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I. INTRODUCTION

A. WHAT IS THE MDMAP AND THE MDMAP DATABASE?

The NOAA Marine Debris Program's (MDP) Marine Debris Monitoring and Assessment Project (MDMAP) is an initiative to collect baseline data and record of the amount and types of debris in the environment. Through regular monitoring of shorelines by dedicated teams of academic researchers and citizen scientists, we can track the progress of existing marine debris prevention efforts and identify targets for mitigation. The MDMAP is possible through the hard work of a network of passionate and devoted partners that coordinate and conduct shoreline marine debris surveys on a monthly basis. To learn more about the MDMAP, visit the Get Started Toolbox at marinedebris.noaa.gov/research/monitoring-toolbox.

The MDMAP Database is the online repository for shoreline marine debris survey data collected according to the MDMAP shoreline survey techniques. The MDP does not accept hard copy or emailed paper datasheets; MDMAP participants are responsible for data entry into the online MDMAP Database. The database was created as a tool to assemble data from various local marine debris monitoring efforts, in order to compile a bigger picture of the issue at regional and national scales. It facilitates data sharing and analysis by making survey data available to researchers, students, and other interested parties.

B. WHAT YOU'LL FIND IN THIS USER GUIDE

Any interested person or organization can act as a citizen scientist and contribute to the MDMAP. The first step in getting involved is to review the tutorials and protocol documents in the <u>Get Started Toolbox</u>. Once you've decided to participate in the MDMAP, review this document to understand the process of translating your data from paper datasheets into an electronic format on the MDMAP Database.

This user guide will walk you through getting started with the database, exploring the MDMAP, entering site and survey data, and exporting your data for analysis. Further, this document describes how to create and submit data on locally-relevant custom debris items, within the framework of the standard NOAA MDMAP datasheet.

II. GETTING STARTED

A. CREATING AN MDMAP ACCOUNT

MDMAP account owners have access to create their own shoreline survey sites, submit survey data and photos from those sites, and/or view and download verified surveys and photos from other users' sites.

- 1. To request access to the database, navigate to: https://mdmap.orr.noaa.gov/.
- 2. Click "Request an Account" (Figure 1).
- 3. Complete the required fields in the form that appears, and submit your information to the database administrators. Once you have completed all fields, a message will appear letting you know that your account request has been submitted and will be reviewed by an administrator.
- 4. Account activation typically takes less than one business day. After receiving an email that your account is active, you can now login to the MDMAP database (https://mdmap.orr.noaa.gov/login). If you do not receive an email after two days, please contact us at MD.monitoring@noaa.gov.



Figure 1. The MDMAP login page.

B. RECOVERING OR CHANGING YOUR PASSWORD

If you've forgotten your password and need to recover it, or if you'd like to change your password for any reason, click "Change Password" at the top right of the screen.

C. LOGGING IN AND OUT

You will be asked to agree to the terms and conditions presented in a pop-up window each time you log in. When you're ready to leave the MDMAP database, please click "Logout" at the top right of the screen.

III. EXPLORING MDMAP

From the MDMAP Homepage, navigate to different tabs using the links at the top left of the screen:



Figure 2. The MDMAP Database Tabs.

The "Home," "Custom Data," "Reporting," and "Resources" tabs are described in sections IV – VII below.

IV. HOME TAB

Monitoring sites that you have created, "Your Sites," are listed at the top of the home page with a site map below. Scroll down to explore "Other Sites," or verified surveys from other users' established monitoring sites.

A. SETTING UP A NEW MONITORING SITE

- Before creating a new site in the MDMAP database, make sure you have a completed Shoreline Characterization Datasheet. Visit the MDMAP <u>Get Started Toolbox</u> for more information and a tutorial for how to complete a shoreline characterization.
- 2. Click "Add a New Site" at the top right of the Home tab (Figure 3).



Figure 3. Click "Add a New Site" to navigate to the Site Creation page (Figure 4).

3. Complete the data fields displayed on the screen (Figure 4). These fields will correspond to the fields on the paper Shoreline Characterization Datasheet. Pay special attention to the field descriptions to the right of the entry spaces. In many cases, the database will return an error if a field is not entered correctly (see Figure 5 below). Note: with the exception of Slope, all data fields must be completed for the database to accept your new shoreline site.

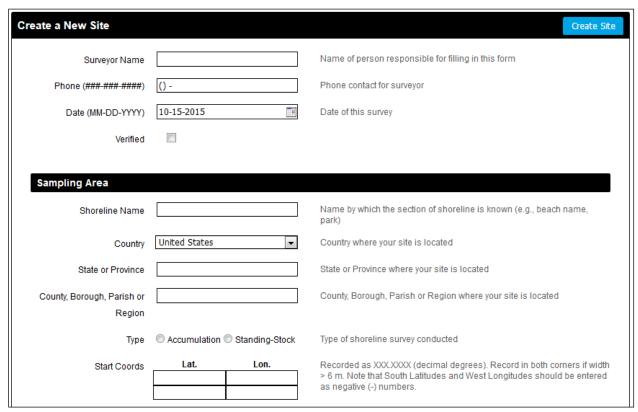


Figure 4. The "Create a New Site" page, modeled after the Shoreline Characterization Datasheet. The rest of the page includes Shoreline Characteristics and Land-Use Characteristics.

- 4. Upload site photos using the "Add New Photo" and browse tool.
- 5. When you've completed all data fields, click "Create Site" at the bottom of the page to submit your site to the MDMAP database. Your site should now be listed in the "Your Sites" table under the Home tab.
- 6. Site creation errors: If the database does not accept your site entry, check the red error message at the top of the screen. Incorrect formatting of site coordinates is a common issue (Figure 5).

Coordinates must be recorded as decimal degrees

Figure 5. The error message that appears when GPS coordinates are incorrectly formatted.

Refer to the <u>Get Started Toolbox</u> Frequently Asked Questions for more information on how to record site and survey coordinates.

B. ADDING A NEW SURVEY TO AN EXISTING MONITORING SITE

Once you've created a site, you're ready to enter and submit survey data.

1. From the Home tab, click on the appropriate survey site listed in the "Your Sites" table (Figure 6).

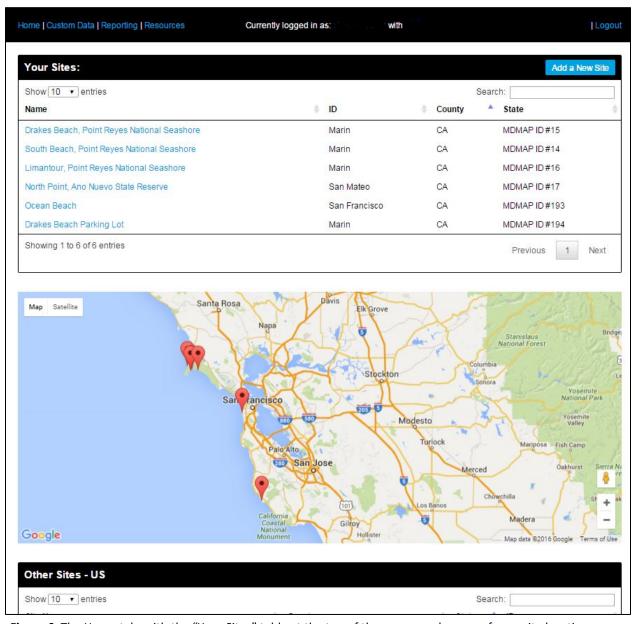


Figure 6. The Home tab, with the "Your Sites" table at the top of the screen and a map of your site locations.

- 2. Scroll down the page beyond the map and site photos to the Surveys table (Figure 7). Note that the surveys in the Survey table can be sorted based on date, surveyor, or ID, using the small gray arrows. For standing-stock sites, surveys can also be sorted by Transect ID. The number of surveys that appear on the page can be changed using the drop-down menu at the top left corner of the Survey table.
- 3. Click "Submit New Survey" at the top right corner of the table.

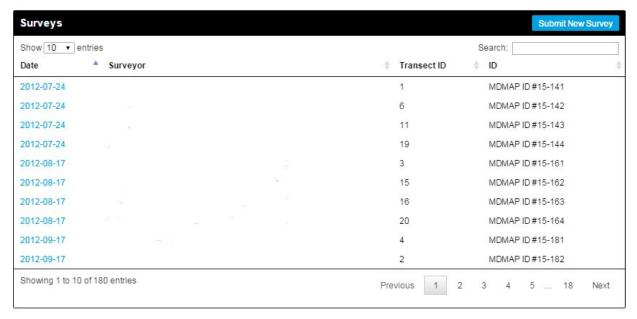


Figure 7. The sortable survey table.

4. You will navigate to the "Create a New Survey" page (Figure 8). The data fields correspond to the fields on your paper Debris Datasheet (either for Standing-Stock or Accumulation, depending on which type of surveys you are completing; refer to the Get Started Toolbox "Protocol Documents and Field Datasheets" section). Pay special attention to the field descriptions to the right of the entry spaces. In many cases, the database will return an error if a field is not entered correctly. Note: with the exception of Time of Low Tide, all data fields in the Additional Information section must be completed for the database to accept your new shoreline site.



Figure 8. The upper section of the "Create a New Survey" page.

- 5. Note that at the bottom of the Additional Information section there is a question "Was Survey Debris Datasheet Version 2.0 used?" This refers to the datasheet version that was used in the field for your survey. Datasheet Version 2.0 has the NOAA logo at the top left corner and the version number is noted in the header. The Rubber: Balloons Latex category was added with datasheet Version 2.0.
- 6. Upload survey photos using the "Add New Photo" and browse tool.

7. Enter your debris quantities under the Debris Data section (Figure 9). It is not necessary to enter "0" (zero) for debris types for which nothing was found. Double check for typos!

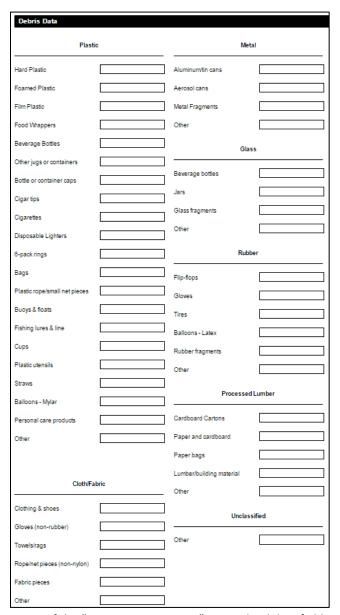


Figure 9. The Debris Data section of the "Create a New Survey" page. The debris fields correspond to debris fields on the paper Shoreline Survey Datasheet.

8. Make sure to record any large debris items in the "Large Items" section at the bottom of the page (see detailed instructions below). If you're using the Custom Debris Items tool, refer to the Custom Data section below.

- 9. When you've filled out and reviewed all fields, click "Create Survey" at the top right or bottom center of the page. Remember that for standing-stock surveys, each transect must be entered as its own survey in the MDMAP database (four transects are surveyed at each site visit).
- 10. Survey creation errors: If the database does not accept your survey entry, check the error message at the top of the screen (Figure 5). Incorrect formatting of site coordinates is a common issue. Refer to the <u>Get Started Toolbox</u> Frequently Asked Questions for more information on how to record site and survey coordinates.

C. ADDING LARGE ITEMS

As on the Debris Datasheet, large debris items (those items larger than 30 cm or about 1 foot in any dimension) are recorded in a separate section of the survey entry page.



Figure 10. The Large Items section of the "Create a New Survey" page.

- 1. Scroll down to the Large Items section and click "Add Large Item" (Figure 10).
- 2. Data entry fields will appear (Figure 11). Large items are classified the same way as smaller debris, by material type and subtype. Select the debris material type in the first drop-down menu, and subtype in the second. If your survey had more than one of the same item with similar dimensions, the Count field will allow you to file those under the same entry. Enter the item dimensions (width and length in meters), status (e.g., buried, stranded, sunken), and description. Optionally upload a photo from your computer using the browse tool.

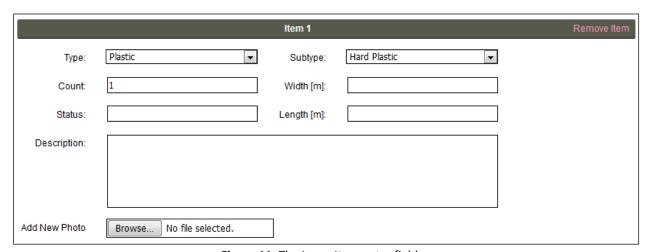


Figure 11. The Large Item entry fields.

3. Additional Large Items can be entered by clicking the "Add Large Item" button. Large items can be removed by clicking "Remove Item" to the right of the header.

D. EDITING SITES AND SURVEYS

Site Characterizations and Surveys can be edited at any time. Site Characterizations should be reviewed and updated once per year.

- 1. Navigate to the Site or Survey you would like to edit.
- 2. Click "Edit Site" or "Edit Survey" at the upper right of the screen. The data fields will open for editing.
- 3. When you've made the necessary changes, click "Update Survey" to save the changes.

E. DELETING SITES AND SURVEYS

If you need to delete a shoreline site, contact us at MD.monitoring@noaa.gov. Surveys can be deleted at any time.

- 1. Navigate to the survey you would like to delete.
- 2. Click "Edit Survey" at the upper right of the screen.
- 3. Click "Delete" at the upper right of the screen.

F. BROWSE MONITORING SITES AND SURVEYS (NATIONAL AND INTERNATIONAL)

From the Home tab, it is possible to scroll down to explore the "Other Sites" tables, which include verified surveys from other users' established monitoring sites (Figure 12). The first table presents "Other Sites – US" and the second table presents "Other Sites – International". Search for sites by using the field at the upper right side of the table, or sort the sites by site name, county, state, or ID, using the small gray arrows. The size of the table can be changed using the drop down menu at the upper left of the table.

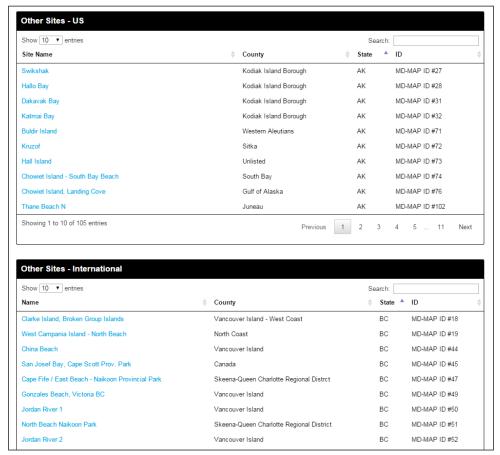


Figure 12. The "Other Sites" tables.

V. CUSTOM DATA TAB

The Custom Data tab is where users can add unique debris types to their datasheets within the framework of the debris types on the standard datasheet. This feature will allow users to track data on debris items that may be locally relevant but are less common on a national scale. For example, a common debris item in Alaska is plastic strapping bands. Although NOAA does not include "strapping bands" on the standard debris data sheet, a user could define it as a custom debris item under the parent category "Plastic – Other". Custom debris item data can be exported as a separate report – see "Reporting Tab" below.

Because of the extra effort required to track custom items in the field and to accurately record the data in the database, the creation of custom items should be carefully considered and may not be a feature you decide to use.

1. Click on the "Custom Data" tab at the top of the screen. Review the instructions and click "Setup your first custom data field" (Figure 13).

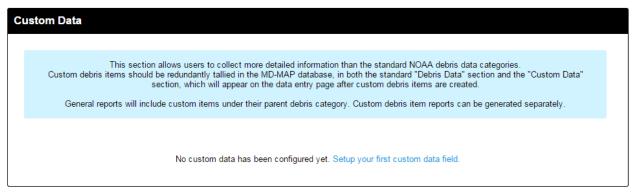


Figure 13. The "Custom Data" tab.

2. Select the parent item material type and subtype from the drop-down menus (Figure 14). Enter the custom debris item name (e.g., strapping bands). Click "Create".

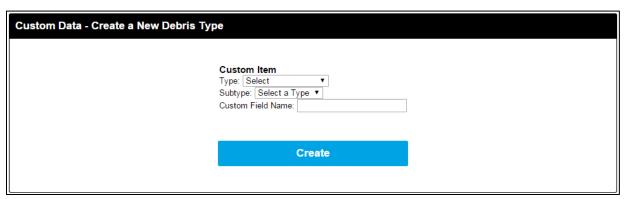


Figure 14. The custom item creation page.

3. Once the custom item has been defined and created, a new Custom Data entry section will appear on your survey creation page, below the Debris Data section. In the example below, the user has defined two custom debris items: Hard Plastic – shotgun casing and Hard Plastic – oyster farming debris.

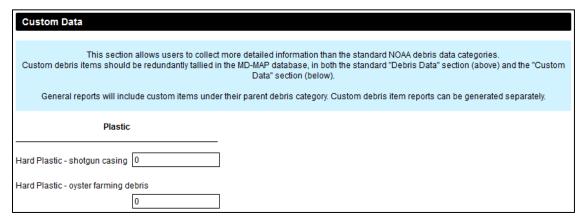


Figure 15. The custom item data entry field on the "Create a New Survey" page.

4. As explained in the blue text box shown in Figure 15, custom items need to be tallied redundantly in the Debris Data and Custom Data sections of the survey entry page. That is, they must be tallied under their parent category AND as a custom debris field. Table 1 provides a quick reference for how to record Standard, Large, and Custom Items:

Table 1. Items are recorded in different sections of the "Create a New Survey" page based on debris type and size.

Debris Type	Size	Where to Record
Standard items	Between 2.5 cm – 30 cm	Debris Data
Standard Items	Larger than 30 cm	Large Items
Custom Items	Between 2.5 cm – 30 cm	Debris Data AND Custom Data
Custom Items	Larger than 30 cm	Large Items AND Custom Data

VI. REPORTING TAB

Monitoring survey data can be downloaded as CSV files from the Reporting page. As of the publication of this user guide, there are five different types of reports: Accumulation (Flux Data), Standing-Stock (Concentration Data), Standing-Stock (Raw Data), Large Items, and Custom Items (Figure 16).

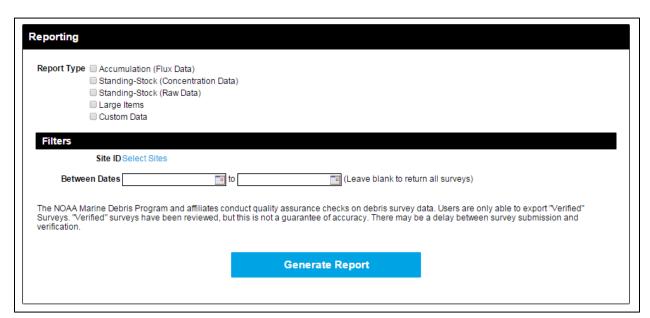


Figure 16. The Reporting tab.

All reports include ancillary survey information as well as debris data in raw counts for each individual debris type, material type, and total debris. In addition, accumulation and standing-stock reports calculate the debris flux (for accumulation surveys) and debris concentration (for standing-stock surveys). These automatic calculations speed up the data analysis process. To create a report, follow the steps below.

1. First, determine what report type is desired, based on the survey type and debris category of interest (Table 2).

Table 2 Items are included in	different report types	based on debris type and size.
rable 2. Items are included in	unicient report types	based off debits type and size.

Debris Type	Size	Report Types
Standard items	Between 2.5 cm – 30 cm	Accumulation (Flux Data) report
Standard Items	Larger than 30 cm	Accumulation (Flux Data) AND
		Large Items Only reports
Custom Items	Between 2.5 cm – 30 cm	Accumulation (Flux Data) AND
		Custom Data reports
Custom Items	Larger than 30 cm	Accumulation (Flux Data) AND
		Large Items Only AND Custom
		Data reports

For example, let's assume that a user recorded a large plastic rope from an accumulation survey site. The large plastic rope would be counted in the Accumulation (Flux Data) report under plastic – rope/net AND the Large Item Only report. See below for an overview of the report types:

- Accumulation (Flux Data): This report type includes data on all items larger than 2.5 cm from accumulation survey sites. Debris data is reported in terms of item tallies and flux.
 - O Accumulation surveys (debris removal) allow for the calculation of the flux of debris onto the shoreline in units of # of items/ m^2 /day.
 - Accumulation reports include data for all debris items, including large and custom items (Table 2).
 - o To calculate debris flux, the database uses debris counts, the number of days since the previous survey, and the total area surveyed (based on shoreline length and width). No flux is calculated for the first survey date.
 - o The shoreline width that is measured at each survey is essential for calculating debris flux.
 - The exported report has one record (row of data) for each survey date. Debris counts and fluxes are provided for each individual debris type (e.g., beverage bottles), material type (e.g., plastic), and total debris.
- Standing-Stock (Concentration Data): This report type includes data on all items larger than 2.5 cm from standing-stock survey sites. Data is reported in metrics of item tallies and concentrations for a given survey date (i.e., an overall concentration compiled from each transect surveyed that date). For more information on the standing-stock survey protocol, refer to the "Protocol Documents and Field Datasheets" section of the Get Started Toolbox.
 - O Standing-stock surveys allow for the calculation of the concentration of debris present on the shoreline in units of $\#items/m^2$.
 - Standing-stock reports include data for all debris items (including large and custom items, Table 2).
 - For each survey date, debris concentrations are calculated by:
 - Calculating concentrations for each individual transect surveyed (a minimum of four per survey)
 - Taking the mean of the concentrations at each transect to calculate an overall site concentration (+/- standard deviation) for that date

- The shoreline width that is measured at each transect is essential for calculating debris concentrations.
- The report has one record (row of data) for each survey date. Debris counts, concentrations, and standard deviations are provided for each individual debris type (e.g., beverage bottles), material type (e.g., plastic), and total debris.
- Standing-Stock (Raw Data): This report type includes data on all items larger than 2.5 cm from standing-stock survey sites. Data is reported in terms of item tallies for a given transect (*not* an overall concentration compiled from transects surveyed on the same date).
 - The report has one record (row of data) for each transect. Debris counts are provided for each individual debris type (e.g., beverage bottles), material type (e.g., plastic), and total debris.
- Large Items (only items larger than 30 cm): Large Item reports have one record (row of data) for each large item recorded.
 - o Large Item reports only provide debris information; flux or concentration is not calculated.
 - Remember that large items are also incorporated into flux and concentration reports.
- **Custom Data (custom items of any size):** Custom Data reports have one record (row of data) for each custom item per survey or transect.
 - o Custom items are defined by the user, as described above.
 - Custom Data reports only provide debris counts. If no custom items are recorded, a value of 0 is reported.
- 2. Select the desired report filters. Report filters allow the user to select which shoreline sites to pull data from and select a date range. Leaving the date fields blank will return data for all survey dates.
- 3. Verified Data: The NOAA Marine Debris Program and affiliates conduct quality assurance checks on debris survey data. Only "Verified" survey data may be exported. Verified surveys have been reviewed, but this is not a guarantee of accuracy. There may be a delay between survey submission and verification. When a verified shoreline site or survey is edited, it becomes un-verified until it is reviewed.
- 4. Click "Generate Report." A new screen will appear; click "Download" to download your report as a .csv (text) file within a zip file (Figure 17).
- 5. Check out the Data Analysis Templates in the <u>Get Started Toolbox</u> for a quick and easy way to visualize your data.

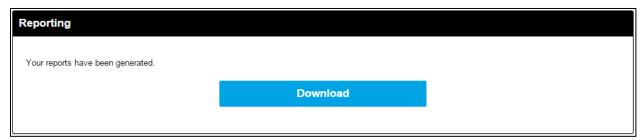


Figure 17. The report generation page.

VII. RESOURCES TAB

The "Resources" tab is where you can access and download this user guide. Metadata files (PDFs) are also available for download, according to report type.

If you still have questions about the MDMAP database after reviewing this guide, please reach out to us! Clicking the "Contact Us at MD.monitoring@noaa.gov" link will open a new window to compose an email using your default mail browser.

Resources Contact Us at MD monitoring@noaa gov MDMAP Database User Guide (pdf) MDMAP Metadata document (pdf) Get Started Toolbox Toolbox Toolbox Toolbox

Figure 18. The "Resources" tab.



Penny Pritzker United States Secretary of Commerce

Dr. Kathryn D. Sullivan Under Secretary of Commerce for Oceans and Atmosphere

Dr. Russell Callender Assistant Administrator, National Ocean Service