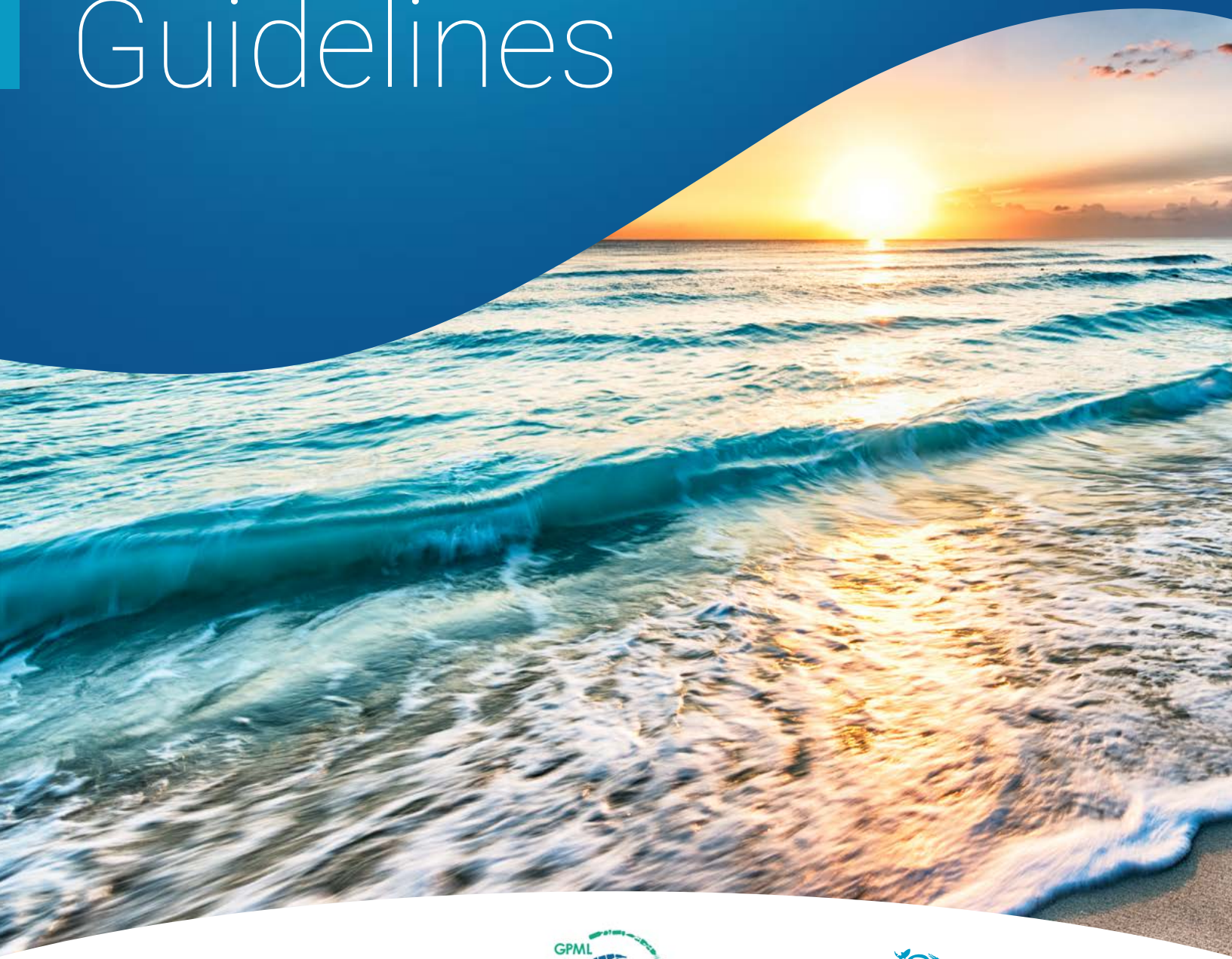
GLOBAL COMMUNITY SCIENCE

Beach Cleanup Guidelines



UN environment programme

GPML Global Partnership on Marine Litter

Ocean Conservancy®

Contents

Section 1

Volunteer Cleanup Data for SDG Indicator 14.1.1b

Thank you for collecting and contributing important marine litter data from your cleanup experiences. This document provides guidance on how existing community science[1] beach cleanup initiatives, such as the International Coastal Cleanup (ICC) or the Marine Litter Watch (MLW) can contribute to measuring progress towards Sustainable Development Goal (SDG) indicator 14.1.1b – **Marine Plastic Debris Density**. The guidelines are helpful for countries wishing to report their volunteer-collected data and were drafted in collaboration with the nonprofit environmental organization Ocean Conservancy, which hosts the annual ICC.

The goal metric SDG indicator 14.1.1b is striving to achieve when measuring marine plastic debris density is **average count of plastic items per km²**. This will be tracked yearly and extrapolated to the national level based on the total area cleaned for each country.

REFERENCE

The 17 SDGs are at the heart of the 2030 Agenda for Sustainable Development, which was adopted by all United Nations Member States in 2015. The SDGs are an urgent call for action by all countries in a global partnership. SDG 14 "Life Below Water" aims at conserving and sustainably using the oceans, sea and marine resources for sustainable development. Each goal includes several targets. Specifically target 14.1 is: *By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.* The progress towards this target is measured by two indicators under the custodianship of the United Nations Environment Programme (UNEP), one of which is Indicator 14.1.1b – *Marine Plastic Debris Density*.

The data on SDG Indicator 14.1.1b obtained by community science beach cleanup initiatives will be included in the SDG Global Database and in the Data Hub of the Global Partnership on Marine Litter (GPML) Digital Platform. Today, plastics are the largest, most harmful, and most persistent fraction of marine litter. Addressing this complex global problem requires urgent and coordinated efforts among different stakeholders. The GPML is a multi-stakeholder partnership, which seeks to protect the global marine environment and biodiversity, human well-being, and animal welfare by addressing the global problem of marine litter and plastic pollution, including microplastics. The GPML Digital Platform enables coordination and informs all actors working to address this issue, by providing a single point of access for current, accurate data and information on marine litter and plastic pollution and related topics. The Digital Platform also provides a wide range of materials to support stakeholders' needs, ranging from scientific research to technological innovation and public outreach, to inform decision-making, educate and raise awareness, facilitate target setting, and advance stakeholders' cooperation and coordination.

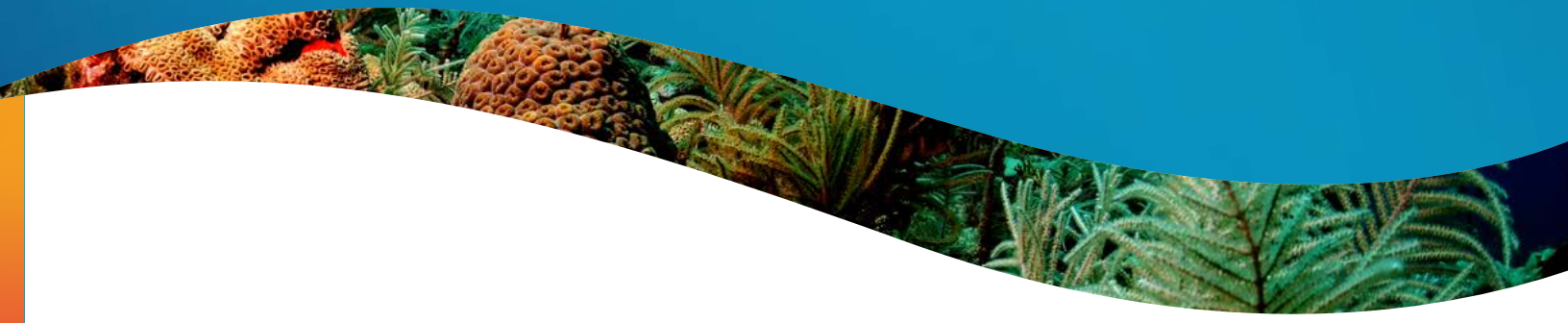
1 Community science is a more inclusive equivalent to the commonly used term 'citizen science' and can be used interchangeably.

1.1 Introduction to Data Collection at Volunteer Cleanups

Most community science beach cleanups involving data collection are designed to be conducted by small teams, depending on the size of a cleanup event and the amount of trash at the location.

This section provides two options for how a volunteer group could proceed with data collection, both of which capture the necessary metrics needed for tracking SDG indicator 14.1.1b. The first method is more simplified and loosely follows the data collection process asked by volunteers of the International Coastal Cleanup (ICC) and other similar volunteer-driven efforts. The second method is ideal for groups willing to plan and execute a more detailed cleanup through a specific survey adapted from the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) Guidelines for the Monitoring and Assessment of Plastic Litter in the Ocean.

It is important to note that for tracking SDG indicator 14.1.1b, we are interested in plastic marine litter items that can be found with the naked eye. Specifically, **we are asking volunteers to report plastic items of 5 mm or larger**. For more information on the size and types of plastic debris commonly reported on through community science cleanups, please refer to Appendix I.



1.2 General On-site Cleanup Instructions Using a Data Collection Tool

The following steps (1-11) are useful for cleanup organizers and volunteers to follow in order to make the most out of data collection during a beach cleanup. There are a number of data collection tools available for community science cleanups, for example Ocean Conservancy's ICC data card and Clean Swell app, or the MLW app. It is recommended that whatever tool is chosen, the cleanup group should take time before the cleanup to familiarize themselves with the specific methodology and instructions for the data collection.

1. It is easiest to clean in small teams of anywhere from two to six volunteers, with one data collection tool per group. Each group of volunteers with a data card will need a writing implement, and preferably a clipboard or hard surface to write on.

2. Designate a data recorder for the group. Volunteers within a group can also take turns with this role. Before the cleaning even begins, the data recorder should fill in information for #3-5 below. The data recorder is welcome to put their name and email on the data collection tool, in case the beach cleanup organization has any further inquiries about the data.

3

REQUIRED. Fill in the **Site Information**: *(Note: When using an app, these fields might not be needed, as GPS is usually used to automatically pinpoint the cleanup location)*

- Cleanup Site Name – *this could be a beach name, a town or village, or a close mailing address. Anything that will help tag the cleanup data collected to a specific location (longitude and latitude).*
- State or Province
- Zone or County
- Country
- Nearest crossroad or landmark
- **VOLUNTARY.** Mark the type of environment you are cleaning (sand, rocks, etc.)

4

REQUIRED. Fill in the **Number of Volunteers** working on the data collection tool, including the data recorder. The following additional information is helpful to include for further data disaggregation (Note: If this field is not available in your data collection tool, there may be a comments section where you can add this information):

- Number of Adults
- Number of Children under the age of 12
- Gender of all participants: (#male/#female/#other)

5

REQUIRED. DATE OF CLEANUP. Please fill this in and if a particular site is cleaned more than one day, please report each day separately, with a data card for each cleanup day or two separate entries on a cleanup app.

6

ITEM-COUNT DATA: As the cleanup begins, the data recorder can read and follow the instructions on the data collection tool, demonstrating how to keep tally of each trash category. We can only input quantity (a number) into the database, so DO NOT put words like "a lot" or "many."

> ***TIP:*** *The recorder can familiarize themselves with the types of trash categories the team will track and can ask other volunteers in the group to simply call out the items they are removing from the environment. For example, a teammate may call out "4 food wrappers" or "2 balloons" and the recorder can add those tally marks to each category on the data collection tool. If an item does not appear on the data collection tool, volunteers should still collect and dispose of it properly. They can also note items like this in #7 below.*

7

OTHER ITEMS NOT LISTED: *(Note: If this field is not available in your data collection tool, there may be a comments section where you can add this information)* Most data collection tools have a dedicated space for volunteers to note other items that are not part of specific categories tracked on that tool. Basically, this is a space to put other trash found. The recorder should describe the item AND provide the quantity collected by the group (for example, "toothbrushes = 19" or "metal food cans = 4").

8

A NOTE ON TINY TRASH: *(Note: If this field is not available in your data collection tool, there may be a comments section where you can add this information)* This section allows volunteers to mark tiny trash defined as 2.5 cm or smaller (meso-litter), if feasible. On the ICC data card, there is a circular size gauge to help volunteers recognize what is considered "tiny trash", which can be useful to include in data collection tools. This can be a hard category to track since tiny trash is often found in the hundreds or thousands at a beach cleanup site. We encourage volunteers to use their best guess and it can be helpful to count how many are in one handful and then simply multiply that by handfuls to get an estimate on the total count.

9

MOST UNUSUAL ITEM COLLECTED: *(Note: If this field is not available in your data collection tool, there may be a comments section where you can add this information)* This can be saved for after the cleanup is complete and is an optional field for the group to note any interesting, strange or unusual items collected.

10

TOTAL YOUR CATEGORIES: When the cleanup has ended and a paper data card is being used, the data recorder should total each trash category and write that total number to the right of each category. When using a data collection app, the total number will most likely be calculated automatically.

11

CLEANUP SUMMARY: Most data collection tools will have a space for key summary metrics needed, including:

- **REQUIRED. Distance Cleaned** – At most organized events, the cleanup organizer will have an idea of the distance all volunteers or each group cover. If all volunteers span a track of beach that is 500 meters long, note "0.5 km" in the space. The recorder DOES NOT need to multiply the number of volunteers by the distance covered. We are just aiming to understand the linear distance covered by a beach cleanup event to report progress towards SDG indicator 14.1.1b.
- **REQUIRED. Area Cleaned** – Cleanup organizers may know the exact area that volunteers covered during the cleanup. If not, you can estimate the area covered (miles² or km²) using the distance covered. Assuming each volunteer scans an area of approximately 2 meters/yards in width, you can multiply the distance cleaned by the width using 2 meters or yards per person. For example, if you and a friend did a cleanup together, you collectively scanned an area of 4 meters in width (2 x 2 meters). If you cleaned a distance of 500 meters, your total area covered would be 2 x 2 meters x 500 meters, equaling 2,000 m^2 (0.002 km^2).
- **RECOMMENDED. Number of Trash Bags Filled** – this can be any size of bag and volunteers can note the volume if they would like.
- **RECOMMENDED. Weight of Trash Collected** – most organized events will have a weigh station where volunteers can use a scale to get the exact weight of trash removed, from all bags, buckets, etc. The recorder should note which unit of measure they are reporting in (e.g., pounds or kilograms).

Common Questions & Helpful Tips

DON'T COLLECT NATURAL ITEMS LIKE DRIFTWOOD OR SEAWEED; THOSE MATERIALS ARE SUPPOSED TO BE ON THE BEACH!

WHAT IF THE DISTANCE COVERED BY A CLEANUP EVENT IS UNKNOWN?

At most organized events, the leader will have an idea of the distance all volunteers or each group cover. If cleaning at a beach that is managed, there is likely a staff member who will know the distance of the stretch of beach that volunteers are traversing. If asking an expert is not an option, volunteers or cleanup organizers should use their best judgment and at least write down an estimate of the distance covered. When in doubt, err on the side of smaller distances – it always feels farther when you are carrying a full bag of trash.

WHAT IF I DON'T HAVE A SCALE OR WAY TO ACCURATELY WEIGH TRASH COLLECTED AT MY CLEANUP?

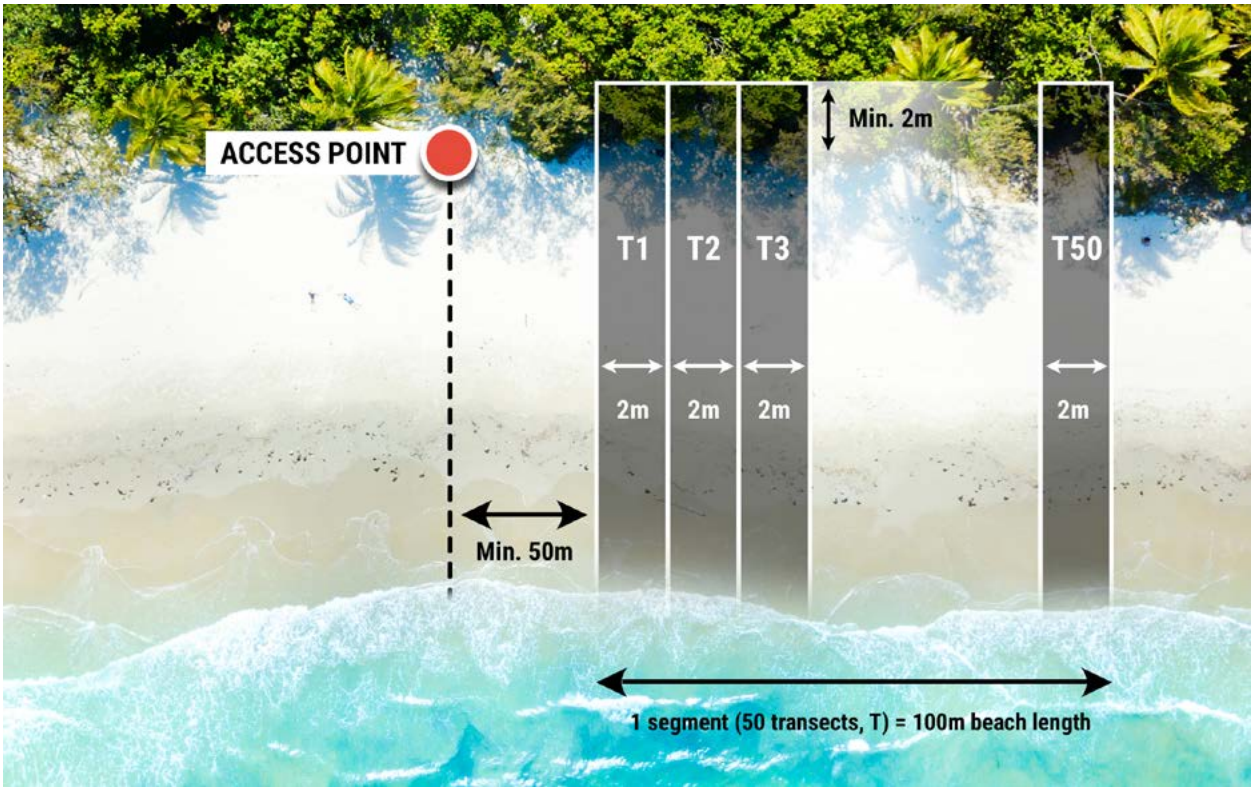
If a scale is not available, you can estimate the weight of the trash bags collected. Based on calculations using historic data, we find that it is safe to assume that **one "full" trash bag of roughly 13 gallons/50 liters equals 10 lbs. or 4.5 kg**. If the number of filled bags is unknown, another safe assumption you can use is **10lbs. or 4.5 kg per volunteer in your group**. Another option: Cleanup organizers can make arrangements with the local waste hauler to weigh all the debris that is collected at that site, and make note of one grand total weight, to be entered into the database.

1.3 Taking it Further: Using Survey Methods to Collect Data with Volunteers

This methodology involves the steps taken in the above instructions with a few adjustments to allow for more thorough data tracking and a more exact calculation of the area cleaned. It is recommended to carry a device to measure distances. Please follow steps 1-10 above along with the following considerations:

SITE SELECTION AND STUDY AREA:

The beach cleanup and data collection should take place in 50 2 m wide transects that are perpendicular to the water's edge, over a total distance of 100 m beach length. The transects should run from the water's edge at the coastline and end at least 2 m into the backshore vegetation, as litter often accumulates in this area. A minimum distance of 50 m should be kept from the point the beach was accessed. If the area is extended and more than 100 m of the beach is cleaned, a minimum distance of 50 m should be kept between the segments. If there are several different habitats or land use types at the site, the segments should be divided proportionally between site types. If several different beach cleanups are organized, they should preferably take place at different sites, to enhance data variability.



Step 11 from the above instructions is modified as follows and should be read **BEFORE** the cleanup starts, to facilitate the measurement of the distance and area:

11

CLEANUP SUMMARY: Leave space for key summary metrics needed for the data collected from that specific group of volunteers. Note:

- **REQUIRED. Distance Cleaned** – The distance is the length of one segment (100 m) times the number of segments cleaned. Example: A group of volunteers cleans 3 segments on one day, so the distance cleaned is 3 x 100 m = 300 m.
- **REQUIRED. Area Cleaned** – The area cleaned is the width of the segment (from the water's edge at the coastline up to at least 2 m into the backshore vegetation) times the length of the segment (100 m). ***NOTE:*** The width can differ between segments, so it is recommended to write down the width of each segment separately and sum up the areas of all segments in the end. Example: A group of volunteers cleans two segments, the first having a width of 7 m and the second having a width of 5 m. The total area cleaned is then (7 m x 100 m) + (5 m x 100 m) = 1,200 m^2 (0.0012 km^2).
- **RECOMMENDED. Number of Trash Bags Filled** – This can be any size of bag and volunteers can note the volume if they would like.
- **RECOMMENDED. Weight of Trash Collected** – Most organized events will have a weigh station where volunteers can use a scale to get the exact weight of trash removed, from all bags, buckets, etc. The recorder should note which unit of measure they are reporting in (e.g., pounds or kilograms).

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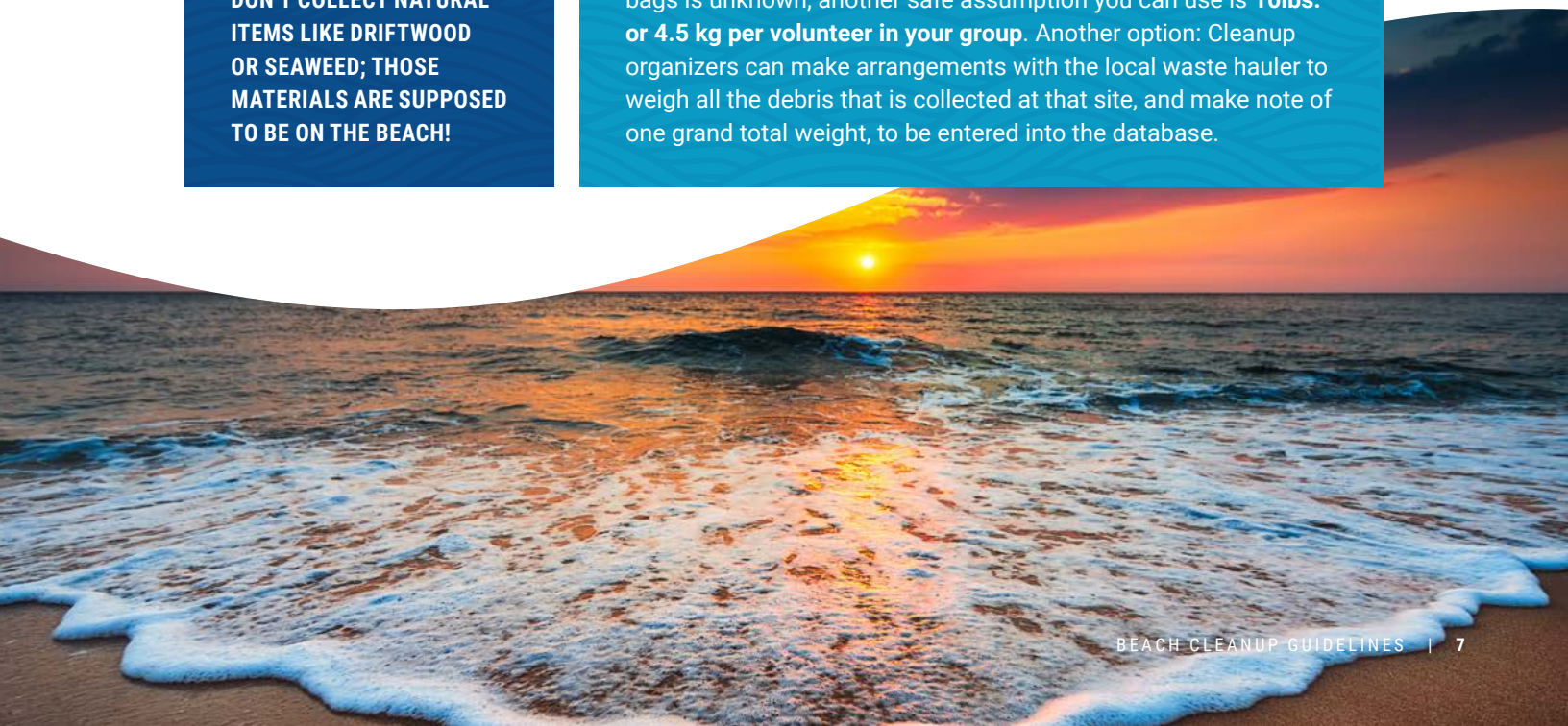

1.4 Submitting Cleanup Data

Depending on the community science methodology that is chosen, volunteers should report their beach cleanup results to the proper organization or group that is managing those data. The following section provides options for reporting cleanup data to Ocean Conservancy's online database, TIDES (Trash Information & Data for Education & Science). This will ensure that data are stored and available for tracking progress on SDG indicator 14.1.1b while also contributing to research, long-term solutions, and multi-stakeholder decision-making processes.

TIDES Ocean Trash Database

Ocean Conservancy works with ICC Coordinators and other partners to ensure that all cleanup data shared with us, regardless of format or time of year, are accurately entered into the online, open-access database TIDES. This system was established in 2015, in tandem with the Clean Swell app. There are several options for how cleanup organizers or volunteers can share their results/data with Ocean Conservancy:

- **CLEAN SWELL APP:** This is the simplest and easiest method because data is automatically submitted to TIDES when the user has completed a cleanup on the app. Within the app there are options for conducting and submitting a cleanup on-site, and a simpler route for submitting data from a past cleanup.
- **MANUALLY ENTER DATA FROM PAPER DATA CARDS:** This is a great option for small cleanups using one or just a few data cards. Anyone can go onto the TIDES database, create a free account, and submit data entries directly into the system. For detailed steps on how to enter cleanup results in TIDES, see Appendix II.
- **BULK-IMPORT DATA:** Cleanup leaders can provide data from multiple cleanups on an organized spreadsheet, to be reformatted into a bulk-import tool and uploaded into TIDES by the Ocean Conservancy data administrators. This option is best for partners who manage many cleanup locations per year or throughout the ICC season, where manually entering each site would be time-consuming.
- **SCAN & EMAIL OR MAIL DATA CARD TO OCEAN CONSERVANCY:** Directions for how to do this are printed on every ICC data card. ICC or data cards in other formats can be emailed to cleanup@oceanconservancy.org and data administrators will enter these into TIDES or work with the sender to reformat other data cards to best-fit into TIDES.

Section 2

Accessing Beach Cleanup Data from TIDES

Data validators, such as National Statistical Offices (NSOs), may retrieve cleanup results from several marine litter datasets or databases, many of which will house the necessary metrics needed to calculate the key measurement for SDG indicator 14.1.1b (average count of plastic items per km^2). This paragraph provides instructions for how to access cleanup data from Ocean Conservancy's TIDES Ocean trash database. It is not meant for volunteers participating in beach cleanup events.

1. All cleanup data received by Ocean Conservancy is entered and stored in TIDES, which can be found at www.CoastalCleanupData.org.

2. In order to access raw data and more detailed reports, you may wish to click "**Sign Up**" in the top right corner and create a free account. This will allow you to see and download more reports.

3. Click "**View Reports**" in the upper right corner of the home page. A map page will load, and you will be viewing cleanup data collected within the past 12 months. Note in the top green bar, you can adjust the date range.

4. If you would like to get a sense of what the reports look like, zoom in on the map (you can use the +/- buttons in the top right corner of the map or your mouse) and orient the map to a location of interest. You'll see the right side of the screen will update with various geographic levels from "Planet Earth" down to specific "Zones", often cities or municipalities. Click on the "+" next to any one of these and the following report options will drop down on a menu:

   - **Summary**
   - **Top Ten Items**
   - **Unusual Items**
   - **Volunteers, Weight, Distance**
   - **Detailed Summary**
   - **Items of Local Concern**
   - **Entangled Animals**

You can download any of these reports as Excel files by clicking the cloud-shaped button at the top of a report, or by scrolling to the bottom and clicking the blue "**Download Report**" button. When looking for the total number of plastic items for tracking SDG indicator 14.1.1b, the Summary and Detailed Summary reports are both helpful. Additional filtering tools can help narrow in on data from a particular group or location. For details on how to use filters on TIDES, see Appendix II (II.2).

Appendix I

Plastic Marine Litter Characterization

I.1 List of Common Plastic Debris Items

Below is a list of commonly found plastic marine litter items that can be reported during a beach cleanup. Different community science cleanup initiatives may have their own unique data collection tools for tracking specific debris items. More detailed marine litter item lists can be found in the **GESAMP Guidelines for the Monitoring and Assessment of Plastic Litter in the Ocean, Annex III**. As it relates to SDG indicator 14.1.1b, the most important metric is the total number of plastic items. However, knowing exactly what those items are is immensely helpful to investigate possible mitigation strategies and policy interventions.

- Plastic Beverage Bottle (Hard)
- Other Plastic Bottle (Hard)
- Plastic Bottle Cap (Hard/Soft)
- Food Container (Plastic/Foam)
- Bucket/Crate (Hard)
- Lighter (Hard)
- Plates, Bowls and Cups (Plastic/Foam)
- Other Hard Plastic
- Personal Care Product (Hard/Soft)
- Lollypop Stick (Hard/Soft)
- Ear Buds (Hard/Soft)
- Bag (Soft)
- Wrapper/Label (Soft)
- Straw (Soft)
- Utensils
- Other Plastic (Soft)
- Cigarette Butts (Soft)
- String/Ring/Ribbon (Soft)
- Fishing Net
- Fishing Line/Lure/Rope
- Fishing Buoys and Floats
- Other Plastic Debris (Foam)
- Other Plastic Debris

I.2 Size of Plastic Debris Items

DEFINITIONS OF MESO-, MACRO-, AND MEGA-LITTER

Meso-litter	Macro-litter	Mega-litter
5 mm – 25 mm	25 mm – 1 m	> 1 m

Appendix II

TIDES Database

II.1 Entering Cleanup Data on TIDES

1. On an internet browser, go to TIDES: www.CoastalCleanupData.org

2. In the top right corner of the home page, it says "**Sign Up**". Please click on that to create an account. It only requires your email address and a password. A section where you can indicate your preference on units of measure is also on this page.

3. After you have created an account and are logged in, click on "**Enter Data**", also in the top right corner of the page. This will take you to a map where you are prompted to find the location where you would like to enter cleanup data. You can search a location in the location search bar at the top of the map just like you would search on Google Maps (it does not, however, accept longitude and latitude coordinates). You can also scroll on the map, to zoom into the location in the world where your cleanup took place.

4. Once you have found where the cleanup took place, click on the map where you want to add your data and select the green "**Enter Cleanup Data**" button. Accidentally click? No problem, just click "**Cancel**" and you will be able to click on a new spot of the map.

5. The map will shrink and a data submission page will appear. Fill in the information from your data card into this form. Please note there are required categories such as cleanup date, number of volunteers, total weight and distance—your report must have at least one recorded item entered in order to submit. If you did not record data on items, please add "1" to plastic pieces—we can guarantee there is a plastic piece in every location where a cleanup takes place!

6. By clicking "**Submit and Finish**" at the bottom of the page, your data will be saved, and you will be brought back to the map screen. A green confirmation bar will show across the top of the page. By clicking "**Submit and Add Another**," your data will be submitted, and you will be brought back to a fresh entry screen to add more data, perhaps from another card to that exact same location.

7. If you would like to make edits to or view your previous submissions, please select "**Enter Data**" in the upper right corner on the home page. On the right side of the screen above the map, select "**Or edit your existing data**" in orange. You will find all your previous entries listed on this page, with the ability to edit or delete any of these entries associated with your TIDES account.

II.2 Filtering for Data on TIDES

DATE FILTER - For the sake of faster page loading, **the map is automatically filtered to show data from the last 6 months only**. You can adjust this using the drop-down menu under "Cleanup Dates". Click on any of the provided date ranges or use the "Custom Range" feature to search for cleanups that took place during a specific day, month, year, etc. This filter can be used in addition to another filter, such as group name, region, or custom shape.

GROUP NAME - If a Group Name was entered into a number of Clean Swell app entries, you can easily search for key words in the "**Group names**" field in the bright green bar above the map. Capitalization does not matter, and the text does not need to be a perfect match to come up in the selection menu. In the menu, you can "Select All" at the top or go through and select any specific names by clicking on them. When you've got all the names you want to see, click "**Filter**" on the green bar and the map will show only entries with those group names you selected. Available reports for any geography will indicate that you have a name filter applied to them.

CUSTOM SHAPE/ "POLYGON TOOL" - If group names or certain prescribed geographic regions don't quite work for the data you are looking to download, you may use the custom polygon tool on the top right corner of the map (this is the grey shape between the little hand and the "clear polygon" buttons). This tool allows you to draw a custom shape around any area of the map that you desire and captures all points within that shape. Simply start clicking on the map and you'll see the tool will start drawing lines for you. Make sure to close off your shape. Any available reports will appear on the right side of the page once you have created your custom zone. You may use this along with the date range, for example, to pull for a specific event in a specific location.

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