Welcome to MERMAID!

MERMAID is an online-offline web application for coral reef data collection. Our mission is to develop field-ready technologies for scientists that accelerate the transformation of data to decisions for coral reef conservation. Our vision is a world where coordinated and collaborative scientific information is used for rapid evidence-based decision making to protect and manage coral reefs

We save you time so you can save coral reefs

WWF

WCS

The MERMAID Workflow

Sign up and set up your project

ONLINE

Sign up for a MERMAID account

Set up a project and add other users

Prepare for offline use

Collect

ONLINE and OFFLINE

Add a sample unit

Enter site and transect information

Input observations

Save the transect

Validate and Submit

ONLINE

Validate data

Address any errors or warnings

Submit data

Export

ONLINE

Export to .csv file for further analysis

How does MERMAID work?

Just like Excel, MERMAID joins you for data collection in the field with its offline capabilities. But it stands apart from Excel and other databases, like Access, because it requires virtually zero post-entry data clean up!

Users can select reef fish and benthic attributes from a standard list of species with only a few keystrokes. Predicting names means saving time on typing in species names or cleaning up typos of misspelled species names. MERMAID also allows you to calculate reef fish biomass while you type or see your total coral cover as soon as you have finished entering a transect.

When you have finished collecting data, it is automatically shared with your expedition team and can be exported to standard field reports (csv/Excel) and can soon be used to create graphs, maps, and other reports.

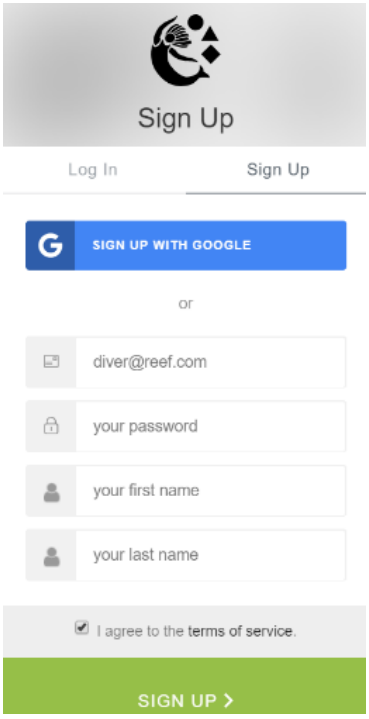
The Mermaid Workflow:

1. **Sign Up and Set Up a Project**
    a. Sign up for an account
    b. Set up a project and add users
    c. Prepare for offline use
2. **Collect Data**
    a. Add new sites and management regimes
    b. Enter a transect
    c. Transect types
    d. Saving a transect
3. **Validate and Submit Data**
    a. Success
    b. Warnings
    c. Errors
    d. Submit data
4. **Export Data**
    a. Review data
    b. Export

1. Sign up and Set up a Project

The first things to do are to create your MERMAID account and set up or join a project.

A) Sign up for an account



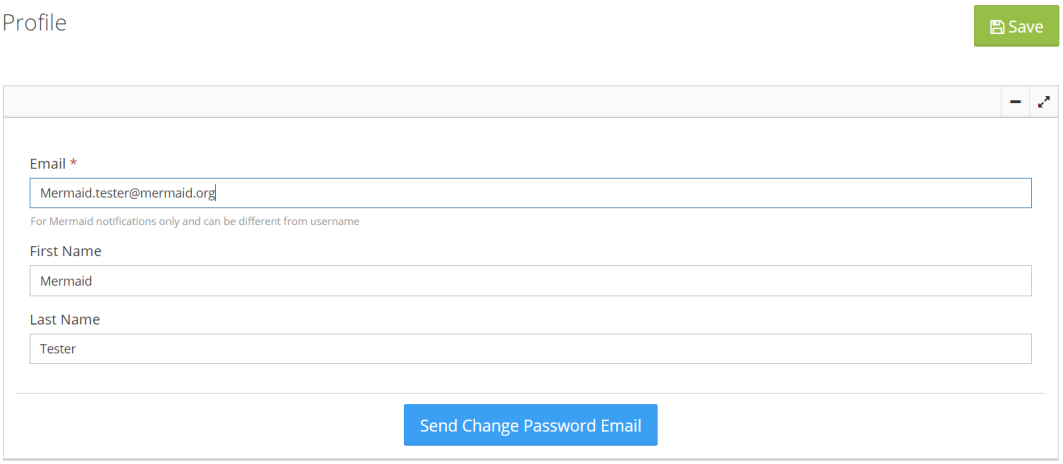
- **Sign up at https://collect.datamermaid.org**
- **You can choose 'sign up with Google' to use an existing Gmail account and associated password or enter a different email and create a password specific for MERMAID. Your account will be linked to your email.**
- **Only users who have a MERMAID account can be added to a project and collect data on MERMAID**

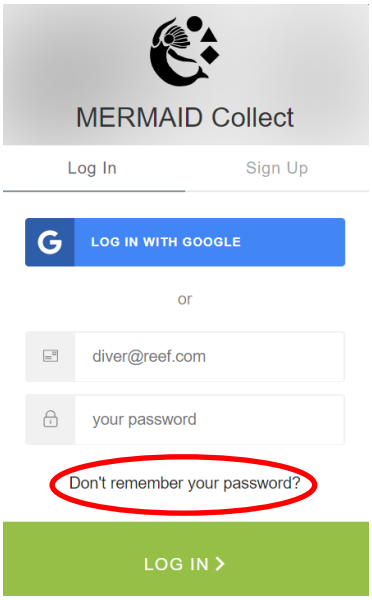
Join MERMAID at **www.collect.datamermaid.org**. MERMAID is only supported by Google Chrome browser and will not function with other browsers, like Explorer or Firefox

After signing up you will receive a confirmation email to verify your new account.

You can access your profile information by clicking on the avatar in the upper right corner of

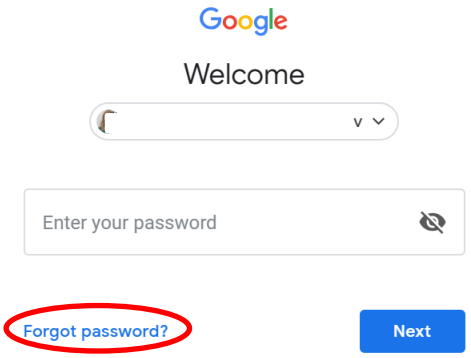
any page. Here you can view and change your email and name:





If you forget your unique password for MERMAID, click 'Don't remember your password?' on the login page to receive an email with a link to reset your password.

If you signed up for MERMAID using Google and forgot your Gmail password, you must reset your password through Gmail.

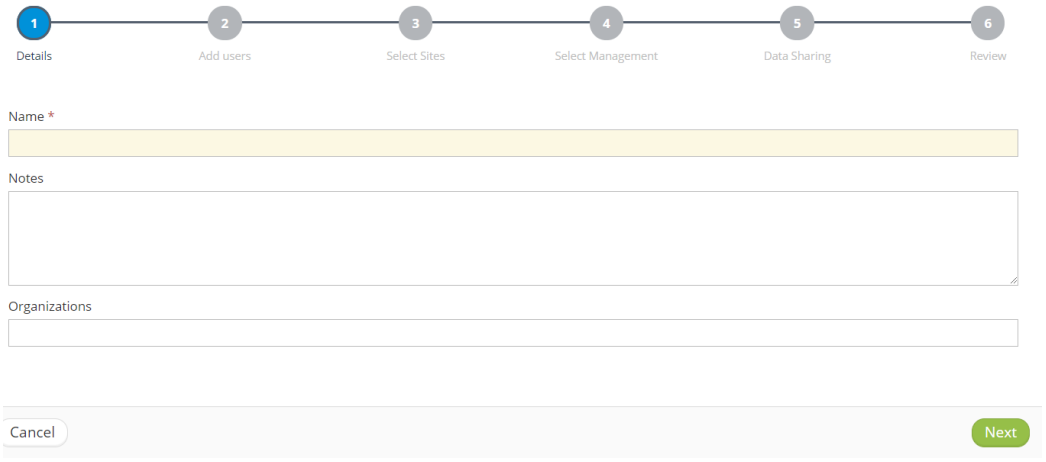


B) Set up a project and add users

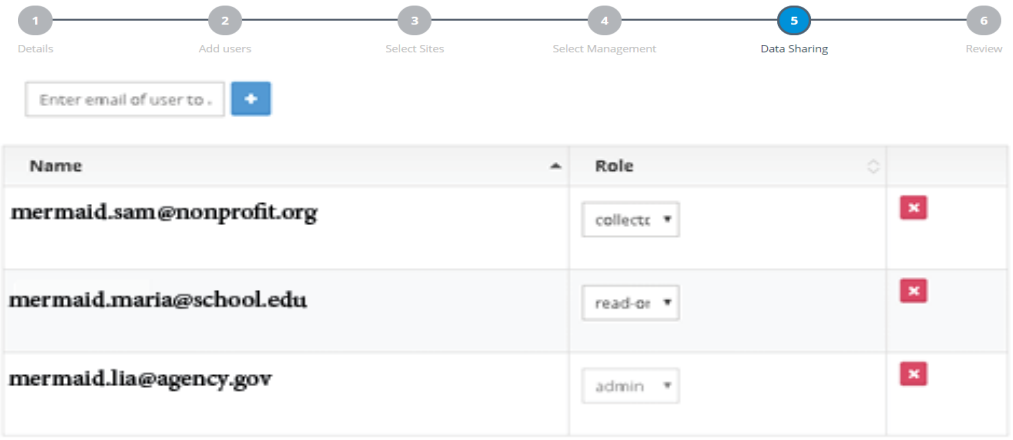
A project consists of transect observation records that are collected within a set of sites that have defined management regimes. Each project includes users who can collect and view data.

A new project can only be created while online. To create, click 'Start Project'

1. Details: A name is required for every new project. All other information can be added or edited later.



2. Add users



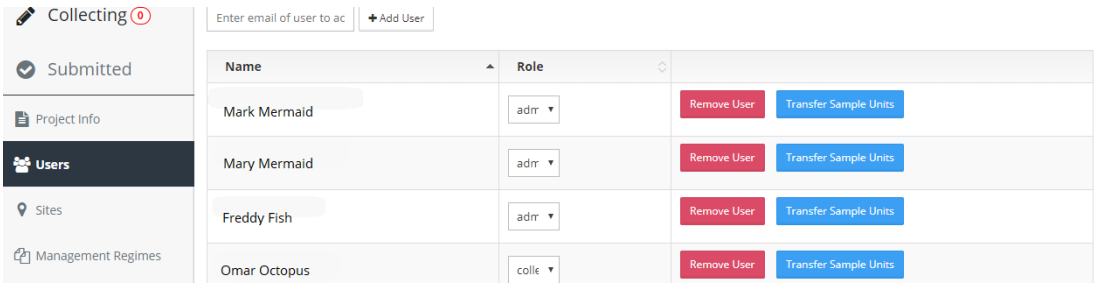
Enter the email addresses for users involved in the project and select their roles. **All users must be signed up for a MERMAID account before they can be added to a project.**

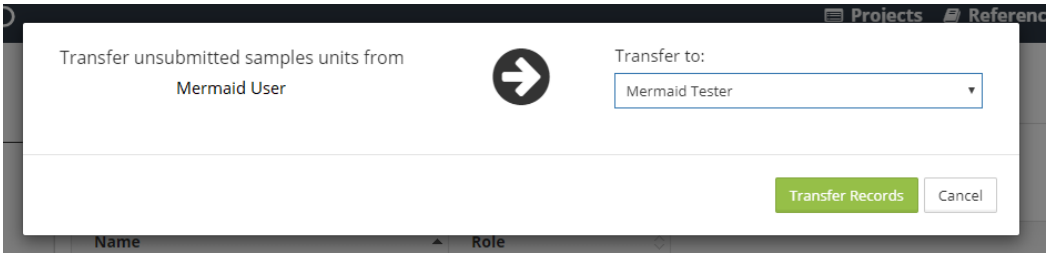
The project creator is automatically the administrator ('admin') of the project. Other users will default to the collector role when added and can be changed to admin or read-only by selecting the appropriate role from the dropdown. Additional users can be added or deleted by the administrator after a project is created.

The scope of each role is as follows:

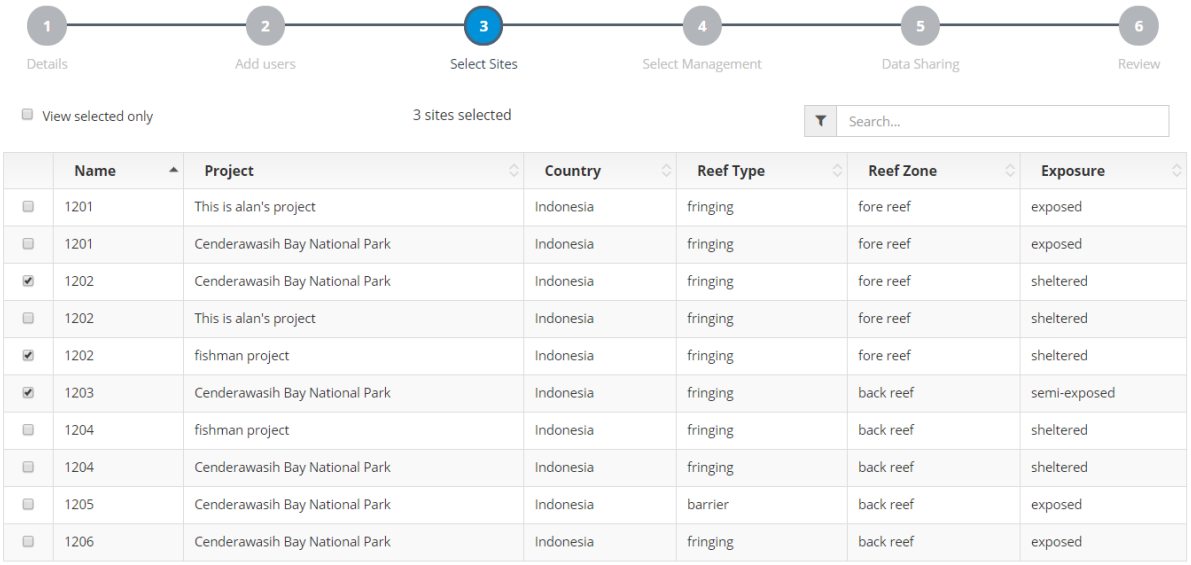
- **Read-only**: user can only view, export, and analyze data in the analysis tools, but cannot collect new observations
    - *i.e. a project manager who is in charge of writing reports or analyses but is not collecting data in the field.*
- **Collect**: user can view, export, and analyze data, and collect new observations. Once a transect is submitted, user can no longer edit or delete observations.
    - *i.e. a member of the project team who is tasked with collecting data*
- **Admin**: user has full administrative privileges to add and edit observations during collection and after transects have been submitted. Admin can also delete observations.
    - *i.e. typically one person designated as the lead of the project*

If a user must leave a project or reaches the end of their position, their data can be transferred to other users within a project. This can be done within a project by using the lefthand admin toolbar. Simply select 'transfer sample units', then indicate the user from the project whom you would like to transfer the collect records to. Users can also be removed from a project on this page. If a user still has active collect records in their "collecting" page, be sure to transfer records prior to removing them from the project.





3. Select Sites



	Name	Project	Country	Reef Type	Reef Zone	Exposure
☐	1201	This is alan's project	Indonesia	fringing	fore reef	exposed
☐	1201	Cenderawasih Bay National Park	Indonesia	fringing	fore reef	exposed
☑	1202	Cenderawasih Bay National Park	Indonesia	fringing	fore reef	sheltered
☐	1202	This is alan's project	Indonesia	fringing	fore reef	sheltered
☑	1202	fishman project	Indonesia	fringing	fore reef	sheltered
☑	1203	Cenderawasih Bay National Park	Indonesia	fringing	back reef	semi-exposed
☐	1204	fishman project	Indonesia	fringing	back reef	sheltered
☐	1204	Cenderawasih Bay National Park	Indonesia	fringing	back reef	sheltered
☐	1205	Cenderawasih Bay National Park	Indonesia	barrier	back reef	exposed
☐	1206	Cenderawasih Bay National Park	Indonesia	fringing	back reef	exposed

This is an optional step that allows you to choose from sites that are already in the MERMAID system. These may be sites that you or your organization are monitoring and have used before in previous surveys. **If you are surveying new sites they must be added after you creating your new project; select "Skip" at the bottom of the page to move on.**

The 'Search bar allows you to filter the list by site name, country, or project name. Click the check box next to any site you would like to add to your project, then click the "**Copy selected to Project**" button at the bottom of the page. A map at the bottom of the page also displays where the site is located with a red dot.

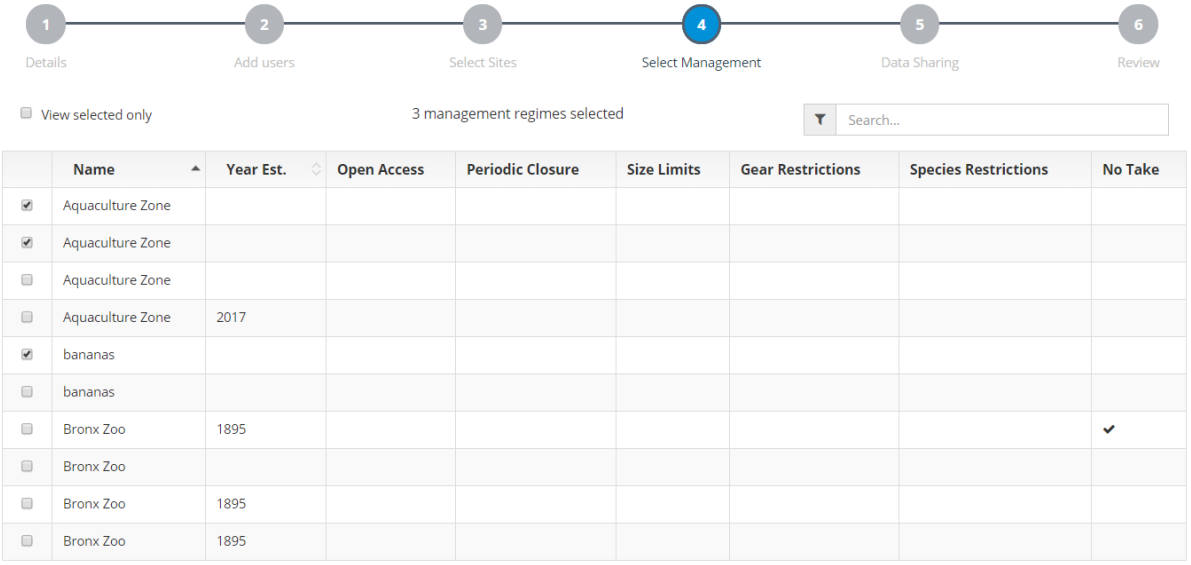
How to add a new site after creating a project

There are two ways to add a new site to a project after it is created:

1) Under "Sites" in the left toolbar within a project, add a new site at the top of the page

2) Within a transect, enter a new site in the site field with the "+" button and fill in all details

4. Select Management



	Name	Year Est.	Open Access	Periodic Closure	Size Limits	Gear Restrictions	Species Restrictions	No Take
☑	Aquaculture Zone							
☑	Aquaculture Zone							
☐	Aquaculture Zone							
☐	Aquaculture Zone	2017						
☑	bananas							
☐	bananas							
☐	Bronx Zoo	1895						✔
☐	Bronx Zoo							
☐	Bronx Zoo	1895						
☐	Bronx Zoo	1895						

This is an optional step that allows you to choose from management types that are already in the MERMAID system. A management regime is the type of regulations and restrictions placed on an area that a survey site is in.

These may be management regimes from sites that you or your organization are monitoring and have used before in previous surveys and selecting them here to add to projects can save you time. **If you are surveying sites with a new management regime, or if your site's management regime has been changed, it must be added after creating your new project select "Skip" at the bottom of the page to move on.** The 'Filter' bar allows you to search the list by management name, secondary name, year established, or project name. Click the check box next to any management type you would like to add to your project, then click the "**Copy selected to project**" button at the bottom of the page.

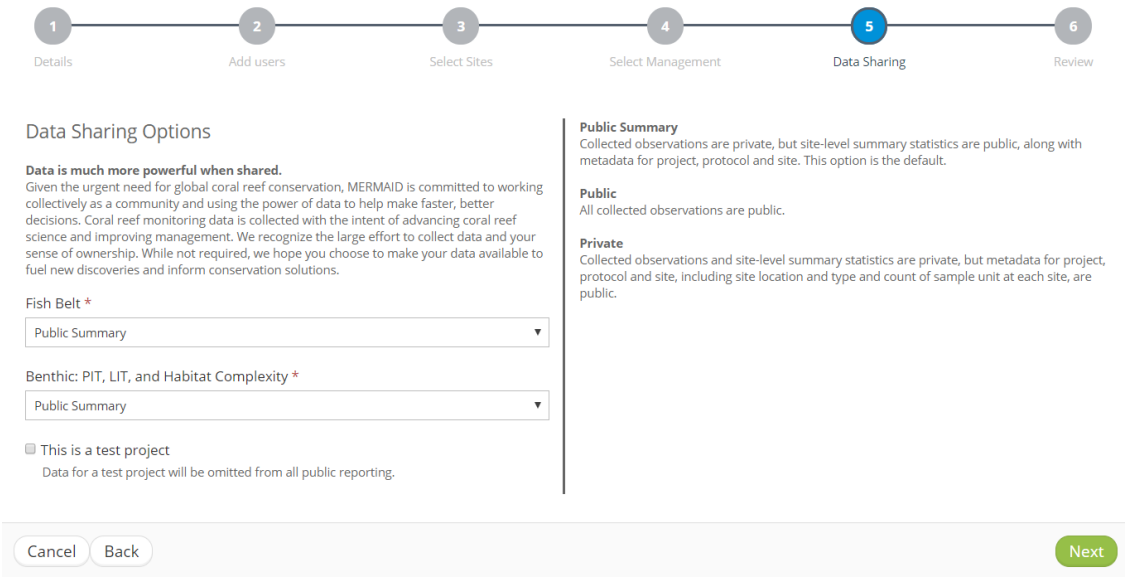
How to add new management after creating a project

There are two ways to add new management to a project after it is created:

1) Under "Management Regimes" in the left toolbar within a project, add new management navigate with the "New MR" button at top of the page

2) Within a transect, enter new management in the management field with the "+" button and fill in all details

5. Data Sharing



MERMAID is committed to working collectively as a community of researchers and reef managers to use the power of data to make faster, better decisions. Coral reef monitoring data is collected with the intent of advancing coral reef science and improving management. We recognize the large effort to collect data and your sense of ownership. While not required, we hope you choose to make your data available to fuel new discoveries and inform conservation solutions.

Choosing a data policy for your project determines how much of your project's data can be shared with other users to facilitate global collaboration and understanding of coral reef health via future global dashboard features in MERMAID. It can be chosen for fish belt data and for benthic data, which can have different levels of sharing. Your data policy level can be changed at any time after creating a project.

The three policy levels are:

Public summary – Collected observations are private, but site-level summary statistics are public, along with metadata for project, protocol and site. This option is the default.

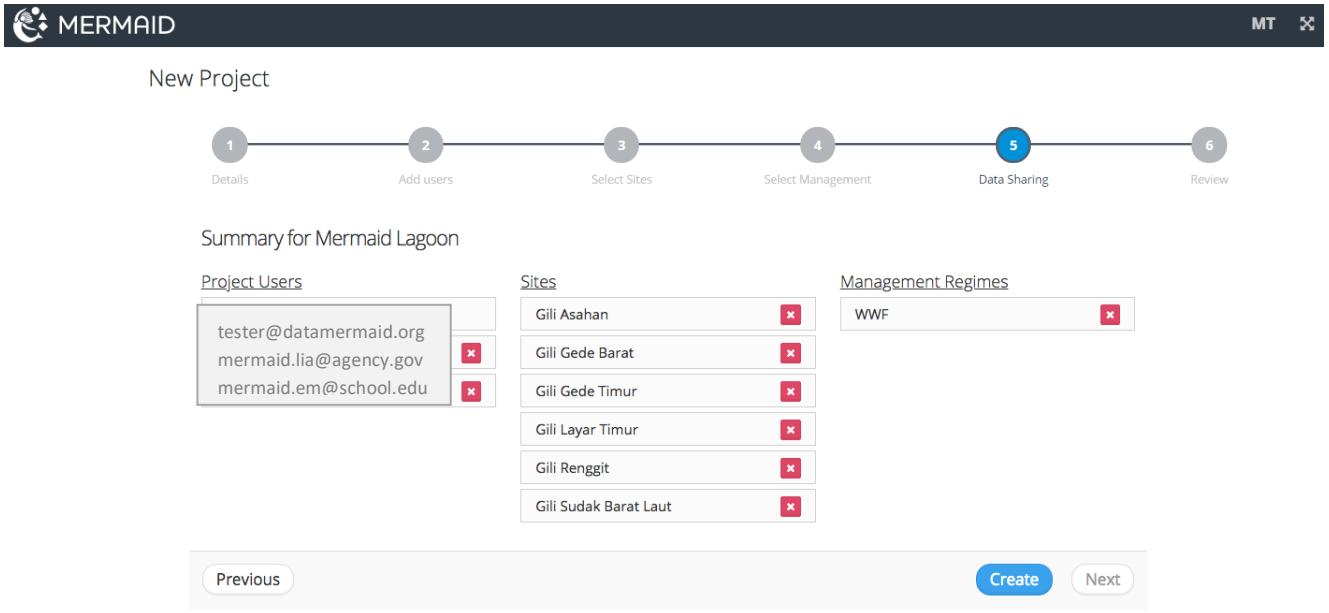
Public – All collected observations are public.

Private – Collected observations and site-level summary statistics are private, but metadata for project,

protocol and site, including site location and type and count of sample unit at each site, are public.

You can also indicate with the checkbox at the bottom of the page whether the project is a test project that is being used to learn or practice using MERMAID. Data added for a test project will be omitted from all public reporting.

6. Review

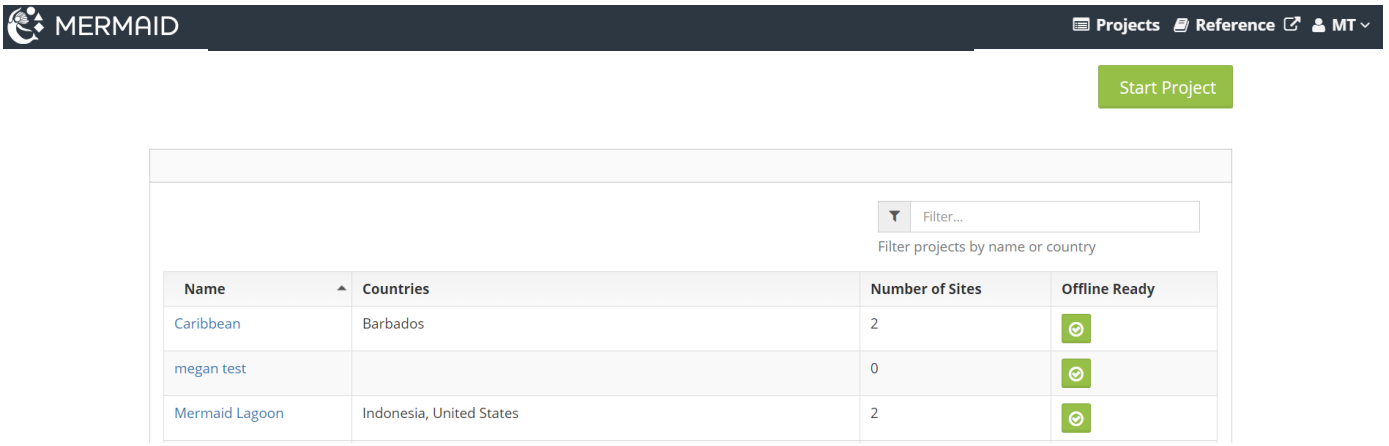


Review the summary of all the users, sites, management regimes, and data sharing that you selected for your project.

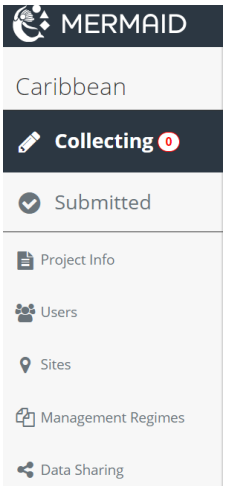
You can delete any of these selections by clicking , and you can return to each page to add additional information by selecting “Previous” at the bottom or by clicking the page tabs at the top. An admin can add additional users, sites, and management regimes and change the data sharing after a project is created by using the left-hand toolbar within a project.

Click “**Create**” to complete your new project!

Projects page



Clicking the left-hand “MERMAID” icon or the righthand “Projects” icon in the header of any page will take you to your main “Projects” page at any time. The Projects page lists all the projects you have created in MERMAID or have been added to as a collector or read-only user.



If you are an admin for a project, you can edit the project by clicking on the project name and choosing a section to edit in the left toolbar. Here you can change project info, remove or add additional users, create new sites and management regimes, and change your data sharing.

Project details can only be edited while online.

C) Prepare for Offline Use

Before heading to the field, there are a few steps that must be followed to ensure you are able to enter data offline.

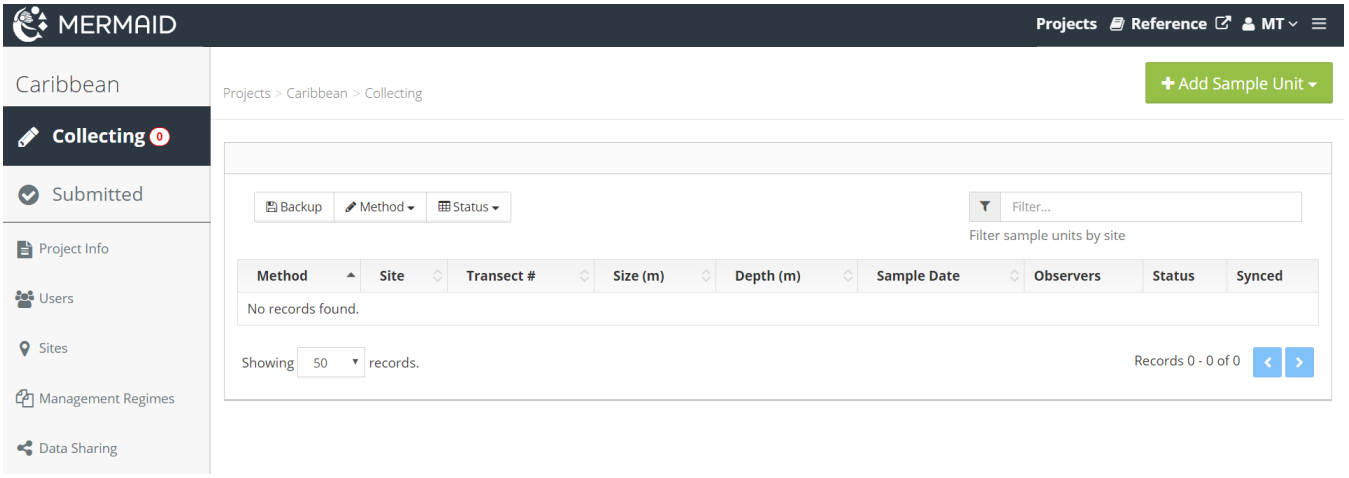
Be sure to follow each step carefully prior to your expedition:

1. Make an account
2. Click the “refresh” icon in the footer to make sure you have the most up-to-date version of the app
3. Project admin must create the project
4. Project admin must add all other users to the project. Optionally, copy or add sites and management regimes before going to the field.
5. Ensure that the cloud icon to the right of each project in the project list that you will use offline is green. If it is not green, click the grey icon or simply click on the project to enter it to make sure data is available offline.
6. Test offline access by turning off your Wi-Fi, restarting Chrome, and entering test data to your project.

When using MERMAID offline, make sure you use the full application address: https://collect.datamermaid.org -- you **cannot** just type 'collect.datamermaid.org'.

2. Collecting Data

Select a project from your list to enter the project's "Collect" page.



The 'Collect' page is where you can add new sample unit observations and view other observations you have already collected and saved but not yet submitted. The red number next to the "Collecting" tab in the left-hand toolbar indicates the number of records you have collected and saved but not yet submitted.

Only users with 'Collector' or 'Administrator' roles can collect and submit new observations; 'Read-only' users cannot collect records.

The **"Backup"** button at the top of the page will export all collected observations in JSON format for saving to your local drive. This provides an additional backup in case of emergency that you can save to a thumb drive or email to yourself before your records are able to automatically synchronize when online using the WiFi connection.

Observations can be added and backed up both online and offline, but they can only be validated and submitted on a WiFi connection.

The "**Method**" button at the top of the page will display collected records by sample method; check the methods you would like displayed.

The "Status" button at the top of the page will display collected records by their validation status: saved,

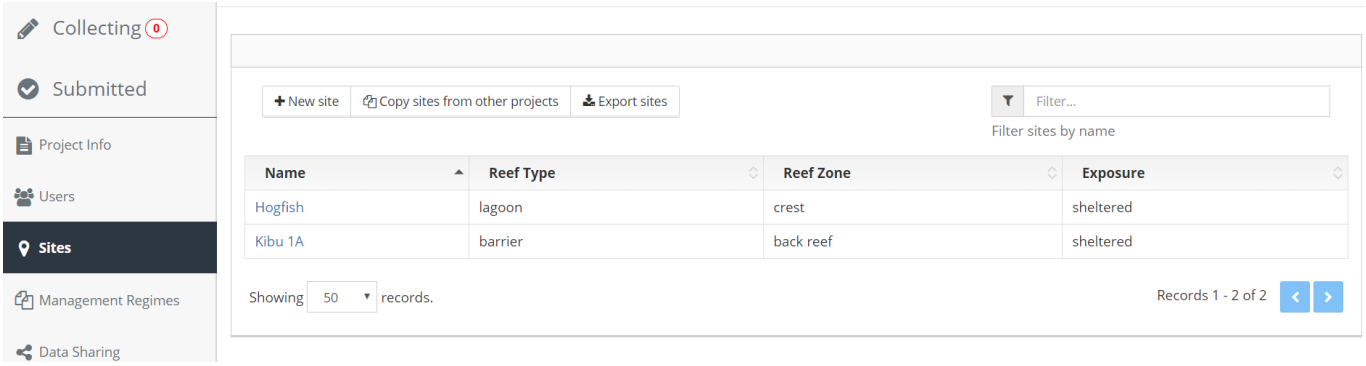
validated, warnings, and errors. An observation row will be highlighted in white if a record has been saved but not validated; a row will be highlighted in purple if it has been saved and validated and no errors or warnings were identified; a row will be highlighted in red if it was saved and an error(s) was found; a row will be highlighted in yellow if it was saved and a warning(s) was found.

A) Add new sites and management regimes

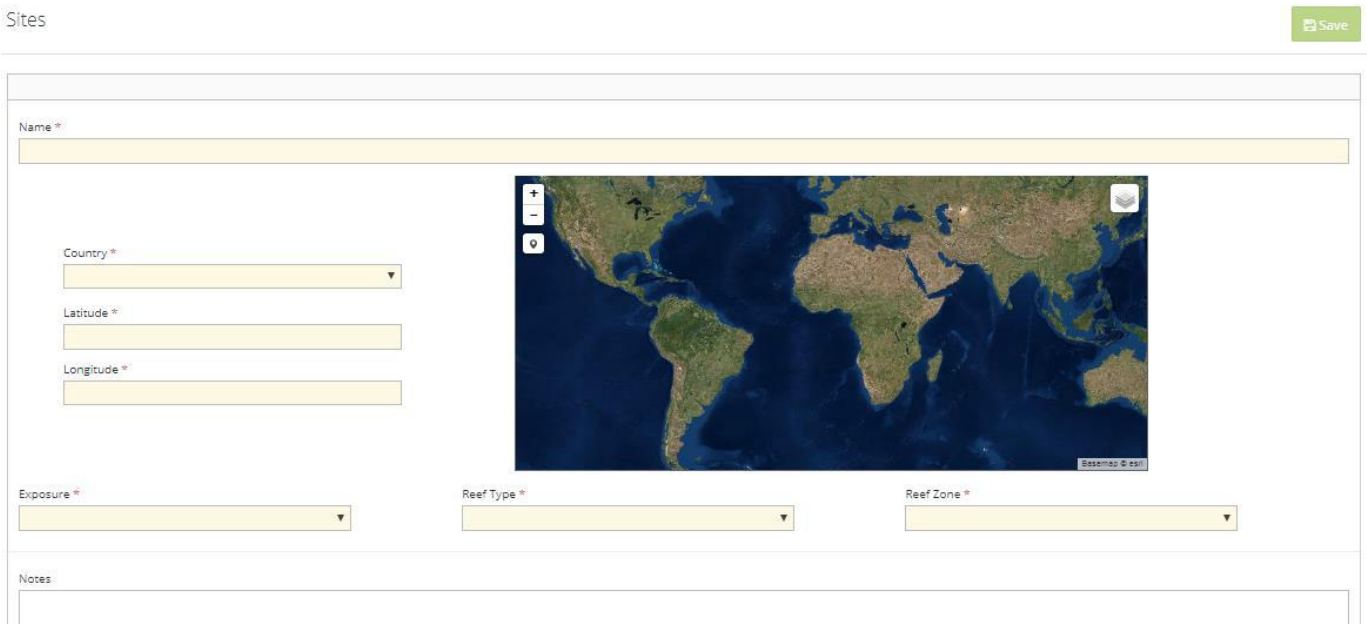
The left-hand toolbar lists a project's info, users, sites and management regimes, and data sharing. Here you can add a new site or management regime directly to a project when online. Admins and collectors can use these "new site" and "new management" functions.

Adding a new site

Navigate to the "Sites" tab and select "**New Site**"



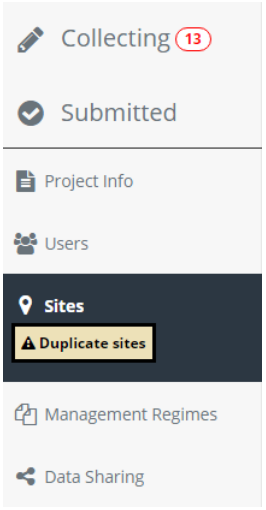
A new site requires a name, country, coordinates, and details on the exposure, reef type, and reef zone. The name can be the site's common name or unique ID. When all details have been added, save the site. In the "Sites" tab you can choose "Copy sites from other projects" to add existing sites and their metadata from other MERMAID projects. You can also add a site directly from an observation page by clicking the '+' sign next to the site dropdown field.

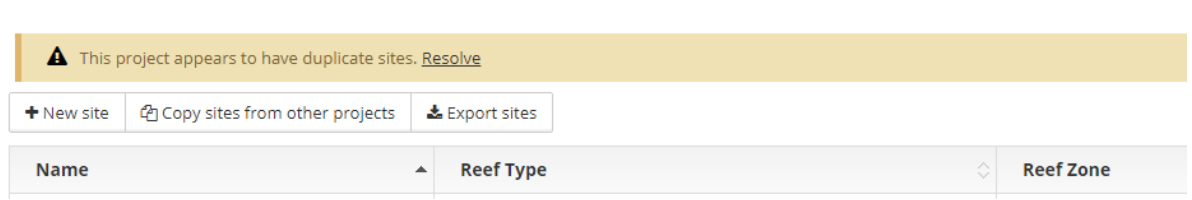


When online, a new site created by one user is shared across the project with all other users and available for them to use in observations. If you know the sites within your project in advance, it is easiest to add them while online before going to the field. New sites can be created offline, and then will be synced when back online.

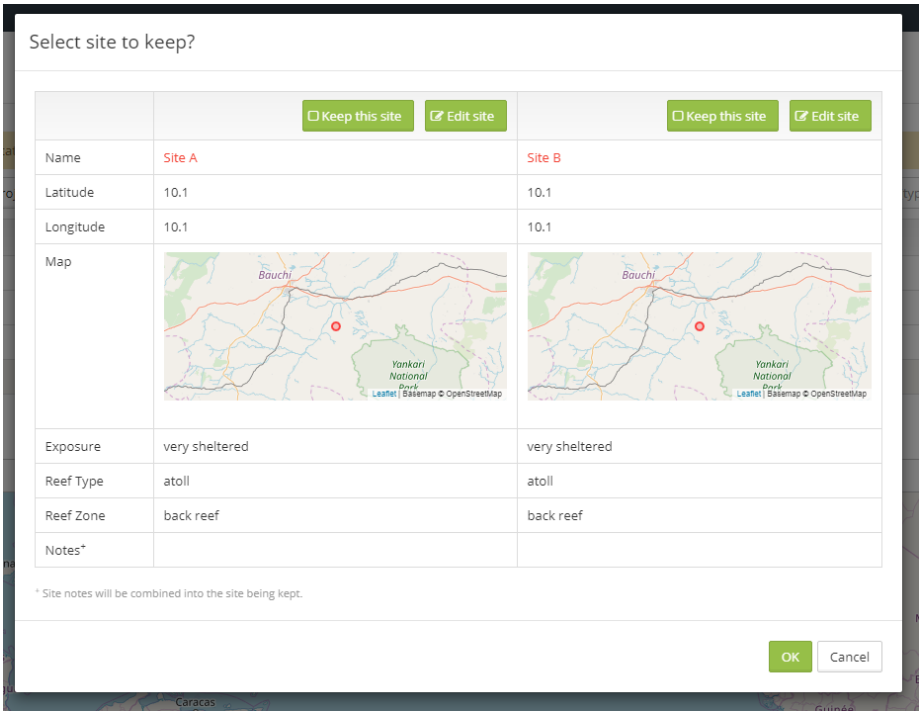
New sites with identical metadata that are created offline by different users within a project can be merged when users are back online.

If multiple new sites have identical coordinates, they will be flagged as **duplicate sites**. If this happens, you will see a warning under the "Sites" tab that says "Duplicate Sites". When you navigate into the "Sites" tab, you will see a notification at the top of the page that the project appears to have duplicate sites. Click "Resolve" to decide whether to merge the duplicate sites or keep them separate.

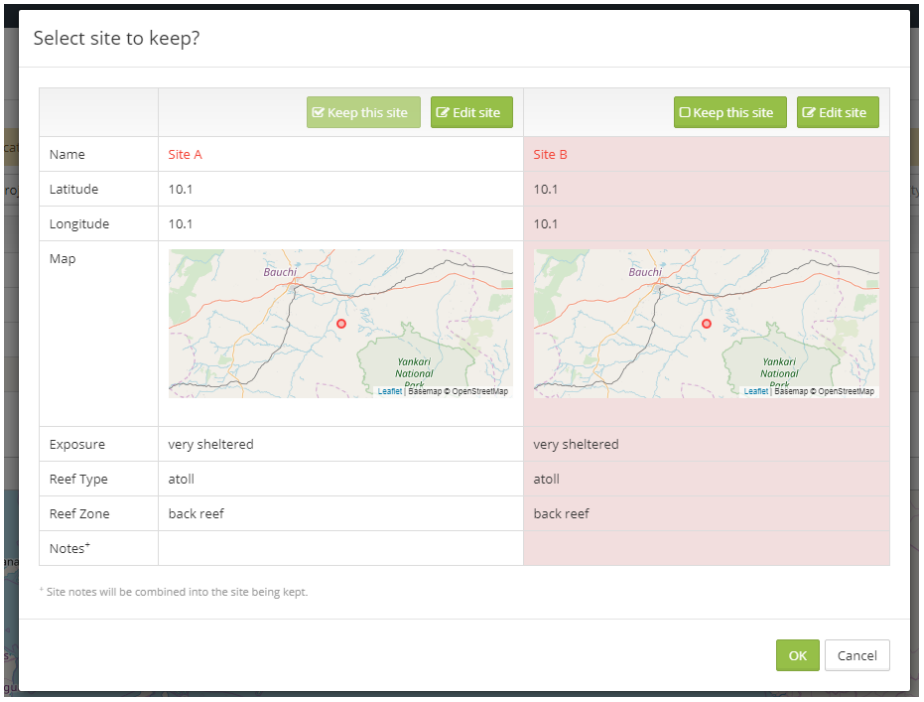




A modal will show you which sites are considered duplicates. Here you can decide whether to keep one site and merge it with the duplicate sites, or to edit a site and change the metadata to indicate that they actually are separate, unique sites. Unique sites must have different coordinates.



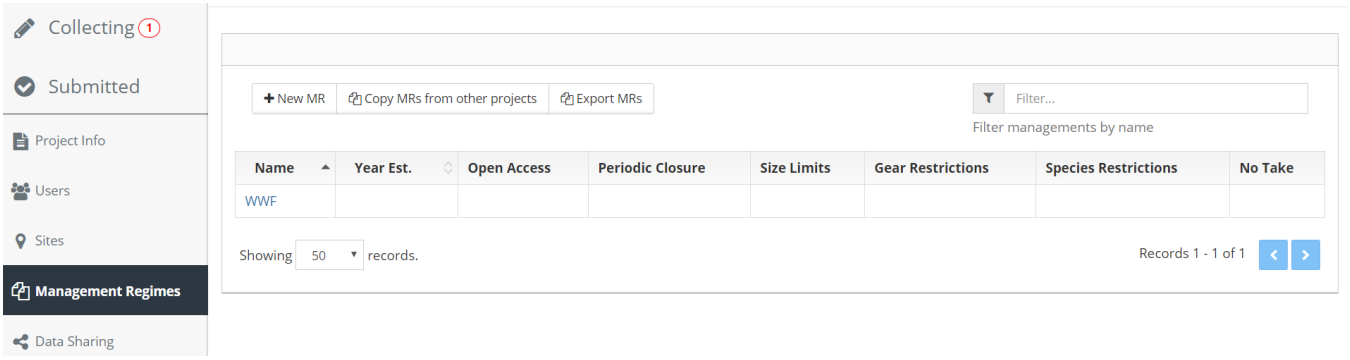
If you choose to keep just one site, the sites that will be merged with the site you chose to keep will be highlighted in red. Select "OK" to confirm.



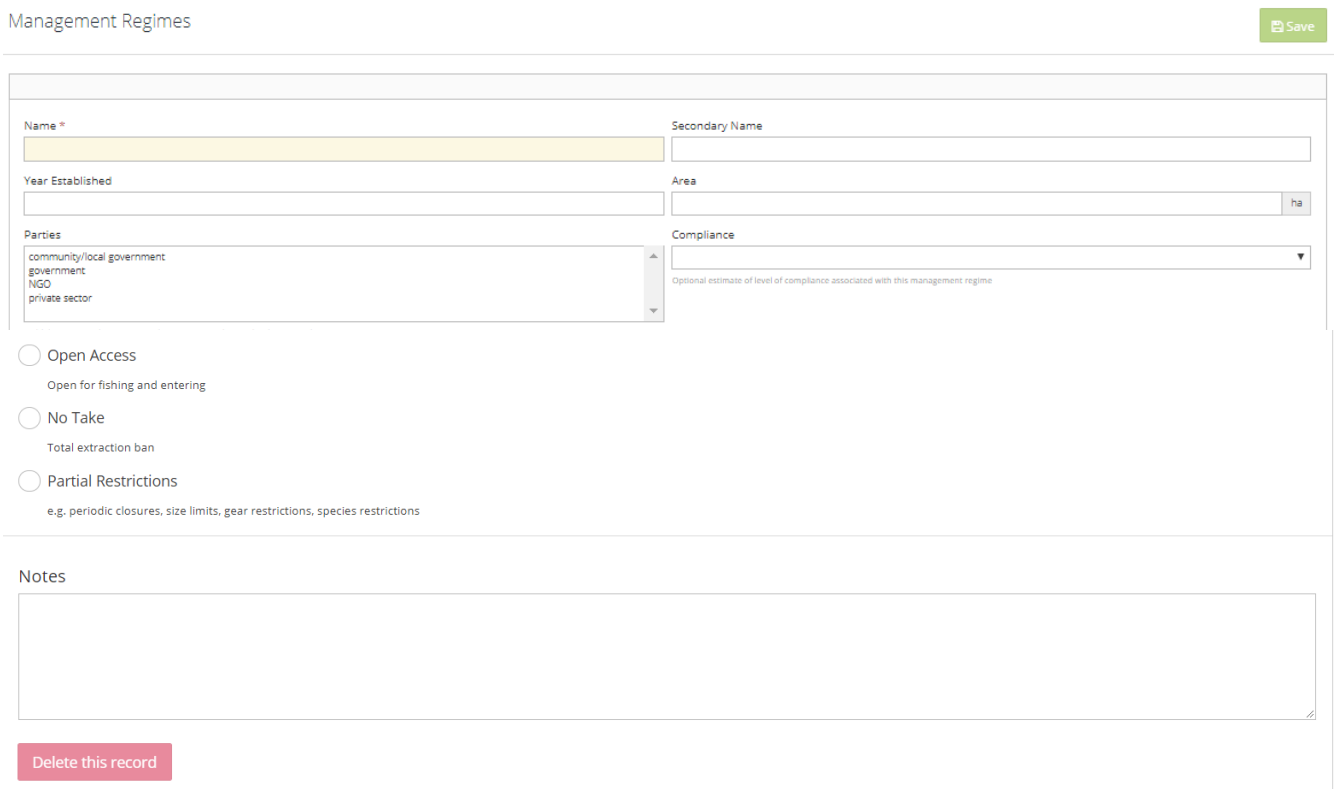
When sites have been merged, the sites will be updated with the single merged site, and this merged site will automatically be assigned to all sample units that were using the duplicate sites. All observation data will be preserved.

Adding a new management regime

Navigate to the "Management" tab and select "**New MR**"

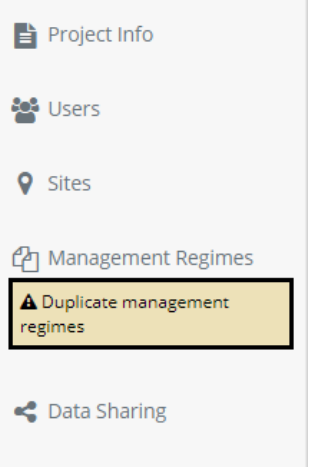


A new management regime requires a name and year established. All other details are optional. When you are finished, save the management regime. You can also delete the management with the "delete this record" button at the bottom.



In the “Management Regimes” tab you can also choose “Copy MRs from other projects” to add existing management regimes and their metadata from other MERMAID projects. You can also add a management regime directly from an observation page by clicking the ‘+’ sign next to the management regime dropdown field.

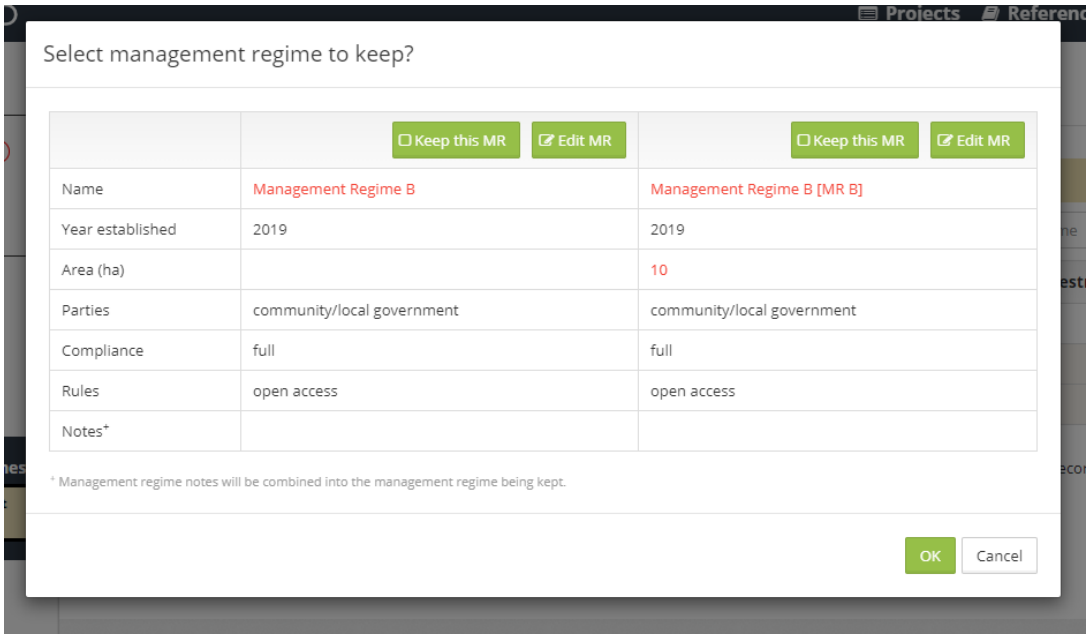
When online, a new management regime created by one user is shared across the project with all other users and available for them to use in observations. If you know the management regimes within your project in advance, it is easiest to add them while online before going to the field. Management regime details can be edited after creation if needed. New management regimes can be created offline, and then will be synced when back online. New management regimes with identical metadata that are created offline by different users within a project can be merged when users are back online.



If multiple management regimes with identical names are created offline by different users within a project, and are assigned to the same site, they will be flagged as **duplicate management regimes**. If this happens, you will see a warning under the "Management Regimes" tab that says "Duplicate management regimes". When you navigate into the "Management Regimes" tab you will see a notification at the top of the page that the project appears to have duplicate management regimes. You will also see this warning at the top of the sample unit that has the duplicate management regimes.

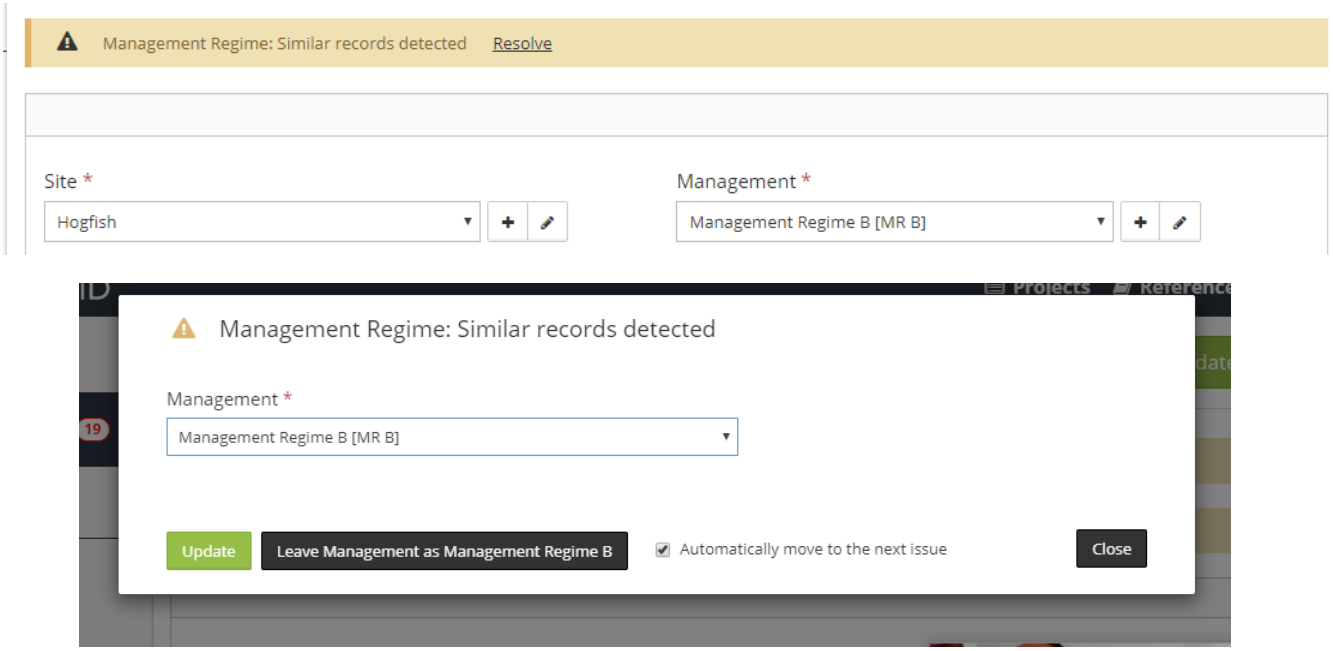
These management regimes can be merged or kept separate when users are back online. Click "Resolve" in the Management Regimes tab to decide whether to merge the duplicate management regimes or keep them separate.

A modal will show you which management regimes are considered duplicates. Here you can decide whether to keep just one management regime or to edit a management regime and change the metadata to indicate that they actually are separate, unique management regimes. Unique management regimes must have different names.

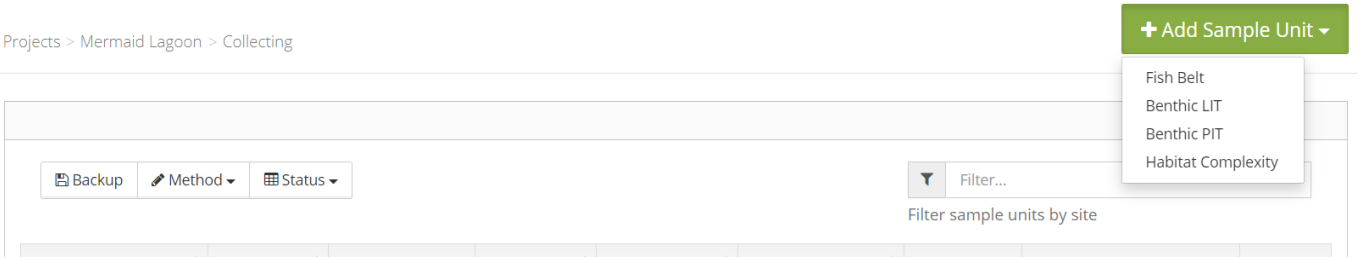


If you want to keep just one management regime, select the "Keep this MR" button. The duplicate management regimes(s) that will be merged with the management regime you choose to keep will be highlighted in red. This merged management regime will now be assigned to all sample units that had used the duplicate management regime. All observation data will be preserved. If you want to keep both management regimes, select "cancel" and ignore all warnings of duplicate management regimes.

A duplicate management regime can also be changed to another existing management regime within the transect using the "Resolve" button next to the warning; you can select a different management regime from your list if you accidentally assigned the duplicated management regime. You cannot merge duplicate management regimes from the transect, however, and must complete this process in the "Management Regimes" tab as described above.



B) Enter a transect



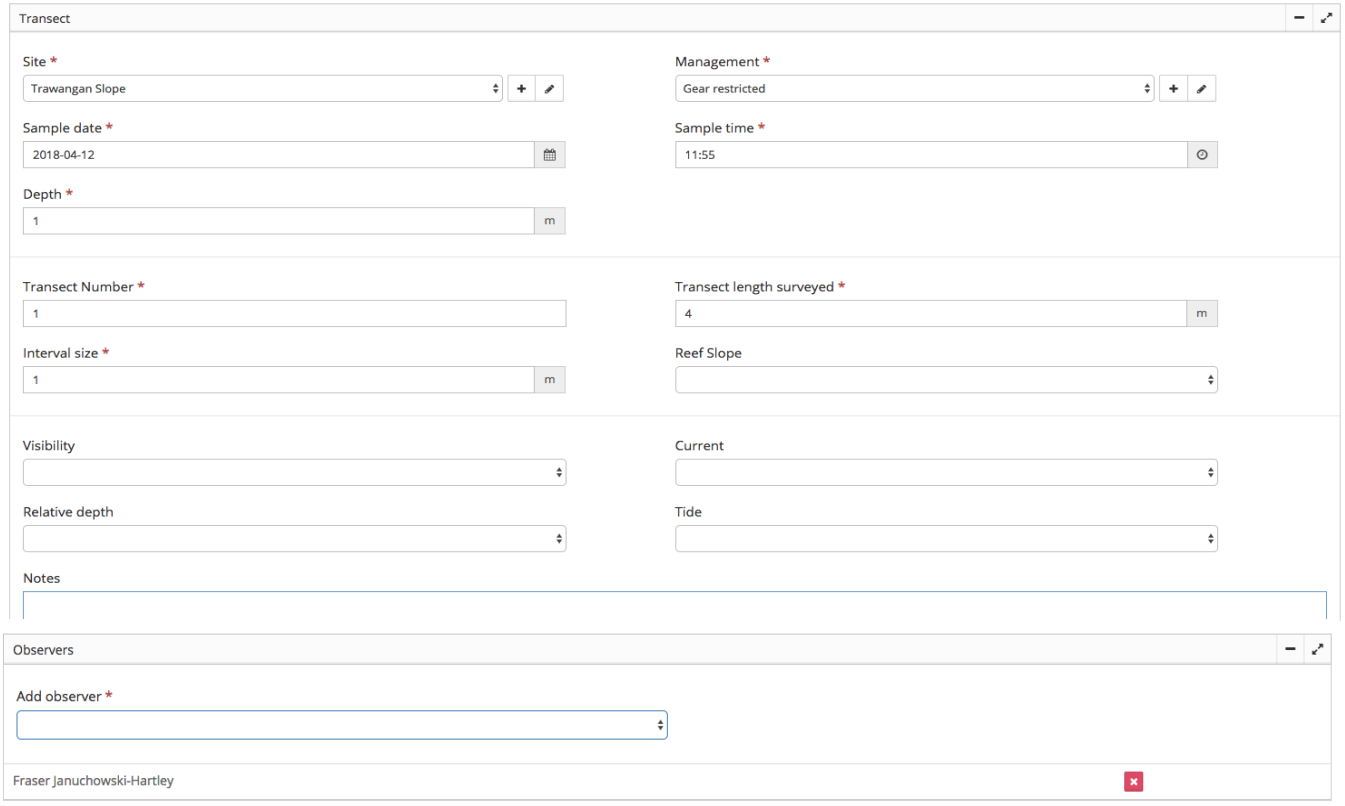
When you're ready to enter new data for a project, click "**Add Sample Unit**" at the top right of the Collect page and select a sample unit.

There are currently four types of sample units available on MERMAID: reef fish belt transects, coral point intercept (PIT) transects, coral line intercept (LIT) transects, and habitat complexity transects. These transects are similar to methods described in the *Coral Reef Monitoring Protocol for Assessing Marine Protected Areas* (Ahmadia et. al 2013) (Appendix 2).

After selecting a transect type, you must **fill in all required fields**, marked with a red asterisk. Sites and Management Regimes that you added before or after creating your project will appear in the dropdown,

and you can edit an existing site with the “ ” or enter a new site with the “+”.

Optional transect information includes reef slope, visibility, current, relative depth, tide, and any notes.



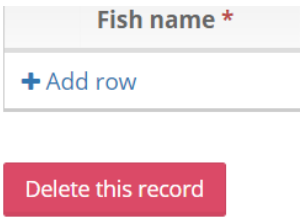
Each transect requires at least one ‘observer’, defined as the person or people who collected the transect observations. This is a required field, and you can choose from a drop-down list of users associated with your project. To remove an observer, click .

Once all required fields are completed, you can save the transect.

When online, you can then proceed to validating and submitting the transect. Offline, only the ‘Save’ button will appear.

Deleting a Transect

If you wish to delete a transect, click the delete record button at the bottom of



any transect page. This will permanently remove the record and its observations from MERMAID, so be sure that you want to remove it.

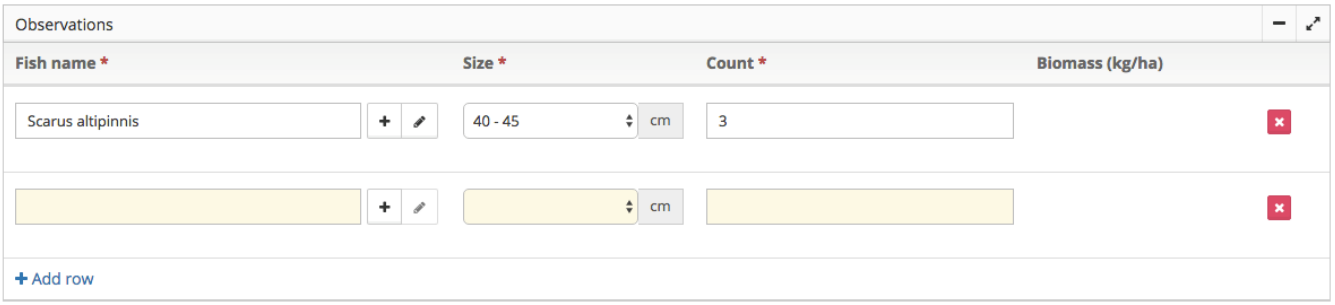
C) Transect Types

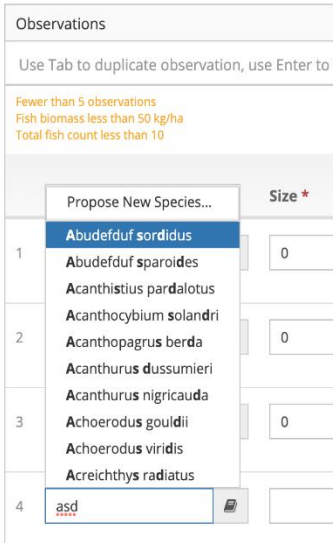
Fish Belt transect

The fish belt transect records observations of fish abundance.

Each transect requires a transect number, length surveyed (m), and transect belt width (options: 2m, 5m or 10m). Users can select how fish sizes are estimated underwater, using 1cm, 5cm or 10cm size bins. The "label" field can be used to indicate a special type of fish belt transect, such as long-swim.

Observations are recorded at the bottom of the page.





After typing any three letters of an observed fish family, genus, or species, MERMAID will provide a **predictive dropdown** with names. This ensures all spelling is correct and consistent. Select the fish observation by using the 'up' or 'down' arrow keys or entering more letters so that there is only one choice and press the Enter or Return key to select a name. Indo-Pacific fish are included in this version of MERMAID and all fish names come from Fishbase. They can be found in the "Reference" icon at the header of any page. *New fish family, genus, or species can be proposed to the MERMAID science team for approval and addition.* Biomass will automatically be calculated in the last column.

To prevent errors in data entry, MERMAID will flag the following as a warnings and errors:

- Total biomass less than 100 kg/ha or greater than 2,000 kg/ha
- Total fish count less than 10
- Total observations less than 5

NAVIGATION TIP

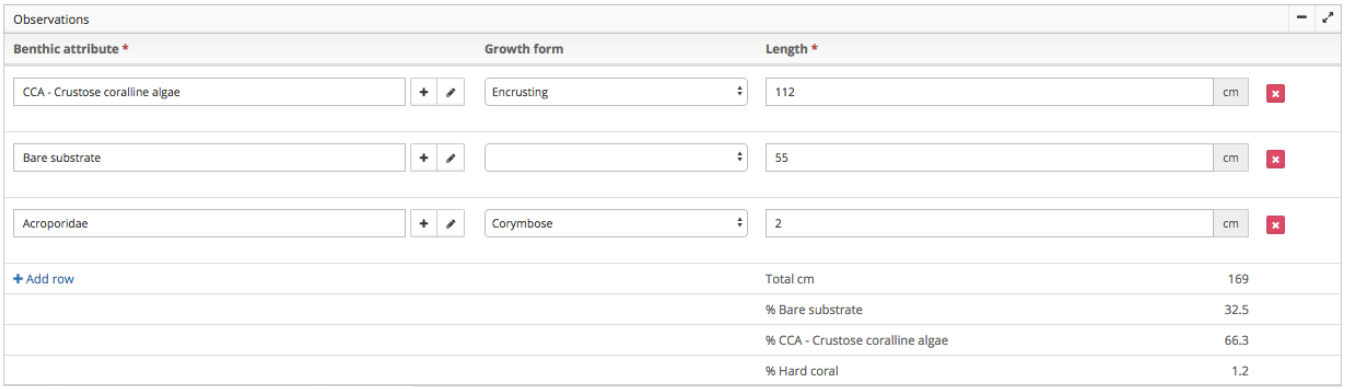
Navigating through the observation fields is similar to navigating in Excel: use the 'tab' keys to move across to the Size and Count (abundance) columns; at the end of a row, press "Enter" to create a blank row to enter a new fish observation; press "Tab" at the end of a row to duplicate fish species from the

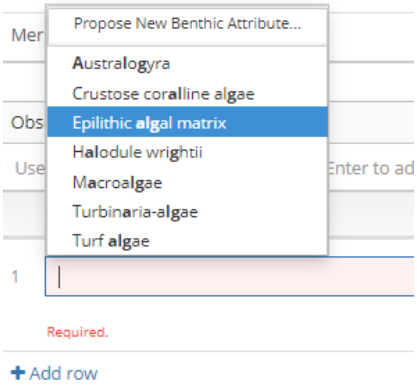
Benthic LIT

This transect records observations of benthic cover from a benthic line intercept transect.

Each transect requires a transect number and the surveyed length (m).

Enter the benthic observations from the transect at the bottom of the form.





MERMAID will **predict** the benthic attributes after you type the first three letters. This ensures all spelling is correct and consistent. Select the benthic attribute by using the 'up' or 'down' arrow keys or entering more letters so that there is only one choice, and press the Enter or Return key to select a name. Growth forms can be selected from the dropdown list or predicted by typing. Total length and percent cover of each benthic attribute will automatically be calculated at the bottom of the rows.

Indo-Pacific benthic attributes are included in this version of MERMAID. They can be found in the "Reference" icon at the header of any page. *New benthic attributes can be proposed to the MERMAID science team for approval and addition.*

NAVIGATION TIP

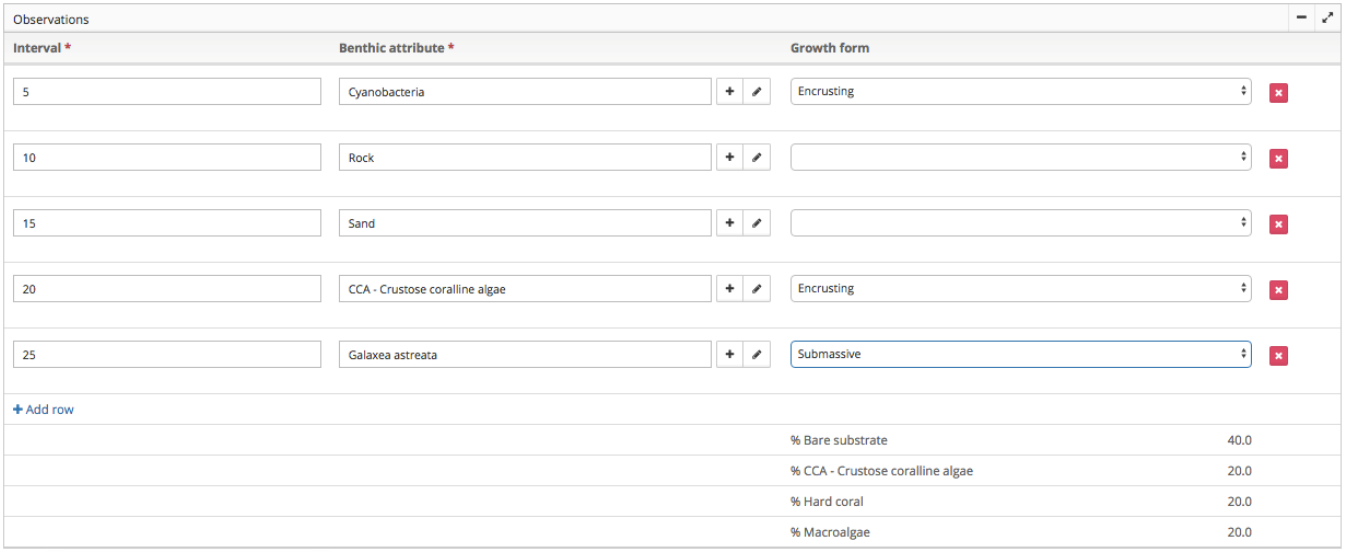
Use the 'tab' keys to move across to the attribute, growth form and length columns. At the end of the row, press Enter to create a blank row to add a new benthic attribute observation. If the same attribute is observed but with a different length, press the 'Tab' key at the end of the row to duplicate the benthic attribute in the next row

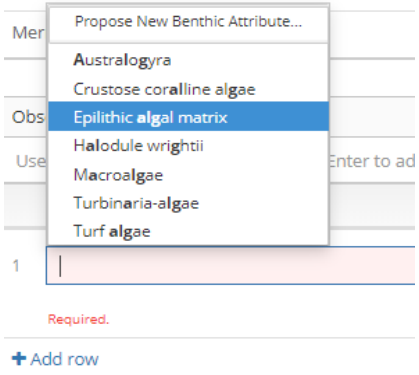
Benthic PIT

This transect records observations of benthic cover from a benthic point intercept transect (PIT) survey.

Each transect requires a transect number, the surveyed length (m), and the interval between point observations (m). E.g., counting points every 50 cm can be entered at 0.5 m in the "Interval size" box.

Enter the benthic attribute observed at each point at the bottom of the page.





MERMAID will **predict** the benthic attributes after you type the first three letters. This ensures all spelling is correct and consistent. Select the benthic attribute by using the 'up' or 'down' arrow keys or entering more letters so that there is only one choice and press the Enter or Return key to select a name. Growth forms can be selected from the dropdown list or predicted by typing. Indo-Pacific benthic attributes are included in this version of MERMAID. They can be found in the "Reference" icon at the header of any page. *New benthic attributes can be proposed to the MERMAID science team for approval and addition.*

The number of rows should equal the total number of expected points based on your transect length and interval size. You will receive a warning if the number of entered rows does not match this.

The percent cover of each benthic attribute in the transect will automatically be calculated and displayed at the bottom of the rows.

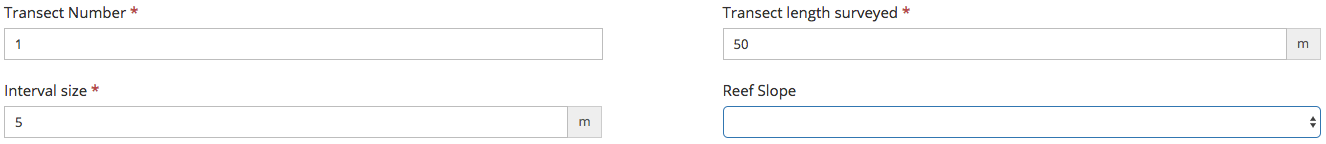
NAVIGATION TIP

Use the 'tab' keys to move across to the attribute, growth form and length columns. At the end of the row, press Enter to create a blank row to add a new benthic attribute observation. If the same attribute is observed but with a different length, press the 'Tab' key at the end of the row to duplicate the benthic attribute in the next row.

Habitat Complexity

This transect records observations of benthic habitat complexity on a scale of 0 to 5, based on the methodology proposed in Wilson et al. (2007) and described in Darling et al. (2017) and Gurney and Darling (2017) (Appendix 2).

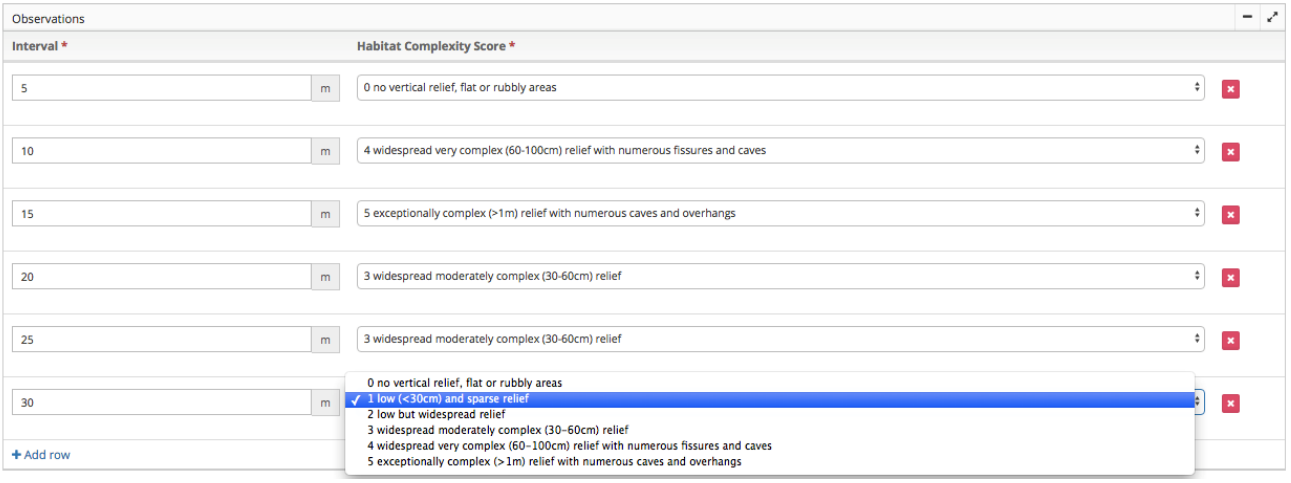
To enter a habitat complexity transect, you will need to provide a transect number, the surveyed transect length (m), and the interval between complexity observations (m). E.g., assessing complexity 5 m can be entered at '5 m' in the "Interval size" box.



Enter the habitat complexity score at each interval at the bottom of the page. You must have as many rows of observations as you do intervals in the transect length.

NAVIGATION TIP

Use the 'tab' keys to move across the interval and habitat complexity score columns. At the end of the row, press Enter to create a blank row to add the next complexity observation. If the same habitat complexity is observed at the next interval, press the 'Tab' key at the end of the row to duplicate the row.



Coral Bleaching

This transect is a rapid assessment field method that can be used to quantify coral bleaching, based on [the methodology](#) proposed by McClanahan and Darling (2016).

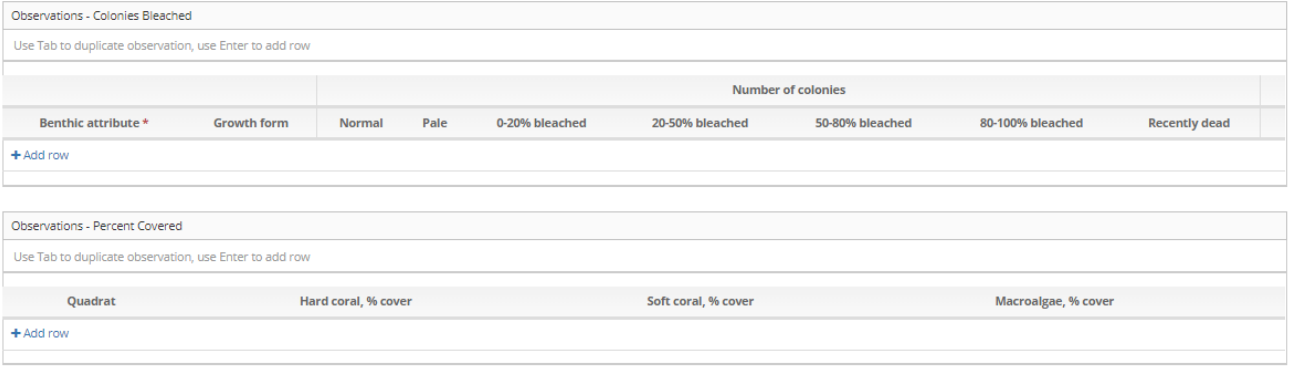
NAVIGATION TIP

Use the 'tab' keys to move across the colonies bleached and percent cover columns. At the end of the row, press Enter to create a blank row to add the next complexity observation. If the same bleaching or percent cover is observed at the next interval, press the 'Tab' key at the end of the row to duplicate.

Users record observations of coral bleaching as percent bleached and percent coverage of benthic types.

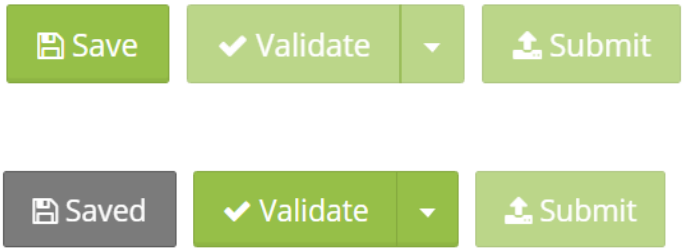
To enter a coral bleaching transect, you will need to start with you quadrat size.

Observations are entered for 'colonies bleached' as percentages, and as percent coverage of benthic attributes.



C) Saving a transect

Once you enter any new information into a transect you can save it using the button in the upper right corner of the page. **The save button is bright green when there is new information to be saved. If the button is gray and says "saved", you have already saved the transect and there is no new information to be saved.**



After saving, you can always return to the transect to add or change data and information and resave.

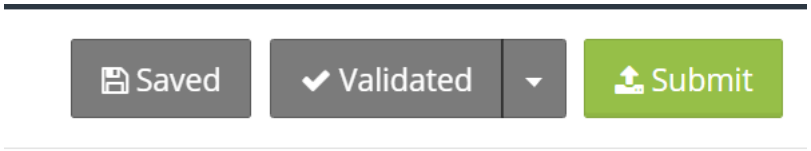
If you try to navigate away from a page with unsaved information, you will see a warning on the screen that you have unsaved data – choose "No" to stay on the transect and save; choose "Yes" to leave the transect unsaved.

3. Validate and submit data

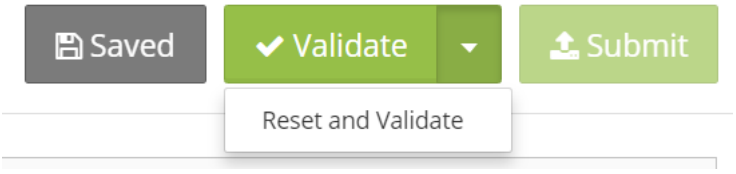
After your data has been saved, it can be validated. Validation is the "proof-reading" of the sample unit information and observations. This is where mistakes and errors are caught and brought to your attention to correct. **Validation can only be done online**.

After saving a transect, **click the activated green "Validate" button to validate your transect.**

After successfully validating a transect the validate button will be grayed out.



To undo the changes you've made while validating, click the down arrow next to the validate button to reset. This will remove the changes you made using the warning and error modals the last time you saved and validated.



After validating, you will receive one of the following notifications:

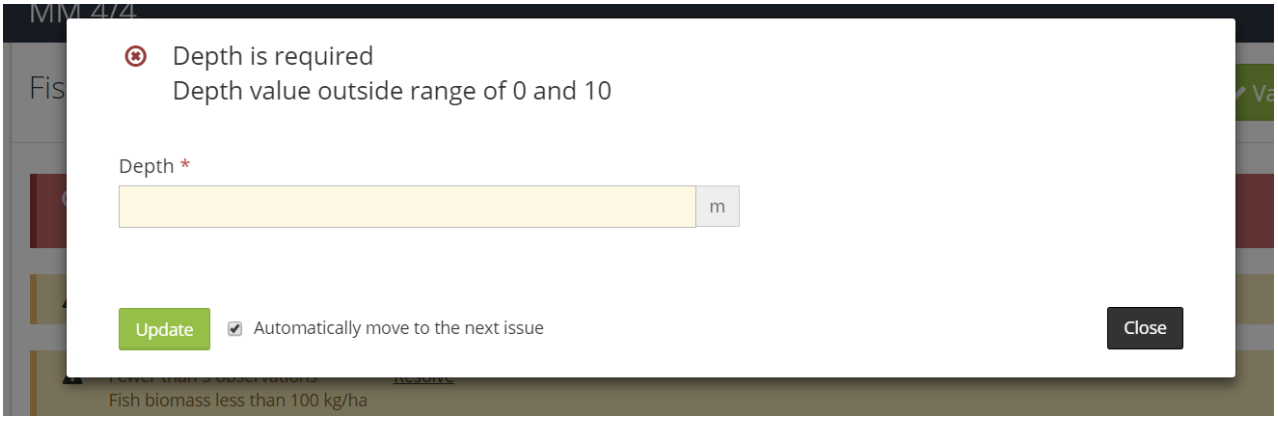
A) Success!

Nice work, your sample unit was validated successfully! There are no errors with the data and it is ready to submit.

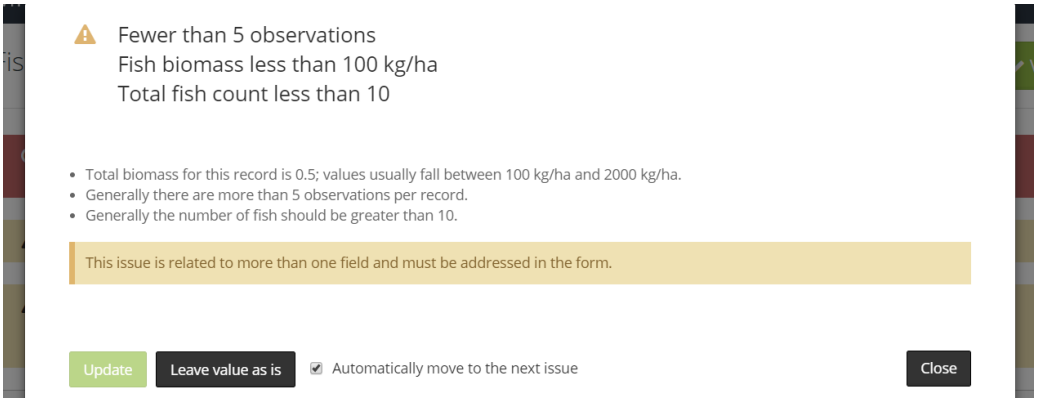
B) Warnings

An orange warning(s) will appear at the top of the page if MERMAID identifies a potential issue in your transect information or data.

You can decide whether the issue is accurate for your data. If the issue was due to an entry mistake, you can change the information by clicking “resolve” in the warning message at the top of the page. This will bring up a modal window where you can add or change the information. Click “update” to incorporate your changes in the transect.



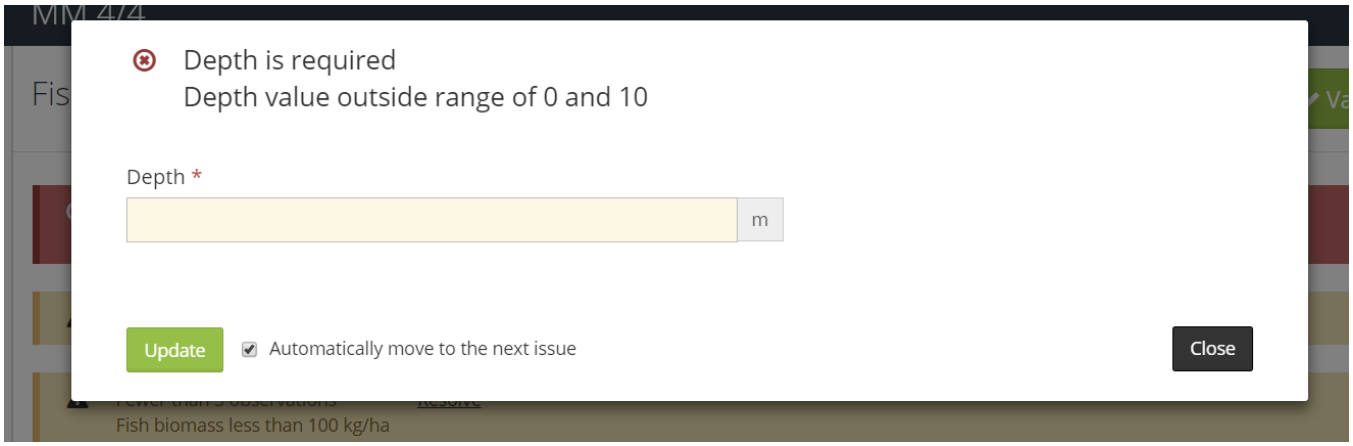
Some warnings require more than one field changes, such as in the observation section, and the modal will direct you to scroll to the fields within the record.



After addressing warnings, resave the transect and validate again. Repeat the process for any additional warnings that are identified. If you don't believe a warning is accurate for your transect, you can disregard it and submit the transect.

C) Errors

A red warning message will appear if MERMAID identifies an error in a transect's information or observations. Errors must be resolved before a transect can be submitted. To address the error click "resolve" in the error message. This will bring up a modal window where you can add or change the information. Click "update" to incorporate your changes in the transect.



You can also scroll down to the field in your transect with the warning and edit within the record. After resolving all errors, resave the transect and validate again. Repeat the process for any additional errors that are identified.

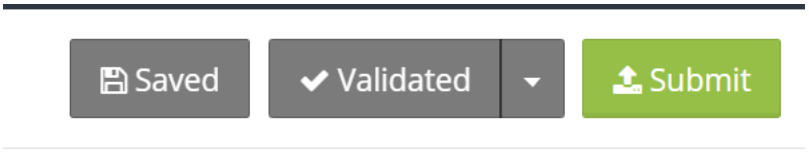
D) Submit data

When you are finished entering all the data for a transect, you can 'submit' the transect.

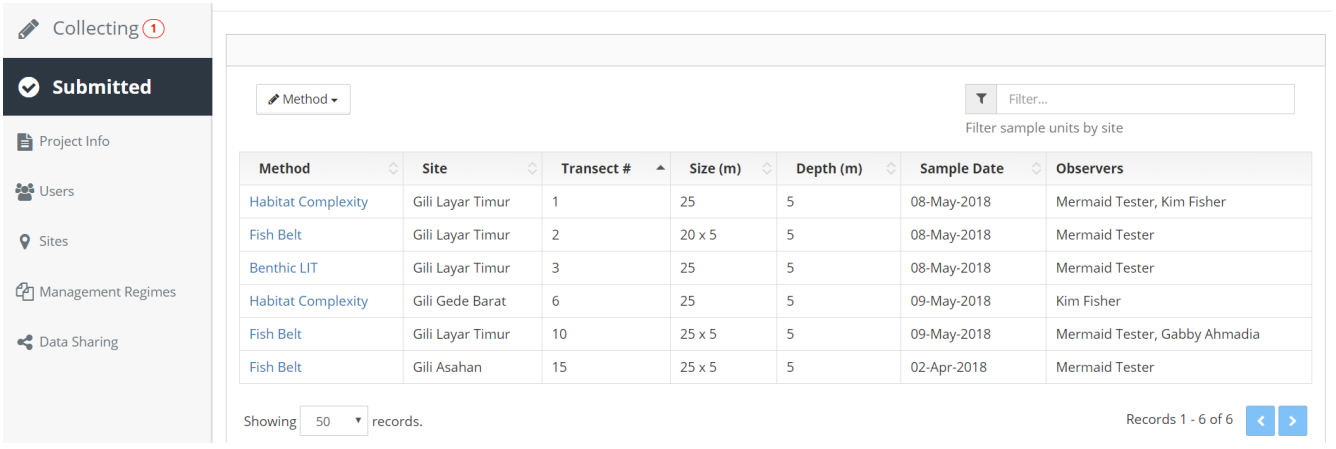
After submitting data, admin users can still edit the transect or return a transect to the observer, so make sure your data are finalized and clean before submitting as a collector!

Submitting data can only be done when online.

To submit data, select the green box in a validated transect that says "**Submit**".



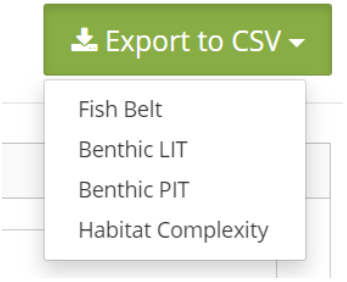
Submitting data moves it from the Collect page to the Submitted page. This shares your observations with the other users in the project. Within the "Submitted" page, admins can edit or delete transects or return them to their original observers for further editing. If you are a read-only member on a project you can see data once it has been submitted and you can export it, but you cannot edit this data while it is in MERMAID.



4. Export Your Data

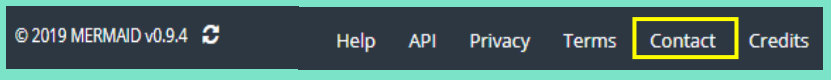
Submitted transects can be exported to a tabular format in a .csv file for further analysis by clicking the 'Export to CSV' button.

Data can only be exported when online and after transects have been submitted.



Select which sample unit records you would like to download. All records of each sample unit type will be combined into a single spreadsheet. This will begin downloading a .csv to your computer. All user levels (admin, observer, and read-only) can export all data from a project.

Questions? You can reach out to us when online via the contact form at the bottom of any page.



THANK YOU FOR USING MERMAID

APPENDIX

1. GLOSSARY

Management regime: A management regime is the type of regulations and restrictions placed on an area, whether local or federal, and may or may not be enforced. This includes no-take zones, gear restriction, or open access. Regulation details in MERMAID include:

- Parties involved in the creation and/or enforcement of management (community/local government, government, NGO, private sector)
- Compliance – the optional estimate of level of compliance associated with this management regime (full, none, somewhat)
- No Take (Yes/No)
- Open Access for fishing and entering (Yes/No)
- Partial Restrictions (Periodic Closures, Size Limits, Gear Restrictions, Species Restrictions)

Site: A site is a geographic location where transect observations take place. They each have a name that can be letters, numbers, or a combination. Sites include: latitude and longitude coordinates, country, reef type, and reef zone.

2. TRANSECT RESOURCES

Transects in MERMAID are similar to methods described in the *Coral Reef Monitoring Protocol for Assessing Marine Protected Areas* (Ahmadia et. al 2013).

Habitat Complexity

The visual score ranges from 0 (flat) to 5 (highly complex), which has been shown to be an important predictor of reef fish biomass (Darling et al. 2017).

During underwater surveys, complexity scores are assigned to one of the following categories between 0 and 5:

Habitat Complexity Visual Score	Relief level
0	No vertical relief, flat or rubbly areas
1	Low (<30 cm high) and sparse relief
2	Low but widespread relief
3	Widespread moderately complex (30-60cm high) relief
4	Widespread very complex (60-100 cm high) relief with numerous fissures and caves
5	Exceptionally complex (>1 m high) relief with numerous caves and overhangs

Along each transect, structural complexity can be estimated multiple times (e.g., every 5 m) to provide an average structural complexity score per transect.