

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

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## Glossary of Terms and Abbreviations

<b>AWS</b>	Amazon Web Services, a cloud computing service
<b>Beach cast</b>	Material that has been deposited on beaches after being washed up by wave action, storm or tidal movement.
<b>Benthic</b>	On the sea-bed – benthic litter is litter found sitting on or entangled with objects on the seabed.
<b>Cartagena Convention</b>	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).
<b>CCB</b>	Clean Coast Bonaire - pilot program funded by WWF to bring OSPAR Marine Litter Survey methodology to Bonaire.
<b>CSV file</b>	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.
<b>DAD</b>	Dive Against Debris – Project AWARE program for benthic marine litter removal and survey by volunteer scuba divers.
<b>Debris</b>	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”.
<b>EIHA</b>	Environmental Impact of Human Activities committee within OSPAR Biodiversity Strategy
<b>EPA</b>	US Environmental Protection Agency
<b>Flux rate</b>	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.
<b>GCFI</b>	Gulf and Caribbean Fisheries Institute
<b>GESAMP</b>	Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection



<b>GPML</b>	Global Partnership on Marine Litter
<b>ICC</b>	International Coastal Cleanup - Annual event, celebrated on the 3 <sup>rd</sup> Saturday of September. The world's largest volunteer effort for ocean and waterways.
<b>IOC of UNESCO</b>	Intergovernmental Oceanographic Commission of United Nations Educational, Scientific and Cultural Organization
<b>LBS</b>	Land Based Sources of Marine Pollution
<b>Litter Analyst</b>	A tailor-made software for analysing the results of beach litter surveys
<b>Litter Characterization</b>	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.
<b>Litter Monitoring</b>	Repeated surveys of beaches, sea bed 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.
<b>Litter Survey</b>	Structured set of procedures to provide a quantitative assessment of the amount of litter in a given location.
<b>Marine Litter</b>	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.
<b>MARPOL</b>	International Convention for the Prevention of Pollution from Ships
<b>MCS</b>	Marine Conservation Society
<b>MDMAP</b>	Marine Debris Monitoring and Assessment Project developed by NOAA in the USA.
<b>Microplastics</b>	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).
<b>MSFD</b>	Marine Strategy Framework Directive (of the European Union)
<b>MySQL</b>	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.
<b>NGO</b>	Non-Governmental Organization
<b>NOAA</b>	National Oceanic and Atmospheric Administration
<b>NMDMP</b>	National Marine Debris Monitoring Program developed by the Ocean Conservancy in the USA.



<b>OC</b>	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.
<b>OSPAR</b>	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.
<b>PADI</b>	Professional Association of Dive Instructors
<b>Project AWARE</b>	Registered non-profit organization working with volunteer scuba divers.
<b>RAP</b>	Regional Action Plan
<b>RAPMaLi</b>	Regional Action Plan for Marine Litter
<b>RCU</b>	Regional Coordinating Unit for any of the various UNEP Regional Seas Programmes (see RSP).
<b>RDS</b>	Relational Database Service, a cloud based relational database service provided by Amazon.
<b>RSP</b>	The UNEP Regional Seas Programme
<b>SDG14</b>	Sustainable Development Goal (SDG) 14 - Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
<b>SIDS</b>	Small Island Developing States
<b>Standing crop</b>	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.
<b>TFS</b>	Trash Free Seas - program of Ocean Conservancy in charge of ICC, Clean Swell and TIDES database
<b>TIDES</b>	Trash Information and Data for Education and Solutions (Ocean Conservancy website <a href="http://www.coastalcleanupdata.org">www.coastalcleanupdata.org</a> )
<b>UNEP/UN Environment</b>	United Nations Environment Programme
<b>UNEP Regional Seas Programme</b>	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.
<b>UNEP-CAR/RCU</b>	UNEP's Caribbean Regional Coordinating Unit
<b>UNEP-CEP</b>	UNEP's Caribbean Environment Programme
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organization
<b>WCR</b>	Wider Caribbean Region
<b>WWF</b>	World Wide Fund for Nature





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## 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 these 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 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.



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

## **UNEP 2009 Operational Guidelines for Comprehensive Beach Litter Assessment**

**Include 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**
- **Data sheets**
- **Quality assurance**
- **Data management platform**
- **Equipment needs**



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that allows for engagement with citizens for monitoring, while ensuring good quality data collection on certain preselected sites.

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 copy 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 and 6 give the results of the analysis, resulting in conclusions and recommendations in Section 7.

## 1. Marine Litter in the Wider Caribbean Region

### 1.1 Impact

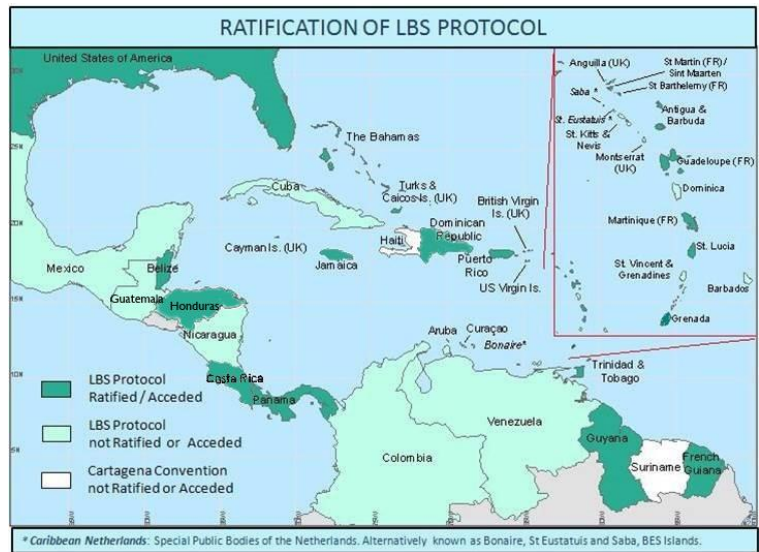
The global issue of marine litter has had a significant impact on countries of the Wider Caribbean Region, in particular on Small Island Developing States. SIDS have a higher proportion of coastline and a significant reliance upon coastal ecosystems for tourism, fishing and transportation than in other 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 to address marine litter in place, 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



Figure 1: Map of WCR with Contracting Parties



under the directive of the United Nations Environment Programme (through its Regional Seas Program).

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](http://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 successful pilot by the WWF organizers and therefore the pilot continued and is currently ongoing. 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



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### 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://www.mcsuk.org/ospar/>. The Marine Conservation Society (MCS), a UK based environmental NGO, and member of the OSPAR Intersessional Correspondence Group on Marine Litter, provides the IT infrastructure and ensures the data is safe and backups are being made. 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 in order to ensure consistency in the data gathering.



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### 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 LitterR, 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.



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- 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](#).





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## 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://www.mcsuk.org/ospar/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 xlsx 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](#).

### 5.9 Surveys 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

## Flux Rate

**In order 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).**



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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.



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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. How to Combine Successful Tools

### 6.1 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.

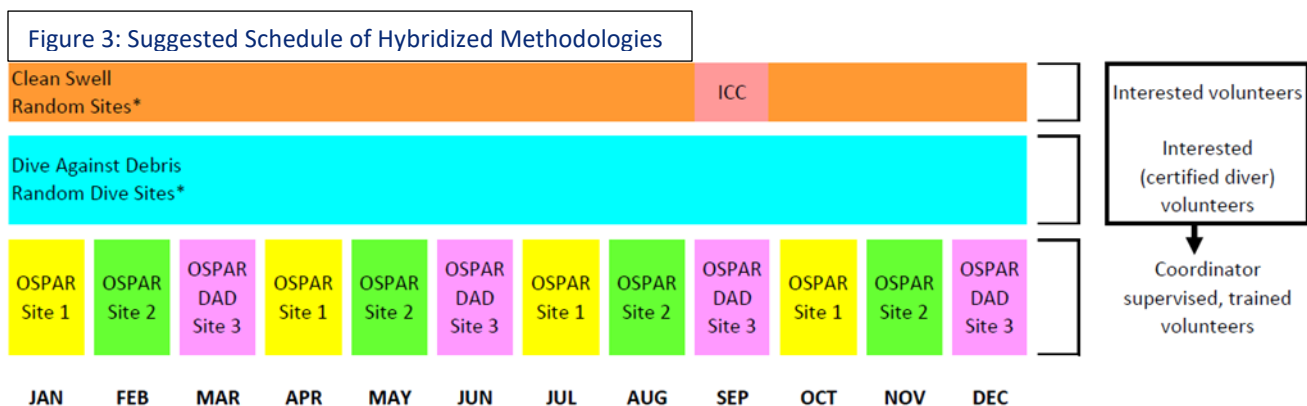
In the interest of incorporating a Comprehensive Beach Litter Assessment to the WCR, the OSPAR method is the recommended method for several reasons.

- 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 ([Appendix Y](#)) at targeted sites
- Develop action plan for implementation, including: timeline, training, regional team development, country capacity and budget needs



\* With the exception of designated OSPAR Survey sites



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## 6.2 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 20 items, ICC has 42, Dive Against Debris has 100 and OSPAR has 117. 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.

## 6.3 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.

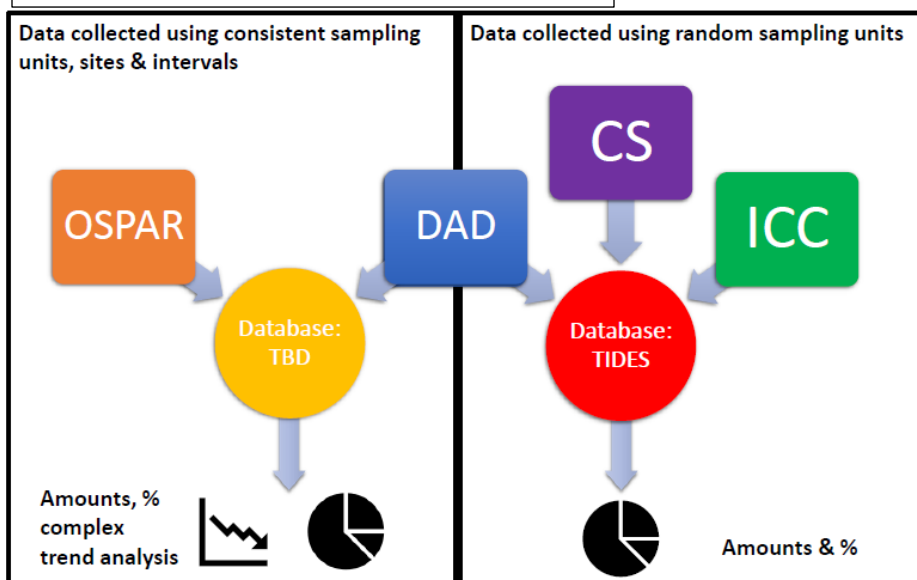
### 6.4 Data Management

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. It is compatible with the Litter Analyst software. The host server ownership and control of the data should be managed by the Cartagena Secretariat.

Figure 4: Suggested Data Management Pathways



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## 7. 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 OSPAR surveys
  - b. existing ICC surveys are encouraged to continue with increased interaction with UN Environment or similar enabling agency
2. Data are cataloged 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.





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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
- 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 others' meetings, the ICGML Basecamp Platform and frequent communication with OSPAR to stay up to date with updates to the program

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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## Websites

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>





## 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.

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

Figure 5: Map of Bonaire with survey sites



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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:** There is an extremely high volume of small plastics on the windward sites. There are many pieces of secondary microplastic and polystyrene that are discernable to the eye, yet difficult to collect and remove.

**Resolution:** Sieves were constructed and tested for assistance in collection of the items. In a 2018 consultation with Willem van Loon (one of the developers of the Litter Analyst program that was designed to develop standard statistical methods and software for the analysis of beach litter data), a strategy was created to simplify data collection regarding small plastic items. The strategy is to designate three, square 50cm collection areas per survey site. All small plastics within each square are to be collected, counted and weighed at each survey. Weight could be considered equal value of total abundance. If a strong correlation will be found between weight and counts within sample areas, just weighing the items would be sufficient data for the survey. The data will be recorded for trend analysis, but not extrapolated for total beach coverage.

**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.



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**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.



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## 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:

- Shorted beach length
- Special procedure for plastic/polystyrene under 50cm
- Addition of sargassum presence and beach width

The OSPAR data collection forms were revised to:

- reflect the above mentioned modifications
- show corresponding Dive Against Debris litter classification numbers
- 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

<u>OSPAR Items</u>	<u>Total</u>	<u>TIDES Item</u>	<u>Total</u>
Cigarette butts	1345	Cigarette Butts	1345
Crisp/sweet packets and lolly sticks	24	Food Wrappers	54
Foil wrappers	28		
Other paper items * <i>food wrapper</i> - 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 <i>firework cartridge - 1</i>	1	Fireworks	1
Tyres and belts	1	Tires	1
Toys & party poppers	5	Toys	6
Other rubber pieces <i>ball - 1</i>	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 <i>*unidentifiable</i>	94	Glass Pieces	94
Other plastic/polystyrene items <i>*watering nozzle - 1; electrical tape - 2; birthday candle - 1; tie wraps - 2</i>	6	Items of local concern	148
Other rubber pieces <i>* rubber band - 2; o-ring - 3; scuba mask strap - 1; snorkel keeper -1</i>	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 <i>* hair tie - 11; piece of cloth - 1; shoe lace -1</i>	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 ( <i>please specify in other item box*</i> )	6		



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



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



---

## 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 made sure 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

<b>Survey Name</b>	<b>OSPAR Marine Litter Monitoring Survey</b>
<b>Developed By</b>	Commission for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Commission)
<b>Partners</b>	Cartagena Convention
<b>Key Objectives</b>	-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
<b>Description</b>	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.
<b>Active Since Year</b>	2000
<b>No. of Countries Using in Region</b>	1
<b>Regional Languages Available</b>	English, Spanish, French, Dutch
<b>Sites</b>	Marine
<b>Schedule</b>	4x per year (minimum) per site
<b>Sampling Frequency</b>	Flux accumulation
<b>Sampling Unit</b>	Fixed sites/length
<b>Clearance</b>	Required
<b>Site Selection Criteria</b>	<ul style="list-style-type: none"> <li>- composed of sand or gravel</li> <li>- exposed to the open sea</li> <li>- be accessible to surveyors all year round</li> <li>- be accessible for ease of marine litter removal</li> <li>- be a minimum length of 100 metres &amp; if possible over 1 km in length</li> <li>-be free of 'buildings' all year round</li> <li>-ideally not be subject to any other litter collection activities</li> </ul>
<b>Groups/Individuals</b>	both
<b>Website</b>	<a href="https://www.mcsuk.org/ospar/">https://www.mcsuk.org/ospar/</a>
<b>Registration</b>	contact OSPAR to request Login credentials
<b>Data Entry Access</b>	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.
<b>Data Entry Procedure</b>	direct input and by csv file upload
<b>Quality Control</b>	<ul style="list-style-type: none"> <li>- Professional surveyors, appointed coordinators or national authority submit the data in the online database</li> <li>- Field forms are kept and stored</li> <li>- Limit on number of items submitted to avoid errors</li> <li>- Check on the data by the national authority when drafting national annual reports and OSPAR intermediate assessment</li> </ul>



<b>Data Access</b>	public (after data has signed off by OSPAR EIHA committee)
<b>Data Ownership</b>	OSPAR
<b>Database Type</b>	MySQL
<b>Data Security</b>	System access by registered user/password
<b>Data Backup</b>	<ul style="list-style-type: none"> <li>- Data backups are taken by an IT /Technical team</li> <li>- Some countries are also storing data in national databases</li> <li>- Original field forms are kept in hard copy</li> </ul>
<b>Output format</b>	csv files, reports and on screen data
<b>Reports Generated</b>	<ul style="list-style-type: none"> <li>- Material types by amount/percentage</li> <li>- Material sources by amount/percentage</li> <li><b>Trend analysis via Litter Analyst:(trends &amp; significance)</b></li> <li>-average total abundance of litter items per 100m of coast</li> <li>-average composition of litter items per 100m of coast</li> <li>-trends in the abundance of litter items per 100m of coast</li> </ul>
<b>Source Tracing (point of manufacture or origin)</b>	no
<b>Source Tracing (user group)</b>	yes
<b>Training</b>	training & participation in surveys with experienced surveyors (recommended workshop)
<b>Training Materials</b>	Guideline for Monitoring Marine Litter on the Beaches in the OSPAR Maritime Area
<b>Name of Data Collection Form</b>	OSPAR Marine Litter Monitoring Survey Form
<b>Survey Data</b>	<ul style="list-style-type: none"> <li>- Date</li> <li>- Beach Name</li> <li>- OSPAR Beach ID</li> <li>- Country</li> <li>- Was litter collected</li> <li>- Date of last beach clean</li> <li>- Weather conditions affecting data of survey</li> <li>- Other circumstances or events</li> </ul>
<b>Surveyor Data</b>	Names & contact info of coordinators
<b>Supervision</b>	Coordinator
<b>Site Location</b>	GPS coordinates





<b>Site Characterization</b>	<ul style="list-style-type: none"> <li>- Beach width at mean low/high spring tide</li> <li>- Total length- Composition of back of beach</li> <li>- Prevailing currents</li> <li>- Prevailing winds</li> <li>- Direction facing</li> <li>- Type of beach material</li> <li>- Topography/gradient</li> <li>- Objects influencing currents</li> <li>- Beach usage</li> <li>- Access to beach</li> <li>- Distance to nearest town &amp; population</li> <li>- Development of beach</li> <li>- Food/drink outlets on beach</li> <li>- Distance to nearest shipping lane/harbour/river mouth/discharge of waste water</li> <li>- Cleaning schedule/method/responsibility</li> <li>- Comments/observations</li> <li>- Map of beach/local surroundings/region</li> </ul>
<b>Litter Characterization</b>	Categorized by: Composition/Source Number of Categories: 11
<b>Number of Items</b>	117
Plastic/Polystyrene	54
Rubber	4
Cloth	5
Paper/Cardboard	9
Wood (machined)	9
Metal	15
Glass	3
Pottery/Ceramics	3
Sanitary waste	6
Medical waste	3
Faeces	1
Other pollutant	5
<b>Litter Quantification</b>	Counted by item
<b>Entanglement Data Collected</b>	<ul style="list-style-type: none"> <li>- Species or description</li> <li>- Amount</li> <li>- Alive/Dead</li> <li>- Age</li> <li>- Gender</li> <li>- Nature of entanglement and type of litter</li> </ul>
<b>Additional Info</b>	collected with survey data
<b>Photos</b>	submit via email



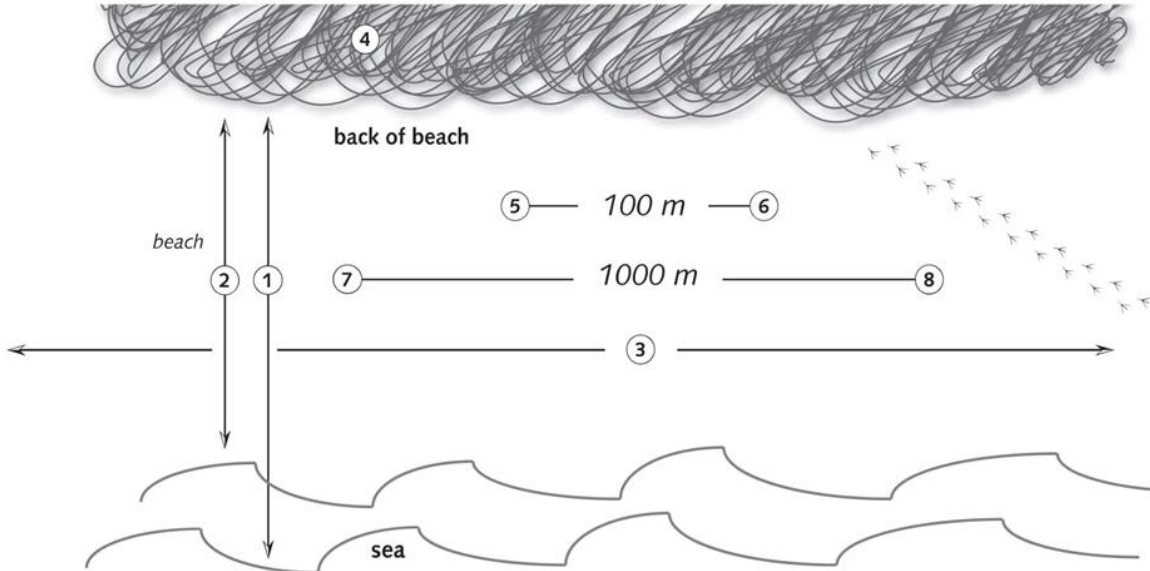
**Appendix F – OSPAR Marine Litter Monitoring Survey Form**

 **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

OSPAR Beach Questionnaire 2010.010







# 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: .....





# OSPAR Marine Litter Monitoring Survey Form

Name of beach: ..... Name of surveyor 1: .....

OSPAR beach ID: ..... Phone number: .....

Country: ..... E-mail address: .....

..... Name of surveyor 2: .....

..... Phone number: .....

Date of survey: ...../...../..... (d/m/y) E-mail address: .....

## Additional Information



# 100 m

Was litter collected during this survey:  Yes  No

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

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

.....

Did any of the following weather conditions affect the data of the surveys. If so please tick appropriate box:

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

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

Please describe the animal, or 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 ID	Unep ID	Items	Total
<i>Plastic • Polystyrene</i>			
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)	
6		Food containers incl. fast food containers	
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	
21		Cups	
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	

OSPAR Survey Form 100m:2010.010



# 100 metre area



# OSPAR Marine Litter Monitoring Survey Form

OSPAR ID	Unep ID	Items	Total
29		Oyster trays (round from oyster cultures)	
30		Plastic sheeting from mussel culture (Tahitians)	
31		Rope (diameter more than 1 cm)	
32		String and cord (diameter less than 1 cm)	
115		Nets and pieces of net < 50 cm	
116		Nets and pieces of net > 50 cm	
33		Tangled nets/cord/rope and string	
34		Fish boxes	
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	
117		Plastic/polystyrene pieces 0 - 2,5 cm	
46		Plastic/polystyrene pieces 2,5 cm > < 50 cm	
47		Plastic/polystyrene pieces > 50 cm	
48		Other plastic/polystyrene items <i>(please specify in other item box*)</i>	
<i>Rubber</i>			
49		Balloons, including plastic valves, ribbons, strings etc.	
50		Boots	
52		Tyres and belts	
53		Other rubber pieces <i>(please specify in other item box*)</i>	
<i>Cloth</i>			
54		Clothing	

OSPAR Survey Form 100m.2010.010





OSPAR ID	Unep ID	Items	Total
55		Furnishing	
56		Sacking	
57		Shoes (leather)	
59		Other textiles <i>(please specify in other item box*)</i>	
<i>Paper • Cardboard</i>			
60		Bags	
61		Cardboard	
118		Cartons e.g. tetrapak (milk)	
62		Cartons e.g. tetrapak (other)	
63		Cigarette packets	
64		Cigarette butts	
65		Cups	
66		Newspapers & magazines	
67		Other paper items <i>(please specify in other item box*)</i>	
<i>Wood (machined)</i>			
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 <i>(please specify in other item box*)</i>	
75		Other wood > 50 cm <i>(please specify in other item box*)</i>	
<i>Metal</i>			
76		Aerosol/Spray cans	
77		Bottle caps	
78		Drink cans	
120		Disposable BBQ's	
79		Electric appliances	
80		Fishing weights	

OSPAR Survey Form 100m, 2010.010







OSPAR ID	Unep ID	Items	Total
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 <i>(please specify in other item box*)</i>	
90		Other metal pieces > 50 cm <i>(please specify in other item box*)</i>	
<i>Glass</i>			
91		Bottles	
92		Light bulbs/tubes	
93		Other glass items <i>(please specify in other item box*)</i>	
<i>Pottery • Ceramics</i>			
94		Construction material e.g. tiles	
95		Octopus pots	
96		Other ceramic/pottery items <i>(please specify in other item box*)</i>	
<i>Sanitary waste</i>			
97		Condoms	
98		Cotton bud sticks	
99		Sanitary towels/panty liners/backing strips	
100		Tampons and tampon applicators	
101		Toilet fresheners	
102		Other sanitary items <i>(please specify in other item box*)</i>	
<i>Medical waste</i>			
103		Containers / tubes	
104		Syringes	
105		Other medical items (swabs, bandaging etc.) <i>(please specify in other item box*)</i>	
<i>Faeces</i>			
121		Bagged dog faeces	





Presence of other pollutants		
Pollutant	Size of pieces or lumps <i>(estimates)</i>	Frequency <i>(estimated number per metre of strandline)</i>
<b>Paraffin or wax pieces</b>		
	<i>Size range</i>	
108	0 - 1 cm	
109	1 - 10 cm	
110	> 10 cm	
<b>Other</b> <i>(please specify in other item box*)</i>		
111		

Pellets\* (nurdles):  Yes  No

*\*(photo in field guide)*

100 m

\*Special observations and notes (please refer to number!)

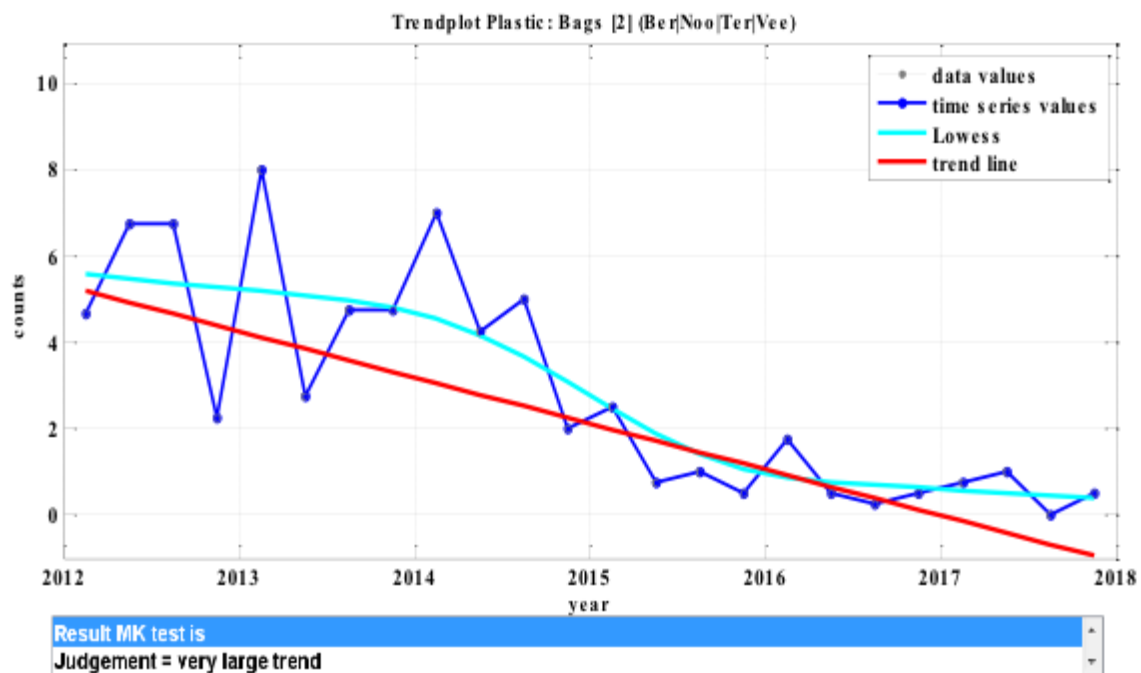
*Other Item Box*



## 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

<b>Survey Name</b>	<b>International Coastal Cleanup®</b>
<b>Developed By</b>	Ocean Conservancy
<b>Website</b>	<a href="https://www.coastalcleanupdata.org/">https://www.coastalcleanupdata.org/</a>
<b>Partners</b>	Project AWARE Dive Against Debris <a href="https://oceanconservancy.org/trash-free-seas/international-coastal-cleanup/partners/">https://oceanconservancy.org/trash-free-seas/international-coastal-cleanup/partners/</a>
<b>Registration</b>	create account with email & password
<b>Data Entry Access</b>	log in and enter via website
<b>Data Entry Procedure</b>	direct input into web based database
<b>Quality Control</b>	appear immediately in database, subject to regular checks by TFS staff
<b>Data Access</b>	public - access directly on website
<b>Data Ownership</b>	Ocean Conservancy (NGO)
<b>Database Type</b>	MySQL
<b>Data Security</b>	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.
<b>Data Backup</b>	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.
<b>Output format</b>	csv and on-screen data
<b>Reports Generated</b>	Summary Top Ten Unusual Items People, Pounds, Miles GPS/PPM/Item Items of Local Concern Entangled Animals
<b>Source Tracing (point of manufacture or origin)</b>	no * but might be added in future*
<b>Source Tracing (user group)</b>	yes



<b>Active Since Year</b>	1986
<b>No. of Countries Using in Region</b>	29 (see <a href="#">Appendix C</a> for list)
<b>Regional Languages Available</b>	English, Spanish, French
<b>Key Objectives</b>	<ul style="list-style-type: none"> <li>-Raise community awareness</li> <li>-Engage with citizens</li> <li>-Remove debris</li> <li>-Identify most found items</li> <li>-Set agenda for policymakers</li> </ul>
<b>Description</b>	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.
<b>Sites</b>	Any (ocean, lake, river, quarry, etc.)
<b>Schedule</b>	Once a year (3rd Saturday in September)
<b>Sampling Frequency</b>	Flux accumulation (if conducted using consistent sampling units) or Standing crop (at random sites)
<b>Sampling Unit</b>	Random
<b>Clearance</b>	Not required
<b>Site Selection Criteria</b>	Beaches or waterways that: <ul style="list-style-type: none"> <li>-could be cleaned</li> <li>-safe and accessible</li> </ul>
<b>Groups/Individuals</b>	Both
<b>Training</b>	No formal program requirements but guidelines can be accessed on website <a href="https://oceanconservancy.org/trash-free-seas/international-coastal-cleanup/start-a-cleanup/">https://oceanconservancy.org/trash-free-seas/international-coastal-cleanup/start-a-cleanup/</a>
<b>Training Materials</b>	ICC Coordinator Handbook
<b>Name of Data Collection Form</b>	Volunteer Ocean Trash Data Form
<b>Survey Data</b>	Date Distance



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



Appendix I – ICC Ocean Trash Data Form

# VOLUNTEER OCEAN TRASH DATA FORM



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:



<b>SITE INFORMATION:</b> Cleanup Site Name: <input type="text"/> State or Province: <input type="text"/> Zone or County: <input type="text"/> Country: <input type="text"/> Nearest Crossroad or Landmark: <input type="text"/>		<b>NUMBER OF VOLUNTEERS WORKING ON THIS CARD:</b> adults <input type="text"/> children (under 12) <input type="text"/>	
<b>MOST UNUSUAL ITEM COLLECTED:</b> <input type="text"/>		<b>TYPE OF CLEANUP:</b> Land: <input type="checkbox"/> Underwater: <input type="checkbox"/> Watercraft: <input type="checkbox"/>	

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](http://www.oceanconservancy.org/cleanup)  
Be a Green Boater: [www.oceanconservancy.org/do-your-part/green-boating](http://www.oceanconservancy.org/do-your-part/green-boating)  
Sponsors: [www.oceanconservancy.org/cleanupsponsors](http://www.oceanconservancy.org/cleanupsponsors)



# 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.<sup>®</sup>

**EXAMPLE:** Plastic Bags:  = **8** **TOTAL #**

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

## MOST LIKELY TO FIND ITEMS: **TOTAL #**

Cigarette Butts:	=	Beverage Bottles (Plastic):	=
Food Wrappers (candy, chips, etc.):	=	Beverage Bottles (Glass):	=
Take Out/Away Containers (Plastic):	=	Beverage Cans:	=
Take Out/Away Containers (Foam):	=	Grocery Bags (Plastic):	=
Bottle Caps (Plastic)	=	Other Plastic Bags:	=
Bottle Caps (Metal)	=	Paper Bags:	=
Lids (Plastic) :	=	Cups & Plates (Paper):	=
Straws/Stirrers:	=	Cups & Plates (Plastic):	=
Forks, Knives, Spoons:	=	Cups & Plates (Foam):	=

## FISHING GEAR: **TOTAL #**      PACKAGING MATERIALS: **TOTAL #**


Fishing Buoys, Pots & Traps:	=	6-Pack Holders	=
Fishing Net & Pieces:	=	Other Plastic/Foam Packaging:	=
Fishing Line (1 yard/meter = 1 piece):	=	Other Plastic Bottles (oil, bleach, etc.):	=
Rope (1 yard/meter = 1 piece):	=	Strapping Bands:	=
		Tobacco Packaging/Wrap:	=

## OTHER TRASH: **TOTAL #**      PERSONAL HYGIENE: **TOTAL #**

Appliances (refrigerators, washers, etc.):	=	Condoms:	=
Balloons:	=	Diapers:	=
Cigar Tips:	=	Syringes:	=
Cigarette Lighters:	=	Tampons/Tampon Applicators:	=
Construction Materials:	=		
Fireworks:	=		
Tires:	=		

## 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

<b>Clean Up Summary</b>	<b>Land</b>	<b>Underwater</b>	<b>Watercraft</b>	<b>Total</b>
People	14	0	0	14
Kilograms	19.96	0	0	19.96
Kilometers	0.05	0	0	0.05
Total Items Collected	2274	0	0	2274

<b>Categorized Items</b>	<b>Land</b>	<b>Underwater</b>	<b>Watercraft</b>	<b>Total Items</b>	<b>Percentage of Total</b>
<b>Most Likely to Find Items</b>					
Cigarette Butts	1345	0	0	1345	59.15%
Food Wrappers (candy, chips, etc.)	54	0	0	54	2.37%
Take Out/Away Containers (Plastic)	0	0	0	0	0.00%
Take Out/Away Containers (Foam)	1	0	0	1	0.04%
Bottle Caps (Plastic)	119	0	0	119	5.23%
Bottle Caps (Metal)	358	0	0	358	15.74%
Lids (Plastic)	0	0	0	0	0.00%
Straws, Stirrers	50	0	0	50	2.20%
Forks, Knives, Spoons	57	0	0	57	2.51%
Beverage Bottles (Plastic)	2	0	0	2	0.09%
Beverage Bottles (Glass)	13	0	0	13	0.57%
Beverage Cans	10	0	0	10	0.44%
Grocery Bags (Plastic)	11	0	0	11	0.48%
Other Plastic Bags	1	0	0	1	0.04%
Paper Bags	1	0	0	1	0.04%
Cups, Plates (Paper)	1	0	0	1	0.04%
Cups, Plates (Plastic)	6	0	0	6	0.26%
Cups, Plates (Foam)	0	0	0	0	0.00%
<b>Category Totals</b>	<b>2029</b>	<b>0</b>	<b>0</b>	<b>2029</b>	<b>89.2%</b>

<b>Fishing Gear</b>					
Fishing Buoys, Pots & Traps	0	0	0	0	0.00%
Fishing Net & Pieces	4	0	0	4	0.18%
Fishing Line (1 yard/meter = 1 piece)	5	0	0	5	0.22%
Rope (1 yard/meter = 1 piece)	13	0	0	13	0.57%
Fishing Gear (Clean Swell)	0	0	0	0	0.00%
<b>Category Totals</b>	<b>22</b>	<b>0</b>	<b>0</b>	<b>22</b>	<b>0.97%</b>

<b>Packaging Materials</b>					
6-Pack Holders	3	0	0	3	0.13%
Other Plastic/Foam Packaging	2	0	0	2	0.09%
Other Plastic Bottles (oil, bleach, etc.)	2	0	0	2	0.09%
Strapping Bands	12	0	0	12	0.53%
Tobacco Packaging/Wrap	2	0	0	2	0.09%



Other Packaging (Clean Swell)	0	0	0	0	0.00%
<b>Category Totals</b>	<b>21</b>	<b>0</b>	<b>0</b>	<b>21</b>	<b>0.93%</b>
<b>Other Items</b>					
Appliances (refrigerators, washers, etc.)	0	0	0	0	0.00%
Balloons	4	0	0	4	0.18%
Cigar Tips	0	0	0	0	0.00%
Cigarette Lighters	1	0	0	1	0.04%
Construction Materials	1	0	0	1	0.04%
Fireworks	1	0	0	1	0.04%
Tires	1	0	0	1	0.04%
Toys	6	0	0	6	0.26%
Other Trash (Clean Swell)	0	0	0	0	0.00%
<b>Category Totals</b>	<b>14</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>0.6%</b>
<b>Personal Hygiene</b>					
Condoms	1	0	0	1	0.04%
Diapers	0	0	0	0	0.00%
Syringes	0	0	0	0	0.00%
Tampons/Tampon Applicators	2	0	0	2	0.09%
Personal Hygiene (Clean Swell)	0	0	0	0	0.00%
<b>Category Totals</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0.13%</b>
<b>Tiny Trash Less Than 2.5 cm</b>					
Foam Pieces	45	0	0	45	1.98%
Glass Pieces	94	0	0	94	4.13%
Plastic Pieces	46	0	0	46	2.02%
<b>Category Totals</b>	<b>185</b>	<b>0</b>	<b>0</b>	<b>185</b>	<b>8.13%</b>
<b>Total Items Collected</b>	<b>2274</b>	<b>0</b>	<b>0</b>	<b>2274</b>	<b>99.96%</b>



## Appendix K – Clean Swell Summary

<b>Survey Name</b>	<b>Clean Swell</b>
<b>Developed By</b>	Ocean Conservancy
<b>Website</b>	<a href="https://www.coastalcleanupdata.org/">https://www.coastalcleanupdata.org/</a>
<b>Partners</b>	Ocean Conservancy International Coast Clean Up
<b>Registration</b>	public - download the app by submitting name, email, organization, home country, language
<b>Data Entry Access</b>	via App (iOS or Android)
<b>Data Entry Procedure</b>	direct input into app
<b>Quality Control</b>	appear immediately in database, subject to regular checks by TFS staff
<b>Data Access</b>	public - access directly on website <a href="https://www.coastalcleanupdata.org/">https://www.coastalcleanupdata.org/</a>
<b>Data Ownership</b>	Ocean Conservancy (NGO)
<b>Database Type</b>	MySQL
<b>Data Security</b>	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.
<b>Data Backup</b>	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.
<b>Output format</b>	csv and on-screen data
<b>Reports Generated</b>	Summary Top Ten Unusual Items People, Pounds, Miles GPS/PPM/Item Items of Local Concern Entangled Animals
<b>Source Tracing (point of manufacture or origin)</b>	no
<b>Source Tracing (user group)</b>	yes



<b>Active Since Year</b>	2016
<b>No. of Countries Using in Region</b>	29 (see <a href="#">Appendix C</a> for list)
<b>Regional Languages Available</b>	English, Spanish
<b>Key Objectives</b>	<ul style="list-style-type: none"> <li>-Raise community awareness</li> <li>-Engage with citizens</li> <li>-Remove debris</li> <li>-Identify most found items</li> <li>-Set agenda for policymakers</li> </ul>
<b>Description</b>	<p>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.</p>
<b>Sites</b>	Any (ocean, lake, river, quarry, etc.)
<b>Schedule</b>	Any time
<b>Sampling Frequency</b>	Standing crop
<b>Sampling Unit</b>	Random
<b>Clearance</b>	Not required
<b>Site Selection Criteria</b>	None
<b>Groups/Individuals</b>	Individuals (Groups with one device per buddy pair, with group name used)
<b>Training</b>	No formal program requirements but guidelines can be accessed on website <a href="https://oceanconservancy.org/trash-free-seas/international-coastal-cleanup/cleanswell/">https://oceanconservancy.org/trash-free-seas/international-coastal-cleanup/cleanswell/</a>
<b>Training Materials</b>	Clean Swell Poster <a href="https://oceanconservancy.org/wp-content/uploads/2017/04/OC-Clean-Swell-Poster-form.pdf">https://oceanconservancy.org/wp-content/uploads/2017/04/OC-Clean-Swell-Poster-form.pdf</a>
<b>Name of Data Collection Form</b>	Clean Swell App



<b>Survey Data</b>	Date Time Spent Cleaning Up (recorded automatically by device) Distance covered (recorded automatically by GPS in device)
<b>Surveyor Data</b>	Number of participants Group name
<b>Supervision</b>	Not required
<b>Site Location</b>	Location: recorded by GPS location in device
<b>Site Characterization</b>	
<b>Litter Characterization</b>	
<b>Number of Items</b>	20
<b>Litter Quantification</b>	Counted by item Pounds of Trash Cleaned Up (estimated by items amounts/types recorded)
<b>Entanglement Data Collected</b>	
<b>Additional Info</b>	



Appendix L – Clean Swell App (data entry screen)



 Cups, Plates	 Lids	 Straws	 Utensils
 Plastic/Foam Pieces	 Personal Hygiene	 Other Packaging	 Other Trash

Group

Miami Marine Litter Workshop

ADD ITEM  REMOVE ITEM

**Done Collecting**

Cancel Collection



# Review Your Cleanup

## Duration

1 hours 06 minutes

## Total Pounds Collected

10.72

## Comments

## — About Your Cleanup

## Date

Oct 3, 2018

## Number of People

1





## Appendix M – Dive Against Debris Data Summary

<b>Survey Name</b>	<b>Dive Against Debris®</b>
<b>Developed By</b>	Project AWARE
<b>Website</b>	<a href="https://www.projectaware.org/DiveAgainstDebrisData">https://www.projectaware.org/DiveAgainstDebrisData</a> <a href="https://www.coastalcleanupdata.org/">https://www.coastalcleanupdata.org/</a>
<b>Partners</b>	PADI Ocean Conservancy
<b>Registration</b>	create account with email & password
<b>Data Entry Access</b>	log in and enter via website or via App (iOS or Android)
<b>Data Entry Procedure</b>	direct input into web based database
<b>Quality Control</b>	review by AWARE staff before addition to database
<b>Data Access</b>	public - access directly on website
<b>Data Ownership</b>	Project AWARE (NGO)
<b>Database Type</b>	MySQL
<b>Data Security</b>	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.
<b>Data Backup</b>	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.
<b>Output format</b>	csv and on-screen data
<b>Reports Generated</b>	Composition amounts Entangled Animals Debris Free Sites Adopted Dive Sites Individual Survey Reports <a href="https://www.projectaware.org/debris-survey/south-pier-6">https://www.projectaware.org/debris-survey/south-pier-6</a>
<b>Source Tracing (point of manufacture or origin)</b>	no
<b>Source Tracing (user group)</b>	yes



<b>Active Since Year</b>	2011
<b>No. of Countries Using in Region</b>	29 (see <a href="#">Appendix C</a> for list)
<b>Regional Languages Available</b>	English, Spanish, French, Dutch
<b>Key Objectives</b>	<ul style="list-style-type: none"> <li>-Raise community awareness</li> <li>-Engage with citizens</li> <li>-Remove underwater debris</li> <li>-Identify most found items</li> <li>-Set agenda for policymakers</li> </ul>
<b>Description</b>	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.
<b>Sites</b>	Any -Benthic Underwater only (ocean, lake, river, quarry, etc.)
<b>Schedule</b>	Any time
<b>Sampling Frequency</b>	Standing crop
<b>Sampling Unit</b>	Random
<b>Clearance</b>	Not required
<b>Site Selection Criteria</b>	<ul style="list-style-type: none"> <li>-can return to regularly</li> <li>-known to have marine debris</li> <li>-within the dive skills and experience of all participants (can include fresh water lakes and rivers)</li> </ul>
<b>Groups/Individuals</b>	both
<b>Training</b>	recommended diver specialty training (not required)
<b>Training Materials</b>	Dive Against Debris Survey Guide, AWARE Dive Against Debris Distinctive Specialty
<b>Name of Data Collection Form</b>	Dive Against Debris Data Card
<b>Survey Data</b>	<ul style="list-style-type: none"> <li>Date</li> <li>Debris to report (yes/no)</li> <li>Dive Center/Organization</li> <li>Weather conditions for previous week</li> <li>Survey duration (in minutes)</li> <li>Survey depth (min/max)</li> </ul>



	Survey area m2 Wave conditions
<b>Surveyor Data</b>	Number of participants
<b>Supervision</b>	Not required
<b>Site Location</b>	Location: select on map; click to pinpoint or enter latitude/longitude
<b>Site Characterization</b>	Ecosystem (coral reef, rocky reef, mangroves, kelp, seagrass, other) Dominant substrate (sand, silt, gravel, rock, coral, seagrass, other)
<b>Litter Characterization</b>	Categorized by: Composition Number of Categories: 9
<b><u>Number of Items</u></b>	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
<b>Litter Quantification</b>	Counted by item Weight of all debris collected (estimated/measured)
<b>Entanglement Data Collected</b>	Mammals, Birds, Turtles, Sharks/Rays, Other Fishes, Crustaceans, Other Animals Species or common name Number Dead/Injured/Released Unharmmed Type of Debris Comments
<b>Additional Info</b>	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?



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	Comments/Feedback Additional Information
<b>Photos</b>	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](http://www.projectaware.org/DiveAgainstDebrisData), for all other languages, please email your completed Data Card to [diveagainstdebris@projectaware.org](mailto: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 _____ <small>(Set your GPS Map Datum to WGS84) (Take your readings in decimal degrees)</small>		Survey Duration (in minutes)
Survey Depth Range (circle one: metres or feet) <input type="radio"/> metres <input type="radio"/> feet _____ max _____ min	Area surveyed (circle one: m <sup>2</sup> or ft <sup>2</sup> ) <input type="radio"/> m <sup>2</sup> <input type="radio"/> ft <sup>2</sup>	Total weight of all Debris Collected (circle one: kg or lb) <input type="radio"/> kg <input type="radio"/> lb Estimated: _____ OR Measured: _____
Survey Leader Name		Survey Leader Email
<b>Dominant Substrate</b> (circle one) <input type="radio"/> Sand <input type="radio"/> Coral <input type="radio"/> Silt <input type="radio"/> Seagrass <input type="radio"/> Gravel <input type="radio"/> Other (please describe) <input type="radio"/> Rock	<b>Ecosystem</b> (circle one) <input type="radio"/> Coral reef <input type="radio"/> Mangroves <input type="radio"/> Rocky reef <input type="radio"/> Seagrass <input type="radio"/> Kelp <input type="radio"/> Other (please describe)	<b>Waves</b> (circle one) <input type="radio"/> Calm (0-0.1 metres/0-4 inches high) <input type="radio"/> Smooth (0.1-0.5 metres/4-19 inches high) <input type="radio"/> Slight (0.5-1.25 metres/19 inches-4 feet high) <input type="radio"/> Moderate (greater than 1.25 metres/4 feet high)
Weather Conditions from Previous Week	<b>Did You Find Entangled Animals?</b> Identify animal(s) found _____ Identify debris item _____ Record number of each Entangled Animal Was the animal: dead? <input type="checkbox"/> injured? <input type="checkbox"/> released unharmed? <input type="checkbox"/>	
<b>Are you aware of an event that could have contributed to the debris you have documented?</b> YES <input type="checkbox"/> NO <input type="checkbox"/> If so, describe and provide verification – link to the news, etc		
<b>Items of Local Concern</b> 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?	<b>Photos</b> Entangled Animals, marine debris impacts, items you cannot identify, items you did not remove, etc. See the Survey Guide for more info. <input type="checkbox"/> Yes	

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 (### I = 6)



Plastic Materials	Tally (### 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	
<b>Glass &amp; Ceramic Materials</b>	
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 (### 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	
<b>Rubber Materials</b>	
73. condoms	
74. gloves (rubber)	
75. inner-tubes & rubber sheets	
76. rubber bands	
77. tires/tyres	
78. rubber fragments	
<b>Wood Materials</b>	
79. fishing: traps & pots	
80. furnishings (wood)	
81. lumber (processed or cut/milled wood)	
82. pallets	
83. wood fragments	
<b>Cloth Materials</b>	
84. bags (burlap/hessian)	
85. bags (cloth)	
86. gloves (cloth)	
87. rope & string (cloth)	
88. towels, rags	
89. cloth fragments	
<b>Paper/Cardboard Materials</b>	
90. bags (paper)	
91. cardboard: packaging & cartons	
92. paper: books, newspapers, magazines, etc	
93. paper/cardboard fragments	
<b>Mixed Materials</b>	
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.



## 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
<b>Sampling Schedule</b>	4x per year	1x per year	Random	Random
<b>Sampling Units - Site</b>	Fixed site(s)	Random	Random	Random
<b>Sampling Units - Beach Length/Area surveyed</b>	Fixed length	Random	Random	Random
<b>Sampling Unit Clearance</b>	Required	Not required	Not required	Not required
<b>Sampling Frequency</b>	Flux accumulation	Standing crop*	Standing crop	Standing crop
<b>Site Selection Criteria</b>	<ul style="list-style-type: none"> <li>- composed of sand or gravel</li> <li>- exposed to the open sea</li> <li>- be accessible to surveyors all year round</li> <li>- be accessible for ease of marine litter removal</li> <li>- be a minimum length of 100 metres &amp; if possible over 1 km in length</li> <li>-be free of 'buildings' all year round</li> <li>-ideally not be subject to any other litter collection activities</li> </ul>	Beaches or waterways that: <ul style="list-style-type: none"> <li>-could be cleaned</li> <li>-safe and accessible</li> </ul>	none	<ul style="list-style-type: none"> <li>-can return to regularly</li> <li>-known to have marine debris</li> <li>-within the dive skills and experience of all participants (can include fresh water lakes and rivers)</li> </ul>
<b>Supervision</b>	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
<b>Survey Data</b>	<ul style="list-style-type: none"> <li>- Date</li> <li>- Beach Name</li> <li>- OSPAR Beach ID</li> <li>- Country</li> <li>- Was litter collected</li> <li>- Date of last beach clean</li> <li>- Weather conditions affecting data of survey</li> <li>- Other circumstances or events</li> </ul>	<ul style="list-style-type: none"> <li>- Date</li> <li>- Distance</li> </ul>	<ul style="list-style-type: none"> <li>- Date</li> <li>- Time Spent</li> <li>Cleaning Up</li> <li>- Distance covered</li> </ul>	<ul style="list-style-type: none"> <li>- Date</li> <li>- Debris to report</li> <li>- Dive Center/Organization</li> <li>- Weather conditions for previous week</li> <li>- Survey duration (in minutes)</li> <li>- Survey depth (min/max)</li> <li>- Survey area m2</li> <li>- Wave conditions</li> </ul>
<b>Surveyor Data</b>	Names & contact info of coordinators	<ul style="list-style-type: none"> <li>- Number of Adults</li> <li>- Number of Children</li> </ul>	<ul style="list-style-type: none"> <li>- Number of participants</li> <li>- Group name</li> </ul>	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
<b>Site Characterization</b>	<ul style="list-style-type: none"> <li>- Beach width at mean low/high spring tide</li> <li>- Total length</li> <li>- Composition of back of beach</li> <li>- Prevailing currents</li> <li>- Prevailing winds</li> <li>- Direction facing</li> <li>- Type of beach material</li> <li>- Topography/gradient</li> <li>- Objects influencing currents</li> <li>- Beach usage</li> <li>- Access to beach</li> <li>- Distance to nearest town &amp; population</li> <li>- Development of beach</li> <li>- Food/drink outlets on beach</li> <li>- Distance to nearest shipping lane/harbour/river mouth/discharge of waste water</li> <li>- Cleaning schedule/method/responsibility</li> <li>- Comments/observations</li> <li>- Map of beach/local surroundings/region</li> </ul>	<ul style="list-style-type: none"> <li>- Land (beach, shoreline, inland)</li> <li>- Underwater</li> <li>- Watercraft (powerboat, sailboat, kayak or canoe)</li> </ul>	<ul style="list-style-type: none"> <li>- Land (beach, shoreline, inland)</li> <li>- Underwater</li> <li>- Watercraft (powerboat, sailboat, kayak or canoe)</li> </ul>	<ul style="list-style-type: none"> <li>- Ecosystem (coral reef, rocky reef, mangroves, kelp, seagrass, other)</li> <li>- Dominant substrate (sand, silt, gravel, rock, coral, seagrass, other)</li> </ul>
<b>Site Location</b>	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
<b>Litter Classification</b>	Resolution: High Items: 117	Resolution: Medium Items: 42	Resolution: Medium Items: 20	Resolution: High Items: 100
<b>Litter Quantification</b>	count	count & weight (measured or estimated)	count (app generates approximate weight based on amount & items collected)	count & weight (measured or estimated)
<b>Source Tracing (point of manufacture or origin)</b>	no	no	no	no
<b>Source Tracing (user group)</b>	yes	yes	yes	yes
<b>Composition</b>	yes	yes	no	yes
<b>Entanglement</b>	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
<b>Quality Control</b>	<ul style="list-style-type: none"> <li>- Professional surveyors, appointed coordinators or national authority submit the data in the online database</li> <li>- Field forms are kept and stored</li> <li>- Limit on number of items submitted to avoid errors</li> <li>- Check on the data by the national authority when drafting national annual reports and OSPAR intermediate assessment</li> </ul>	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
<b>Training</b>	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)
<b>Training Materials</b>	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
<b>Governance/ Ownership</b>	OSPAR	OC (NGO)	OC (NGO)	Project AWARE (NGO)
<b>Data Housing</b>	Marine Conservation Society	TIDES website	TIDES website	TIDES & AWARE websites
<b>Type of Database</b>	MySQL	MySQL	MySQL	MySQL ??
<b>Access to reports</b>	public (after data has signed off by OSPAR EIHA committee)	public	public	public
<b>Data Entry Access</b>	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)
<b>Data Entry Procedure</b>	direct input and by csv file upload	direct input into web based database	direct input into app	direct input into web based database
<b>Output format</b>	csv files, reports and on screen data	csv and on-screen data	csv and on-screen data	csv and on-screen data



<b>Data Security</b>		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.
<b>Data Backups</b>	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
<b>Amounts</b>	yes	yes	yes	yes
<b>Percentages of total</b>	yes	yes	yes	yes
<b>Trends over time and significance of trends with P-value</b>	yes	no	no	no
<b>Reports Generated (see <a href="#">Appendix G &amp; J</a> for samples)</b>	<ul style="list-style-type: none"> <li>- Material types by amount/percentage</li> <li>- Material sources by amount/percentage</li> </ul> <b>Trend analysis via Litter Analyst: (trends &amp; significance)</b> <ul style="list-style-type: none"> <li>-average total abundance of litter items per 100m of coast</li> <li>-average composition of litter items per 100m of coast</li> <li>-trends in the abundance of litter items per 100m of coast</li> </ul>	<ul style="list-style-type: none"> <li>- Summary</li> <li>- Top Ten</li> <li>- Unusual Items</li> <li>- People, Pounds, Miles</li> <li>- GPS/PPM/Item</li> <li>- Items of Local Concern</li> <li>- Entangled Animals</li> </ul>	<ul style="list-style-type: none"> <li>- Summary</li> <li>- Top Ten</li> <li>- Unusual Items</li> <li>-People, Pounds, Miles</li> <li>-GPS/PPM/ Item</li> <li>- Items of Local Concern</li> <li>- Entangled Animals</li> </ul>	<ul style="list-style-type: none"> <li>-Composition amounts</li> <li>- Entangled Animals</li> <li>- Debris Free Sites</li> <li>- Adopted Dive Sites</li> <li>- Individual Survey Reports</li> </ul>



## 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.

	<b>OSPAR Marine Litter Monitoring Survey</b>	<b>UNEP Beach Litter Comprehensive Survey Operational Guidelines</b>
<b>Data Entry Access</b>	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.
<b>Quality Control</b>	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.
<b>Key Objectives</b>	-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.
<b>Sites</b>	Marine	Marine





	<b>OSPAR Marine Litter Monitoring Survey</b>	<b>UNEP Beach Litter Comprehensive Survey Operational Guidelines</b>
<b>Schedule</b>	4x per year (minimum) per site	Minimum 1x year, recommended 4x year
<b>Sampling Frequency</b>	Flux accumulation	Flux accumulation
<b>Sampling Unit</b>	Fixed sites/length	Fixed sites/length
<b>Clearance</b>	Required	Required
<b>Site Selection Criteria</b>	<ul style="list-style-type: none"> <li>- composed of sand or gravel</li> <li>- exposed to the open sea</li> <li>- be accessible to surveyors all year round</li> <li>- be accessible for ease of marine litter removal</li> <li>- be a minimum length of 100 metres &amp; if possible, over 1 km in length</li> <li>-be free of ‘buildings’ all year round</li> <li>-ideally not be subject to any other litter collection activities</li> </ul>	<ul style="list-style-type: none"> <li>- Minimum length of 100 m</li> <li>- <u>Low to moderate slope (15 – 45°)</u></li> <li>- Clear access to the sea (not blocked by breakwaters or jetties) such that marine litter is not screened by anthropogenic structures</li> <li>- Accessible to survey teams year round</li> <li>- Ideally the site should not be subject to any other litter collection activities</li> <li>- Survey activities should be conducted so as not to impact on any endangered or protected species</li> <li>- <u>Location of sampling sites within each zone should be stratified such that samples are obtained from beaches subject to different litter exposures, including:</u></li> <li>- <u>Urban coasts (i.e. mostly terrestrial inputs);</u></li> <li>- <u>Rural coasts (i.e. mostly oceanic inputs);</u></li> <li>- <u>Within close distance to major riverine inputs</u></li> <li><u>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</u></li> </ul>
<b>Training</b>	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. <u>Investment in communication and the training of the country/regional and local survey coordinators and managers is thus critical to survey integrity.</u>
<b>Surveyor Data</b>	Names & contact info of coordinators	<u>Number of persons on the survey team</u>
<b>Supervision</b>	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.
<b>Training Materials</b>	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.
<b>Survey Data</b>	<ul style="list-style-type: none"> <li>-Date</li> <li>-Beach Name</li> <li>-OSPAR Beach ID</li> <li>-Country</li> <li>-Was litter collected?</li> <li>-Date of last beach clean?</li> <li>-Weather conditions affecting data of survey?</li> <li>-Other circumstances or events?</li> </ul>	<ul style="list-style-type: none"> <li>- Date</li> <li>- <u>Start and end times</u></li> <li>- Date on which the transect was last cleaned</li> <li>- Distance along beach covered by the survey – this should be fixed for each location</li> <li>- <u>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</u></li> <li>- <u>Any large litter items that cannot be safely moved by the survey group</u></li> <li>- 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.</li> <li>- 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.</li> </ul>
<b>Site Location</b>	GPS coordinates	GPS coordinates
<b>Site Characterization</b>	<ul style="list-style-type: none"> <li>-Beach width at mean low/high spring tide</li> <li>-Total length</li> <li>-Composition of back of beach</li> <li>-Prevailing currents</li> <li>-Prevailing winds</li> <li>-Direction facing</li> <li>-Type of beach material</li> <li>-Topography/gradient</li> <li>-Objects influencing currents</li> <li>-Beach usage</li> <li>-Access to beach</li> <li>-Distance to nearest town &amp;</li> </ul>	<p>Data relating to the depositional environment &amp; proximity to litter sources including:</p> <ul style="list-style-type: none"> <li>- Aspect</li> <li>- Prevailing wind (from meteorological data)</li> <li>- <u>Beach curvature</u></li> <li>- Total beach length</li> <li>- Nearest river – name, distance, direction and whether or not it inputs directly to the beach</li> <li>- Nearest town – name, distance and direction</li> <li>- <u>Estimated number of person visits per year (based on a 10n scale i.e. &lt;10, &lt;100, &lt; 1,000 etc)</u></li> <li>- Main beach usage (i.e. recreational, swimming and sunbathing, fishing, surfing)</li> </ul>



	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. <u>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.</u>
<b>Litter Characterization</b>	Categorized by: Composition/Source Number of Categories: 11	Categorized by: Composition Number of Categories: 9
<b><u>Number of Items</u></b>	117	77
Plastic/Polystyrene	54	<u>Plastic (24) / Foamed Plastic (5)</u>
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
<b>Litter Quantification</b>	Counted by item	count & weight



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<b>Entanglement Data Collected</b>	-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).
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## 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
<u>Item Description</u>	<u>ID</u>	<u>ID</u>	<u>Category</u>	<u>ID</u>
<b>Cigarette butts</b>	CS1			
Cigarette butts - OSPAR, ICC cigarette filters - DAD		ICC1	Most likely to find items DAD 15	Plastic Materials OSPAR 64
<b>Balloons</b>	CS2			
Balloons, including plastic valves, ribbons, strings etc. - OSPAR Balloons - ICC, DAD		ICC29	Other trash DAD 4	Plastic Materials OSPAR 49
<b>Toys</b>	CS3			
Toys & party poppers - OSPAR Toys - DAD			DAD 100	Mixed Materials OSPAR 20
Balls			DAD 5	Plastic Materials
<b>Fishing gear</b>	CS4			
Fishing Buoys, Pots & Traps:		ICC19	Fishing Gear	
Fishing: traps & pots			DAD 25	Plastic Materials
Crab/lobster pots				OSPAR 26
Fishing: traps & pots			DAD 63	Metal Materials
Lobster/crab pots and tops				OSPAR 87
Fishing: traps & pots			DAD 79	Wood Materials
Crab/lobster pots				OSPAR 71
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



Nets and pieces of net > 50 cm						OSPAR 116	Plastic/ Polystyrene
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
Tangled nets/cord/rope and string						OSPAR 33	Plastic/ Polystyrene
String and cord (diameter less than 1 cm)						OSPAR 32	Plastic/ Polystyrene
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
Fish boxes						OSPAR 34	Plastic/ Polystyrene
Fish boxes						OSPAR 119	Wood (machined)
Bait containers/packaging				DAD 3	Plastic Materials		
Floats/Buoys - OSPAR buoys & floats (plastic & foamed) - DAD				DAD 12	Plastic Materials	OSPAR 37	Plastic/ Polystyrene
Buoys (glass)				DAD 45	Glass & Ceramic Materials		
Lobster and fish tags						OSPAR 114	Plastic/ Polystyrene
Fishing weights - OSPAR fishing: sinkers, lures, hooks - DAD				DAD 62	Metal Materials	OSPAR 80	Metal
Fishing: lures, rods/poles				DAD 23	Plastic Materials		
Octopus pots						OSPAR 27	Plastic/ Polystyrene



Octopus pots						OSPAR 95	Pottery/Ceramics
Oyster nets or mussel bags including plastic stoppers						OSPAR 28	Plastic/ Polystyrene
Oyster trays (round from oyster cultures)						OSPAR 29	Plastic/ Polystyrene
Plastic sheeting from mussel culture (Tahitians)						OSPAR 30	Plastic/ Polystyrene
<b>Plastic bags</b>	<b>CS5</b>						
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
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
Mesh vegetable bags - OSPAR mesh bags: fruit, vegetable, shellfish - DAD				DAD 31	Plastic Materials	OSPAR 24	Plastic/ Polystyrene
Fertiliser/animal feed bags						OSPAR 23	Plastic/ Polystyrene
Plastic bag ends						OSPAR 112	Plastic/ Polystyrene
<b>Food wrappers</b>	<b>CS6</b>						
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
Foil wrappers - OSPAR wrappers (foil/metal) - DAD				DAD 71	Metal Materials	OSPAR 81	Metal



<b>Containers (plastic)</b>	<b>CS7</b>						
<b>Containers (foam)</b>	<b>CS8</b>						
Food containers incl. fast food containers						OSPAR 6	Plastic/ Polystyrene
Take Out/Away Containers (Plastic)		ICC3	Most likely to find items				
Containers: fast food, lunch boxes & similar				DAD 18	Plastic Materials		
Take Out/Away Containers (Foam)		ICC4	Most likely to find items				
<b>Beverage Cans</b>	<b>CS9</b>						
Drink cans - OSPAR Beverage Cans - ICC beverage cans (aluminium) - DAD		ICC12	Most likely to find items	DAD 56	Metal Materials	OSPAR 78	Metal
<b>Bottle caps (Plastic)</b>	<b>CS10</b>						
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
<b>Bottles (plastic)</b>	<b>CS11</b>						
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		
Beverage bottles: 2 litres or more (plastic)				DAD 8	Plastic Materials		
Other Plastic Bottles (oil, bleach, etc.):		ICC25	Packaging Materials				
Cleaner (bottles, containers and drums)						OSPAR 5	Plastic/ Polystyrene
Bottles: bleach, cleaner				DAD 9	Plastic Materials		
Cosmetics (bottles & containers e.g. sun lotion, shampoo, shower gel, deodorant)						OSPAR 7	Plastic/ Polystyrene





Other bottles, containers and drums						OSPAR 12	Plastic/ Polystyrene
Bottles: oil/lube				DAD 10	Plastic Materials		
<b>Bottles (glass) - CS</b>	<b>CS12</b>						
Bottles - OSPAR Beverage Bottles (Glass) - ICC, DAD		ICC11	Most likely to find items	DAD 44	Glass & Ceramic Materials	OSPAR 91	Glass
<b>Lids</b>	<b>CS14</b>						
Lids (Plastic) :		ICC7	Most likely to find items				
Bottle caps - OSPAR Bottle Caps (Metal) - ICC caps & lids (metal) - DAD		ICC6	Most likely to find items	DAD 58	Metal Materials	OSPAR 77	Metal
<b>Cups/plates</b>	<b>CS13</b>						
<b>Straws</b>	<b>CS15</b>						
<b>Utensils</b>	<b>CS16</b>						
Forks, Knives, Spoons:		ICC9	Most likely to find items				
Cutlery/trays/straws						OSPAR 22	Plastic/ Polystyrene
Cups, plates, forks, knives, spoons (plastic)				DAD 20	Plastic Materials		
forks, knives, spoons (cutlery)				DAD 64	Metal Materials		
Cups & Plates (Plastic):		ICC17	Most likely to find items				
Cups & Plates (Foam):		ICC18	Most likely to find items				
Cups						OSPAR 21	Plastic/ Polystyrene
Cups & Plates (Paper):		ICC16	Most likely to find items				
Cups						OSPAR 65	Paper/ Cardboard



Cups, plates, tableware, dishes (glass & ceramic)				DAD 46	Glass & Ceramic Materials		
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)
<b>Plastic/foam pieces</b>	<b>CS17</b>						
Plastic/polystyrene pieces 0 - 2,5 cm - OSPAR Plastic Pieces - ICC		ICC41	Tiny trash less than 2.5cm			OSPAR 117	Plastic/ Polystyrene
Plastic/polystyrene pieces 2,5 cm > < 50 cm						OSPAR 46	Plastic/ Polystyrene
Plastic/polystyrene pieces > 50 cm						OSPAR 47	Plastic/ Polystyrene
Plastic fragments				DAD 43	Plastic Materials		
Foam Pieces		ICC39	Tiny trash less than 2.5cm				
Foam sponge						OSPAR 45	Plastic/ Polystyrene
<b>Personal hygiene</b>	<b>CS18</b>						
Condoms		ICC35	Personal hygiene	DAD 73	Rubber Materials	OSPAR 97	Sanitary Waste
Diapers - ICC diapers/nappies - DAD		ICC36	Personal hygiene	DAD 21	Plastic Materials		
Syringes - OSPAR, ICC		ICC37	Personal hygiene			OSPAR 104	Medical Waste
Syringes (plastic)				DAD 39	Plastic Materials		
Syringes (glass)				DAD 50	Glass & Ceramic Materials		
Tampons and tampon applicators - OSPAR Tampons/Tampon Applicators - ICC		ICC38	Personal hygiene			OSPAR 100	Sanitary Waste



tampons				DAD 99	Mixed Materials		
tampon applicators				DAD 40	Plastic Materials		
Sanitary towels/panty liners/backing strips						OSPAR 99	Sanitary Waste
Toilet fresheners						OSPAR 101	Sanitary Waste
Toothbrushes				DAD 42	Plastic Materials		
Combs/hair brushes						OSPAR 18	Plastic/ Polystyrene
Cotton bud sticks				DAD 19	Plastic Materials	OSPAR 98	Sanitary Waste
Other sanitary items (please specify in other item box*)						OSPAR 102	Sanitary Waste
<b>Other packaging</b>	<b>CS19</b>						
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
Other Plastic/Foam Packaging		ICC24	Packaging Materials				
Foam insulation & packaging				DAD 26	Plastic Materials		
Industrial packaging, plastic sheeting						OSPAR 40	Plastic/ Polystyrene
Sheeting: tarpaulin, plastic sheets, palette wrap				DAD 35	Plastic Materials		
Engine oil containers and drums <50 cm						OSPAR 8	Plastic/ Polystyrene
Engine oil containers and drums > 50 cm						OSPAR 9	Plastic/ Polystyrene
Jerry cans (square plastic containers with handle)						OSPAR 10	Plastic/ Polystyrene
Buckets - OSPAR buckets, drums & jerry cans: 2 litres or more - DAD				DAD 11	Plastic Materials	OSPAR 38	Plastic/ Polystyrene



Crates - OSPAR baskets, crates - DAD				DAD 6	Plastic Materials	OSPAR 13	Plastic/ Polystyrene
Strapping Bands		ICC26	Packaging Materials				
Strapping bands - OSPAR strapping bands (plastic) - DAD				DAD 37	Plastic Materials	OSPAR 39	Plastic/ Polystyrene
Strapping bands (metal)				DAD 69	Metal Materials		
Cigarette packets - OSPAR Tobacco Packaging/Wrap -ICC tobacco packaging & wrappers - DAD		ICC27	Packaging Materials	DAD 41	Plastic Materials	OSPAR 63	Paper/ Cardboard
Food cans - OSPAR cans: food, juice, other (tin) - DAD				DAD 57	Metal Materials	OSPAR 82	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
Cartons e.g. tetrapak (milk)						OSPAR 118	Paper/ Cardboard
Cartons e.g. tetrapak (other)						OSPAR 62	Paper/ Cardboard
Jars: food (glass)				DAD 48	Glass & Ceramic Materials		
<b>Other trash</b>	<b>CS20</b>						
Bags - OSPAR Paper bags - ICC bags (paper) - DAD		ICC15	Most likely to find items	DAD 90	Paper/Cardb oard Materials	OSPAR 60	Paper/ Cardboard
Electric appliances - OSPAR Appliances (refrigerators, washers, etc.) - ICC		ICC28	Other trash	DAD 53	Metal Materials	OSPAR 79	Metal



Appliances: household - DAD							
Computer equipment & other electronic devices				DAD 96	Mixed Materials		
Cigar tips		ICC30	Other trash	DAD 17	Plastic Materials		
Cigarette Lighters		ICC31	Other trash	DAD 16	Plastic Materials	OSPAR 16	Plastic/ Polystyrene
Construction material e.g. tiles - OSPAR Construction Materials - ICC		ICC32	Other trash			OSPAR 94	Pottery/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
Fibre glass						OSPAR 41	Plastic/ Polystyrene
Wire, wire mesh, barbed wire				DAD 70	Metal Materials	OSPAR 88	Metal
Fireworks		ICC33	Other trash	DAD 97	Mixed Materials		
Tyres and belts - OSPAR Tires - ICC tires/tyres - DAD		ICC34	Other trash	DAD 77	Rubber Materials	OSPAR 52	Rubber
Inner-tubes & rubber sheets				DAD 75	Rubber Materials		
Glass Pieces		ICC40	Tiny trash less than 2.5cm				



Glass & ceramic fragments				DAD 51	Glass & Ceramic Materials		
Items of Local Concern		ICC42					
Light bulbs/tubes						OSPAR 92	Glass
Light globes: bulbs, etc				DAD 49	Glass & Ceramic Materials		
Fluorescent light tubes				DAD 47	Glass & Ceramic Materials		
Other glass items <i>(please specify in other item box*)</i>						OSPAR 93	Glass
Other ceramic/pottery items <i>(please specify in other item box*)</i>						OSPAR 96	Pottery/Ceramics
Shoes/sandals - OSPAR shoes, flip flops, sandals, tennis, etc - DAD				DAD 98	Mixed Materials	OSPAR 44	Plastic/ Polystyrene
Shoes (leather)						OSPAR 57	Cloth
Boots						OSPAR 50	Rubber
Cardboard						OSPAR 61	Paper/ Cardboard
Cardboard: packaging & cartons				DAD 91	Paper/Cardboard Materials		
Paper/cardboard fragments				DAD 93	Paper/Cardboard Materials		
Paper: books, newspapers, magazines, etc				DAD 92	Paper/Cardboard Materials		
Newspapers & magazines						OSPAR 66	Paper/ Cardboard
Other paper items <i>(please specify in other item box*)</i>						OSPAR 67	Paper/ Cardboard



Furnishing						OSPAR 55	Cloth
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
Towels, rags				DAD 88	Cloth Materials		
Sacking						OSPAR 56	Cloth
Other textiles ( <i>please specify in other item box*</i> )						OSPAR 59	Cloth
Bags (burlap/hessian)				DAD 84	Cloth Materials		
Bags (cloth)				DAD 85	Cloth Materials		
Carpet (synthetic)				DAD 14	Plastic Materials		
Gloves (industrial/profession al gloves)						OSPAR 113	Plastic/ Polystyrene
Gloves (typical washing up gloves)						OSPAR 25	Plastic/ Polystyrene
Gloves (latex)				DAD 29	Plastic Materials		
Gloves (rubber)				DAD 74	Rubber Materials		
Gloves (cloth)				DAD 86	Cloth Materials		
Hard hats						OSPAR 42	Plastic/ Polystyrene
Aerosol/Spray cans				DAD 52	Metal Materials	OSPAR 76	Metal
batteries: AA, AAA, C & D, 6V, 9V, etc				DAD 54	Metal Materials		
Batteries: car or boat				DAD 55	Metal Materials		



Car parts - OSPAR cars & car parts - DAD				DAD 59	Metal Materials	OSPAR 14	Plastic/ Polystyrene
Disposable BBQ's						OSPAR 120	Metal
Metal fragments				DAD 72	Metal Materials		
Other metal pieces < 50 cm ( <i>please specify in other item box*</i> )						OSPAR 89	Metal
Other metal pieces > 50 cm ( <i>please specify in other item box*</i> )						OSPAR 90	Metal
Rubber bands				DAD 76	Rubber Materials		
Rubber fragments				DAD 78	Rubber Materials		
Other rubber pieces ( <i>please specify in other item box*</i> )						OSPAR 53	
Light sticks (tubes with fluid) - OSPAR light sticks/cyalumes - DAD				DAD 30	Plastic Materials	OSPAR 36	Plastic/ Polystyrene
Scuba & snorkel gear, masks, snorkels, fins				DAD 34	Plastic Materials		
Scuba weights				DAD 68	Metal Materials		
Pens						OSPAR 17	Plastic/ Polystyrene
Other plastic/polystyrene items ( <i>please specify in other item box*</i> )						OSPAR 48	Plastic/ Polystyrene
Paint brushes						OSPAR 73	Wood (machined)
Paint tins						OSPAR 86	Metal
Injection gun containers						OSPAR 11	Plastic/ Polystyrene
Shotgun cartridges						OSPAR 43	Plastic/ Polystyrene
Containers / tubes						OSPAR 103	Medical Waste





Other medical items (swabs, bandaging etc.) (please specify in other item box*)						OSPAR 105	Medical Waste
Other wood < 50 cm (please specify in other item box*)						OSPAR 74	Wood (machined)
Other wood > 50 cm (please specify in other item box*)						OSPAR 75	Wood (machined)
Wood fragments				DAD 83	Wood Materials		
Crates						OSPAR 70	Wood (machined)
Pallets				DAD 82	Wood Materials	OSPAR 69	Wood (machined)
Corks						OSPAR 68	Wood (machined)
Bagged dog faeces						OSPAR 121	Faeces
Paraffin or Wax Pieces > 10 cm						OSPAR 110	Other Pollutant
Paraffin or Wax Pieces 0-1 cm						OSPAR 108	Other Pollutant
Paraffin or Wax Pieces 1-10 cm						OSPAR 109	Other Pollutant
Other (please specify in other item box*)						OSPAR 111	Other Pollutant
Pellets (nurdles)						OSPAR	Other Pollutant



# Appendix Y – Modified OSPAR Survey Forms Used by CCB

Modified OSPAR Survey Data Form

## 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

### Count & Weight of All Plastic & Polystyrene Pieces <2.5cm

Quadrat 1: Total Weight \_\_\_\_\_ kg/lbs

Total Amount Plastic \_\_\_\_\_ Total Amount Polystyrene \_\_\_\_\_

Quadrat 2: Total Weight \_\_\_\_\_ kg/lbs

Total Amount Plastic \_\_\_\_\_ Total Amount Polystyrene \_\_\_\_\_

Quadrat 3: Total Weight \_\_\_\_\_ kg/lbs

Total Amount Plastic \_\_\_\_\_ Total Amount Polystyrene \_\_\_\_\_

**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: \_\_\_\_\_



Date: \_\_\_\_\_ Site: \_\_\_\_\_

Surveyor: \_\_\_\_\_

**OSPAR** **DAD**

<b>ID</b>	<b>ID</b>	<b>Items</b>	<b>Total</b>
<b>Plastic/Polystyrene</b>			
2	1	Bags (e.g. shopping)	
3	1	Small plastic bags, e.g., freezer bags	
23	Other	Fertiliser/animal feed bags	
24	31	Mesh vegetable bags	
112	1	Plastic bag ends	
4	7/8	Drinks (bottles, containers and drums)	
5	9	Cleaner (bottles, containers and drums)	
7	9	Cosmetics (bottles & containers e.g. sun lotion, shampoo, shower gel, deodorant)	
12	9	Other bottles, containers and drums	
1	9	4/6-pack yokes	
15	13	Caps/lids	
6	18	Food containers incl. fast food containers	
19	27	Crisp/sweet packets and lolly sticks	
21	20	Cups	
22	20/38	Cutlery/trays/straws	
16	16	Cigarette lighters	
17	Other	Pens	
18	Other	Combs/hair brushes	
20	100	Toys & party poppers	
31	33	Rope (diameter more than 1 cm)	
32	33	String and cord (diameter less than 1 cm)	
115	24	Nets and pieces of net < 50 cm	
116	24	Nets and pieces of net > 50 cm	
33	24	Tangled nets/cord/rope and string	
34	25	Fish boxes	
35	22	Fishing line (angling)	
26	25	Crab/lobster pots	
114	Other	Lobster and fish tags	
27	Other	Octopus pots	
28	Other	Oyster nets or mussel bags incl. plastic stoppers	
29	Other	Oyster trays (round from oyster cultures)	
30	Other	Plastic sheeting from mussel culture (Tahitians)	
36	30	Light sticks (tubes with fluid)	
37	12	Floats/Buoys	



**OSPAR DAD**

<b>ID</b>	<b>ID</b>	<b>Items</b>	<b>Total</b>
<b>Plastic/Polystyrene</b>			
38	11	Buckets	
39	37	Strapping bands	
40	35	Industrial packaging, plastic sheeting	
8	11	Engine oil containers and drums <50 cm	
9	11	Engine oil containers and drums > 50 cm	
10	11	Jerry cans (square plastic containers with handle)	
11	Other	Injection gun containers	
13	6	Crates	
14	59	Car parts	
41	Other	Fibre glass	
42	Other	Hard hats	
25	74	Gloves (typical washing up gloves)	
113	29	Gloves (industrial/professional gloves)	
43	Other	Shotgun cartridges	
44	98	Shoes/sandals	
45	Other	Foam sponge	
117	43	Plastic pieces 0 - 2,5 cm	
117.1	43	Polystyrene pieces 0 - 2,5 cm	
46	43	Plastic pieces 2,5 cm > < 50 cm	
46.1	43	Polystyrene pieces 2,5 cm > < 50 cm	
47	43	Plastic pieces > 50 cm	
47.1	43	Polystyrene pieces > 50 cm	
48	Other	Other plastic/polystyrene items ( <i>please specify in other item box*</i> )	
Other:			

**Presence of other pollutants**

**Pollutant**      **Size of pieces or lumps (estimates/size range)**

*Paraffin or wax pieces*

108	Other	0-1 cm	
109	Other	1-10 cm	
110	Other	> 10 cm	

**Other (please specify in other item box\*)**

111	Other	Other	
111	Other	Tar	

Pellets (nurdles): \_\_\_ Yes \_\_\_ No



**OSPAR DAD**

<b>ID</b>	<b>ID</b>	<b>Items</b>	<b>Total</b>
<b>Metal</b>			
76	52	Aerosol/Spray cans	
77	58	Bottle caps	
78	56	Drink cans	
120	Other	Disposable BBQ's	
79	53	Electric appliances	
80	62	Fishing weights	
81	71	Foil wrappers	
82	57	Food cans	
83	Other	Industrial scrap	
84	61	Oil drums	
86	Other	Paint tins	
87	63	Lobster/crab pots and tops	
88	70	Wire, wire mesh, barbed wire	
89	Other	Other metal pieces < 50 cm (please specify in other item box*)	
Other:			
90	Other	Other metal pieces > 50 cm (please specify in other item box*)	
Other:			
<b>Paper • Cardboard</b>			
60	90	Bags	
61	91	Cardboard	
118	Other	Cartons e.g. tetrapak (milk)	
62	Other	Cartons e.g. tetrapak (other)	
63	41	Cigarette packets	
64	15	Cigarette butts	
65	Other	Cups	
66	92	Newspapers & magazines	
67	Other	Other paper items (please specify in other item box*)	
Other:			
<b>Glass</b>			
91	44	Bottles	
92	49	Light bulbs/tubes	
93	Other	Other glass items (please specify in other item box*)	
Other:			



O	D	Cloth		O	D	Wood (machined)	
54	95	Clothing		68	other	Corks	
55	other	Furnishing		69	82	Pallets	
56	85	Sacking		70	other	Crates	
57	98	Shoes (leather)		71	79	Crab/lobster pots	
59	other	Other textiles (please specify in other item box*)		119	other	Fish boxes	
Other:				72	other	Ice lolly sticks / chip forks	
<b>Sanitary waste</b>				73	other	Paint brushes	
97	73	Condoms		74	other	Other wood < 50 cm (please specify in other item box*)	
98	19	Cotton bud sticks		75	other	Other wood > 50 cm (please specify in other item box*)	
99	other	Sanitary towels/panty liners/backing strips		Other:			
100	99	Tampons and tampon applicators		<b>Pottery • Ceramics</b>			
101	other	Toilet fresheners		94	other	Construction material e.g. tiles	
102	other	Other sanitary items (please specify in other item box*)		95	other	Octopus pots	
Other:				96	other	Other ceramic/pottery items (please specify in other item box*)	
<b>Faeces</b>				Other:			
121	other	Bagged dog faeces					
<b>Rubber</b>				<b>Medical waste</b>			
49	4	Balloons, including plastic valves, ribbons, strings etc.		103	other	Containers / tubes	
50	98	Boots		104	39/50	Syringes	
52	77	Tyres and belts		105	other	Other medical items (swabs, bandaging etc.) (please specify in other item box*)	
53	other	Other rubber pieces (please specify in other item box*)		Other:			
Other:				Other:			



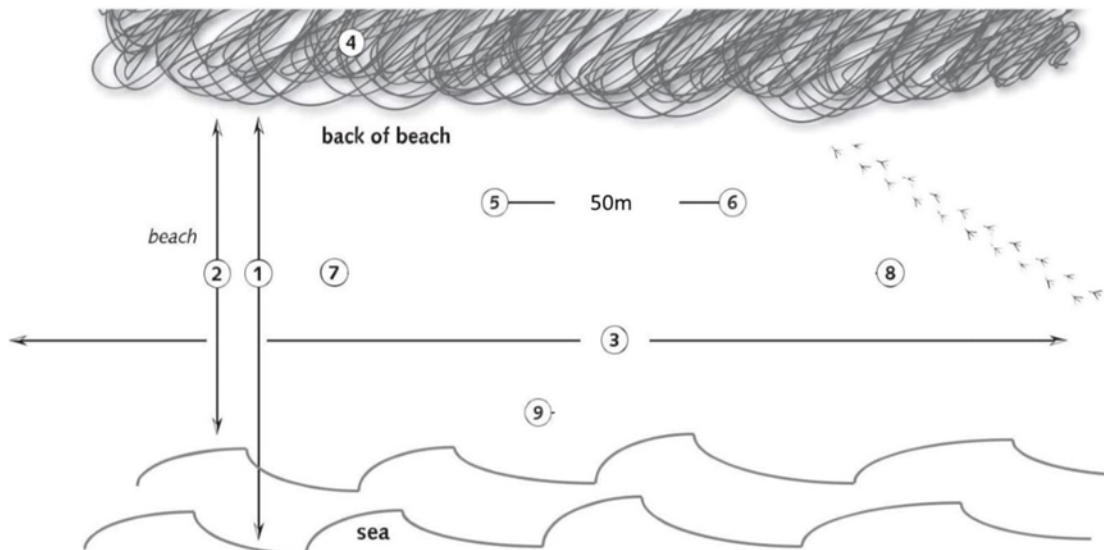
## Modified OSPAR Marine Litter Beach Questionnaire

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: .....

7 GPS coordinates quadrant 1: .....

8 GPS coordinates quadrant 2: .....

9 GPS coordinates quadrant 3: .....

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: .....

\*you may tick one or two boxes



## Modified OSPAR Marine Litter Beach Questionnaire

**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: .....

<input type="checkbox"/> Residential and tourist:	winter .....	<input type="checkbox"/> 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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## Modified OSPAR Marine Litter Beach Questionnaire

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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 .....

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 harbor

Nearest river mouth

Discharge or discharges of waste water

3. A regional map

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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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