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## Eyes on Seagrass Volunteer Survey Procedures

Thank you for participating in the Eyes on Seagrass program! This community science effort helps us better understand the health of Sarasota Bay. In fact, the data that you collect becomes an integral part of the annual [Sarasota Bay Ecosystem Health Report Card](#). (To see the report card, go to [www.sarasotabay.org](http://www.sarasotabay.org), hover over “Our Estuaries”, and click on “State of the Bay.”) We sincerely appreciate your time, effort, and enthusiasm.

### Sampling gear

- Transect line in bucket
- 0.25 square meter quadrat
- 2 meter depth pole
- Mesh Bag
- Dive flag (with cable ties for attachment)
- GPS or phone capable of capturing GPS
- Scale

### Paperwork

- Survey procedures and safety packet
- Datasheet (one for each site) or your smartphone
- Field keys (seagrass, algae, epibiota, % cover scale)
- Map of your site
- Make sure all volunteers have signed the waiver

### CONTACTS:

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## Safety

Safety is ALWAYS first. Here are some safety issues to consider while conducting these surveys.

- **Swimming** – you will not be in very deep water, but you should still be able to swim to your location and back. If you are not a good swimmer, please buddy up with someone who is.
- **Buddy system** - with water related activities, it is always best to use the buddy system. Please do not do the survey by yourself.
- **Dive Flag** – a dive flag is required for snorkelers in Florida waters. You need to display the flag so that boaters can see you in the water. Always watch for nearby boating activity.
- **Wildlife hazards** – *Stingrays* tend to hang around seagrass beds in search of prey. Many times, they are buried in the sand near seagrass beds. Shuffle your feet as you walk to your stations to avoid stepping on them. Shuffling your feet will also kick up sediment, so it is best to walk down current from your site. If stung, use warm water to ease the pain. If the barb is lodged, seek professional medical attention immediately. The most common *stinging jellies* in Sarasota Bay are the upside-down jellyfish, *Cassiopea spp.*, which congregates in shallow waters around seagrass beds. These jellies secrete a mucus that can be mildly irritating to swimmers.
- **Sharps** – please wear water shoes or old tennis shoes to avoid cuts from oysters, rocks, and marine debris.
- **Weather** – If there is lightning in the area, leave the water immediately.
- **Sun protection** – We recommend plenty of sunscreen (or some form of sun protection) on your back and neck and the top of your head. You may want to wear a rash guard or wetsuit as well.
- **Water and food** - being in salt water and breathing through a snorkel will dehydrate you. You should have a bottle of water and a meal or snack with you on each survey.

## Field Procedures

### RECORDING DATA

You can record data on the paper DATASHEET or on your smartphone using SURVEY 123.

## How To Input Your Data using Survey123



- Use the QR code (left) to open the survey page, or type in <https://arcg.is/yqGGu> into your phone's web browser.
- Click either "Open in Survey123 field app". If the field app is not working or you'd rather not add the app, click on "Open in browser".
- It will ask you to sign in. Click "Continue without signing in".
- The link should automatically open the survey. If it does not, in the app, click on the Eyes on Seagrass option.

### SITE SELECTION

1) The sites for this survey have been selected based on a variety of factors including accessibility, overlap with water quality monitoring sites, and a semi randomized hexagonal grid system. The coordinates of your site(s) are the center point of the hexagonal grid tile. Due to the nature of the grid, some of the center points may be on land or in navigation channels. You should try to survey as close to your assigned coordinates as possible. Each grid tile is about 0.5 km<sup>2</sup> so as long as you are within a 200 meter radius of your assigned coordinates, it is okay. With that in mind, the next few steps guide you through selecting a site.

2) Navigate towards target site coordinates. If coordinates fall on land, in too shallow of water, or in too deep of water, then:

- Move away from the assigned GPS location towards or away from shore, until an acceptable water depth (between 0.5 (1.6') and 2 [6.6'] meters) with seagrass present. Every effort should be made to locate sites at or near the assigned GPS coordinates.
- If no seagrass is located within a 150-200-meter diameter circle of your initial location and/or the proper depth (between 1/2 and 2 meters) cannot be found, make a note on the datasheet, and then move to a new location within your assigned grid.
- If you absolutely cannot find a suitable location inside your assigned grid you may sample a neighboring grid at a spot as close to your assigned grid as possible. Be sure to note the grid change on the data sheet.

## SETTING & DEPLOYMENT OF TRANSECT LINE

1) Once a suitable survey site has been found, point the boat perpendicular to shore, facing shore or away from shore, where you have at least 50 meters of seagrass in front of the bow. If the water is too shallow to operate the boat without damaging the seagrass, deploy the transect line on foot.

2) From the stern of the boat, toss the 3-4-pound weight overboard. Pay out the transect line while slowly driving forward. The transect line should be placed with little or no slack between each weight.

3) Before tossing the second weight at the other end of the transect overboard, carefully pull on the line just enough to eliminate any slack that may be present, then drop the weight and the attached float into the water.

- If the water is too shallow to operate the boat without damaging the seagrass, deploy the transect line on foot.
- When deploying the line on foot, care should be taken to avoid disturbing the final path of the transect. It's no fun snorkeling in cloudy and turbid water!
- Once the transect line is deployed, use 2 people to pick up the entire line and move it about 3 meters (about 10') to one side, parallel and up current to the original placement. This will help assure clear snorkeling water conditions.

4) Do not traverse into deep natural areas or navigational channels! Transects shorter than 50 meters are acceptable. In cases where a deep area is encountered while deploying a transect line, simply stop paying out the line a safe distance short of the deep area, fold back the remainder of the line and temporarily tie-off the weight at the new end of the transect line.

5) Anchor the boat about midway along the transect line so that the anchor line and the transect line do not cross or pose a danger. *Make sure to anchor the boat down-current of the survey area!!!*

## SURVEY PROCEDURES

1) You may choose to begin at either end of your transect line; however, the end closest to shore should be your zero quadrat. If you start farthest from shore, your first quadrat will be 50 meters.

2) With a dive mask, snorkel, and a 0.25-m<sup>2</sup> quadrat, walk or swim to the beginning of the transect line. Using the 2-meter length of PVC pipe, **record** the water depth at each 10m marker along the transect line.

3) Dive down with the quadrat and find the 3-4-pound weight marking the transect beginning. Carefully lay the quadrat down adjacent to the transect line. It does not matter which side. Take care to ensure the seagrass blades extend through the quadrat and are not bent over underneath the quadrat.

- Looking down on the 0.25-m<sup>2</sup> quadrat from above, estimate the total percentage of the seabed within the quadrat covered by macroalgae – use the percent cover standards field sheet as a guide. Only focus on the macroalgae regardless of whether seagrass or sediment is below it. **Record.**
- Remove the macroalgae from the quadrat and place it to the side so that you can see the seagrass below. Take care to ensure the seagrass blades extend through the quadrat and are not bent over underneath the quadrat.
- Looking down on the quadrat from above, estimate the total percentage of the seabed (substrate) within the quadrat covered by seagrass – use the percent cover standards field sheet as a guide. **Record.**
- Identify the species of seagrass within the .25-meter quadrat and determine the percent contribution of each species to the total coverage. **Record.** Use the seagrass species identification key provided. Total composition must equal 100% (e.g. turtle grass 70% + manatee grass 20% + shoal grass 10% = 100%).

5) Using your 2-meter depth pole, determine the height of the seagrass canopy by aligning three seagrass blades of each species alongside the depth pole and **record** each height. Be sure to measure full blades (not broken ones). For *Thalassia*, blades should have a rounded tip. If a lot of blades are broken, note that in the comments.

6) Note the epibiota (attached plants and animals) density on the seagrass blades (see field key). **Record** on datasheet. \*You may need to look at seagrass next to your quadrat as epibiota are often removed during the macroalgae removal process.

7) Note what percentage of the epibiota observed is algae (as opposed to sponges, crustaceans, and other animals). **Record** on datasheet in the % Plant space.

8) Swim or walk along the transect line until you see the 10-meter mark on the transect line, and repeat steps 3-7.

9) Swim or walk along the transect line until you see the 20-meter mark on the transect line, and repeat steps 3-7.

- Only at the 20-meter mark, carefully collect all the macroalgae from within the 0.25-m<sup>2</sup> quadrat. Place the macroalgae in the mesh bag and keep it until you are back on the boat. **Record** as indicated on data sheet.

10) Repeat steps 3-7 at 30, 40 and 50 meters.

11) Continue survey until one of the following conditions occurs:

- The entire 50 meter transect is surveyed.
- The transect becomes too deep to safely swim along the bottom
- Any other condition that may arise, ranging from poor visibility, poor weather, physically tired diver, etc.

12) Once the transect survey is finished, pull the transect line into the anchored boat. The entire transect line should be loosely coiled into the 5-gallon bucket, or onto an open area of the deck in preparation for the next site (if you are doing more).

## SEAGRASS SURVEY PROCEDURES FOR THE DATA SHEET RECORDER

Seagrass (refer to the Seagrass Key)  
 T – Thalassia (Turtle grass)  
 H – Halodule (Shoal grass)  
 S – Syringodium (Manatee grass)  
 R – Ruppia (Widgeon grass)  
 HE – Halophila engelmannii (Star grass)  
 HD halophila decipiens (Paddle grass)

1) Record legibly on data sheet:

- Surveyor names
- Grid # (your assigned site number)
- GPS coordinates (Latitude & longitude)
- Date
- Time
- Water and wave conditions

2) At each quadrat record:

- Water depth
- Sediment type
- Seagrass % abundance
- Seagrass species present

- % contribution of each seagrass species present
- Seagrass epibiota abundance
- % algae contribution to overall epibiota abundance
- Macroalgae % abundance
- Height of seagrass blades of each species present
- At 20m ONLY, macroalgae sample collected

### **PREPPING YOUR MACROALGAE SAMPLE**

- 1) At the 20 meter mark on your transect, you should have collected all of the macroalgae from the quadrat into the mesh bag.
- 2) Spin the sample in the bag for 60 seconds until dry or squeeze all the water out with your hands.
- 3) Weigh bag with the macroalgae in it.
- 4) Take the macroalgae out and weigh the bag without macroalgae in it.
- 5) Subtract the weight of the empty bag from the weight of the macroalgae plus the bag to get the weight of the macroalgae only. **Record this number.**

### **BEFORE LEAVING THE SITE MAKE SURE YOUR DATA SHEET IS COMPLETELY FILLED OUT. If surveying another site...**

- 1) Navigate to the next assigned station (GPS) location.
- 2) Drink some water!
- 3) Repeat steps above until all survey locations are complete, you run out of time, or any other conditions arise ranging from poor weather, physically tired diver, etc.

### **WHEN YOU ARE FINISHED FOR THE DAY**

Please wash your survey equipment in fresh water immediately after you get back to shore to prevent it from being damaged by salt water. Drop off all equipment and data sheets at the SBEP office, 111 S. Orange Avenue, Suite 200W, Sarasota, FL 34236 (please make arrangements in advance with SBEP staff).

**For April sampling:** if you plan to volunteer again in July (and we hope you do), you may keep your survey gear if that is convenient for you.

**For July sampling:** please return your survey gear to SBEP until next year so that we can make sure all gear is in tip-top shape.

If you have any questions, don't hesitate to contact Jay.

**THANK YOU FOR YOUR TIME!!!**