

Marine Debris Monitoring Toolkit

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**Addressing
Marine Plastics**
A Systemic Approach



Marine Debris Monitoring | Introduction

From the touristic beaches of Bali to the remote arctic coastlines of Alaska, marine debris, particularly ocean plastic pollution, can be found anywhere. Plastic pollution is distributed throughout the world's oceans, from the ocean surface to the deep sea, from the equator to the sea ice in the Arctic, and from the high tide mark to the farthest reaches of the open ocean. Eight million metric tons of plastic pollution leaks into the ocean yearly from land based sources¹—the equivalent of one dump truck full of plastic every minute, every hour, every day going into the ocean.

Once in marine waters, plastics begin to break down into small, irretrievable fragments that can persist indefinitely. As many as 51 trillion pieces of microplastic (< 5mm) now circulate in the oceans globally. Often mistaken for food, these particles have been found in more than 800 marine species, from the smallest zooplankton to sea turtles and the largest whales. Scientists are growing increasingly concerned about the threat of plastics and their chemical contaminants to marine animals, particularly fish and shell fish commonly sold for human consumption. Whether via entanglement, ingestion or chemical contamination, ocean plastic pollution has an undeniable impact on the health of our ocean.

Most of this plastic pollution in our ocean, with estimates up to 80% of more, comes from land-based sources. Surveying marine debris along coastal areas is an important and low-cost way to build a dataset that can enable long-term assessment and monitoring of marine debris. For the past four decades, a majority of the marine debris data and knowledge collected was done so by volunteers or trained citizen scientists through beach cleanups or surveys. During this time, many organizations were formed with the sole purpose of keeping their local beach or waterway clean of trash, and in the process also documenting the most persistent and proliferating forms of marine debris. Such efforts include the International Coastal Cleanup², Dive Against Debris^{®3}, Adopt-a-Beach, etc. Data collected through these initiatives have been crucial to inform management decisions and policy; identify problematic packaging formats; and educate the public on a global issue through a locally relevant lens.

Marine debris data can be collected in a variety of manners from rigorous and meticulous sampling protocols conducted by teams of trained scientists, to observations recorded by weekend-going citizens who signed up to participate in a local cleanup. All techniques and collected data are valuable; it is however key to ensure the methods being used suffice to achieve the desired research questions or objectives. Additionally, it is important to consider what resources are available to carry out the surveys: trained scientists dedicated funding, etc.

¹ Jambeck, J.R., Andrady, A., Geyer, R., Naryan, R., Perryman, M., Siegler, T., Wilcox, C., Lavender Law, K. (2015). Plastic waste inputs from land into the ocean. *Science*, 347:768-771.

² <https://oceanconservancy.org/trash-free-seas/international-coastal-cleanup/>

³ <https://www.projectaware.org/diveagainstdebris>

This Toolkit was therefore designed to assist interested marine debris volunteers and researchers alike in determining which survey protocol is most appropriate to carry out their respective marine debris initiative or monitoring project. We propose three different monitoring protocols that can be used to track marine debris under a diverse set of investment, rigor and expected outcomes. The protocols⁴ include:

1. *International Coastal Cleanup (pp. 4-7)*

- Adapted over 30-plus years to reflect the most populous items on beaches, the Cleanup method can be used to gain a large-scale assessment of marine litter;

2. *International Coastal Cleanup: Brand Data Collection (pp. 8 -12)*

- Captures qualitative information such as brand or color of debris found on beaches and waterways; and

3. *Commonwealth Scientific and Industrial Research Organisation (pp. 12 -22)*

- Captures detailed data about marine debris as well as the survey site that can then be analyzed using powerful statistical tools.

⁴ The authors acknowledge that there are many other monitoring protocols available, each of which is important and adds its own utility to the ever-changing global snapshot of marine debris.

International Coastal Cleanup

Overview

Since 1986, Ocean Conservancy has been working with partners around the world to organize the International Coastal Cleanup (Cleanup). Each year, on the third Saturday in September, hundreds of thousands of volunteers participate in the Cleanup and learn about the impacts of marine debris worldwide. The Cleanup has engaged over 13 million people in 153 countries since its inception, removing nearly 300 million pounds of trash from the world's beaches and waterways. But the event goes beyond litter removal: volunteers have recorded information on more than 265 million items collected through the Cleanup. The expansive public reach and accessibility of the Cleanup paired with the ease of data collection through Clean Swell—Ocean Conservancy's mobile app—or paper data forms, has enabled interested members of the public to become data-contributing citizen scientists. Thanks to its Coordinators, partners and volunteers, Ocean Conservancy has amassed the world's largest open access dataset on marine debris through the success of the Cleanup.

Application

The International Coastal Cleanup data provides a global snapshot of the most persistent and proliferating forms of debris. The sheer scale of the global collection effort encourages initial hypotheses for a wide range of analysis, including the general composition of debris, the sources of litter, and major pollution; however, data are not collected using a rigorous protocol and as such there are limitations to the statistical robustness of data analyses. Cleanup data have been cited hundreds of times in the peer reviewed literature and used as evidence in passing legislation at the municipal, state, national and international level, and continue to serve as the largest, longitudinal dataset on marine debris, globally.

Methodology

The methodology, using Clean Swell or the paper Cleanup data form, requires the least amount of training compared to various other marine debris monitoring programs, and can be deployed to the average clean-up attendee in any locale. We recommend that the International Coastal Cleanup data categories and methodology for the majority of clean-up attendees to document and contribute important marine debris data.

International Coastal Cleanup Methodology

Background:

Since 1986 Ocean Conservancy has been working with partners around the world to organize the International Coastal Cleanup (Cleanup). Each year, on the third Saturday in September, hundreds of thousands of volunteers participate in the Cleanup and learn about the impacts of marine debris worldwide. The Cleanup has engaged over 13 million people since its inception, removing over 250 million pounds of trash from the world's beaches and waterways. But the Cleanup goes beyond the pounds: volunteers have recorded information on over 265 million items collected during the Cleanup. Data collected by volunteers are used by NGOs, policy makers, educators, and industry innovators to engage the public, craft policies, and inform solutions to reduce marine debris.

Materials:

- closed-toe shoes
- (reusable) gloves
- paper Cleanup data card
- clipboard
- writing tools
- collection bags

Instructions:

- Ocean Conservancy recommends collecting data as a team, with one person recording information on the Cleanup data card, and others collecting and bagging trash.
- Safety first:
 - Wear gloves and shoes to protect your hands and feet from sharp or toxic items.
 - Only pick up items you're comfortable with—heavy, sharp, or hazardous objects can be reported to the Site Captain for safe removal
- Review the Cleanup data card before starting.
- At the beginning of your cleanup, record the Cleanup Site Name, State or Province, Country, Zone or County, Nearest Crossroad or Landmark, Type of Cleanup, and Number of Volunteers Working on the Data Card.
- As your group cleans, make tick marks in groups of five next to the corresponding debris items as trash collected. Total each item's tick marks at the end of the Cleanup. Example: ###||| = 9
- Do not write any words like "lots" or "many"—only numbers are usable data!
- At the end of the cleanup, record the Number of Trash Bags Filled, Total Weight of Trash Collected, and Distance Covered.
- If there are any items that you found that were not listed on the data form, you are welcome to use the "Items of Local Concern" portion of the data card to record this data.
- If anything unusual was found during the cleanup, let us know! Record on the first page under "Most Unusual Item Collected."
- Likewise, if you encountered a dead or injured animal during the cleanup make sure to fill out the Dead/Injured Animal portion of the card to help Ocean Conservancy track these impacts.
- Email a scanned copy of the form to cleanup@oceanconservancy.org.

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:



SITE INFORMATION:

Cleanup Site Name:

State or Province: Zone or County:

Country: Nearest Crossroad or Landmark:

NUMBER OF VOLUNTEERS WORKING ON THIS CARD:

adults

children (under 12)

MOST UNUSUAL ITEM COLLECTED:

TYPE OF CLEANUP:

Land: Underwater: Watercraft:

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

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

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



TRASH COLLECTED

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

EXAMPLE:

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 #



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

PACKAGING MATERIALS:

TOTAL #



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

OTHER TRASH:

TOTAL #



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

PERSONAL HYGIENE:

TOTAL #



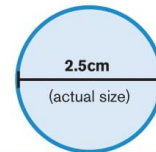
Condoms:	=
Diapers:	=
Syringes:	=
Tampons/Tampon Applicators:	=

TINY TRASH LESS THAN 2.5CM:

TOTAL #



Foam Pieces	=
Glass Pieces	=
Plastic Pieces	=



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

ITEMS OF LOCAL CONCERN:

1.	2.	3.
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CLEANUP SUMMARY (circle units)

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

International Coastal Cleanup: Brand Data Collection

Overview

To expand upon the vast dataset built by Cleanup partners and to further enrich its robustness, an additional methodology was launched for the 2018 Cleanup to collect information on the respective brands associated with each item of debris. The Cleanup data form has always applied a structured categorization to the data, and the addition of qualitative brand information provides a final, and critical, data layer on collected debris and provides full transparency on the issue for NGOs, governments and the private sector. In 2015, it was estimated that eight million metric tons of plastic enter the ocean annually.⁵ The researchers further identified that insufficient waste collection and recycling were a major contributor to these inputs. A clear vision not only of the types of products that escape supply chains and waste collection systems, but also the respective brands of those products is imperative to inform corporate responsibility and waste management efforts in geographies where ocean plastic inputs are currently largest.

Application

The goal of this survey work is to develop an unbiased sampling methodology to ensure data are collected without agenda, and provide insight into value chain gaps, market failures and primary leakage points in the waste stream. Information from such efforts can help to inform solutions and target on particularly problematic packaging and material formats. The data collected from these surveys will provide key insights and prospects to all stakeholders working on the issue of ocean plastic waste.

For companies from the private sector, this is an opportunity to learn more about their consumers and capture information about their products and packaging possibly falling out of the waste management system. Once data becomes available, we want to work with the organizations to reduce instances of products falling out of the waste stream after use through prioritization for material and packaging redesign.

Similarly, Civil Society Organizations and scientists will be afforded the chance to develop a robust methodology and carry out field work and observations. While it will not be possible to identify all materials falling out of supply chains and waste systems, a representative sample size between communities that differ geographically and demographically may provide insights that can be extrapolated and provide broad insights, or at the very least opportunities in a local context.

⁵ Jambeck, J.R., Andrady, A., Geyer, R., Naryan, R., Perryman, M., Siegler, T., Wilcox, C., Lavender Law, K. (2015). Plastic waste inputs from land into the ocean. *Science*, 347:768-771.

Methodology

The Brand Data Collection survey is more time intensive and requires meticulous documentation of all qualitative information on debris items. This additional level of scrutiny calls for a formal training of surveyors. Each item found involves significantly more inquiry: beyond the item's categorical identification and tally, the item is to be thoroughly examined for brand information and cataloged with a brand or descriptor. Items without a brand or distinguishing characteristics are also recorded in the survey to pare bias. Raw data counts from these surveys integrate with the standard Cleanup method so that duplicative data collection efforts are not required.

International Coastal Cleanup Brand Data Collection Methodology



BACKGROUND

Since 1986 Ocean Conservancy has been working with partners around the world to organize the International Coastal Cleanup (ICC). The ICC has engaged 13 million people since its inception, removing 250 million pounds of trash from the world's beaches and waterways. Each year, on the third Saturday in September, hundreds of thousands of volunteers participate and learn about the impacts of marine debris worldwide. Data collected by volunteers are used by NGOs, policy makers, educators, and industry innovators to engage the public, craft policies, and inform solutions to reduce marine debris.

Data has always played an integral part of the International Coastal Cleanup. With multiple iterations of the classic ICC data card over the last three decades, each data card has always been created with the intention to collect the most useful and accurate marine debris data. To add even more value to this robust and publicly available dataset, the following methodology builds on an additional data collection component that captures qualitative information such as brand, color, etc. on debris picked up from beaches and waterways.

Information from this effort will help to further inform solutions and target particularly problematic packaging and material formats. The data collected from these surveys will provide key insights and prospects to all stakeholders working on the issue of ocean plastic pollution.

MATERIALS

Like any other cleanup, arrive to your cleanup location ready with:

- closed-toe shoes
- (reusable) gloves
- clipboards
- writing tools
- data card
- collection bags

INSTRUCTIONS

We recommend working in pairs to complete the brand survey.

The Collector will be responsible for collecting the items and informing the Data Recorder of items found and their brands.

The Data Recorder will tally the brand item counts on the data card. Before beginning to cleanup, they will fill in the specifics for their cleanup in the designated box:

Date:		No. of Volunteers:	
Organization:			
Contact Email:			
Address/GPS Coordinates:			
Country:			
Total Items Collected:	Weight Total: <input type="checkbox"/> lbs <input type="checkbox"/> kgs	Distance (meters):	

As a pair, **The Collector** and **The Data Recorder** walk together on the shore, picking up and examining each item found.

The Collector picks up each item and examines it to see if there is a visible brand or categorization. **The Data Recorder** uses the Item Codes on the left side of the card to record the brand, ICC Item (using Item Code), and tally of each type of item found as they proceed with the cleanup.

STRW	Straws, Stirrers
UTNL	Forks, Knives, Spoons
BEVP	Beverage Bottles (<i>Plastic</i>)

- If there is a **brand printed on the item**, write the name of that brand in the Brand area, record the Item Code in the corresponding box, and tally any future items of that brand item in the tally area of that box.

Brand/Color: <i>Company X</i>	Item Code: <i>BEVP</i>
Count: <i> </i>	= Total: <i>8</i>

- If there is **no brand printed on the item**, but you are able to categorize it in another way, especially if there are repeats of this item, you can use a descriptive word to track it, we recommend color. Make sure to tally any future items of that same identifier in that same box.

Brand/Color: <i>Yellow</i>	Item Code: <i>STRW</i>
Count: <i> </i>	= Total: <i>12</i>

- If there **does not seem to be a clear way to categorize the item based on brand or color**, such as fishing line or rope without any indicators, you may put "N/A" and tally all unlabeled items of that item code in that box.
- Any foam, glass, or plastic pieces under 2.5cm in diameter can be recorded at the bottom of the back side of the form.

If you need more space, you may use additional forms to record the data. At the end of the cleanup, tally up the total counts for each item and record the totals in the "total" area of each box. Weigh all trash collected, add the total item counts together, and estimate distance covered—record this information on the top-left section of the data card. Please scan the data card and submit to Cleanup@oceanconservancy.org.

Thank you for contributing this important information and for being part of the solution for Trash Free Seas®!

International Coastal Cleanup Brand Data Collection



Date:		No. of Volunteers:	
Organization:			
Contact Email:			
Address/GPS Coordinates:			
Country:			
Total Items Collected:	Weight Total: <input type="checkbox"/> lbs <input type="checkbox"/> kgs	Distance (meters):	

Citizen scientist: Pick up all trash and record all items you find below. Record the brand/color, item type, tally and total of each unique item. The data you collect are important to achieve Trash Free Seas®.

EXAMPLES

Brand/Color: <i>Company X</i>	Item Code: <i>BEVP</i>
Count: <i> </i>	= Total: <i>8</i>

Brand/Color: <i>Yellow</i>	Item Code: <i>STRW</i>
Count: <i> </i>	= Total: <i>12</i>

	CODE	ITEM
Most Likely to Find Items	CIGS	Cigarette Butts
	WRAP	Food Wrappers (<i>candy, chips, etc.</i>)
	TKAP	Take Out/Away Containers (<i>Plastic</i>)
	TKAF	Take Out/Away Containers (<i>Foam</i>)
	CAPP	Bottle Caps (<i>Plastic</i>)
	CAPM	Bottle Caps (<i>Metal</i>)
	LIDS	Lids (<i>Plastic</i>)
	STRW	Straws, Stirrers
	UTNL	Forks, Knives, Spoons
	BEVP	Beverage Bottles (<i>Plastic</i>)
	BEVG	Beverage Bottles (<i>Glass</i>)
	CANS	Beverage Cans
	BAGP	Grocery Bags (<i>Plastic</i>)
	BAGO	Other Plastic Bags
	BAGB	Paper Bags
	CPPA	Cups, Plates (<i>Paper</i>)
CPPL	Cups, Plates (<i>Plastic</i>)	
CPFO	Cups, Plates (<i>Foam</i>)	
Fishing Gear	BUOY	Fishing Buoys, Pots & Traps
	NETS	Fishing Net & Pieces
	LINE	Fishing Line (<i>1 yard/meter = 1 piece</i>)
	ROPE	Rope (<i>1 yard/meter = 1 piece</i>)
Packaging Materials	SIXP	6-Pack Holders
	OTHP	Other Plastic/Foam Packaging
	OTHB	Other Plastic Bottles (<i>oil, bleach, etc.</i>)
	STRP	Strapping Bands
TOBP	Tobacco Packaging/Wrap	
Other Trash	APPL	Appliances (<i>refrigerators, washers, etc.</i>)
	BLON	Balloons
	CIGT	Cigar Tips
	CIGL	Cigarette Lighters
	CONS	Construction Materials
	FRWK	Fireworks
	TIRE	Tires
	TOYS	Toys
Personal Hygiene	CNDM	Condoms
	DIPR	Diapers
	SYRN	Syringes
	TAMP	Tampons/Tampon Applicators
	OTHR	Other (<i>Specify</i>)

Brand/Color:	Item Code:
Count:	= Total:

Brand/Color:	Item Code:
Count:	= Total:

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Count:	= Total:

Brand/Color:	Item Code:
Count:	= Total:

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CAPP	Bottle Caps (<i>Plastic</i>)
CAPM	Bottle Caps (<i>Metal</i>)
LIDS	Lids (<i>Plastic</i>)
STRW	Straws, Stirrers
UTNL	Forks, Knives, Spoons
BEVP	Beverage Bottles (<i>Plastic</i>)
BEVG	Beverage Bottles (<i>Glass</i>)
CANS	Beverage Cans
BAGP	Grocery Bags (<i>Plastic</i>)
BAGO	Other Plastic Bags
BAGB	Paper Bags
CPPA	Cups, Plates (<i>Paper</i>)
CPPL	Cups, Plates (<i>Plastic</i>)
CPFO	Cups, Plates (<i>Foam</i>)
Fishing Gear	
BUOY	Fishing Buoys, Pots & Traps
NETS	Fishing Net & Pieces
LINE	Fishing Line (1 yard/meter = 1 piece)
ROPE	Rope (1 yard/meter = 1 piece)

CODE	ITEM
Packaging Materials	
SIXP	6-Pack Holders
OTHP	Other Plastic/Foam Packaging
OTHB	Other Plastic Bottles (<i>oil, bleach, etc.</i>)
STRP	Strapping Bands
TOBP	Tobacco Packaging/Wrap
Other Trash	
APPL	Appliances (<i>refrigerators, washers, etc.</i>)
BLON	Balloons
CIGT	Cigar Tips
CIGL	Cigarette Lighters
CONS	Construction Materials
FRWK	Fireworks
TIRE	Tires
TOYS	Toys
Personal Hygiene	
CNDM	Condoms
DIPR	Diapers
SYRN	Syringes
TAMP	Tampons/Tampon Applicators
OTHR	Other (<i>Specify</i>)

Brand/Color:	Item Code:
Count:	= Total:

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Count:	= Total:

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Count:	= Total:

Brand/Color:	Item Code:
Count:	= Total:

Brand/Color:	Item Code:
Count:	= Total:

Brand/Color:	Item Code:
Count:	= Total:

TINY TRASH LESS THAN 2.5CM	TOTAL ▾
Foam Pieces	=
Glass Pieces	=
Plastic Pieces	=



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



Commonwealth Scientific and Industrial Research Organization (CSIRO) Marine Debris Survey

Overview

CSIRO's survey methodology was developed to model the distribution and movement of plastic waste in areas of development, waterways, coastlines, and in the ocean. Existing large-scale marine debris datasets, such as the International Coastal Cleanup's, were not randomized by site nor conducted by trained professionals. CSIRO's methodology was created to build a more rigorous assessment of marine debris composition and concentrations in different environments. CSIRO's methodology has been used to complete national surveys in Australia and the United States, publishing reports on how litter moves across land and what factors contribute to debris in our natural environments.

Application

Data collected through CSIRO's methodology has been and continues to be used to create a geographical model of how waste is distributed and travels—the method looks closely at every type of terrain: urban centers, waterways, shores, and the ocean. From 2015 to 2017, Ocean Conservancy, the National Oceanic and Atmospheric Administration (NOAA), and CSIRO worked together to model a national picture of marine debris in the United States, assessing the effectiveness of legislation, the abundance of various items, and the areas of high debris concentration.

Additional reports analyzing CSIRO's dataset found that the context of a site, population density, site accessibility, and time spent by visitors at a location are among the variables that can be used to estimate levels of debris at sites that were not surveyed. Accurate and predictive models for marine debris play an important role in how we move towards solutions. CSIRO's reports provide opportunity to identify regions or programs for informed investments and improvements. The CSIRO protocol uses field sampling to measure, and mathematical modelling to estimate, the distribution and movement of plastic waste near urban centers, along waterways, on the coastline and in the ocean.

Methodology

CSIRO's methodology requires trained professionals to carry out the survey. Prior to the survey, CSIRO uses a random sampling design to select sites for three to six transects to be completed. Inland, river, and coastal sites are designated for survey and detailed site information is recorded by the surveyor, such as beach gradient, dominant land use, substrate type, shore exposure, and wind direction. Beyond the additional level of site description, the CSIRO methodology collects information on a more comprehensive list of items, adding a few dozen other categories to the Cleanup data form. CSIRO staff will work closely with you and your team to provide the appropriate trainings and identify exact survey sites. Please do not undertake this activity

without input from CSIRO. You (and your team) identify the city and/or river of interest and CSIRO will work with you to select the actual survey sites for all 4 survey types.

To review the full survey handbook designed by CSIRO, including methodologies for inland and waterway environments, and to contact CSIRO staff for more information about site selection, visit <https://research.csiro.au/marinedebris/resources/>.

COASTAL SITE INFORMATION

SURVEYOR DETAILS

Organisation:		<i>Organisation responsible for survey</i>
Surveyor name:		<i>Name of data recorder</i>
Contact number:		<i>Contact number for data recorder</i>
Contact email:		<i>Contact email for data recorder</i>
Access point location:	Latitude: Longitude:	<i>Latitude and longitude of access point where you enter the beach (dd.ddd). Ensure GPS is in WGS 84.</i>
GPS accuracy:		<i>Accuracy (metres) of GPS at time of reading.</i>

SITE DETAILS

Location/Municipality		<i>Town location of site</i>						
Country:		<i>Country in which site was sampled</i>						
Survey date:		<i>Date survey undertaken (dd/mm/yyyy).</i>						
Site name:		<i>Unique name of site</i>						
Photo info:		<i>The name of photographer and photo #s from the site</i>						
Number of humans:	Time of day (00:00): Visible distance (m): No. of people:	<i>Number of people counted in the visible area measured by instantaneous count. Visible distance is length of shore with a clear and unobstructed view.</i>						
Current weather:	Clear Rain/Storm Overcast Drizzle	<i>Circle best option to describe the weather.</i>						
Wind speed:	<table style="margin: auto; border: none;"> <tr> <td style="padding: 0 10px;">0</td> <td style="padding: 0 10px;">1</td> <td style="padding: 0 10px;">2</td> </tr> <tr> <td style="padding: 0 10px;">3</td> <td style="padding: 0 10px;">4</td> <td style="padding: 0 10px;">5</td> </tr> </table>	0	1	2	3	4	5	<i>0: calm (flat ocean)</i> <i>1: light breeze (wavelets, <10km/h , <6 knots)</i> <i>2: moderate breeze (small waves braking crests, 10-25km/h, 6-20 knots)</i> <i>3: strong breeze (waves and many white caps, 25-49km/h, 21- 26 knots)</i> <i>4: high wind (white caps and airborne spray, 50-65 km/h , 27-35 knots)</i> <i>5: gale (high waves, foam and spray present, 65-85 km/h, 35-45 knots)</i>
0	1	2						
3	4	5						
Wind direction: (compass)	N NE E SE S SW W NW N/A	<i>Direction from which wind is coming measured by the compass. N/A if no wind.</i>						
Wind direction: (relative to shore)	<table style="margin: auto; border: none;"> <tr> <td style="padding: 0 10px;">onshore</td> <td style="padding: 0 10px;">offshore</td> <td style="padding: 0 10px;">sideshore</td> </tr> <tr> <td></td> <td style="padding: 0 10px;">side-on</td> <td style="padding: 0 10px;">side-off</td> </tr> </table>	onshore	offshore	sideshore		side-on	side-off	<i>Onshore: wind blowing towards shore</i> <i>Offshore: wind blowing towards sea</i> <i>Sideshore: wind blowing parallel to shore</i> <i>Side-onshore: wind blowing sideways and towards shore</i> <i>Side-offshore: wind blowing sideways and towards sea</i>
onshore	offshore	sideshore						
	side-on	side-off						
Date of last clean up:		<i>If known.</i>						
Access to site	Paved Unpaved Trail Other (specify):							
Trash cans or rubbish bins present?	Yes No							
Cleanliness at first glance:	No debris visible Scattered debris visible Lots of debris visible Large amounts of dumped debris							
Evidence of dumping? (circle one or more)	None Construction Household Other(specify):							
Evidence of recent activities at site: (circle one or more)	None Clean-up or removal of rubbish Apparent spilled trash or rubbish Storm or flood High winds Public event Mowing							
Comments:								

↑
← **7** *(larger than page)*

Marine Debris Size Chart

Guidelines:

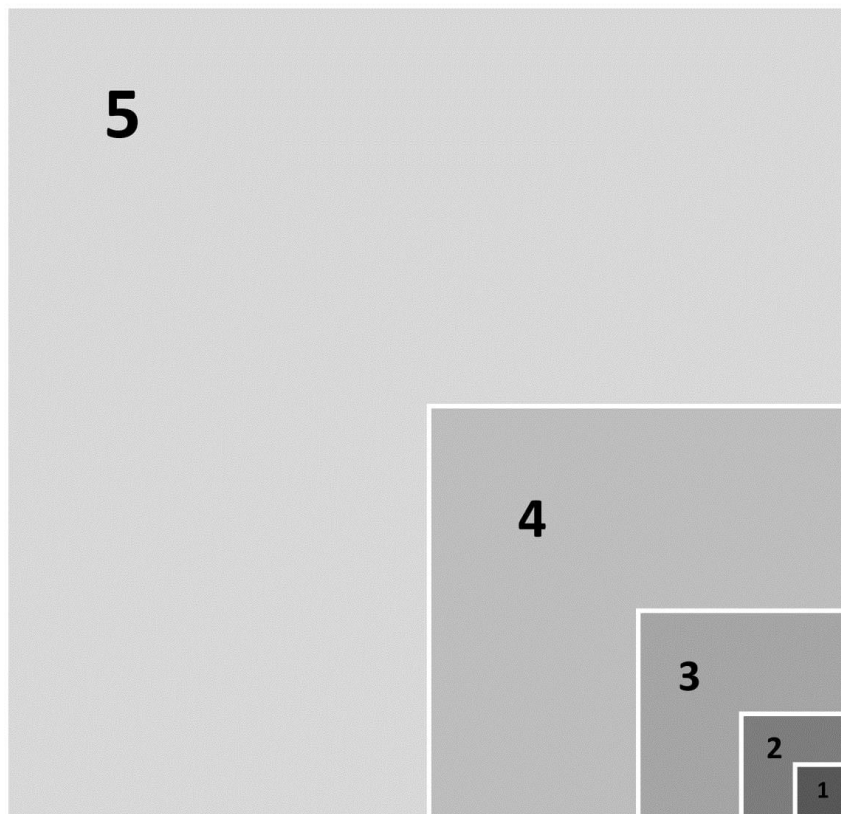
* This chart should be used as a guide to help estimate the size of marine debris during each beach transect (see transect sheet)

* The squares below represent different size classes

1 = 0–1 cm²; **2** = 1–2 cm²; **3** = 2–4 cm²; **4** = 4–8 cm²; **5** = 8–16 cm²; **6** = 16–21 cm²; **7** = >22 cm²

* To estimate size, the longest dimension of an item must fit wholly within a size class.

6 *(whole of page)*



Coastal Transect Data

Site Name:	Date	Transect Number: _____ of _____
Transect length (m):	Transect width (m):	Total No. of surveyors:
Subsampled? Y N	Subsample measurement:	<i>Dimension of each subsample area (e.g. 50cm x 200cm)</i>

Transect start:	Latitude: Longitude: Start Time (00:00): Photo #/photog. name:	Latitude and longitude recorded in decimal degrees (dd.dddd) Record Start Time of Transect Photographer name and number of photo, taken from transect start point
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Distance to dominant debris line (m):		Distance from water edge to major debris line (in meters) at time of survey. If no obvious debris line use NA.
Beach gradient:	A B C D E	Difference in elevation from start to end of transect. A = < 1 m (less than hip height) B = 1-2 m (hip to head height) C = 2-4 m (1-2 body length) D = 4-8 m (2-4 body lengths) E = > 8 m (more than 4 body lengths)
Substrate type:	Mud Sand Pebble / Gravel Boulders Rock slab Mangrove	Major substrate type
Substrate colour (if visible):	White / cream Yellow Orange Brown Black Grey Red	Predominant colour of substrate
Backshore type:	Cliff Seawall Urban building Forest / Tree (> 3m) Shrub (< 3m) Dune Grass - tussock Grass - pasture Mangrove	Physical structure of backshore, where beach meets terrestrial vegetation
Shore exposure or shape:	Cove/bay Straight Headland	Shape of beach where survey is conducted. Based on 50m each side of transect.
Aspect:	N NE E SE S SW W NW	Direction when you are facing the water
Evidence of dumping? (circle one or more)	None Construction Household Other(specify):	
Evidence of recent activities within transect area: (circle one or more)	.. None Clean-up or removal of rubbish Apparent spilled trash or rubbish Storm or flood High winds Public event Mowing	
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Name of data recorder:

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Site Name:

ITEMS LIST

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Date: _____ Transect No. ____ of ____

Subsampled? Y N

ITEMS		ID	Fragment	Whole	ITEMS Cont.		ID	Fragment	Whole
Hard Plastic	Pipe/PVC	H1			Cloth	String/rope/strap	C1		
	Beverage bottle <1 L	H2				Clothing/towel	C2		
	Other bottle	H3				Wipes/cloths	C3		
	Bottle cap/lid	H4				Insulation/stuffing	C4		
	Food container	H5				Unknown/other	C5		
	Utensil/plate/bowl	H6			Timber	Wood/timber	T1		
	Bucket/Crate	H7				Utensil/food stick	T2		
	Lighter	H8				Bottle cork	T3		
	Lollipop stick/earbud	H9				Pallet	T4		
	Unknown/other hard	H10				Unknown/other	T5		
Soft Plastic	Plastic bag	S1			Paper	Cigarette/butt	P1		
	Food wrapper/label	S2				Paper/cardboard	P2		
	Sheeting	S3				Magazine/newspaper	P3		
	Cup/lid	S4				Bag	P4		
	Straw	S5				Box	P5		
	Unknown/other soft	S6				Food container/box	P6		
Plastic Straps	String/rope/ribbon	BP1				Food wrapper/bag	P7		
	Packing strap	BP2				Beverage container	P8		
	Cable ties	BP3				Cups	P9		
	Unknown/other strap	BP4				Plates/bowls	P10		
Fishing	Net	F1				Unknown/other	P11		
	Fishing line	F2			Miscellaneous	Battery	Z1		
	Fishing Lures	F3				Brick/cement	Z2		
	Buoys/floats	F4				Carpet	Z3		
	Glow stick	F5				Ceramic	Z4		
	Fishhook/sinker	F6				E Waste	Z5		
	Unknown/other	F7				Furniture	Z6		
Metal	Pipe	M1				Small appliances	Z7		
	Wire	M2				White goods	Z8		
	Aerosol	M3				Large car parts	Z9		
	Beverage can	M4				Large boat parts	Z10		
	Food can/tin	M5				Bag/box dom. waste	Z11		
	Lid/cap	M6				Nurdles	Z12		
	Food wrapper	M7			Other		O1		
	Aluminium foil	M8					O2		
	Bucket/drum	M9					O3		
	Unknown/other hard	M10					O4		
	Unknown/other soft	M11					O5		
						O6			
Glass	Beverage bottle	G1			Size class (and sub-sampling intervals)				
	Jar	G2			Interval start (m)	Dist. on tran	ID	Size class	
	Light globe/tube	G3			1 0 -				
	Unknown/other glass	G4			2				
Rubber	Thong/shoe	R1			3				
	Tyre	R2			4				
	Balloon	R3			5				
	Rubber band	R4			6				
	Unknown/other	R5			7				
Foam	Food container	D1			8				
	Cup/plates/bowls	D2			9				
	Polystyrene	D4			10				
	Unknown/other	D5			- (end)				

Coastal Transect Data

Site Name:	Date	Transect Number: _____ of _____
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	Food container	H5				Unknown/other	C5		
	Utensil/plate/bowl	H6			Timber	Wood/timber	T1		
	Bucket/Crate	H7				Utensil/food stick	T2		
	Lighter	H8				Bottle cork	T3		
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