

FRRP Disturbance Response Monitoring Data Entry Protocol

DRM Transect Data Entry

Starting in 2018, the coordination and management of the Florida Reef Resilience Program's Disturbance Response Monitoring program transitioned over to the Fish and Wildlife Research Institute's Coral program. With this transition, FWRI developed a new FWC-hosted DRM website to access the new online data entry system (<http://ocean.floridamarine.org/FRRP/>). The data entry portal can be accessed from the website on the 'Survey Sites' page once a surveyor has created an account and logged in.

Also included on the DRM website is a 'Home' page with background information, a 'Reports' page where historic DRM data can be downloaded, as well as a 'Surveyor Trainings and Resources' page that provides links to download DRM training modules, surveyor resources, and annual Quick Look Reports from past survey events. This 'DRM Data Entry Protocol' document as well as the 'DRM Website and Data Entry System' training module (Lesson 6) are available for download on the 'Surveyor Trainings and Resources' page.

DRM transect data should be entered into the DRM online data portal by the deadline, typically one week after surveys have ended. A data entry deadline is provided to all surveyors at the beginning of each DRM survey season. QAQC of all DRM data should be performed by the surveyor prior to and after online entry.

The data entry system has been modified for the 2020-2022 seasons to accommodate the new in-water methods and better validate data fields. Please review this document or the data entry system training module prior to data entry.

DRM Data Portal New User Registration and Account Access

To access the data entry system, a surveyor must first register as a new user by clicking the '**Log in**' link at the top right of the DRM webpage. Enter your information and create a password.

- Choose your User Role based on whether or not you are a Team Leader for your organization. If you are not a Team Leader, you will choose 'Surveyor' in the dropdown menu.
- Choose the 'Team' or teams you are associated with or will be diving with to complete DRM surveys. If you know you will be diving under more than one team, you can select more than one at this time. By selecting multiple teams, you will be able to enter data for sites assigned to both teams.
 - If you dive with another team but did not originally register with that team, contact Jennifer Stein (Jennifer.Stein@MyFWC.com) to add the team to your account.

Data Entry

Site and Transect Details

Once you are logged into your account you will be directed to the 'Survey Sites' page of the website. You will see a map of south Florida and below it, a list of DRM sites assigned to your team(s). You may also

view your list of sites by clicking the ‘[Survey Sites](#)’ link in the menu bar at the top of the page if you are already logged into your account.

- If you visit a site and **no suitable coral habitat was found**, please record this in the data entry system. First, from your list of sites, click the appropriate Site Code to access the Site Details page. The Site Code can be clicked either in the map at the top of the ‘Survey Sites’ page or in the list of sites below the map. In the upper left-hand corner of the Site Details page check the ‘[Unsuitable coral habitat?](#)’ box and then press ‘[Save](#)’. This box can only be checked while in the Site Details page.
 - If the ‘[Unsuitable coral habitat?](#)’ button is selected and saved, the site will appear as *****#####** in your site list.

To enter transect data, find the correct site number and then click the ‘[T1](#)’, ‘[T2](#)’, ‘[T3](#)’, or ‘[T4](#)’ link to the right under the ‘[Transect #](#)’ columns to enter data for the transect you surveyed. Four transects should be entered per site.

- Within the T1 and T2 data entry pages, there will be five section headings (**Site Details**, **Transect Details**, **Rugosity Measurements**, **Juvenile Coral Tallies**, and **Coral Details**). Each section will have a [+] or [-] sign next to it that will expand or collapse that section from your view. The first two sections are automatically expanded when you access the page to make sure you remember to fill them out first.
- If the survey was conducted at the original site coordinates, then no action is required to overwrite the original coordinates. However, if a new location was selected within the 25m radius surrounding the original coordinates, the new coordinates can be entered by clicking the ‘[Overwrite coordinates](#)’ button under the ‘**Site Details**’ heading in the transect data entry page. This will prompt a pop-up box to enter in your new latitude and longitude. Please use **decimal degrees** when entering in your new coordinates.
- If you enter new coordinates for a site that are greater than 25 meters from the original coordinates, you will be prompted to enter your data as a ‘Strategic Site’ since the data comes from outside of its originally assigned cell.
 - To enter a Strategic Site click on ‘[Survey Sites](#)’ on the main menu at the top of the page and you will be directed back to your list of sites. At the top left of the screen just above the map, is the ‘[Add New Strategic Site](#)’ button. Once you click the button, you will be prompted to enter the coordinates, region, and team of your Strategic Site. You may also enter in any comments for your personal information. **Once you press ‘Save’, the data entry system will create your Strategic Site and assign it a new Site Code starting in the 3000’s. Write this new number on your datasheet so that you know which of your sites was reassigned a new Site Code.**
 - If you are prompted to enter your data under a new Strategic Site after verifying your coordinates at an originally assigned site, be sure to mark that site as ‘Unsuitable coral habitat’ as described in a previous section of this document.
- From the ‘**Habitat**’ dropdown menu, select the habitat type that best describes the area you surveyed (Isolated Reef, Contiguous Reef Spur and Grove, Contiguous Reef Other, or Reef Rubble).

- Below the ‘**Site Details**’ in the ‘**Transect Details**’ section of the transect data entry page, enter the date of your survey by clicking the calendar icon and selecting the date from the pop-up.
- Enter in the depth of your transect in feet. Use only whole positive integers.
- Click either the ‘**Yes**’ or ‘**No**’ button next to each species of special concern (Healthy (H) *Diadema*, Diseased (D) *Diadema*, APAL, ACER, DCYL) to identify if they were present (Yes) or absent (No) from the area surrounding your transect.
- Within the ‘**Comments**’ box a surveyor can add any personal notes about their survey. This information will not be used for any analyses once data entry is complete.
- If during your survey, another diver helps you complete a transect, please click the ‘**Shared?**’ button and then identify who shared the transect data collection with you (Buddy).
- Within the T3 and T4 transect data entry pages, there will only be three section headings (**Transect Details**, **Juvenile Coral Tallies**, and **Coral Details**). Site Details and Rugosity Measurements will not be entered for T3 and T4. Enter in the date and depth measurement from either Transect 1 or 2 within the Transect Details section.
- If you survey a transect and no corals (**adult or juvenile**) were observed, it must be identified in the data entry system. First, click the ‘**T1**’, ‘**T2**’, ‘**T3**’, or ‘**T4**’ link under the ‘**Transect #**’ columns depending on which transect you surveyed at a site. Enter in the date and depth for the site. Then click the ‘**No corals found**’ box just above the ‘**Comments**’ box on the right-hand side of the ‘**Transect Details**’ section. Once the box is clicked, then press ‘**Save**’. **This action is especially important for Transects 3 and 4 that are limited to a select number of adult coral species.** The ‘No corals found’ distinction is important when calculating density values at a site.

Shared Transect

If another diver helps you complete the survey on your transect, you will both need to enter data for that transect. If you and the other diver who helped you complete your transect are on the same team, then you will both have access to the data entry for that site. One diver will enter the data they collected along with the site details, transect details, and any rugosity measurements they collected. The other diver will enter their data through the ‘Edit’ feature. The ‘Edit’ feature allows you or another surveyor from your team to add data to your transect. **The ‘Edit’ feature will be covered in a following section of this document.**

If the diver who helped you complete your transect is from another team, they will need to be added as a member of your team so that they can access and ‘Edit’ the transect information. If you need to be added to another team for data entry purposes, please contact Jennifer Stein (Jennifer.Stein@MyFWC.com).

Rugosity Measurements

Rugosity measurements will be collected along transects T1 and T2 at a site. Enter each of your 10 rugosity measurements in the corresponding boxes beside each number. Each numbered box corresponds to each square meter of your 10 x 1m belt transect. Measurements should be entered in centimeters.

Juvenile Coral Tallies

Juvenile coral tallies will be entered into the boxes next to the three target coral families or *Montastraea cavernosa* species. Juvenile corals are tallied along all four transects. Data entries must be whole positive numbers. Zero values can be entered if no juvenile corals of the target families were observed. If no data is entered, values will default to zero.

Coral Details

In the following section, you will learn how to enter coral data collected along your belt transect. The data columns in the online data entry system are in the same order as they are on the DRM transect datasheet.

In the box provided under ‘**Number of rows:**’ enter the number of corals recorded along your transect then press the ‘**Add**’ button and the system will provide the same number of rows for you to enter data. Or, if you would like to add rows as you go, add in the number of rows you would like each time and the system will add rows accordingly at the bottom of the data you have already entered.

When entering your coral data into the rows, you can hover your cursor over the column headers and a pop-up text box will appear for information about the acceptable values. The Tab key on your keyboard will move your cell selection to the right. Press Shift and Tab key at the same time to move your cell selection to the left.

- **Within the ‘Species’ column, click the space bar on your keyboard to display the dropdown selection of species codes.** Either enter the four-letter species code for the colony recorded or scroll down the list and press Enter to select the appropriate code and Tab to move to the next cell.
 - Species codes are the first letter of the genus followed by the first three letters of the species; for example, *Acropora cervicornis* would be entered as ACER. If a colony can only be identified to genus, use the first four letters of the genus; for example, *Mycetophyllia* sp. would be entered as MYCE. If you are unsure of the correct code, type the first letter of the genus and all codes beginning with that letter will show up in a drop-down selection.
 - Transects 3 and 4 adult coral species codes are limited to 10 coral species. Those codes are as follows: CNAT, DSTO, DLAB, MMEA, MANG, MALI, MFER, MLAM, PCLI, and PSTR.

- As you tab to the right, the zero values in the numeric columns (**Width, Height, % Old Mort, % Other Rec Mort, % Disease Rec Mort**) will be highlighted so that you can enter a value without having to delete the zero. If you tab across these columns, those values will remain as zero.
 - At least one of the **Width** or **Height** columns must contain a value greater than 4cm. If the coral you recorded does not meet the 4cm minimum size requirement, you will receive an error message when you press the ‘Save’ button. The error message will direct you to the exact row where the error occurred.
 - When entering your % Mortality data, all three mortality columns (**%Old, %Other Rec Mort, %Disease Rec Mort**) must not total to more than 100%.
 - If a coral is encountered along your transect that has no living tissue but does have some percentage of recent mortality from disease, it can be entered into the online database. In this case, your % Mortality data would equal 100%.
 - If a coral has 100% old mortality, it should not be recorded on your transect and the data entry system will prompt you that it is an invalid entry.

- When you tab into the text columns ‘**Bleaching**’ or ‘**TL Rate**’, you can enter the first letter of code and it will autofill the cell. These text columns can only contain one entry code and will only allow a selection from the pre-defined codes. The pre-defined codes are as follows:
 - Bleaching Codes: P = Pale; PB = Partial Bleaching; BL = Bleached
 - TL Rate Codes: FA = Fast (>1cm); SL = Slow (<1cm)

- The ‘**Disease Condition**’ and ‘**Other Condition**’ columns can have more than one entry but will only allow a selection from the pre-defined codes. Once you have tabbed into the conditions columns, type the first letter of the desired code and a list of codes will display. You can either type all the letters of the code or arrow down to select it from the dropdown. Once your code is highlighted press the Enter key on your keyboard to select it. You must press the Enter key or select the code with your cursor in order for the code to be selected. If you choose to select more than one code, press the Enter key again and begin typing your next code or simply click in the box using your cursor. If you choose to delete a code from one of the conditions cells, click in the cell and then click the “X” to the right of the code you wish to delete. Condition codes are as follows:
 - Disease Conditions: UNK = Unknown Disease; **STL = Stony Coral Tissue Loss Disease**; WPL = White Plaque Disease; WBD = White Band Disease; WPX = White Pox Disease; RTL = Rapid Tissue Loss; DSD = Dark Spot Disease; YB = Yellow Band Disease; BB/RB = Black Band or Red Band Disease; DC = Discolored.
 - Other Conditions: PRD = Predation; OGI = Overgrowth and Interaction; ABR = Abrasion; SC = Sediment Cover; CLN = Clionid sp.; MUC = Mucus Sheathing; **OUK = Other Unknown Condition**.

- If any ‘**% Disease Recent Mortality**’ is observed, the ‘**TL Rate**’ and ‘**Disease Condition(s)**’ columns **MUST** be filled in. If any ‘**% Other Recent Mortality**’ is observed, the ‘**Other Condition(s)**’ column **MUST** be filled in.
 - Disease Conditions Dark Spot Disease (DSD) and Discoloration (DC) do not need to have any ‘**% Disease Recent Mortality**’ associated with the coral to be entered into the ‘**Disease Condition(s)**’ column. If any ‘**% Disease Recent Mortality**’ is entered, DSD and/or DC cannot be appropriate ‘**Disease Condition**’ entries since they do not result in tissue loss.
 - Disease Conditions Rapid Tissue Loss (RTL), White Band Disease (WBD), and White Pox Disease (WPX) are diseases found only on Acroporid coral species. These disease conditions can only be entered into the ‘**Disease Condition(s)**’ column if the species code entered is ACER (*Acropora cervicornis*), APAL (*Acropora palmata*), APRO (*Acropora prolifera*), or ACRO (*Acropora* sp.).

- To delete an entire row from your dataset, click the ‘**Delete**’ button in the last column to the right within the row you wish to delete.

- When you have completed your data entry or if you need to leave the data entry to return at a later time, click the ‘**Save**’ button located both at the top and bottom right of the data entry screen. In the following section you will learn how to edit your saved data, delete an entire transect, and mark your data entry as complete.

Saving, Editing, and Resetting Data Entries

If you begin entering your transect information or coral data and cannot complete the data entry at that time, press the ‘Save’ button. **Once you have entered and saved data for a transect, the link to that transect will no longer appear in the Survey Sites page.**

When you are ready to continue entering data for that transect or would like to go back to edit your data, click on the ‘**Site Code**’ link on the Survey Sites page. This will take you to the ‘Site Details’ page, a read-only screen where you can view your data. On the read-only page under the ‘Transect Details’ heading you will see a row for each transect that has data entered. At the end of the row is an ‘**Edit**’ link that will take you back to the transect data entry page for that transect. There you can continue entering data or edit your existing data.

- If you shared a transect with another diver, they will use the ‘Edit’ feature to add their data to your data entry for that transect.

When you have completed your data entry for a transect it is important to thoroughly review your data to identify any errors or missing data. This can be done by viewing your data in the read-only screen when you click on the Site Code or within the data entry page for that transect.

If you decide that you need to start your data entry over for a transect or if you accidentally entered data under the wrong transect or even the wrong site, you can ‘**Delete**’ or reset a transect. To reset a transect, click on the ‘**Site Code**’ link on the Survey Sites page. Under the ‘Transect Details’ heading at the end of each transect row, you will see a ‘**Delete**’ link. Once you click **Delete** all transect data will be reset and that transect link will reappear in your list of sites as having no data entered.

Once data from **ALL** transects has been entered and reviewed for errors, it can be marked as ‘Complete’ in the data entry system. On the Survey Sites page, click on the appropriate ‘Site Code’ to access the read-only page of your data. At the top left of the screen is a ‘**Complete?**’ check box that identifies that no further action is needed for that site. Once the ‘**Complete?**’ box has been checked, press the ‘**Save**’ button at the top right of the screen.

- If the ‘**Complete**’ button is selected and saved, the site will appear as *****#####** in your site list.
- Please be sure to thoroughly review your data entries before marking a site as ‘Complete’.

Data Backup and Scanning Datasheets

Once surveys are complete, all surveyor datasheets should be scanned and emailed to Jennifer Stein (Jennifer.Stein@MyFWC.com). Scanned datasheets will be used during the comprehensive data QA at the end of the season. Surveyors can choose to scan and email datasheets periodically throughout the season or all at once at the end of the season. The deadline for scanned datasheets is the day after the data entry deadline that is provided to all surveyors at the beginning of the season.

When emailing scanned datasheets, they should be separated into files by 1) surveyor and 2) day. Files can be named using the surveyor’s last name and date of survey. **If your data was assigned a ‘Strategic Site’ number, be sure to transcribe the new site code on your datasheet before scanning.**

It is important to keep a backup of your data for your own personal records in the case of an unfortunate loss of online data. It is recommended that all surveyors save their original datasheets until January 1st of

the following year. It is also recommended that scanned copies of datasheets or pictures of datasheets be kept in personal files as backup.

Photo Labeling and Storage

If a surveyor feels that the condition of a coral is not well defined by the data recorded on their datasheet or if there is an unknown disease condition that is inconsistent with other observations, they can choose to take a photo for better documentation. Photo documentation of unknown coral conditions are encouraged.

In addition, if a surveyor has any question as to what species they are recording, take a picture so that it can be discussed with the rest of your team prior to online data entry. Or, if any question remains after discussing with your team, please email an image of the coral under question to Jennifer Stein (Jennifer.Stein@MyFWC.com) to assist and provide input.

***OneDrive* for Disturbance Response Monitoring Images**

An FWC-hosted *OneDrive* folder has been created for uploading images collected during DRM surveyors. The *OneDrive* folder will act as the central repository for sharing images among the DRM partners. The 'DRM 2022 Images' *OneDrive* folder will be shared with any partner that wishes to upload images. Please email Jennifer Stein to request access and you will be emailed a link and granted permissions to upload project related images. A link to the *OneDrive* folder will also be on the DRM website on the 'Surveyor Trainings and Resources' page however, you will not be able to access the folder until you request permissions.

Prior to uploading images to the folders, a photo release form must be signed by a Team Lead and then uploaded to the *OneDrive* folder. A blank photo release form is provided in the *OneDrive* folder for each team to fill out and upload back into the folder.

Photo Labeling Instructions:

Prior to uploading images to the 'DRM 2022 Images' folder, please label photos according to the below instructions.

- Label Format: 'DRM Site Code_Transsect#_Date_Last name of photographer'
 - **Example:** 1002_1_9-12-20_Stein (1)
1002_1_9-12-20_Stein (2)
1002_1_9-12-20_Stein (3)
Ect.
- *It may be helpful to take a photo of your underwater datasheet and then a picture of the colony that you want to capture. This will help with post-dive photo labeling.
- If there is a diver(s) captured in your photo that you would like to recognize, please put their last name ***after*** the photographer's last name.
 - **Example:** 1015_4_9-12-120_Stein_Huebner

- If there is additional citation, captions, or descriptive information that you would like to accompany your photos please include them in a separate word document and upload to the *OneDrive* folder.

Questions

Please contact Jennifer Stein with DRM questions or issues with the data entry system.

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