoring Survey	UNEP Beach Litter Comprehensive Survey Operational Guidelines
Data Entry Access	Registration for data entry is granted by MCS, through OSPAR and approved by the constituent countries, to surveyors, national coordinators, policy officers and NGOs participating in the monitoring.	Data collation should be undertaken through an online, relational database management system under the control and direction of the local managers. Responsibility for review and approval of uploaded data should be undertaken by the regional/country coordinator who will clarify any issues with local managers. This would ensure a high level of consistency within each region as well as create a hierarchy of quality assurance on data acquisition. The use of such a system will also support comprehensive analysis of the data providing the opportunity to undertake statistically robust comparisons through time and between survey locations.
Quality Control	Professional surveyors, appointed coordinators or national authority submit the data in the online database. Field forms are kept and stored. Limit on number of items submitted to avoid errors. Check on the data by the national authority when drafting national annual reports and OSPAR intermediate assessment.	Organization of the survey, collation and transfer of the datasheets, quality control sampling and liaison with regional coordinators should be conducted through the location manager.
Key Objectives	-Monitor implementation of policies of MSFD and measures from OSPAR RAP. -Inform policymakers on amounts, types, sources and trends over time in beach litter.	1. Quantification and characterization of marine litter for the purposes of developing & evaluating the effectiveness of management, control, enforcement and/or mitigation strategies in particular integration with solid waste management. 2. Understanding the level of threat posed by marine litter to biota and ecosystems. 3. Providing comparable datasets to support national, regional and global assessments of marine litter.
Sites	Marine	Marine

	OSPAR Marine Litter Monitoring Survey	UNEP Beach Litter Comprehensive Survey Operational Guidelines
Schedule	4x per year (minimum) per site	Minimum 1x year, recommended 4x year
Sampling Frequency	Flux accumulation	Flux accumulation
Sampling Unit	Fixed sites/length	Fixed sites/length
Clearance	Required	Required
Site Selection Criteria	- composed of sand or gravel - 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 & if possible, over 1 km in length -be free of 'buildings' all year round -ideally not be subject to any other litter collection activities	- Minimum length of 100 m - Low to moderate slope (15 – 45º) - Clear access to the sea (not blocked by breakwaters or jetties) such that marine litter is not screened by anthropogenic structures - Accessible to survey teams year round - Ideally the site should not be subject to any other litter collection activities - Survey activities should be conducted so as not to impact on any endangered or protected species - Location of sampling sites within each zone should be stratified such that samples are obtained from beaches subject to different litter exposures, including: - Urban coasts (i.e. mostly terrestrial inputs); - Rural coasts (i.e. mostly oceanic inputs); - Within close distance to major riverine inputs Beach selection and sampling unit layout should be undertaken or ratified by the regional and/or country coordinator who will recruit (and work with) a series of local managers
Training	training & participation in surveys with experienced surveyors	Quality assurance and quality control should be primarily targeted at education of the field teams to ensure that litter collection and characterization is consistent across surveys. Investment in communication and the training of the country/regional and local survey coordinators and managers is thus critical to survey integrity.
Surveyor Data	Names & contact info of coordinators	Number of persons on the survey team
Supervision	Coordinator	Each survey location will require a location manager who is responsible for liaison with the regional coordinator as well as for recruiting survey volunteers, organising field

		operations, data collation and quality assurance sampling for each survey.
Training Materials	Guideline for Monitoring Marine Litter on the Beaches in the OSPAR Maritime Area	The use of a laminated pictorial field guide with examples of each litter type will assist survey team members (particularly volunteers) to be consistent in litter characterization. Such pictorial guides may also be published as field guides and made available over the web to increase consistency between survey teams working at more distant (remote) locations.
Survey Data	-Date -Beach Name -OSPAR Beach ID -Country -Was litter collected? -Date of last beach clean? -Weather conditions affecting data of survey? -Other circumstances or events?	- Date - Start and end times - Date on which the transect was last cleaned - Distance along beach covered by the survey – this should be fixed for each location - Width of the beach at the time of the survey (which should be as close to low tide as is practicable) from the current water level to the back of the beach - Any large litter items that cannot be safely moved by the survey group - Data on events that may not directly relate to the survey site (i.e. offshore storms, shipwrecks, shipping container losses) or alternatively land based activities that may result in litter such as festivals, car races, fishing competitions etc. - Conditions at the time of the survey that might affect the litter collection (e.g. cold, hot, rain, snow, high winds) through impacting on staff performance.
Site Location	GPS coordinates	GPS coordinates
Site Character-ization	-Beach width at mean low/high spring tide -Total length -Composition of back of beach -Prevailing currents -Prevailing winds -Direction facing -Type of beach material -Topography/gradient -Objects influencing currents -Beach usage -Access to beach -Distance to nearest town &	Data relating to the depositional environment & proximity to litter sources including: - Aspect - Prevailing wind (from meteorological data) - Beach curvature - Total beach length - Nearest river – name, distance, direction and whether or not it inputs directly to the beach - Nearest town – name, distance and direction - Estimated number of person visits per year (based on a 10n scale i.e. <10, <100, < 1,000 etc) - Main beach usage (i.e. recreational, swimming and sunbathing, fishing, surfing)

	population -Development of beach -Food/drink outlets on beach -Distance to nearest shipping lane/harbour/river mouth/discharge of waste water -Cleaning schedule/method/responsibility -Comments/observations -Map of beach/local surroundings/region	- Access (vehicular, pedestrian and/or boat only) Beach slope should be measured at the start and end point of each transect. The shape of the beach profile should be described at transect start and end points. A beach can be linear, concave, convex or sinusoidal/tiered in shape.
Litter Character-ization	Categorized by: Composition/Source Number of Categories: 11	Categorized by: Composition Number of Categories: 9
Number of Items	117	77
Plastic/ Polystyrene	54	Plastic (24) / Foamed Plastic (5)
Rubber	4	8
Cloth	5	6
Paper/ Cardboard	9	5
Wood (machined)	9	6
Metal	15	10
Glass	3	
Pottery/ Ceramics	3	8
Sanitary waste	6	0
Medical waste	3	0
Faeces	1	0
Other pollutant	5	5
Litter Quantification	Counted by item	count & weight

Entanglement Data Collected	-Species or description -Amount -Alive/Dead -Age -Gender -Nature of entanglement and type of litter	Information on any entangled fauna encountered during the survey (details of the organism, nature of entrapment, live or dead).

Appendix X – Side by Side Item Comparison

Note: Clean Swell and ICC do not assign reference numbers to items. For reference purposes of this report, they were assigned by the author. Items in this table are organized by how the items would be entered into that survey in order of least to highest resolution.

	CS	ICC		DAD		OSPAR		J-List	
Item Description	**ID**	**ID**	**Category**	**ID**	**Category**	**ID**	**Category**	**ID**	**Category**
Cigarette butts	CS1								
Cigarette butts - OSPAR, ICC cigarette filters - DAD		ICC1	Most likely to find items	DAD 15	Plastic Materials	OSPAR 64	Paper/ Cardboard	J27	Artificial polymer materials/ plastic
Balloons	CS2								
Balloons, including plastic valves, ribbons, strings etc. - OSPAR Balloons - ICC, DAD		ICC29	Other trash	DAD 4	Plastic Materials	OSPAR 49	Rubber	J125	Rubber
Toys	CS3								
Toys & party poppers - OSPAR Toys - DAD				DAD 100	Mixed Materials	OSPAR 20	Plastic/ Polystyrene	J32	Artificial polymer materials/ plastic
Balls				DAD 5	Plastic Materials				
Fishing gear	CS4								
Fishing Buoys, Pots & Traps		ICC19	Fishing Gear						
Fishing: traps & pots				DAD 25	Plastic Materials				
Fishing: traps & pots				DAD 63	Metal Materials				
Fishing: traps & pots				DAD 79	Wood Materials				
Crab/lobster pots						OSPAR 26	Plastic/ Polystyrene	J42	Artificial polymer materials/ plastic
Lobster/crab pots and tops						OSPAR 87	Metal	J184	Metal
Crab/lobster pots						OSPAR 71	Wood (machined)	J163	Processed/ worked wood

Fishing Net & Pieces - ICC Fishing: nets & pieces of net - DAD		ICC20	Fishing Gear	DAD 24	Plastic Materials				
Nets and pieces of net < 50 cm						OSPAR 115	Plastic/ Polystyrene	J53	Artificial polymer materials/ plastic
Nets and pieces of net > 50 cm						OSPAR 116	Plastic/ Polystyrene	J54	Artificial polymer materials/ plastic
Rope (diameter more than 1 cm) - OSPAR Rope (1 yard/meter = 1 piece) - ICC rope (plastic/nylon) - DAD		ICC22	Fishing Gear	DAD 33	Plastic Materials	OSPAR 31	Plastic/ Polystyrene	J49	Artificial polymer materials/ plastic
Tangled nets/cord/rope and string without dolly rope or mixed with dolly rope						OSPAR 331	Plastic/ Polystyrene	J234	Artificial polymer materials/ plastic
Tangled dolly rope						OSPAR 332	Plastic/ Polystyrene	J235	Artificial polymer materials/ plastic
Plastic string and cord (diameter less than 1cm) not from dolly ropes or unidentified						OSPAR 321	Plastic/ Polystyrene	J242	Artificial polymer materials/ plastic
Plastic string and filaments exclusively from dolly ropes						OSPAR 322	Plastic/ Polystyrene	J232	Artificial polymer materials/ plastic
Rope & string (cloth)				DAD 87	Cloth Materials				
Fishing line (angling) - OSPAR Fishing Line (1 yard/meter = 1 piece) - ICC fishing: line - DAD		ICC21	Fishing Gear	DAD 22	Plastic Materials	OSPAR 35	Plastic/ Polystyrene	J59	Artificial polymer materials/ plastic
Other plastic string and filaments exclusively from fishery								J233	Artificial polymer materials/ plastic
Fish boxes - plastic						OSPAR 341	Plastic/ Polystyrene	J57	Artificial polymer materials/ plastic
Fish boxes - foamed polystyrene						OSPAR 342	Plastic/ Polystyrene	J58	Artificial polymer materials/ plastic

Fish boxes						OSPAR 119	Wood (machined)	J164	Processed/ worked wood
Bait containers/packaging				DAD 3	Plastic Materials			J92	Artificial polymer materials/ plastic
Floats/Buoys - OSPAR buoys & floats (plastic & foamed) - DAD				DAD 12	Plastic Materials	OSPAR 37	Plastic/ Polystyrene		
Plastic floats for fishing nets								J62	Artificial polymer materials/ plastic
Plastic floats/buoys other source than fishing or not known								J63	Artificial polymer materials/ plastic
buoys (glass)				DAD 45	Glass & Ceramic Materials				
Lobster and fish tags						OSPAR 114	Plastic/ Polystyrene	J43	Artificial polymer materials/ plastic
Fishing weights - OSPAR fishing: sinkers, lures, hooks - DAD Metal fisheries related weights/sinkers, and lures - J-List				DAD 62	Metal Materials	OSPAR 80	Metal	J182	Metal
fishing: lures, rods/poles				DAD 23	Plastic Materials				
Octopus pots						OSPAR 27	Plastic/ Polystyrene	J44	Artificial polymer materials/ plastic
Octopus pots						OSPAR 95	Pottery/Ceramics	J207	Glass/Ceramics
Oyster nets or mussel bags including plastic stoppers						OSPAR 28	Plastic/ Polystyrene	J45	Artificial polymer materials/ plastic
Oyster trays (round from oyster cultures)						OSPAR 29	Plastic/ Polystyrene	J46	Artificial polymer materials/ plastic
Plastic sheeting from mussel culture (Tahitians)						OSPAR 30	Plastic/ Polystyrene	J47	Artificial polymer materials/ plastic

Other plastic fisheries related items not covered by other categories								J61	Artificial polymer materials/ plastic
Plastic bags	**CS5**								
Bags (e.g. shopping) - OSPAR Grocery Bags (Plastic) - ICC bags: grocery/retail (plastic) - DAD		ICC13	Most likely to find items	DAD 1	Plastic Materials	OSPAR 2	Plastic/ Polystyrene	J3	Artificial polymer materials/ plastic
Other Plastic Bags		ICC14	Most likely to find items						
Bags: trash (plastic)				DAD 2	Plastic Materials				
Small plastic bags, e.g., freezer bags						OSPAR 3	Plastic/ Polystyrene	J4	Artificial polymer materials/ plastic
Mesh vegetable bags - OSPAR mesh bags: fruit, vegetable, shellfish - DAD				DAD 31	Plastic Materials	OSPAR 24	Plastic/ Polystyrene	J238	Artificial polymer materials/ plastic
Fertiliser/animal feed bags						OSPAR 23	Plastic/ Polystyrene	J36	Artificial polymer materials/ plastic
Plastic bag ends						OSPAR 112	Plastic/ Polystyrene	J5	Artificial polymer materials/ plastic
Food wrappers	**CS6**								
Crisp/sweet packets and lolly sticks - OSPAR Food Wrappers (candy, chips, etc.) - ICC food wrappers (plastic) - DAD		ICC2	Most likely to find items	DAD 27	Plastic Materials	OSPAR 19	Plastic/ Polystyrene		
Plastic crisps packets/sweets wrappers								J30	Artificial polymer materials/ plastic
Foil wrappers - OSPAR wrappers (foil/metal) - DAD				DAD 71	Metal Materials	OSPAR 81	Metal	J177	Metal
Containers (plastic)	**CS7**								
Containers (foam)	**CS8**								

Containers: fast food, lunch boxes & similar				DAD 18	Plastic Materials				
Take Out/Away Containers (Plastic)		ICC3	Most likely to find items			OSPAR 610	Plastic/ Polystyrene	J225	Artificial polymer materials/ plastic
Take Out/Away Containers (Foam)		ICC4	Most likely to find items			OSPAR 620	Plastic/ Polystyrene	J224	Artificial polymer materials/ plastic
Beverage Cans	**CS9**								
Drink cans - OSPAR Beverage Cans - ICC beverage cans (aluminium) - DAD		ICC12	Most likely to find items	DAD 56	Metal Materials	OSPAR 78	Metal	J175	Metal
Bottle caps (Plastic)	**CS10**								
Caps/lids - OSPAR caps & lids (plastic) - DAD Bottle Caps (Plastic) - ICC		ICC5	Most likely to find items	DAD 13	Plastic Materials	OSPAR 15	Plastic/ Polystyrene		
Plastic caps/lids drinks								J21	Artificial polymer materials/ plastic
Plastic caps/lids chemicals, detergents (non-food)								J22	Artificial polymer materials/ plastic
Plastic caps/lids unidentified								J23	Artificial polymer materials/ plastic
Plastic rings from bottle caps/lids								J24	Artificial polymer materials/ plastic
Bottles (plastic)	**CS11**								
Beverage sachets	**CS21**								
Beverage Bottles (Plastic)		ICC10	Most likely to find items						
Drinks (bottles, containers and drums)						OSPAR 4	Plastic/ Polystyrene		
Beverage bottles: less than 2 litres (plastic)				DAD 7	Plastic Materials				
Plastic drink bottles ≤ 0.5 L								J7	Artificial polymer materials/ plastic
Beverage bottles: 2 litres or more (plastic)				DAD 8	Plastic Materials				

Plastic drink bottles >0.5 L								J8	Artificial polymer materials/ plastic
Other Plastic Bottles (oil, bleach, etc.):		ICC25	Packaging Materials						
Cleaner (bottles, containers and drums)				DAD 9	Plastic Materials	OSPAR 5	Plastic/ Polystyrene	J9	Artificial polymer materials/ plastic
Cosmetics (bottles & containers e.g. sun lotion, shampoo, shower gel, deodorant)						OSPAR 7	Plastic/ Polystyrene		
Plastic beach use related body care and cosmetic bottles and containers								J11	Artificial polymer materials/ plastic
Plastic non-beach use related body care and cosmetic bottles and containers								J12	Artificial polymer materials/ plastic
Other bottles, containers and drums						OSPAR 12	Plastic/ Polystyrene	J13	Artificial polymer materials/ plastic
Bottles: oil/lube				DAD 10	Plastic Materials				
Bottles (glass) - CS	**CS12**								
Bottles - OSPAR Beverage Bottles (Glass) - ICC, DAD		ICC11	Most likely to find items	DAD 44	Glass & Ceramic Materials	OSPAR 91	Glass	J200	Glass/Ceramics
Lids	**CS14**								
Lids (Plastic)		ICC7	Most likely to find items						
Bottle caps (metal)	**CS23**								
Bottle caps - OSPAR Bottle Caps (Metal) - ICC caps & lids (metal) - DAD Metal bottle caps, lids & pull tabs from cans - J-List		ICC6	Most likely to find items	DAD 58	Metal Materials	OSPAR 77	Metal	J178	Metal
Cups/plates	**CS13**								
Straws	**CS15**							J231	Artificial polymer materials/ plastic

Utensils	**CS16**								
Forks, Knives, Spoons		ICC9	Most likely to find items						
Cutlery/trays/**straws**						OSPAR 22	Plastic/ Polystyrene		
Plastic stirrers								J230	Artificial polymer materials/ plastic
Cups, plates, forks, knives, spoons (plastic) - DAD				DAD 20	Plastic Materials				
Plastic cutlery								J228	Artificial polymer materials/ plastic
Plastic plates & trays								J229	Artificial polymer materials/ plastic
Forks, knives, spoons (cutlery) - DAD Metal tableware (e.g. plates, cups & cutlery) - J-List				DAD 64	Metal Materials			J181	Metal
Cups & Plates (Plastic)		ICC17	Most likely to find items						
Cups & Plates (Foam)		ICC18	Most likely to find items						
Cups and lids of hard plastic						OSPAR 211	Plastic/ Polystyrene	J227	Artificial polymer materials/ plastic
Cups and cup lids of foamed polystyrene						OSPAR 212	Plastic/ Polystyrene	J226	Artificial polymer materials/ plastic
Cups & Plates (Paper)		ICC16	Most likely to find items						
Cups						OSPAR 65	Paper/ Cardboard	J244	Paper/cardboard
Paper food trays, food wrappers, drink containers								J245	Paper/cardboard
Cups, plates, tableware, dishes (glass & ceramic)				DAD 46	Glass & Ceramic Materials			J203	Glass/Ceramics

Cups, plates, tableware, dishes (metal)				DAD 60	Metal Materials				
Straws/Stirrers		ICC8	Most likely to find items	DAD 38	Plastic Materials				
Ice lolly sticks / chip forks						OSPAR 72	Wood (machined)	J165	Processed/ worked wood
Plastic lolly & ice-cream sticks								J31	Artificial polymer materials/ plastic
Plastic/foam pieces	**CS17**								
Plastic pieces 0 - 2,5 cm - OSPAR Plastic Pieces - ICC		ICC41	Tiny trash less than 2.5cm			OSPAR 1171	Plastic/ Polystyrene		
Plastic pieces 2,5 cm > < 50 cm						OSPAR 461	Plastic/ Polystyrene	J79	Artificial polymer materials/ plastic
Plastic pieces > 50 cm						OSPAR 471	Plastic/ Polystyrene	J80	Artificial polymer materials/ plastic
Polystyrene pieces 0 - 2,5 cm		ICC39	Tiny trash less than 2.5cm			OSPAR 1172	Plastic/ Polystyrene		
Polystyrene pieces 2,5 cm > < 50 cm						OSPAR 462	Plastic/ Polystyrene	J82	Artificial polymer materials/ plastic
Polystyrene pieces > 50 cm						OSPAR 472	Plastic/ Polystyrene	J83	Artificial polymer materials/ plastic
Plastic fragments				DAD 43	Plastic Materials				
Other foamed plastic items and fragments not made of foamed polystyrene								J239	Artificial polymer materials/ plastic
Foam sponge						OSPAR 45	Plastic/ Polystyrene	J256	Artificial polymer materials/ plastic
Personal hygiene	**CS18**								
condoms		ICC35	Personal hygene	DAD 73	Rubber Materials	OSPAR 97	Sanitary Waste	J133	Rubber
Diapers - ICC diapers/nappies - DAD		ICC36	Personal hygene	DAD 21	Plastic Materials			J98	Artificial polymer materials/ plastic

Syringes - OSPAR, ICC		ICC37	Personal hygene			OSPAR 104	Medical Waste		
Syringes (plastic) - DAD Plastic syringes/ needles - J-List				DAD 39	Plastic Materials			J99	Artificial polymer materials/ plastic
Syringes (glass)				DAD 50	Glass & Ceramic Materials				
Tampons & tampon applicators - OSPAR Tampons/Tampon Applicators - ICC		ICC38	Personal hygiene			OSPAR 100	Sanitary Waste	J144	Artificial polymer materials/ plastic
Tampons				DAD 99	Mixed Materials				
Tampon applicators				DAD 40	Plastic Materials				
Sanitary towels/panty liners/backing strips						OSPAR 99	Sanitary Waste	J96	Artificial polymer materials/ plastic
Toilet fresheners						OSPAR 101	Sanitary Waste	J97	Artificial polymer materials/ plastic
Plastic wet wipes						OSPAR 1021		J237	Artificial polymer materials/ plastic
Toothbrushes				DAD 42	Plastic Materials				
Combs/hair brushes						OSPAR 18	Plastic/ Polystyrene		
Plastic combs/hair brushes/sunglasses								J29	Artificial polymer materials/ plastic
Cotton bud sticks				DAD 19	Plastic Materials				
Cotton bud sticks (Plastic)						OSPAR 981	Sanitary Waste	J95	Artificial polymer materials/ plastic
Cotton bud sticks (Cardboard)						OSPAR 982	Sanitary Waste	J246	Paper/cardboard

Other sanitary items *(please specify in other item box*) - OSPAR* Other plastic personal hygiene and care items - J-List						OSPAR 102	Sanitary Waste	J236	Artificial polymer materials/ plastic
Other packaging	**CS19**								
4/6-pack yokes - OSPAR 6-Pack Holders - ICC six-pack rings, ring carriers - DAD		ICC23	Packaging Materials	DAD 36	Plastic Materials	OSPAR 1	Plastic/ Polystyrene	J1	Artificial polymer materials/ plastic
Other Plastic/Foam Packaging		ICC24	Packaging Materials						
Foam insulation & packaging				DAD 26	Plastic Materials				
Foamed plastic packaging								J257	Artificial polymer materials/ plastic
Industrial packaging, plastic sheeting						OSPAR 40	Plastic/ Polystyrene	J67	Artificial polymer materials/ plastic
sheeting: tarpaulin, plastic sheets, palette wrap				DAD 35	Plastic Materials				
Engine oil containers and drums <50 cm						OSPAR 8	Plastic/ Polystyrene	J14	Artificial polymer materials/ plastic
Engine oil containers and drums > 50 cm						OSPAR 9	Plastic/ Polystyrene	J15	Artificial polymer materials/ plastic
Jerry cans (square plastic containers with handle)						OSPAR 10	Plastic/ Polystyrene	J16	Artificial polymer materials/ plastic
Buckets - OSPAR buckets, drums & jerry cans: 2 litres or more - DAD				DAD 11	Plastic Materials	OSPAR 38	Plastic/ Polystyrene	J65	Artificial polymer materials/ plastic
Crates - OSPAR baskets, crates - DAD				DAD 6	Plastic Materials	OSPAR 13	Plastic/ Polystyrene	J18	Artificial polymer materials/ plastic
Plastic commercial salt packaging								J85	Artificial polymer materials/ plastic

Food cans - OSPAR cans: food, juice, other (tin) - DAD				DAD 57	Metal Materials	OSPAR 82	Metal	J176	Metal
Other metal cans (not food, drink or paint)								J188	Metal
Pull tabs: beverages				DAD 67	Metal Materials				
Gas bottles/cylinder, drums: more than 4 litres				DAD 65	Metal Materials				
Drums: 55 gallon				DAD 61	Metal Materials				
Oil drums						OSPAR 84	Metal	J187	Metal
Cartons e.g. tetrapak (milk)						OSPAR 118	Paper/ Cardboard	J150	Paper/cardboard
Cartons e.g. tetrapak (other)						OSPAR 62	Paper/ Cardboard	J151	Paper/cardboard
Glass jar						OSPAR 931	Glass	J201	Glass/Ceramics
Jars: food (glass)				DAD 48	Glass & Ceramic Materials				
Gloves & Masks (PPE)	**CS20**								
Plastic single-use face-mask								J253	Artificial polymer materials/ plastic
Single-use plastic gloves								J252	Artificial polymer materials/ plastic
Strapping bands	**CS24**								
Strapping bands - OSPAR, ICC strapping bands (plastic) - DAD		ICC26	Packaging Materials	DAD 37	Plastic Materials	OSPAR 39	Plastic/ Polystyrene	J66	Artificial polymer materials/ plastic
Strapping bands (metal)				DAD 69	Metal Materials				
Other tobacco (packaging, lighter, etc.)	**CS27**								
Cigarette packets - OSPAR Tobacco Packaging/Wrap -ICC		ICC27	Packaging Materials			OSPAR 63	Paper/ Cardboard	J152	Paper/cardboard

Tobacco packaging & wrappers - DAD Plastic tobacco pouches / plastic cigarette packet packaging - J-List				DAD 41	Plastic Materials			J25	Artificial polymer materials/ plastic
Cigar tips		ICC30	Other trash	DAD 17	Plastic Materials				
Cigarette Lighters		ICC31	Other trash	DAD 16	Plastic Materials	OSPAR 16	Plastic/ Polystyrene	J26	Artificial polymer materials/ plastic
E-cigarettes	**CS22**								
Other trash	**CS28**								
Bags		ICC15	Most likely to find items	DAD 90	Paper/Card board Materials	OSPAR 60	Paper/ Cardboard	J147	Paper/cardboa rd
Electric appliances - OSPAR Appliances (refrigerators, washers, etc.) - ICC Appliances: household - DAD		ICC28	Other trash	DAD 53	Metal Materials	OSPAR 79	Metal	J180	Metal
CDs & DVDs (inc. cases)								J84	Artificial polymer materials/ plastic
Telephone								J88	Artificial polymer materials/ plastic
Computer equipment & other electronic devices				DAD 96	Mixed Materials				
Construction materials	**CS25**								
Construction material e.g. tiles - OSPAR Construction Materials - ICC		ICC32	Other trash			OSPAR 94	Pottery/Cera mics	J204	Glass/Ceramics
Bricks, cinderblocks, chunks of cement				DAD 94	Mixed Materials				
Lumber (processed or cut/milled wood)				DAD 81	Wood Materials				
Pipes & rebar				DAD 66	Metal Materials				
Pipes (plastic/PVC)				DAD 32	Plastic Materials				
Industrial scrap						OSPAR 83	Metal	J186	Metal

Plastic construction waste (not foamed insulation)								J89	Artificial polymer materials/ plastic
Fibre glass						OSPAR 41	Plastic/ Polystyrene	J68	Artificial polymer materials/ plastic
Wire, wire mesh, barbed wire				DAD 70	Metal Materials	OSPAR 88	Metal	J191	Metal
Tires	**CS26**								
Tyres and belts - OSPAR Tires - ICC tires/tyres - DAD		ICC34	Other trash	DAD 77	Rubber Materials	OSPAR 52	Rubber		
Tyres								J251	Rubber
Belts								J249	Rubber
Wheels with metal hub								J130	Metal
Inner-tubes & rubber sheets				DAD 75	Rubber Materials				
Inner tube								J250	Rubber
Rubber sheet								J248	Rubber
Items of Local Concern		ICC42							
Glass Pieces - ICC Pieces of glass/ceramic (glass or ceramic fragments ≥ 2.5 cm) - J-List		ICC40	Tiny trash less than 2.5cm					J208	Glass/ceramics
Glass & ceramic fragments				DAD 51	Glass & Ceramic Materials				
Fireworks - ICC, DAD Plastic remains of fireworks - J-List		ICC33	Other trash	DAD 97	Mixed Materials			J243	Artificial polymer materials/ plastic
Paper tubes and other pieces of fireworks								J155	Paper/cardboard
Light bulbs/tubes						OSPAR 92	Glass		
Light globes: bulbs, etc				DAD 49	Glass & Ceramic Materials			J202	Glass/ceramics
Fluorescent light tubes				DAD 47	Glass & Ceramic Materials			J205	Glass/ceramics
Other glass items *(please specify in other item box*)*						OSPAR 93	Glass	J210	Glass/ceramics

Other ceramic/pottery items *(please specify in other item box*)*						OSPAR 96	Pottery/Ceramics	J219	Glass/ceramics
Shoes/sandals - OSPAR shoes, flip flops, sandals, tennis, etc - DAD				DAD 98	Mixed Materials	OSPAR 44	Plastic/ Polystyrene		
Footwear made of plastic - not flip flops								J136	Artificial polymer materials/ plastic
Plastic flip-flops								J102	Artificial polymer materials/ plastic
Shoes (leather)						OSPAR 57	Cloth	J138	Cloth/Textiles
Boots						OSPAR 50	Rubber	J127	Rubber
Cardboard						OSPAR 61	Paper/ Cardboard	J148	Paper/cardboard
Cardboard: packaging & cartons				DAD 91	Paper/Cardboard Materials				
Paper/cardboard fragments				DAD 93	Paper/Cardboard Materials			J156	Paper/cardboard
Paper: books, newspapers, magazines, etc				DAD 92	Paper/Cardboard Materials				
Newspapers & magazines						OSPAR 66	Paper/ Cardboard	J154	Paper/cardboard
Other paper items *(please specify in other item box*)*						OSPAR 67	Paper/ Cardboard	J158	Paper/cardboard
Furnishing						OSPAR 55	Cloth	J141	Cloth/Textiles
Furnishings (plastic)				DAD 28	Plastic Materials				
Furnishings (wood)				DAD 80	Wood Materials				
Cloth fragments				DAD 89	Cloth Materials				
Clothing				DAD 95	Mixed Materials	OSPAR 54	Cloth	J137	Cloth/Textiles
Towels, rags				DAD 88	Cloth Materials				

Sacking						OSPAR 56	Cloth	J140	Cloth/Textiles
Other textiles *(please specify in other item box*)*						OSPAR 59	Cloth	J145	Cloth/Textiles
Bags (burlap/hessian)				DAD 84	Cloth Materials				
Bags (cloth)				DAD 85	Cloth Materials				
Carpet (synthetic)				DAD 14	Plastic Materials				
Sails, canvas								J143	Cloth/Textiles
Cloth textile backpacks & textile bags								J139	Cloth/Textiles
Gloves (industrial/professional gloves)						OSPAR 113	Plastic/ Polystyrene	J41	Artificial polymer materials/ plastic
Gloves (typical washing up gloves) - OSPAR Plastic gloves (household/dishwashing, gardening) - J-List						OSPAR 25	Plastic/ Polystyrene	J40	Artificial polymer materials/ plastic
Gloves (latex)				DAD 29	Plastic Materials				
Gloves (rubber)				DAD 74	Rubber Materials				
Gloves (cloth)				DAD 86	Cloth Materials				
Hard hats						OSPAR 42	Plastic/ Polystyrene	J69	Artificial polymer materials/ plastic
Aerosol/Spray cans				DAD 52	Metal Materials	OSPAR 76	Metal	J174	Metal
Batteries: AA, AAA, C & D, 6V, 9V, etc - DAD Metal household batteries - J-List				DAD 54	Metal Materials			J195	Metal
Batteries: car or boat				DAD 55	Metal Materials				
Car parts - OSPAR cars & car parts - DAD				DAD 59	Metal Materials	OSPAR 14	Plastic/ Polystyrene		
Metal vehicle parts / batteries								J193	Metal

Plastic vehicle parts								J19	Artificial polymer materials/ plastic
Plastic fenders								J64	Artificial polymer materials/ plastic
Plastic flowerpots								J90	Artificial polymer materials/ plastic
Plastic sheeting from greenhouses								J220	Artificial polymer materials/ plastic
Plastic irrigation pipes								J221	Artificial polymer materials/ plastic
Other plastic items from agriculture								J222	Artificial polymer materials/ plastic
Trays for seedlings of foamed plastic								J223	Artificial polymer materials/ plastic
Plastic traffic cones								J72	Artificial polymer materials/ plastic
Disposable BBQ's						OSPAR 120	Metal	J179	Metal
Metal fragments				DAD 72	Metal Materials				
Metal cables								J194	Metal
Other metal pieces < 50 cm *(please specify in other item box*)*						OSPAR 89	Metal		
Other metal pieces 2.5cm ≥ ≤ 50cm								J198	Metal
Other metal pieces > 50 cm *(please specify in other item box*)*						OSPAR 90	Metal		
Other metal pieces > 50cm								J199	Metal
Rubber bands				DAD 76	Rubber Materials			J131	Rubber
Rubber ball								J126	Rubber
Rubber fragments				DAD 78	Rubber Materials				

Other rubber pieces *(please specify in other item box*)*						OSPAR 53		J134	Rubber
Light sticks (tubes with fluid) - OSPAR light sticks/cyalumes - DAD				DAD 30	Plastic Materials	OSPAR 36	Plastic/ Polystyrene	J60	Artificial polymer materials/ plastic
Scuba & snorkel gear, masks, snorkels, fins				DAD 34	Plastic Materials				
Scuba weights				DAD 68	Metal Materials				
Fin trees (from fins for scuba diving)								J86	Artificial polymer materials/ plastic
Pens						OSPAR 17	Plastic/ Polystyrene	J28	Artificial polymer materials/ plastic
Other plastic/polystyrene items *(please specify in other item box*)*						OSPAR 48	Plastic/ Polystyrene		
Other identifiable foamed plastic items								J240	Artificial polymer materials/ plastic
Other identifiable non-foamed plastic items								J241	Artificial polymer materials/ plastic
Paint brushes						OSPAR 73	Wood (machined)		
Plastic paint brushes								J166	Artificial polymer materials/ plastic
Paint tins						OSPAR 86	Metal	J190	Metal
Injection gun containers						OSPAR 11	Plastic/ Polystyrene	J17	Artificial polymer materials/ plastic
Shotgun cartridges						OSPAR 43	Plastic/ Polystyrene	J70	Artificial polymer materials/ plastic
Cable ties								J93	Artificial polymer materials/ plastic
Plastic masking/duct/ packing tape								J87	Artificial polymer materials/ plastic

Biofilm support media - OSPAR Plastic biomass holder from sewage treatment plants and aquaculture - J-List						OSPAR 481	Plastic/ Polystyrene	J91	Artificial polymer materials/ plastic
Containers / tubes - OSPAR Plastic medical/pharmaceuticals containers/tubes/packaging - J-List						OSPAR 103	Medical Waste	J100	Artificial polymer materials/ plastic
Other medical items (swabs, bandaging etc.) *(please specify in other item box*)*						OSPAR 105	Medical Waste	J11	Artificial polymer materials/ plastic
Other wood < 50 cm *(please specify in other item box*)*						OSPAR 74	Wood (machined)	J171	Processed/ worked wood
Other wood > 50 cm *(please specify in other item box*)*						OSPAR 75	Wood (machined)	J172	Processed/ worked wood
Wood fragments				DAD 83	Wood Materials				
Wooden fireworks & matches								J167	Processed/ worked wood
Crates						OSPAR 70	Wood (machined)	J162	Processed/ worked wood
Pallets				DAD 82	Wood Materials	OSPAR 69	Wood (machined)	J160	Processed/ worked wood
Corks						OSPAR 68	Wood (machined)	J159	Processed/ worked wood
Bagged dog faeces						OSPAR 121	Faeces	J101	Artificial polymer materials/ plastic
Unidentified generally light-coloured paraffin-like chemicals								J217	Chemicals
Parrafin or Wax Pieces 0-1 cm						OSPAR 108	Other Pollutant		
Parrafin or Wax Pieces 1-10 cm						OSPAR 109	Other Pollutant		
Parrafin or Wax Pieces > 10 cm						OSPAR 110	Other Pollutant		

Other (please specify in other item box*)						OSPAR 111	Other Pollutant		
Unidentified chemicals								J218	Chemicals
Unidentified generally dark-coloured oil-like chemicals								J216	Chemicals
Food waste								J215	Food waste
Pellets (nurdles)						OSPAR ?	Other Pollutant		

Appendix Y – Modified OSPAR Survey Forms Used by CCB

Modified OSPAR Survey Data Form

To be filled in by Survey Coordinator

Coordinator: _____ **Date:** _____

Site: _____ **Number of Volunteers:** _____

Survey Start Time:_____ **Survey End Time:** _____

Total weight of all litter items collected: _____ **kg/lbs**

Sargassum: _____ Yes* _____No

** If yes, note depth & meters of coverage from shoreline to back of beach*

Width of beach (waterline to designated back of beach): _____ **meters/feet**

Was litter collected during this survey? _____

When was the beach last cleaned? _____

Did any of the following weather conditions effect the data of the survey?

- Wind _____
- Rain _____
- Exceptionally High Tide _____

Large/unmovable objects present on beach (describe): _____

Did you find stranded or dead animals? _____

- If so, how many? _____
- Please describe the animal or note the species name, if known: _____
- Alive or dead? _____
- Sex of animal (if known): _____
- Age of animal (if known): _____
- Is the animal entangled in litter? _____
- 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: _____

Modified OSPAR Beach Litter Data Form

Date: _____

Surveyor: _____ **Site:** _____

OSPAR ID / J-List ID	Items	Total
	Plastic/Polystyrene	
2 / J3	Bags (e.g. shopping, carrier, grocery)	
3 / J4	Small plastic bags, e.g., freezer bags	
23 / J36	Fertiliser/animal feed / rubbish bags (heavy duty)	
24 / J238	Mesh vegetable bags	
112 / J5	Plastic bag ends	
4 / J7	Drinks (bottles & containers) ≤ 0.5 Liter	
4 / J8	Drinks (bottles, containers and drums) >0.5 Liters	
5 / J9	Cleaner (bottles, containers and drums)	
7 / J12	Cosmetics (bottles & containers e.g. shampoo, deodorant) NON-BEACH USE	
7 / J11	Cosmetics (bottles & containers e.g. sunscreen) BEACH USE	
12 / J13	Other bottles, containers and drums	
1 / J1	4/6-pack yokes	
15 / J23	Caps - UNKNOWN	
15 / J21	Caps - from drinks/food (inc. plastic corks)	
15 / J22	Caps - from non-drinks	
15 / J24	Rings from bottle caps	
610 / J225	Food containers incl. fast food containers (PLASTIC)	
620 / J224	Food containers incl. fast food containers (POLYSTYRENE/EPS)	
19 / J30	Crisp/chip packets & candy/sweets wrappers	
19 / J31	Lolly sticks/ice cream sticks	
211 /J227	Cups/lids (PLASTIC)	
212 / J226	Cups/lids (POLYSTYRENE/EPS)	
221 / J228	Cutlery	
221 / J229	Trays/plates	
222 / J231	Straws	
222 / J230	Stirrers	
8 / J14	Engine oil containers and drums <50 cm	
9 / J15	Engine oil containers and drums > 50 cm	
10 / J16	Jerry cans (square plastic containers with handle)	
11 / J17	Injection gun containers	
13 /J18	Crates / boxes /baskets	
14 / J19	Car parts; plastic vehicle parts (car, boat, bicycle)	
17 / J28	Pens	
18 / J29	Combs/hair brushes	
48 / J29	Sunglasses	
48 / J236	Other personal hygiene items (toothbrushes, razor, etc.)	
25 / J40	Gloves (typical washing up gloves)	
113 / J41	Gloves (industrial/professional gloves)	
38 / J65	Buckets	
39 / J66	Strapping bands	
40 / J67	Industrial packaging, plastic sheeting	
41 / J68	Fibre glass	
42 / J69	Hard hats	
48 / J166	Paint brushes	
48 / J72	Plastic traffic cones	
20 / J32	Toys & party poppers	
43 / J70	Shotgun cartridges	
48 / J243	Plastic firework remains	
44 / J136	Shoes/sandals/plastic footwear (non-flip-flops)	
44 / J102	Flip-flops	
48 / J93	Zip ties/tie wraps/cable ties	
48 / J87	Electrical/duct tape	
48 /	Labels	
48 / J241	Decorations (beads, rhinestones, plastic ribbons, etc.)	
48 / J241	Clothes pegs	

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Plastic/Polystyrene		
31 / J49	Rope (diameter more than 1 cm)	
321 / J242	String & cord (diameter < 1 cm) - not from dolly ropes or unk	
322 / J232	String and cord (diameter less than 1 cm) - from **dolly ropes**	
35 / J59	Fishing line (angling)	
48 / J233	Other plastic string and filaments exclusively from fishery	
115 / J53	Nets and pieces of net < 50 cm	
116 / J54	Nets and pieces of net > 50 cm	
331 / J234	Tangled nets/rope & string (w/o or mixed with **dolly rope**)	
332 / J235	Tangled **dolly rope**	
341 / J57	Fish boxes - plastic	
342 / J58	Fish boxes - foamed polystyrene (EPS)	
36 / J60	Light sticks (tubes with fluid)	
37 / J62	Floats for fishing nets	
37 / J63	Floats/Buoys (other source than fishing/unknown)	
48 / J64	Plastic fenders	
12 / J92	Plastic bait containers/packaging	
48 / J85	Commercial salt packaging	
26 / J42	Crab/lobster traps (pots) and tops	
114 / J43	Lobster & fish tags; plastic tags (fishing, shipping, farming)	
44 / J27	Octopus pots	
48 / J61	Other plastic fisheries related items	
64 / J27	Cigarette butts	
16 / J26	Cigarette lighters	
48 / J25	Plastic cigarette or tobacco packaging	
48 / J84	CD/DVD & Holders/Cases	
48 / J88	Telephone	
48 / J86	Plastic fin trees (from fins for scuba diving)	
48 / J239	Synthetic sponge (i.e. mattress, bathing sponge)	
48 / J257	Foamed plastic packing material	
45 / J256	Foam sponge/ foamed plastic insulation / spray foam	
48 / J89	Plastic construction waste (not foamed insulation)	
1171	PLASTIC pieces 0 - 2,5 cm SMALL	
461/ J79	PLASTIC pieces 2,5 cm > < 50 cm MEDIUM	
471 / J80	PLASTIC pieces > 50 cm LARGE	
1172	Polystyrene (EPS) pieces 0 - 2,5 cm SMALL	
462 / J82	Polystyrene pieces (EPS) 2,5 cm > < 50 cm MEDIUM	
472 / J83	Polystyrene pieces (EPS) > 50 cm LARGE	
48 / J241	Other plastic items (please specify below)	
Other:		
48 / J240	Other foamed polystyrene items (please specify below)	
Other:		

Metal		
76 / J174	Aerosol/Spray cans	
77 / J178	Bottle caps, lids & pull tabs from cans	
78 / J175	Drink cans	
82 / J176	Food cans	
89 / J188	Other cans (non food/drink/paint)	
120 / J179	Disposable BBQ's	
79 / J180	Electric appliances	
89 / J181	Metal tableware (e.g. plates, cups & cutlery)	
80 / J182	Fishing weights / lures	
87 / J184	Lobster/crab pots and tops	
81 / J177	Foil wrappers	
83 / J186	Industrial scrap	
84 / J187	Drums & barrels	
90 / J193	Vehicle parts / batteries	
90 / J130	Wheels with metal hub	
90 / J194	Metal cables	
89 / J195	Metal household batteries	
86 / J190	Paint tins	
88 / J191	Wire, wire mesh, barbed wire	
89 / J198	Twist tie	
89 / J198	Other metal pieces < 50 cm (please specify below)	
Other:		
90 / J199	Other metal pieces > 50 cm (please specify below)	
Other:		
Paper • Cardboard		
60 / J147	Bags	
61 / J148	Cardboard boxes	
118 / J150	Cartons e.g. tetrapak (milk)	
62 / J151	Cartons e.g. tetrapak (other)	
63 / J152	Cigarette packets	
65 / J244	Cups	
66 / J154	Newspapers & magazines	
67 / J158	Paper towel/napkin	
67 / J155	Fireworks (disks, tubes, etc.)	
67 / J245	Takeaway food container	
67 / J247	Other paper containers	
67 / J156	Unidentifiable pieces of paper / Paper fragments	
67 / J158	Other paper items (please specify below)	
Other:		
Glass / Ceramic / Pottery		
91 / J200	Bottles	
931 / J201	Jars	
92 / J202	Light bulbs	
92 / J205	Light tubes	
93 / J203	Glass/ceramic tableware (plates, cups, glasses)	
93 / J208	Pieces of glass/ceramic (glass or ceramic fragments ≥ 2.5 cm)	
93 / J210	Pieces of glass/ceramic (glass or ceramic fragments < 2.5 cm)	
93 / J210	Other glass items (please specify below)	
Other:		
94/J204	Construction material e.g. bricks, tiles, cement	
95/J207	Octopus pots	
96/J219	Other ceramic/pottery items (please specify below)	
Other:		

Cloth		
54/J137	Clothing	
55/J141	Furnishing/ carpet	
56/J140	Sacking	
57/J138	Shoes (leather and/or textile)	
59/J143	Sails/Canvas	
59/J139	Cloth/textile backpacks, bags	
59/J145	*Other textiles (please specify below)*	
Other:		

Medical waste		
103/J100	Containers / tubes / packaging	
104/J99	Plastic syringes	
105/J253	PPE Masks	
105/J252	Latex gloves	
105/J211	Plasters/bandaids/bandages	
105/J211	*Other medical items (please specify below)*	
Other:		

Rubber		
49/J125	Balloons, including plastic valves, ribbons, strings etc.	
53/J126	Rubber balls	
50/J127	Boots	
52/J251	Rubber tyres	
52/J249	Rubber belts	
53/J250	Inner tube	
53/J248	Rubber sheet	
53/J134	Hair ties	
53/J131	Rubber band	
53/J134	*Other rubber pieces (please specify below)*	
Other:		

Wood (machined)		
68/J159	Corks (non-plastic)	
69/J160	Pallets	
70/J162	Crates/boxes/baskets	
71/J163	Crab/lobster pots	
119/J164	Fish boxes	
72/J165	Ice lolly sticks / chip forks / toothpicks	
73/J171	Paint brushes	
74/J171	Kebab skewer	
74/J167	Matchstick/firework stick	
74/J171	*Other wood < 50 cm (please specify below)*	
75/J172	*Other wood > 50 cm (please specify below)*	
Other:		

Sanitary waste		
97/J133	Condom / packaging	
981/J95	Cotton bud sticks (plastic)	
982/J246	Cotton bud sticks (cardboard)	
99/J96	Sanitary towels/panty liners/backing strips	
100/J144	Tampons & applicators	
101/J97	Toilet fresheners	
1021/J237	Wet wipes (plastic)	
102/J98	Diapers	
102/J237	*Other sanitary items (please specify below)*	
Other:		

Faeces		
121/J101	Bagged dog faeces	

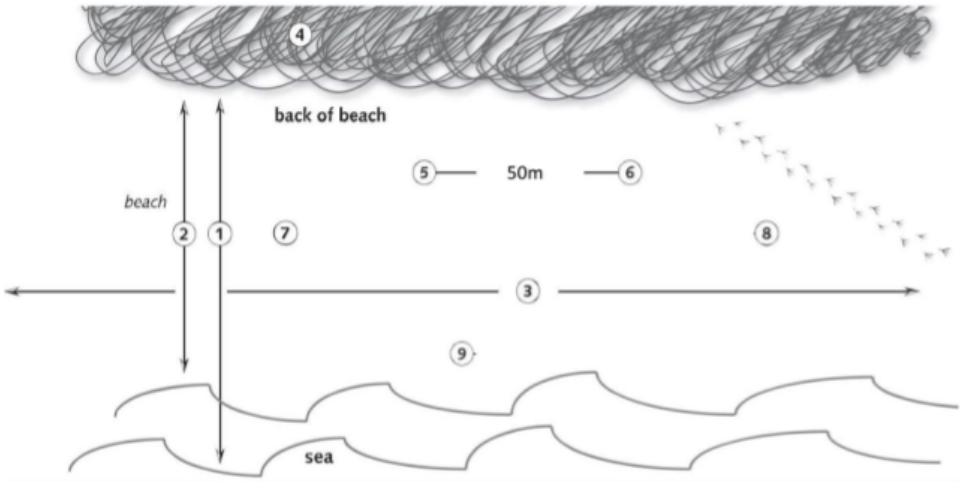
Pellets (nurdles): ___ Yes ____ No

Presence of other pollutants

108/J217	Parrafin or wax pieces (0-1 cm)	
109/J217	Parrafin or wax pieces (1-10 cm)	
110/J217	Parrafin or wax pieces (> 10 cm)	
111/J216	Tar / Unidentified dark-colored chemicals	
111/J218	Unidentified chemicals	
111	Charcoal	
111/J215	Organic Food Waste (i.e. rib bones)	

Modified OSPAR Site Data Form

Name of beach: .....
Beach ID: .....
Country: ..... to be filled in 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 50 m: .....
6 GPS coordinates end 50 m: .....
Coordinate system used: ..... Date position measured: .../.../..... (d/m/y)
Prevailing currents off the beach*: ❑N ❑E ❑S ❑W Prevailing winds*: ❑N ❑E ❑S ❑W

When you look from the beach to the sea, what direction is the beach facing*: ❑N ❑E ❑S ❑W
Type of beach material (% coverage): .....(e.g. sand 60%, pebbles 40%)
Beach topography: .....(e.g. slope 20%)
Beach curvature: ❑concave ❑convex ❑sinusoidal ❑straight
Horizontal profile (horizontal shape of the beach): ❑linear ❑concave ❑convex ❑mixed
Are there any objects in the sea (e.g. a pier) that influence the currents: .....

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: .....

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*you may tick one or two boxes

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Estimated number of person visits per year: ..... (based on a 10n scale i.e. <10, <100,< 1,000 etc)
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	❑Tourist:	winter .....
	spring		spring .....
	summer		summer .....
	autumn		autumn .....

Is there any development behind 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 in month: .....
Position of food and/or drink outlet in relation to the survey area e.g.*: ❑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*: ❑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*: ❑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*: ❑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 points in relation to survey area*: ❑N ❑E ❑S ❑W

*you may tick one or two boxes

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How often is the beach cleaned: .....

All year round: …….. X ❑Daily ❑Weekly ❑Monthly ❑Other ……

Seasonal, please specify in months: .....

…….. X ❑Daily ❑Weekly ❑Monthly ❑Other ……X

What method is used: ❑Manual ❑Mechanical

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

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

.....

.....

.....

.....

.....

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.....

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 harbor ❑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: .....

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Appendix Z - Joint List of Litter Categories for Marine Macrolitter Monitoring

Type-Code	J-Code	Name	Definition
ch_nn_drk_	J216	unidentified generally dark-coloured oil-like chemicals	Unidentified generally dark-coloured oil-like chemicals, i.e. no chemical analysis carried out.
ch_nn_lig_	J217	unidentified generally light-coloured paraffin-like chemicals	Unidentified generally light-coloured paraffin-like chemicals, i.e. no chemical analysis carried out.
ch_nn_uch_	J218	unidentified chemicals	Any unidentified chemicals, i.e. no chemical analysis carried out.
ct_cl_clg_	J137	clothing	Any type of clothes, garments and headwear made of natural or artificial polymer materials.
ct_cl_ftw_	J138	shoes & sandals made of leather and/or textile	Various types of footwear such as shoes and sandals made of leather and/or textile.
ct_nn_cpt_	J141	cloth textile carpet & furnishing	Thick woven fabric used for covering the floor or other fabric used for furniture, fittings, and other decorative house accessories such as curtains.
ct_nn_sac_	J140	hessian sacks/ packaging	Sacks and other packaging items made of a strong, coarse fabric from hemp or jute (Hessian).
ct_nn_sal_	J143	sails, canvas	A heavy durable cloth made of cotton, hemp, or jute, used for sails, tents, etc.
ct_nn_tex_	J145	other textiles	Other textile items, including pieces of cloth, rags, etc. that are unidentifiable, as well as other identifiable cloth textile items, which do not fit in any other category of this list.
ct_re_bps_	J139	cloth textile backpacks & textile bags	Textile receptacles with an opening at the top, shoulder straps or a handle, used for carrying things.
fw_	J215	organic food waste	All types of non-packaged food and food remains.
gc_co_btc_	J204	glass ceramic construction materials (bricks, tiles, cement)	Any glass and ceramic material which is used for construction purposes such as brick, roof tiles, floor tiles, bricks, cement, etc.
gc_fc_tab_	J203	glass and ceramic tableware (plates/cups/ glasses)	Glass or ceramic dishes or dishware used for serving food and dining, plates, cups, glassware, serving dishes and other useful items for practical as well as decorative purposes.
gc_fi_trp_octo_	J207	ceramic or glass octopus pots	Pots made of pottery, weighted with concrete, and typically having a volume of 4 litres. Octopus seeking refuge in the pots can be trapped.
gc_nn_b&c_bott_	J200	glass bottles	Glass or ceramic containers with a narrow neck, used for storing drinks or other liquids. Includes pieces of glass that can be identified as coming from a bottle.
gc_nn_b&c_jars_	J201	glass jars	Wide-mouthed cylindrical containers made of glass or pottery, especially used for storing food. Includes pieces of glass that can be identified as coming from a jar.

gc_nn_gfr_	J208	pieces of glass/ceramic (glass or ceramic fragments ≥ 2.5 cm)	Fragments of pottery or glass items that cannot be identified (≥ 2.5 cm).
gc_nn_lit_flbu_	J205	glass fluorescent light tube	A low-pressure mercury-vapour gas-discharge lamp that uses fluorescence to produce visible light.
gc_nn_lit_libu_	J202	glass light bulbs	A glass bulb inserted into a lamp or a socket in a ceiling, which provides light by passing an electric current through a filament or a pocket of inert gas. Includes all types, also halogen, LED, etc.
gc_nn_occ_ocet_	J219	other ceramic items	Other identifiable ceramic items, which do not fit in any other category of this list.
gc_nn_occ_ogli_	J210	other glass items	Other identifiable glass items, which do not fit in any other category of this list.
me_co_cab_	J194	metal cables	A thick metal wire or a group of wires usually inside a rubber or plastic covering, which is used to carry electricity or electronic signals.
me_fc_b&c_cans_bevg_	J175	metal drinks cans	Metal containers that are used for storing and selling, e.g. beer or soft drinks.
me_fc_b&c_cans_fcan_	J176	metal food cans	Metal containers that are used for storing and selling food such as beans, soup, fish, corn, etc.
me_fc_tab_	J181	metal tableware (e.g. plates, cups & cutlery)	Metal dishes or dishware used for serving food and dining, including cutlery, plates, cups, serving dishes and other useful items.
me_fi_trp_	J184	metal lobster/crab pots	A portable trap that traps lobsters or crayfish. It can be constructed of wire or metal and netting. An opening permits the lobster or crab to enter a tunnel of netting.
me_fi_wsl_	J182	metal fisheries related weights/sinkers & lures	fisheries related items such as: weights/sinkers (a metal weight used in conjunction with a fishing lure or hook to increase its rate of sink, anchoring ability, and/or casting distance); lures (any bright artificial bait consisting of metal mounted with hooks and trimmed with feathers.
me_nn_app_	J180	metal appliances (refrigerators, washers, etc.)	Metal (mostly electrical) devices or pieces of equipment designed to perform a specific task such as air conditioners, dishwashers, clothes dryers, freezers, refrigerators, kitchen stoves, water heaters, washing machines, trash compactors, microwave oven, etc.
me_nn_b&c_barl_	J187	metal drums & barrels	Large cylindrical metal containers used for storing or shipping bulk cargo, i.e. oil, chemicals, etc.
me_nn_b&c_cans_aesp_	J174	metal aerosol/spray cans	A type of dispensing system which creates an aerosol mist of liquid particles; used with a can or bottle that contains a payload and propellant under pressure. Indicative examples of such items are: spray paints, cleaning spray foam, engine oil spray, etc.
me_nn_b&c_cans_ocan_	J188	other metal cans	Other metal containers that are used for storing and selling products that are not food or drinks or paints
me_nn_b&c_cans_ptin_	J190	metal paint tins	Metal containers that are used for paint
me_nn_b&c_lids_	J178	metal bottle caps, lids & pull tabs from cans	Metallic caps and lids from bottles and containers, including the pull tabs from cans
me_nn_bat_	J195	metal household batteries	Small-sized batteries that are typically used in small electronic devices such as flashlights, cameras, etc.

me_nn_foi_	J177	metal foil wrappers, aluminium foil	Thin aluminium sheeting or leaves used, especially, to cover and wrap food.
me_nn_ome_larg_	J199	other metal pieces > 50cm	Other identifiable metal items that are bigger than 50 cm in the longest dimension and do not fit in any other item category of this list.
me_nn_ome_smal_	J198	other metal pieces 2.5cm ≥ ≤ 50cm	Other identifiable metal items that are smaller than 50 cm in the longest dimension and do not fit in any other item category of this list.
me_nn_srp_	J186	metal industrial scrap	Metal resulting from the disuse of metal products such as parts of vehicles, building supplies, and surplus materials.
me_nn_wir_	J191	wire, wire mesh, barbed wire	A metal mesh woven, knitted, welded, expanded, photo-chemically etched or electroformed steel or other (wire mesh); a metal wire with or without clusters of short, sharp spikes set at short intervals along it, used to make fences.
me_re_bbq_	J179	metal disposable BBQs	A single-use barbecue grill made from lightweight aluminium material.
me_vk_prt_	J193	metal vehicle parts / batteries	Any part of a car or other transport vehicle (i.e., boat) made predominantly of metal, including vehicle batteries. Excluding wheels.
me_vk_whl_	J130	wheels with metal hub	A circular object that revolves on an axle and is fixed below a vehicle or other object to enable it to move easily over the ground. Includes the hub with the tyre or just the hub.
pl_ag_ghs_	J220	plastic sheeting from greenhouses	Plastic sheeting used to cover greenhouses generated during the construction, renovation, and demolition. This category is possibly only separable from other plastic sheeting by experienced workers.
pl_ag_irg_	J221	plastic irrigation pipes	Plastic irrigation pipes from agriculture generated during construction, renovation, and demolition.
pl_ag_oag_	J222	other plastic items from agriculture	Other plastic items from agriculture generated during construction, renovationa and demolition.
pl_ag_pot_	J90	plastic flower pots	A plastic container in which plants are grown.
pl_ag_tra_	J223	trays for seedlings of foamed plastic	A foamed plastic tray in which seedlings are grown.
pl_aq_shf_oyst_	J46	plastic oyster trays	A special tray made of square mesh used for growing oysters. Trays may be single, double or triple stacked, with or without feet, doors, v-braces and hooks.
pl_aq_shf_sack_	J45	plastic mussels/oyster mesh bags, net sack, socks	A special bag or sack made of extruded net which is used for growing (underwater) oysters and other shellfish species. These bags can have different sizes and shapes, e.g. sack-like and tubular and the mesh net can have different sizes.
pl_aq_shf_tahi_	J47	plastic sheeting from mussel culture (Tahitians)	Pieces of plastic sheeting about 50X40 cm which are cut at one end into fringes or stripes, so they look a little like a grass skirt from Hawaii. They are used to protect mussel cultures from animals that feed on mussels.
pl_cl_ftw_flip_	J102	plastic flip-flops	A light sandal made of plastic, with a thong between the big and second toe.
pl_cl_ftw_shoe_	J136	footwear made of plastic - not flip flops	Items of footwear made of plastic - not flip flops.
pl_cl_glv_hogl_	J40	plastic gloves (household/dishwashing, gardening)	Gloves used to do household chores such as dishwashing gardening, etc. They are typically made of different polymers, including latex, nitrile rubber, polyvinyl chloride. Less heavy-duty than industrial gloves.

pl_cl_glv_ingl_	J41	plastic gloves (industrial/professional applications)	Gloves specifically dedicated to industrial applications, mechanical, engineering, agriculture, fisheries and aquaculture and construction. They are typically made of different polymers, including latex, nitrile rubber, polyvinyl chloride and neoprene.
pl_cl_glv_sugl_	J252	single-use plastic gloves	Single-use plastic gloves used for example in relation to the COVID-19 pandemic.
pl_cl_hdw_helm_	J69	plastic hard hats/helmets	A hard or padded protective hat, various types of which are worn by construction workers, workers from offshore installations, soldiers, police officers, motorcyclists, sports players, and others.
pl_co_fom_pain_insu_	J256	foamed plastic insulation including spray foam	Lightweight cellular foam (mainly foamed PU and PE materials) used especially for insulation (i.e., in walls, roofs, and foundations as thermal insulation and water barrier). Includes spray foam.
pl_co_oco_	J89	plastic construction waste (not foamed insulation)	Plastic waste materials generated during the construction, renovation, and demolition of buildings or structures. These may include drainage pipes, waste pipes, plastic tubes for cables, etc. Not foamed insulation materials.
pl_fc_b&c_dbot_lage_	J8	plastic drink bottles >0.5 l	Plastic bottles and containers with a volume larger than 0.5 litres, used to hold water, juice or other drinks for consumption.
pl_fc_b&c_dbot_smll_	J7	plastic drink bottles ≤ 0.5 l	Plastic bottles and containers with a volume of 0.5 litres or less, used to hold water, juice or other drinks for consumption.
pl_fc_b&c_ffmd_	J224	plastic food containers made of foamed polystyrene	Foamed polystyrene containers used for carrying or storing food, such as fast food containers, lunchboxes, etc.
pl_fc_b&c_lids_drnk_	J21	plastic caps/lids drinks	Plastic caps and lids from bottles and containers, used to hold water, juice or other drinks for consumption
pl_fc_b&c_pfoc_	J225	plastic food containers made of hard non-foamed plastic	Plastic containers used for carrying or storing food, such as fast-food containers, Tupperware, lunchboxes, etc. Made of non-foamed plastic.
pl_fc_sxp_	J1	plastic 4/6-pack yokes & six-pack rings	Four or six-pack rings or yokes are a set of connected plastic rings that are used in multi-packs of drinks, particularly of drinks cans, to hold the cans together.
pl_fc_tab_cups_fcup_	J226	cups and cup lids of foamed polystyrene	Single-use cups and their lids for coffee and other drinks; made of foamed polystyrene. They have a wide range of uses in restaurants, bakeries, or catering settings.
pl_fc_tab_cups_hpcp_	J227	cups and lids of hard plastic	Single-use cups and their lids for coffee and other drinks; made of non-foamed artificial polymer materials. They have a wide range of uses in restaurants, bakeries, or catering settings.
pl_fc_tab_cupt_cutl_	J228	plastic cutlery	Single-use knives, forks, and spoons.
pl_fc_tab_cupt_plat_	J229	plastic plates and trays	Single-use plates and trays made of artificial polymer material.
pl_fc_tab_stst_stir_	J230	plastic stirrers	Stirrers are used when serving hot drinks such as tea and coffee or other drinks such as cocktails.
pl_fc_tab_stst_strw_	J231	plastic straws	A drinking straw or drinking tube is a small pipe that allows its user to more conveniently consume a drink.
pl_fc_wrp_cwls_crsp_	J30	plastic crisps packets/sweets wrappers	Plastic food packets and wrappers created and designed in various colours, materials, shapes, sizes and styles for crisp food products (i.e. potato chips, etc.) or sweets (i.e. chocolates, candy, ice-creams, etc.).

pl_fc_wrp_cwls_loly_	J31	plastic lolly & ice-cream sticks	A plastic stick attached to the bottom of a popsicle/lolly/ice-cream or lollypop used as a handle to facilitate the eating process.
pl_fi_bag_hdsa_salt_	J85	plastic commercial salt packaging	Heavy-duty sacks and other containers used for packaging and shipping salt.
pl_fi_box_fbox_	J58	fish boxes - foamed polystyrene	Boxes made of foamed polystyrene, which are used for packaging fish or other seafood.
pl_fi_box_plbx_	J57	fish boxes - hard plastic	Boxes made of plastic materials (other than expanded polystyrene), which are used for packaging fish or other seafood.
pl_fi_bte_	J92	plastic bait containers/packaging	Plastic packaging (pouches, bags) and plastic containers suitable for storing, transporting, selling fishing baits.
pl_fi_fil_	J60	plastic fishing light sticks / fishing glow sticks incl. packaging	An item that is used by anglers in order to make baits more attractive to fish. Fishing light sticks or glow sticks are typically tubes filled with fluorescent fluid. They can be found in a variety of sizes.
pl_fi_flb_	J62	plastic floats for fishing nets	An item attached to the top of some types of fishing nets, like seine and trammel that keeps them hanging vertically in the water. Floats come in different sizes and shapes.
pl_fi_lin_	J59	plastic fishing line	A long nylon thread, usually attached to a baited hook, with a sinker or float, and used for catching fish. The fishing line may be found tangled or not and with or without hooks, sinkers and floats.
pl_fi_net_larg_	J54	plastic nets and pieces of net > 50cm	Pieces of plastic open-meshed material made of twine, cord, or something similar, used typically for catching fish; bigger than 50 cm in the longest dimension.
pl_fi_net_smal_	J53	plastic nets and pieces of net 2.5 cm ≥ ≤ 50 cm	Pieces of plastic open-meshed material made of twine, cord, or something similar, used typically for catching fish; smaller than 50 cm in the longest dimension.
pl_fi_net_strg_drop_	J232	plastic string and filaments exclusively from dolly ropes	Strings and filaments from blue, black or orange string that are used to protect bottom trawling nets against wear and tear. A dolly rope consists of around 30 strings; each string has around 25 threads.
pl_fi_net_strg_fish_	J233	other plastic string and filaments exclusively from fishery	Other string and filaments exclusively from fishery.
pl_fi_net_tang_mixd_	J234	plastic tangled nets and rope without dolly rope or mixed with dolly rope	Tangled pieces of plastic open-meshed material made of twine, cord, or something similar, used typically for catching fish. They may be found tangled with rope or dolly rope.

pl_fi_net_tang_tadr_	J235	plastic tangled dolly rope	Tangles of blue, black or orange rope that are used to protect bottom trawling nets against wear and tear. A dolly rope consists of around 30 strings; each string has around 25 threads. The dolly rope string as well as the separated threads can occur in tangles in the marine environment. Tangles of dolly rope should consist entirely of dolly rope.
pl_fi_ofi_	J61	other plastic fisheries related items not covered by other categories	Other fisheries related litter items that are not explicitly addressed by the fisheries related items included on this list, e.g. soft and hard plastic baits such as wobblers, spinners, etc.
pl_fi_trp_crab_	J42	plastic crab/lobster traps (pots) and tops	Stationary plastic traps or pots used to catch crustaceans such as lobsters and crabs. Though the size and shape of the traps may vary, most feature a net covering and a cone-shaped entrance tunnel through which a crab or lobster is enticed with bait but cannot escape from.
pl_fi_trp_octo_	J44	plastic octopus pots	Pots made of plastic or PVC tubing, weighted with concrete, and typically having a volume of 4 litres. Octopus seeking refuge in the pots can be trapped.
pl_hu_car_	J70	plastic shotgun cartridges	A shotgun cartridge is a self-contained cartridge often loaded with multiple metallic "shot", which are small, generally spherical projectiles. The shells consist of a plastic tube mounted on a brass base holding a primer. Also, plastic wads from shotgun cartridges can be found on their own.
pl_hy_b&c_bech_	J11	plastic beach use related body care and cosmetic bottles and containers	Bottles and containers of body care and cosmetics products used at the beach such as sunscreen, suntan or after sun lotion, etc.
pl_hy_b&c_obch_	J12	plastic non-beach use related body care and cosmetic bottles and containers	Bottles and containers of body care and cosmetics products such as shampoo, shower gel, toothpaste, perfume and others that are not explicitly used at the beach.
pl_hy_cbs_	J95	plastic cotton bud sticks	A short plastic stick with a small amount of cotton on each end that is used for cleaning, especially the ears. The cotton is usually no-longer attached. The ends are rough when touched, where the cotton was attached. This feature can be used to separate from lolly sticks.
pl_hy_com_	J29	plastic combs/hair brushes/ sunglasses	Plastic items used for untangling or arranging the hair, as well as plastic glasses tinted to protect the eyes from sunlight or glare.
pl_hy_dap_	J98	plastic diapers/nappies	Basic garments for infants consisting of absorbent synthetic polymer material drawn up between the legs and fastened about the waist, used to retain urine and faeces.
pl_hy_ohy_	J236	other plastic personal hygiene and care items	Other identifiable personal hygiene and care items that do not fit in any other category of this list. Can be made of other materials than artificial polymers.
pl_hy_stt_sant_	J96	plastic sanitary towels/panty liners/backing strips	Sanitary towels/panty liners/backing strips.

pl_hy_stt_tamp_	J144	plastic tampons and tampon applicators	A feminine hygiene product designed to absorb the menstrual flow or a plug of material used to stop a wound or block an opening in the body and absorb blood or secretions. The tampon applicator should be recorded within this category.
pl_hy_tfr_	J97	plastic toilet fresheners	Toilet bowl fresheners, which are attached inside the toilet bowl to keep it smelling fresh.
pl_hy_wws_	J237	plastic wet wipes	A small disposable synthetic cloth treated with a cleansing agent, used especially for personal hygiene.
pl_md_msk_	J253	plastic single-use face-mask	Single-use facemask used to protect against for example dust, chemicals and pathogens (e.g. COVID-19 pandemic).
pl_md_omd_	J211	other plastic medical items (swabs, bandaging, adhesive plasters etc.)	Items deemed necessary for the treatment of an illness or injury. These may include swabs, bandaging, adhesive plasters, etc. Can be made of other materials than artificial polymers.
pl_md_pha_	J100	plastic medical/ pharmaceuticals containers/ tubes/ packaging	A wide variety of artificial polymer packages used for the packaging of a wide variety of pharmaceutical solids, liquids, and gasses. Some of the common primary plastic packages are: blister packs, small bottles and containers, tubes, ampoules, etc.
pl_md_syg_	J99	plastic syringes/ needles	A plastic tube with a nozzle and piston or bulb for sucking in and ejecting liquid in a thin stream, used for cleaning wounds or body cavities, or fitted with a hollow needle for injecting or withdrawing fluids. Included all parts of syringes (e.g. syringe plunger and the metal needle with plastic adapter) found separately.
pl_nn_b&c_clng_	J9	plastic bottles and containers of cleaning products	Bottles and containers of cleaning products such as detergents, toilet cleaners, glass cleaners, etc.
pl_nn_b&c_eoil_larg_	J15	plastic engine oil bottles & containers >50cm	Plastic bottles and containers bigger than 50 cm in any dimension, used for packaging motor oil, engine oil, or engine lubricant.
pl_nn_b&c_eoil_smal_	J14	plastic engine oil bottles & containers 2.5 cm ≥ ≤ 50 cm	Plastic bottles and containers smaller than 50 cm in any dimension, used for packaging motor oil, engine oil, or engine lubricant.
pl_nn_b&c_injn_	J17	plastic injection gun containers/cartridges	A cartridge made of plastic for devices that are used to inject grease, silicone, or other fluids. Includes their nozzles.
pl_nn_b&c_jery_	J16	plastic jerry cans	Large plastic flat-sided containers with a handle used for storing or transporting liquids, typically petrol or water.
pl_nn_b&c_lids_dtgt_	J22	plastic caps/lids chemicals, detergents (non-food)	Plastic caps and lids from bottles and containers of cleaning products (i.e. detergents, toilet cleaners, glass cleaners, etc.) and chemicals.
pl_nn_b&c_lids_olid_	J23	plastic caps/lids unidentified	Plastic caps and lids from unidentified bottles and containers.
pl_nn_b&c_lids_ring_	J24	plastic rings from bottle caps/lids	Plastic structures around the circumference (usually) of the closure that is often found attached below a closure in bottles, jars, and tubs. The bottom part of a cap that breaks off when the cap is screwed off.

pl_nn_b&c_ob&c_	J13	other plastic bottles & containers (drums)	Other plastic bottles and containers such as drums (cylindrical containers) generally used for the transportation and storage of liquids and powders.
pl_nn_bag_cabg_	J3	plastic shopping/ carrier/grocery bags	Shopping bags are medium-sized bags, typically around 10–20 litres in volume (though much larger versions exist, especially for non-grocery shopping), that are used by shoppers to carry home their purchases. Shopping bags can be made with a variety of plastics.
pl_nn_bag_dogb_	J101	plastic dog/pet faeces bag	A plastic bag used for picking up and removing the faeces of a dog or other pet.
pl_nn_bag_ends_	J5	the part that remains from tear-off plastic bags	Plastic packing bags are commonly found on the market in packs of 10, 20, 50, etc. This litter item refers to the part that remains after tearing-off the bags.
pl_nn_bag_hdsa_ohds_	J36	other plastic heavy-duty sacks	Non-salt heavy duty plastic sacks for content such as animal feed, fertilizers, garden rubbish, etc.
pl_nn_bag_mesh_vege_	J238	plastic mesh bags for vegetable, fruit and other products	A special mesh bag made out of polypropylene, polyethylene or high-density polyethylene used for packaging and transporting agricultural products such as vegetables, fruit, bird feed, etc.
pl_nn_bag_smbg_	J4	small plastic bags	Small plastic bags refer to small-sized bags such as freezer bags, zip-lock re-sealable food bags, poly bags, etc.
pl_nn_bio_	J91	plastic biomass holder from sewage treatment plants and aquaculture	Plastic Filter Media or Biofiltration Media are small (1-4 cm diameter ca. 1 cm high) usually round plastic items that look a bit like a cake. https://www.bing.com/images/search?q=Plastic+Filter+Media+or+Biofiltration+Media&FORM=HDRSC2
pl_nn_box_	J18	plastic crates, boxes, baskets	Plastic containers typically used to transport or store different types of items and products, other than fisheries and aquaculture related.
pl_nn_buc_	J65	plastic buckets	A roughly cylindrical open container with a handle made of plastic and used to hold and carry liquids
pl_nn_cbt_	J93	plastic cable ties	A cable tie (also known as a wire tie, hose tie, steggel tie, zap strap or zip tie, and by the brand names Ty-Rap and Panduit strap) is a type of fastener, for holding items together, primarily electrical cables or wires.
pl_nn_cds_	J84	plastic CDs & DVDs	Small plastic discs (and their keep cases) on which sound and data can be stored (CDs & DVDs).
pl_nn_cpa_shet_	J67	plastic sheets, industrial packaging, sheeting	Large plastic packaging or sheeting used for the protection or covering/wrapping of large cargo objects. Plastic sheeting is used for a variety of industrial and commercial applications. It comes in many sizes, strengths, styles, and colours depending on the application.
pl_nn_fen_	J64	plastic fenders	Plastic cushions (such as foam rubber) placed between a boat and a dock or between two boats to lessen shock and prevent chafing.
pl_nn_fib_	J68	fibre glass items	Items made of fibreglass, a common type of fibre-reinforced plastic using glass fibre. Examples of fibreglass items include water pipes, pods, domes, traffic lights, pieces of boats etc.
pl_nn_flb_	J63	plastic floats/buoys other source than fishing or not known	Plastic floats/buoys other source than fishing or not known. Floating devices that serve as navigation marks, marking reefs or other hazards, mooring locations. They can be anchored (stationary) or allowed to drift with ocean currents.

pl_nn_fom_nfpy_	J239	other foamed plastic items and fragments not made of foamed polystyrene	Items and fragments not made of foamed polystyrene (other than packaging or insulation related) made out of foamed sponge-like plastic, such as mattresses, bathing sponges, etc.
pl_nn_fom_pain_pack_	J257	foamed plastic packaging	Lightweight cellular foam (mainly foamed PU and PE materials) used as a packing material.
pl_nn_frg_fopy_larg_	J83	fragments of foamed polystyrene > 50cm	Fragments of foamed polystyrene that are bigger than 50 cm in the longest dimension and originate from unidentifiable polystyrene items.
pl_nn_frg_fopy_smal_	J82	fragments of foamed polystyrene 2.5 cm ≥ ≤ 50 cm	Fragments of foamed polystyrene that are bigger than 2.5 cm and smaller than 50 cm in the longest dimension and originate from unidentifiable polystyrene items.
pl_nn_frg_nofp_larg_	J80	fragments of non-foamed plastic > 50cm	Fragments of plastic that are larger than 50 cm in the longest dimension and originate from unidentifiable plastic non-foamed polystyrene items.
pl_nn_frg_nofp_smal_	J79	fragments of non-foamed plastic 2.5cm ≥ ≤ 50cm	Fragments of plastic that are bigger than 2.5 cm and smaller than 50 cm in the longest dimension and originate from unidentifiable plastic non-foamed polystyrene items.
pl_nn_idp_idfd_	J240	other identifiable foamed plastic items	Items that are made of foamed polystyrene, which are identifiable but do not fit in any other litter type category in this list.
pl_nn_idp_idnf_	J241	other identifiable non-foamed plastic items	Items that are made of non-foamed artificial polymers, which are identifiable but do not fit in any other litter type category in this list.
pl_nn_pai_	J166	plastic paint brushes	A brush used for painting, typically consisting of bristles fastened into a wooden or plastic handle. Can be made of a mixture of materials including metal.
pl_nn_pen_	J28	plastic pens and pen lids	Any writing or drawing utensils, their parts and lids, made predominately from artificial polymer materials.
pl_nn_rps_rope_	J49	plastic rope (diameter more than 1cm)	A stout cord of strands of plastic fibres twisted or braided together, with a diameter larger than 1 cm.
pl_nn_rps_strg_nodr_	J242	plastic string and cord (diameter less than 1cm) not from dolly ropes or unidentified	A material consisting of threads made of plastic twisted together to form a thin length, with a diameter smaller than 1 cm; excluding string and cord from dolly ropes.
pl_nn_stb_	J66	plastic strapping bands	Plastic bands and straps used for fastening any type of package. Polypropylene and polyester strapping is the most commonly used plastic strapping on the market. Usually made of quite hard plastic.
pl_nn_tag_	J43	plastic tags (fishing, shipping, farming and industry)	Plastic tags used to mark fish and shellfish such as lobsters and plastic cargo seals (pull-tight) both usually with a serial number. Also, animal tags from farming.

pl_nn_tap_	J87	plastic masking/duct/packing tape	Different sorts of plastic adhesive tape: used in painting, to cover areas on which paint is not wanted (masking tape); strong cloth-backed waterproof adhesive tape (duct tape); box-sealing tape, parcel tape or packing tape used for closing or sealing corrugated fibreboard boxes.
pl_nn_tel_	J88	telephone	Mobile phone devices and any other type of telephones.
pl_nn_tfk_	J72	plastic traffic cones	Plastic cone-shaped objects that are used to separate off or close sections of a road.
pl_re_div_	J86	plastic fin trees (from fins for scuba diving)	The plastic supports placed inside diving flippers or fins to keep them in shape.
pl_re_fwo_	J243	plastic remains of fireworks	The plastic remains of fireworks such as caps of rockets, covers for fuses, exploding parts of battery fireworks.
pl_re_toy_	J32	plastic toys and party poppers	Any plastic object that children play with, as well as objects commonly used at parties. Party poppers are small devices used as an amusement at parties, which explode when a string is pulled, ejecting thin paper streamers.
pl_sm_but_	J27	tobacco products with filters (cigarette butts with filters)	A cigarette filter, also known as a filter tip, is a component of a cigarette, placed at the one tip of the cigarette in order to absorb vapours and accumulate particulate smoke components. The filter is commonly made from synthetic plastic cellulose.
pl_sm_lht_	J26	plastic cigarette lighters	Small objects that produce a flame, commonly used for lighting cigarettes or cigars.
pl_sm_tob_	J25	plastic tobacco pouches / plastic cigarette packet packaging	Plastic containers (pouches, boxes) used for cigarettes and tobacco.
pl_vk_prt_	J19	plastic vehicle parts	Any part of a car or other transport vehicle made of artificial polymer materials and fibre glass. This can also include pieces of boats.
pp_fc_b&c_tpak_milk_	J150	paper cartons/ Tetrapak milk	Containers made of carton with a plastic-lining used for milk.
pp_fc_b&c_tpak_otpk_	J151	paper cartons/ Tetrapak (non-milk)	Containers made of carton with a plastic-lining used for food products, other than milk.
pp_fc_tab_cups_	J244	paper cups	Cups for coffee and other drinks; made of cardboard. They have a wide range of uses in restaurants, bakeries, or catering settings.
pp_fc_tab_tray_	J245	paper food trays, food wrappers, drink containers	Single-use food trays, food wrappers and drink containers, made of paper.
pp_hy_cbs_	J246	paper cotton bud sticks	A short paper stick with a small amount of cotton on each end that is used for cleaning, especially the ears.
pp_nn_b&c_	J247	other paper containers	Other paper containers.
pp_nn_bag_	J147	paper bags	A small bag made of paper, commonly used as shopping bags, packaging, etc.
pp_nn_box_	J148	cardboard boxes	Boxes made of cardboard (a thick, stiff paper or material containing multiple layers of corrugated paper).
pp_nn_frg_	J156	paper fragments	Fragments of paper items that cannot be identified.
pp_nn_new_	J154	paper newspapers & magazines	Printed publications consisting of paper sheets and containing news, articles, advertisements.

pp_nn_opp_	J158	other paper items	Other identifiable paper and cardboard items, which do not fit in any other category of this list.
pp_re_fwo_	J155	paper tubes and other pieces of fireworks	Small paper/cardboard containers/tubes filled with explosive chemicals that produce bright coloured light patterns or loud noises when they explode (fireworks).
pp_sm_cig_	J152	paper cigarette packets	A rectangular container made of paperboard, used as packaging for cigarettes. It may also include a plastic covering.
ru_cl_ftw_rubo_	J127	rubber boots	A tall boot that is made of rubber and that keeps the feet and lower legs dry.
ru_hy_con_	J133	rubber condoms (incl. packaging)	A thin rubber sheath, used during sexual intercourse as a contraceptive or as a protection against infection. Within this category also the packaging should be recorded.
ru_nn_bnd_	J131	rubber band (small, for kitchen/household/post use)	A thin, flexible loop that is made of rubber and used to hold things together.
ru_nn_its_rush_	J248	rubber sheet	Rubber sheeting made of rubber (or rubber-like artificial polymer). Rubber sheets are used for varied purposes, e.g. flooring, under shower pans, drainage systems, as lining for water containers and in construction.
ru_nn_oru_	J134	other rubber pieces	Other identifiable rubber pieces, which do not fit in any other category of this list.
ru_nn_tyr_belt_	J249	rubber belts	Rubber belts are elongated rectangular rubber items.
ru_re_bln_	J125	rubber balloons	A small, coloured, rubber sack-like object which is inflated with air or gas and then sealed at the neck, used as a child's toy or for decoration. Within this category balloon ribbons, strings, plastic valves and balloon sticks that are or were attached to balloons are included.
ru_re_bls_	J126	rubber balls	A spherical toy ball, usually fairly small, made of elastic material which allows it to bounce against hard surfaces.
ru_vk_its_intu_	J250	rubber inner-tubes	An inflatable usually ring-shaped rubber tube designed for use inside a pneumatic tire.
ru_vk_tyr_tyre_	J251	rubber tyres	Rubber tyres from all types of vehicles.
wo_fc_b&c_cork_	J159	wooden corks	A bottle stopper made of cork or a similar material. Note that plastic corks should be recorded under plastic caps and lids
wo_fc_ice_	J165	wooden ice-cream sticks, chip forks, chopsticks, toothpicks	Various wooden sticks, including sticks from ice-creams, small wooden forks from fast food suppliers (chip forks), tapered sticks of wood held together in one hand and used as eating utensils in Asian cuisine (chopsticks), short pointed pieces of wood used for removing bits of food lodged between the teeth (toothpicks).
wo_fi_box_	J164	wooden fish boxes	Boxes made of wood, which are used for storing or transferring fish or other seafood.
wo_fi_trp_	J163	wooden crab/lobster pots	Stationary wooden traps used to catch crustaceans such as lobsters and crabs. Usually covered in a net.
wo_nn_box_	J162	wooden crates, boxes, baskets for packaging	Wooden containers typically used to transport or store different types of items and products. Not fish boxes.
wo_nn_owo_larg_	J172	other processed wooden items > 50cm	Other identifiable processed, worked or treated wooden items larger than 50 cm in the longest dimension, which do not fit in any other category of this list, e.g., planks, boards, beams.
wo_nn_owo_smal_	J171	other processed wooden items	Other identifiable processed, worked or treated wooden items smaller than 50 cm in the longest dimension, which do not fit in any other category of this list, e.g. planks, boards, beams.

		2.5 cm ≥ ≤ 50 cm	
wo_nn_pal_	J160	wooden pallets	A flat wooden structure on which heavy goods are put so that they can be moved using a fork-lift truck.
wo_re_fwo_	J167	wooden fireworks & matches	A small thin piece of wood or cardboard tipped with flammable chemicals that catch fire with friction (match); any wooden remains of fireworks, e.g. sticks from rockets.

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