Sargassum Watch - Citizen Science Protocol

Thank you for participating in the citizen science portion of the Sargassum Watch project. Your observations and input mean a lot to us.

The Marine Macroalgae Research Lab at Florida International University (MMRL-FIU) is part of a network in the Caribbean Region dedicated to monitoring the invasions of pelagic Sargassum on Caribbean beaches. While satellite imagery can estimate the abundance of Sargassum influx in the region, local observations are just as valuable in refining the actual scope of the Sargassum landing on Caribbean coasts.

The app needed for the Sargassum Watch is **Epicollect5**. Epicollect5 is a free, open-source citizen science app that is both compatible with Android and IOS. This app was originally developed in Imperial College, London and has since been used on a variety of citizen science projects. The app is used for on-site observations, but can also be used for off-site, previous observation submissions. The app interface follows a "survey" model that asks for questions to be filled out and photos to be uploaded.
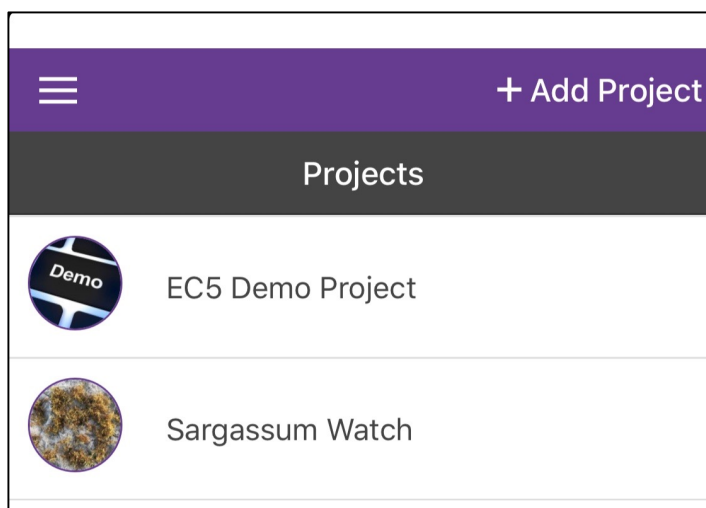

epicollect5

Follow the directions below to record Sargassum in the field:

Step 1: Download the Epicollect5 App onto your smartphone, if you haven't done so already. Open the App.

Step 2: On the top right hand corner, click on "+ Add project."

Step 3: Search for **"Sargassum Watch"**. Once found, click on the project name. The *Sargassum Watch* project should be on your main page.


Step 4: Click on the Sargassum Watch Project, and near the top-right corner, click on "+ Add entry".

Step 5: You may receive a message requesting location access while using this app. This is necessary for GPS coordinates. Click on "Allow".

Step 6: Follow the directions as outlined in the Sargassum data sheet. *In situ* observations allow you to automatically record date, time, and GPS coordinates of location.

Step 6.1: The first 6 pages will ask for your name, date, time, GPS coordinates, site name, and region name. All sections are required. The date, time, and GPS will automatically calculate for your on-site observation.

Step 6 page 1

Step 6 page 2

Step 6 page 3
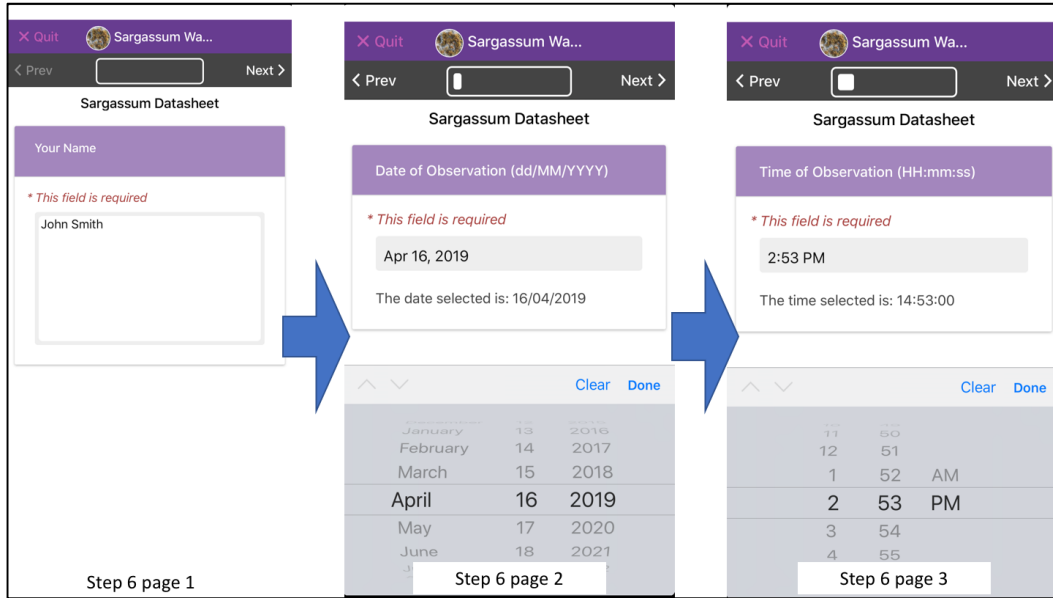
Step 6.2: Type the site name and region name. Region can be the state, territory, island, country, etc.

Step 6 page 4

Step 6 page 5

Step 6 page 6
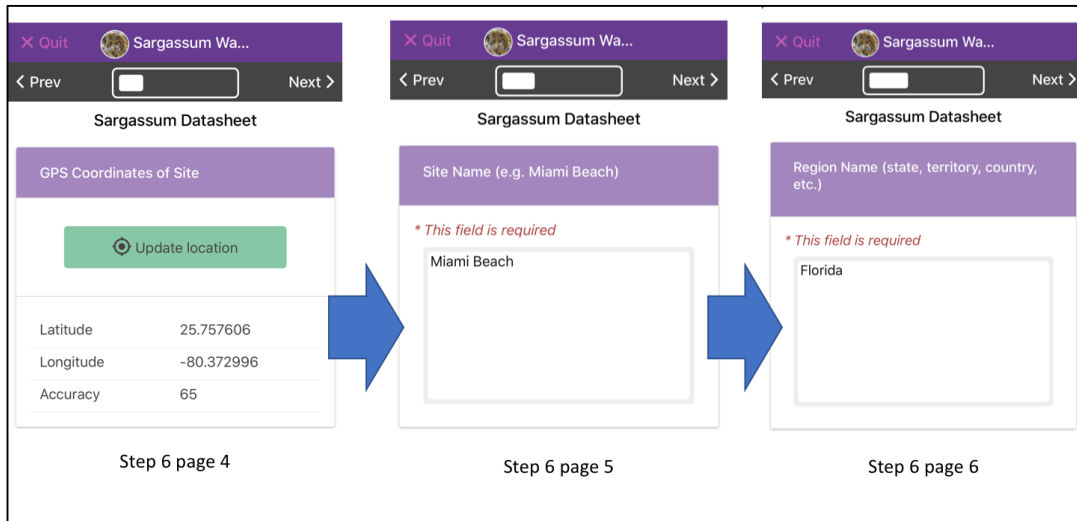
Step 6.3: The next three pages will ask you to take photos of the site at different angles. For on-site observations, click on "Take." The screen should change to a

camera to take the photo. Examples of these results are shown below:

| Step 6 page 7 | Step 6 page 8 | Step 6 page 9 |
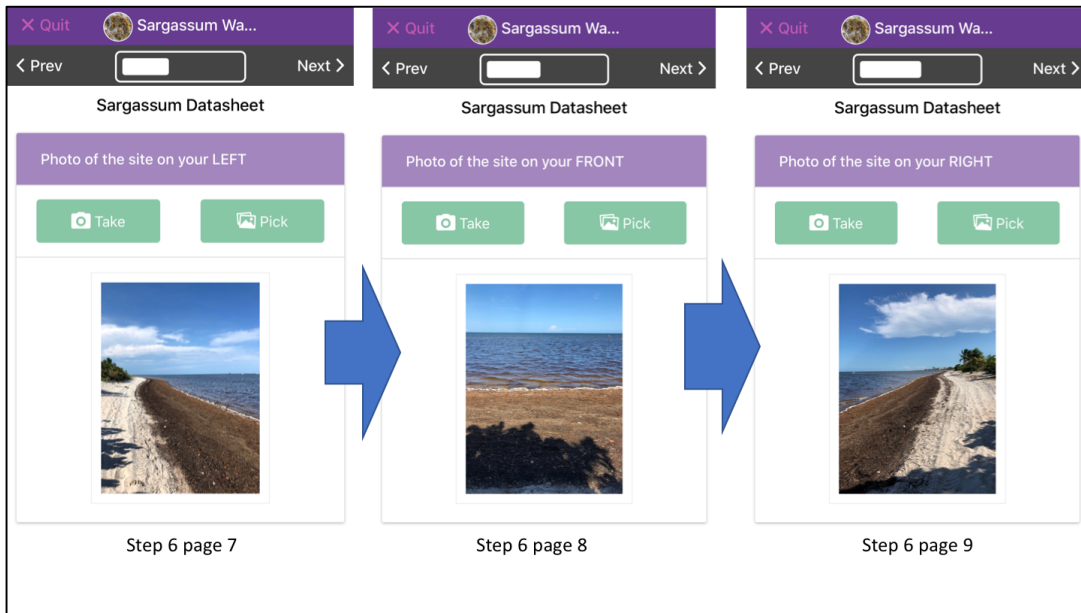
Step 6.4: The next two pages will ask you for the Sargassum specimens. First, determine whether the Sargassum is fresh, decomposing, or a mix. The next page will ask for one "photo of all Sargassum specimens that you can find."

It is preferred that you find fresh specimens of different types that you can distinguish. You also need to have the specimens distinct from each other and fit inside one photo. Example submissions and labeled quality are shown below:
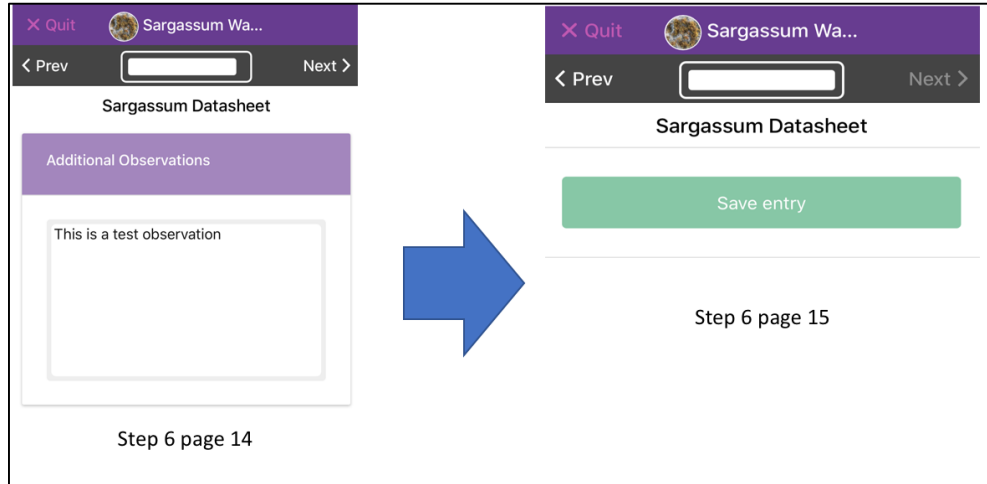

Step 6 page 10

Step 6 page 11

ONE Photo must show all different *Sargassum* specimens found within the local vicinity.
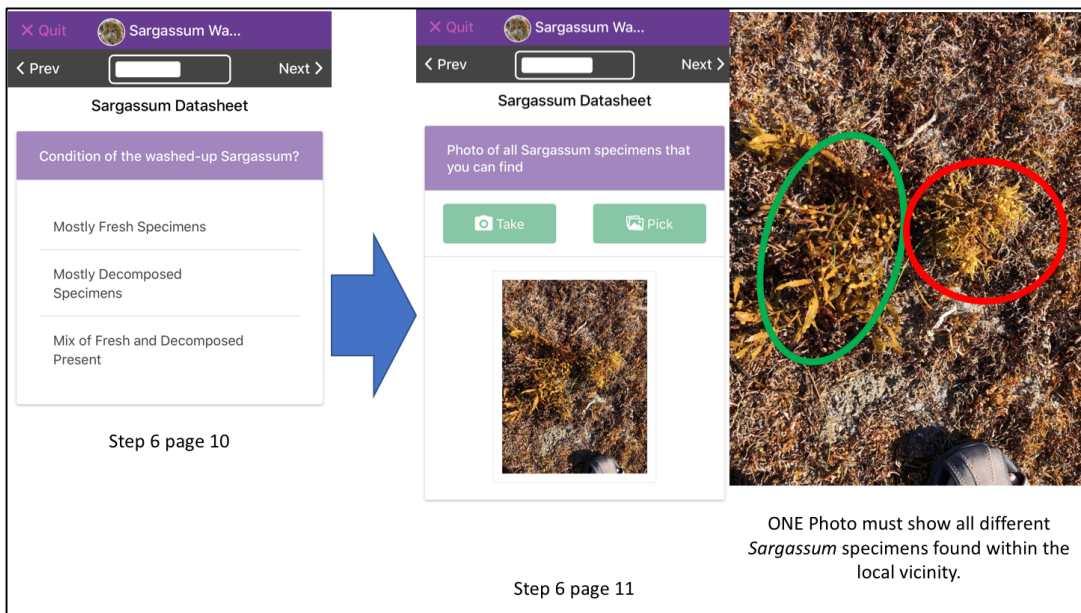
Example submissions of Sargassum specimens collected.

**Step 6.5**: The next four sections ask for environmental characteristics:

- Water color: Describe the water color close to shore.

- Smell: Does the site really smell of decomposing Sargassum?

- Wind: Is the site windy?

- Additonal observations

Step 6.6: The last page will prompt you to click on "save entry."

Step 6 page 14

Step 6 page 15

Step 7: Once you click on "save entry," you will be lead back to the project screen with an additional orange window "You have unsynced entries" shown.
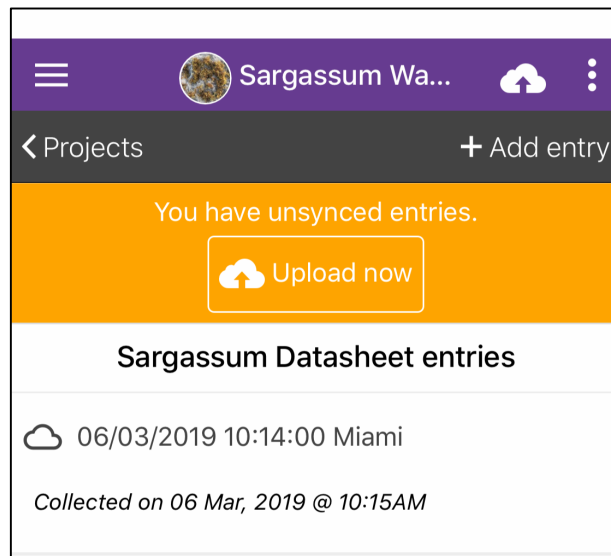
Step 8. You can save as many entries as you want. When you are ready to upload, click on "Upload Now" in the orange box.

> **Step 8.5**: If you need to delete an entry that has not been uploaded yet (noted with a white cloud to the left), click on the entry. On the top right corner, click on "delete entry," and confirm with "ok." The entry should be deleted.

Step 9: Once you click on "Upload now," you should see a page with a highlighted button asking to upload your data and photos. Click on "**Upload data**".
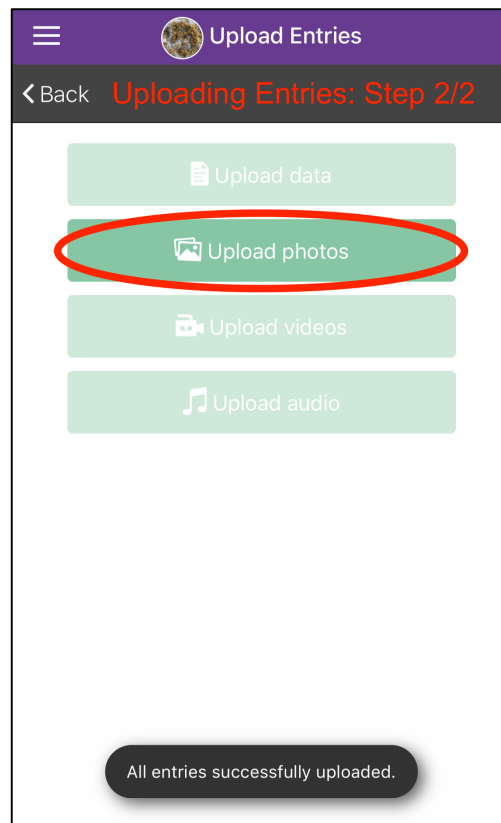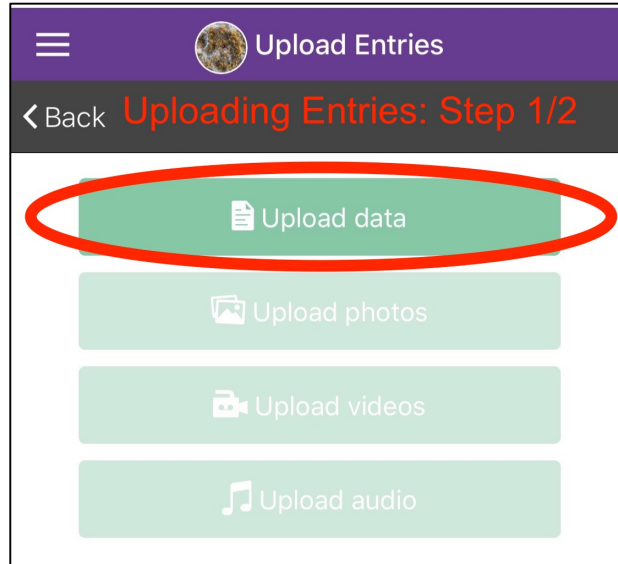
Step 10: Once the data is uploaded, the app will give you a message "all entries successfully uploaded." The button asking to "Upload Photos" should also be

highlighted. Click on **"Upload photos."** **This is required for your data entries to be complete.**

Step 11: All entries (including photos) should have been uploaded. Enjoy the rest of your day under the sun. ☺

Frequently Asked Questions and Troubleshooting

"I don't see any Sargassum. Should I still upload an observation?"

Yes! Absence of Sargassum is still data, and seeing how the site changes over time is essential, especially should Sargassum make landfall one day.

"I am returning to the same site and seeing the same observation. Should I still upload an observation?"

Yes! Seeing how the same site changes over time is valuable information.

"Where can I observe mats of Sargassum?"

Most areas would be coastal, such as public beaches or state/federal parks. Other areas can include piers, bridges, marinas, or anywhere where the area has contact with the ocean. Sargassum is a pelagic, floating species that eventually washes onto shore, and can occur anywhere there is connection to the ocean.

"I am intimidated with using this app. How do I know what buttons on the datasheet to push?"

Once you install the app, there is a "EC5 Demo Project" on the project homepage. The demo is optional, but it is good for getting acquainted with the types of questions and inputs to expect in the app. The layout for the Sargassum Watch project is the same as any other Epicollect5 project, including the demo. The breakdown of step 6 also follows the data sheet step-by-step.

"What questions does the data sheet in the project consist of?"

The first part of the data sheet will ask you for general information, such as your name, date, time, and location. The following questions will ask you to take photos of your observed site at different angles and the Sargassum specimens. Getting photos of the Sargassum specimens requires **picking up a few pieces of Sargassum** and taking **one**

photo of all specimens simultaneously. The data sheet wraps up with three other questions asking for water color, smell of the site, and wind activity.

"I have a previous observation of Sargassum. How could I record that?"

You can still use the app to upload your observations, photos included. The only additional steps to take is to adjust the date and time of the observation manually, as the app can only automatically record today's date and time. GPS Coordinates should also be skipped. The remaining steps to follow are the same.

"The app is not connecting. How could I upload the entry."

The app requires internet connection and may not upload immediately. Saving the entry will keep it on your entry page, and you can upload it on a later time when you have more stable internet connection.

"I still cannot upload the entry and I have internet connection."

You can email the photos, with all observation details to this email: Sargassum.fiu@gmail.com. We will confirm to you once we receive your observation.

"Do you have a website that shows the project itself?"

Yes! Follow this website link: https://five.epicollect.net/project/sargassum-watch. This website is automatically generated from the app. You can even see the data collected by clicking on "View data."

"Do you have this app/project in _____ (language other than English)?"

We have a Spanish-translated version of this project "Monitoreo de Sargassum" also in the Epicollect5 project search. The steps to follow are identical to the English version. We also plan in the future to have the app in French and Dutch for specific Caribbean countries with those dominant languages.

"How can I contact you for any other questions?"

You can email us at Sargassum.fiu@gmail.com