Barnegat Bay Partnership
RESEARCH · EDUCATE · RESTORE

Paddle for the Edge

2025 Training Manual

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Welcome to Paddle for the Edge!

We are excited to have you for our 11th year of collecting marsh edge data. As a community scientist, you are a key player in helping us better understand what is going on in the bay and surrounding habitats. Where are oyster populations thriving? Is recreation impacting the shoreline? Are marshes protecting us from storms? These are all questions that you can help answer by dedicating your time to our survey. With the data you collect, we can get a snapshot of current marsh conditions in the bay and target areas in need of further investigation.

Being a volunteer for Paddle for the Edge is no small feat, and we appreciate your commitment to collecting quality data to be used in our analyses of marsh edge conditions. By undergoing training, you are ensuring that the data we collect can be used to target areas for monitoring, restoration, or assessment. Whether we are selecting areas to implement living shorelines, using photos to support long-term monitoring, or sharing data with partners, it is imperative that the data is accurate and representative of current conditions. This training manual provides step-by-step instructions on how to collect data and photos, along with tips and tricks to get the most helpful data possible.

We encourage you to review the materials and let us know of any questions you may have along the way. We also invite suggestions to improving the process. We value your feedback and look for any opportunities to help you get the most out of the program. We hope you enjoy being a Paddle for the Edge community scientist. Thanks again, and let's get paddling!

Sincerely,

The Barnegat Bay Partnership

How it Works

1) *Receive your paddling assignment*

The area you are assigned to paddle will come to you via email approximately two weeks before the survey window opens. You will receive **a PDF map of the assigned area with GPS coordinates in the image. YOUR ASSIGNMENT WILL NOT SHOW UP IN THE DATA COLLECTION APP**. If you need help navigating to your assigned area, enter the GPS coordinates into Google maps, Apple maps, etc. When you arrive at the area, switch to the data collection app. That map will be blank until you start taking points.

2) *Schedule your paddle*

Discuss schedules with your paddle buddy. Find a **range** of days that will work for both of you to get out and paddle. Keep a couple dates in mind in case illness or emergencies arise.

Once you have your selected days, use the accompanying **tide chart** to determine the best time to paddle. **YOU MUST PADDLE AT LOW TIDE**. This allows a full view of the marsh edge to get the most accurate data. Select a day when low tide is suitable for getting out on the water and make sure to leave time for travel to the assigned area.

3) *Launch and paddle to your assigned section*

You should arrive at your launch site before low tide. Ensure you are using a public launch, or that you have permission at a private launch. If you encounter any trouble, please let us know! We are happy to ask permission for access to private launches or help you find the best spot. Ensure you have all **safety equipment**, make sure the data collection app is working, and then get out on the water!

4) *Assess a 10-foot section of marsh*

At the start of your assigned section, take your first point. Each point should assess approximately **10 feet of marsh edge**. If your kayak is parallel to the shore, assess the area just within the length of the kayak. This area is large enough to see the physical features of the marsh in a photo but small enough to see the biological features such as mussels and plant roots.

5) *Paddle to the next point*

Once you have reviewed and submitted your first point, paddle approximately **100 feet** along your assigned section. This is equivalent to approximately 10 kayak lengths, or about 30 strokes. It doesn't have to be exact! Take your next point here and then repeat until you get to the end of your assigned section.

Tides

In order to get the highest quality data, the assessment must be completed at low tide. However, we know that is not always possible. Winds and freshwater input can make determining the tidal cycle in the field deceptive. We suggest using the accompanying tide chart from NOAA before you go out.

Safety

1. Follow **all** U.S. Coast Guard, N.J. State Police, and local **rules and regulations**.
2. **Always** paddle with a buddy! It's more fun and much safer!
3. Check the weather and know the tide. **DO NOT** collect data if weather or current conditions make the water more challenging than your skill level.
4. Wear your **Personal Flotation Device** (PFD). *Note: U.S. Coast Guard regulations require all kayaks to have a life jacket on board.*
5. Make sure you have **shore support**. Let someone know **where** you are going, **what** you will be doing, **how long** you expect to be gone, and **how many** people are in your group. Make sure to let them know when you come back safely, and what to do if they don't hear from you by the expected time.
6. Stay well-hydrated by bringing **water** or other beverages with you.
7. Have a first aid kit and all necessary **safety gear** with you and make sure it is easily accessible.
8. Wear clothing appropriate for the weather, temperature, and protection from insects.
9. **Never** mix alcohol or drugs with any kind of boating.
10. Stay within your **skill limits**. Make sure you always have enough energy to return to shore.

Survey 123

Getting Started

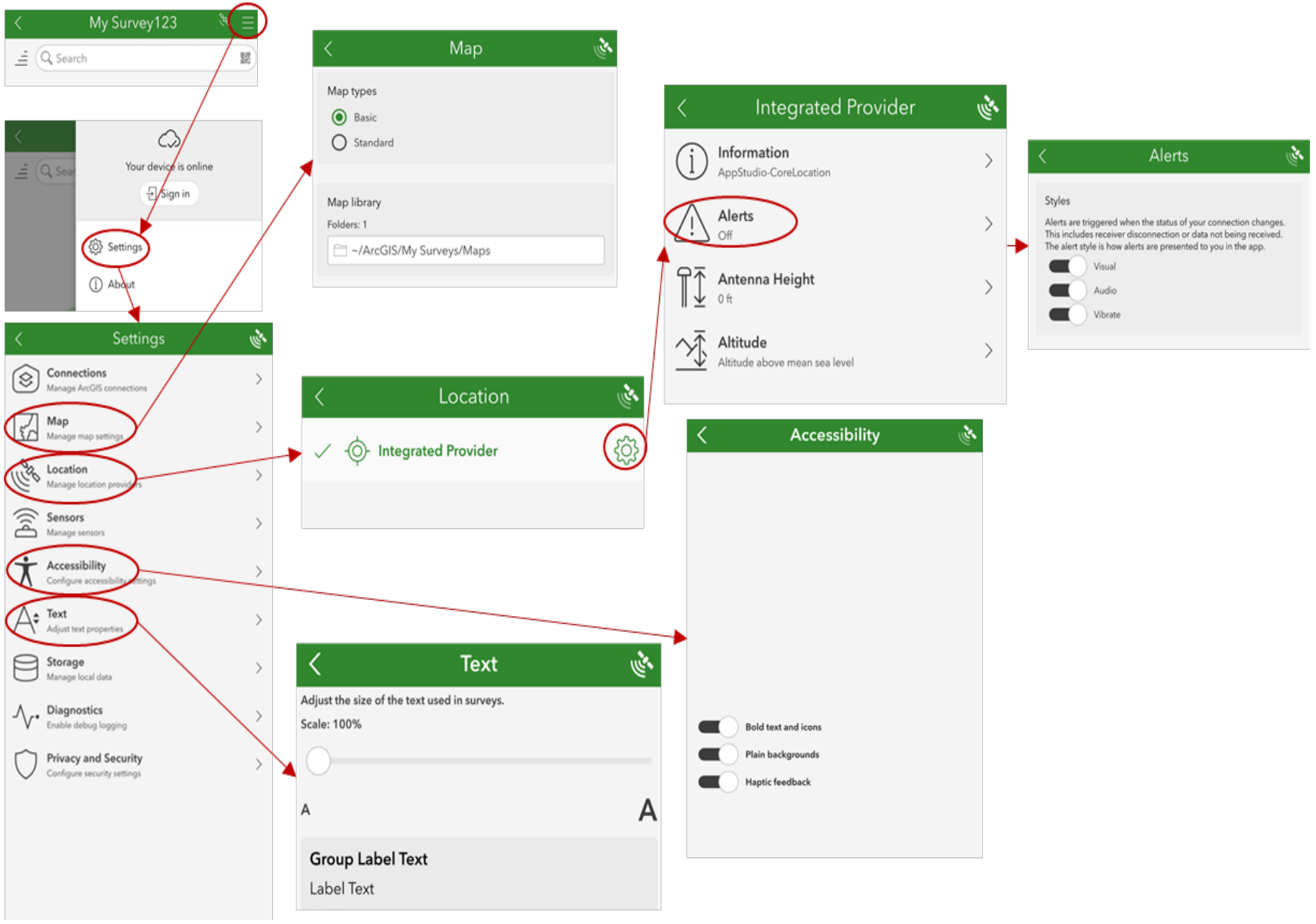
a. Go to the Google Play Store or Apple's App Store.

b. Search for "Survey123" (by ESRI).

c. Click "GET" then "Install" (iPhone) or "Install" (Android) to download it to your phone.
d. Open the app.
e. Allow the app to use your camera.
f. Select "Continue without signing in".
g. Allow the app to use your location.

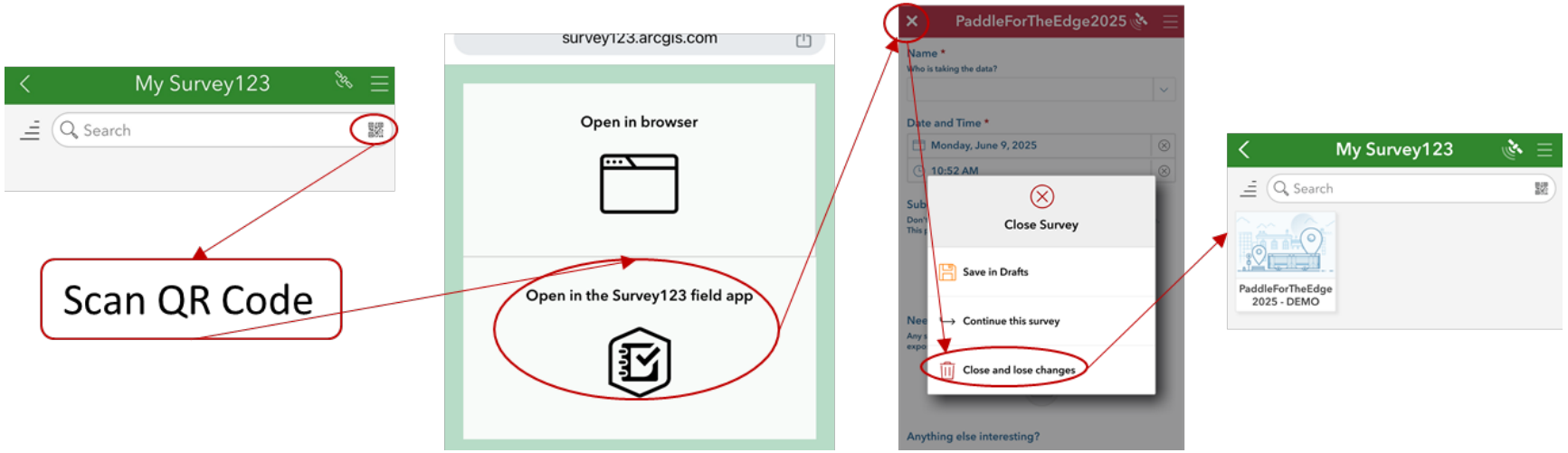
Updating Settings

a. Open the menu (three bars in the upper right corner).
b. Select Settings.
c. Select Map.
    i. Select "Basic", then go back to the previous menu.
d. Select Location.
    i. You may allow the app to find Bluetooth devices, but not necessary.
    ii. Click on the gear icon next to Integrated Provider.
    iii. Select Alerts.
        - Turn on the alerts and then go back three pages to the Settings menu.
e. Select Accessibility and change any settings desired.
f. Select Text and change any settings desired.
g. Return to the home screen.

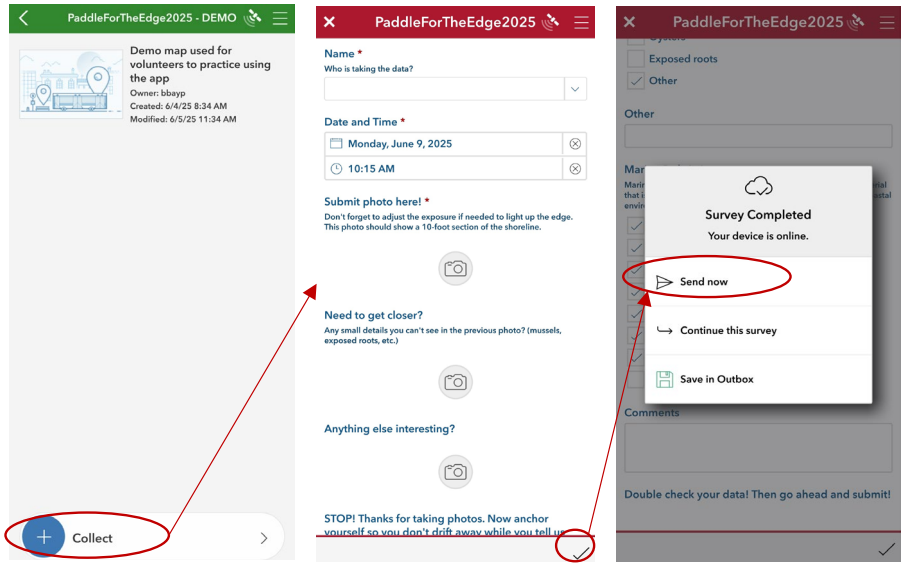

My Survey123
Search
Your device is online
Sign in
Settings
About
Settings
Connections
Manage ArcGIS connections
Map
Manage map settings
Location
Manage location providers
Sensors
Manage sensors
Accessibility
Configure accessibility settings
Text
Adjust text properties
Storage
Manage local data
Diagnostics
Enable debug logging
Privacy and Security
Configure security settings
Map
Map types
Basic
Standard
Map library
Folders: 1
~/ArcGIS/My Surveys/Maps
Location
Integrated Provider
Integrated Provider
Information
AppStudio-CoreLocation
Alerts
Off
Antenna Height
0 ft
Altitude
Altitude above mean sea level
Alerts
Styles
Alerts are triggered when the status of your connection changes. This includes receiver disconnection or data not being received. The alert style is how alerts are presented to you in the app.
Visual
Audio
Vibrate
Accessibility
Bold text and icons
Plain backgrounds
Haptic feedback
Text
Adjust the size of the text used in surveys.
Scale: 100%
A
A
Group Label Text
Label Text

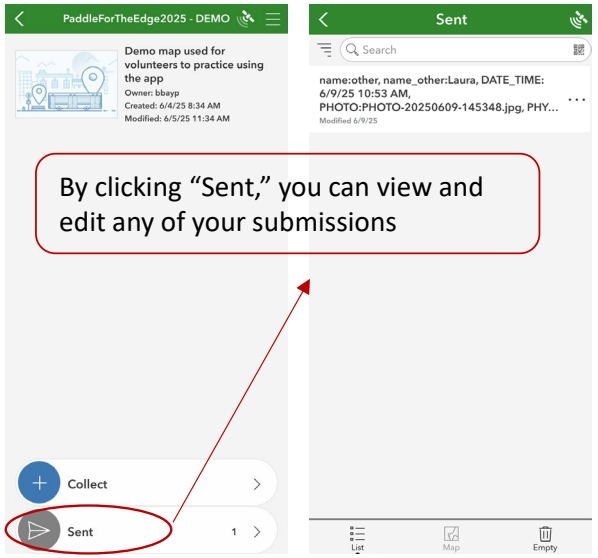
Navigation

1. Find the survey.
    a. Next to the search bar, click the QR code icon.
    b. Scan the QR code. It will open a window in your browser.
    c. Select “Open in the Survey123 field app”. It will take you to the app and open the survey.
2. Return to the home screen.
    a. Click the X in the upper left corner.
    b. Select “Close and lose changes”.
    c. You should see the map title “PaddleForTheEdge 2025 – DEMO”.



3. Start the survey.
    a. Click on the map file.
    b. Click on Collect at the bottom of the page.
    c. Fill in the survey and submit.





GPS Coordinates

One of the most important pieces of data collected is the GPS coordinates of each data point. This allows us to align the area assessed with historic land use data in that exact spot to determine whether the edge is eroding or accreting over time. There are a couple ways to make sure that the GPS coordinates are accurate for each point:

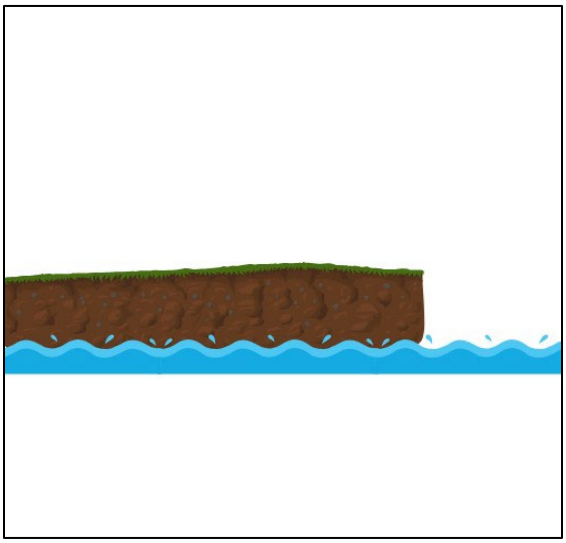
- After you take a photo, anchor yourself to the edge while you input the data. Do not paddle or drift away until you hit Submit.
- Avoid taking data points near tall structures like trees or buildings. They can obstruct satellite reception.
- After you submit a point, take a look at the map. An icon should appear where you just submitted data. If it looks like it is in the wrong spot, edit the data with a comment and then take a new data point.

Survey Parameters

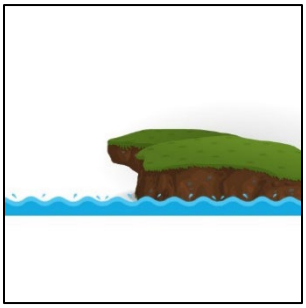
Physical Features

Perpendicular bank shape

A perpendicular edge is a vertical line from the bottom of the bay to the top of the marsh, like a bulkhead. It is usually unvegetated and can contain holes from fiddler crab burrows. **There is a clear distinction between the top of the marsh and the side of the marsh.**

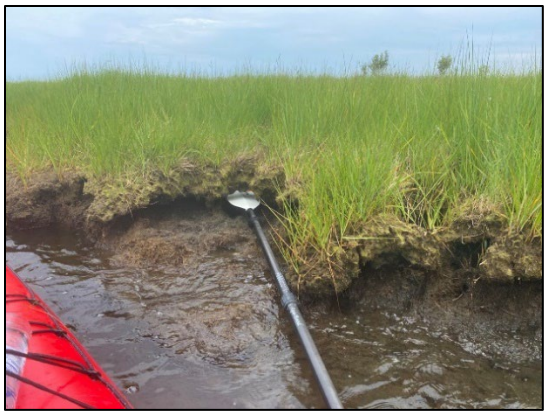


Undercut/Cantilever bank shape



An undercut edge forms a curve toward the water but can be complex; it can be perpendicular most of the way up and then curve toward the water just at the top, or it can start curving right at the bottom. **An undercut edge can often be mistaken for a gradual slope at high tide when the water level is too high to see the base of the edge.**

Cantilever is an architectural term meaning “attached on one side” and is often used to describe the awning of a building. This visual can be applied to the marsh edge. If an edge is undercut at the base so severely that the top sticks out like an awning over the water, it is cantilevered. Another way to think of it is if you were to stand on the marsh platform, would you be afraid of it breaking and falling into the water? If so, the edge is cantilevered! This shape occurs when water whisks sediment away from the **base of the marsh edge**, but does not reach the top. As sediment is whisked away at the bottom, the top is left overhanging.



Make sure to check the edge underwater with your paddle! **Sometimes a cantilevered edge is so severe that it looks like the top of the marsh gradually slopes toward the water when the water is too high. Place your paddle at the bottom of the edge and if it disappears under the marsh, you have a cantilevered edge (document this in the photos or comments).**

Tiers

Sometimes erosion doesn't just whisk sediment away gradually, but it causes the whole edge to break off. This process can result in **multiple platforms at different elevations**: often the chunk that fell off and the new marsh platform. A tiered edge looks like a **staircase**. The lower platform (old marsh) may remain bare or it may revegetate. When looking at a tiered edge, ***assess the edge of the upper platform (new marsh)***.

Chunks

Chunks are **standalone** pieces of marsh that are no longer attached to the mainland marsh. Water can whisk sediment away on either side of a point on the marsh edge, and continue until that point is no longer attached to the marsh. Additionally, a chunk of marsh falls into the water when bank failure occurs and it can either sink, drift away, or reattach to the bottom of the bay nearby. Chunks are sometimes submerged but can be identified by vegetation sticking out of the water. ***Do not assess islands as chunks.*** Islands represent longer term processes of erosion and accretion – we just want to know about current conditions.

Slumping

Sometimes the top of the marsh platform slides toward the water without breaking off, almost like it's **melting**. Slumping is evident when what was the top of the marsh platform is now on the side of the marsh. You may see vegetation sticking out of the marsh edge or chunks sliding down the side. Slumping occurs when sediment is whisked away at all elevations of the marsh, not just the base. The slow decrease in sediment causes vegetation and chunks to slide down the marsh edge rather than break off.

Other

List any other physical features you might see that could help us better understand what is going on at the edge. Are there structures present? Does the sediment look different than other locations? Do you see trash? Let us know of any non-living observations you may have. Examples include but are not limited to:

- Sandy beach
- Old pilings
- Bulkhead
- Rip rap
- Oyster bags

Biological Features

Mussels

Mussels help stabilize the marsh edge. Sometimes they are very obvious as with a continuous distribution, and other times they are present as singles or clumps and harder to find. Look for shells with a **ribbed texture** that are **anchored** to the marsh edge. Empty shells or dead individuals do not count.



Oysters

While not having a direct impact on marsh edges, oysters are an important part of the bay in need of further study. They can be found attached to hard structures on the edge such as clumps of mussels, bulkheads, or pilings. They are often **light gray** with a **muddled texture**, compared to the dark ribbed appearance of mussels.



Exposed roots

Marsh plants have long root systems to help withstand wind and wave energy. When erosion occurs, sediment is whisked away, exposing the root systems. Exposed roots **occur in most perpendicular and undercut edges**.

Other

List any other biological features you might see that could help us better understand what is going on at the edge. Did seagrass wash up with the tide? Are algae accumulating on the edge? Any other animals nestled in the holes in the sediment? Let us know of any living plant or animal observations you may have. Examples include but are not limited to:

- Fiddler crabs
- Seaweed
- Seagrass
- Sea lettuce
- Flowering plants

Comments

Provide any other details you feel necessary. No amount of information is too much! Did you see a cool bird? Are you sure the edge is cantilevered but can't capture it in the photo? Are you having fun? We want to know anything and everything on your mind!

Photos

Photos taken at each point are a critical part of the Paddle for the Edge data. We use these pictures as part of the Quality Control and Quality Assurance of the survey. They also allow us to further investigate priority areas determined by our analyses. These pictures should allow us to verify most, if not all, of your answers to the survey questions. Here are some examples of good pictures:

Here are some examples of pictures that make it difficult for us to see the edge:

These pictures are either too far away, too dark, or too flooded for us to see any of the important erosional characteristics of your edge. Please make sure you take the time to take a good picture.

Some tips:

- Remember that you are only photographing a **10-foot section**. We need to see the edge details, not vast landscapes.
- Is the sky bright and the edge dark? **Adjust the exposure** by tapping the part of the screen where you want to see the details (the edge!). This should automatically adjust the exposure on the camera to darken the sky and lighten the edge. You can also tap the screen and hold, then move your finger up and down to manually adjust the exposure.
- Can't see the details of mussels and roots from your photo? **Take another**! Move closer or zoom in to capture all the details. Take extra photos to capture specific details and add comments! However, don't take too many photos! We only need to see a 10-foot section at a time.

Instagram

Be sure to follow us on Instagram for updates on the program including important dates and data collection tips. Join in on the conversation by replying to posts and sharing our stories! We can all learn from each other and we want to showcase your dedication to the program.