TAMPA BAY WATCH

Kids' pages

Are you ready to learn about the bay?

News for the kids of Tampa Bay!

Winter 2020

TAMPA BAY WATCH
Restoring the Bay Every Day

In This Issue:

Mark your Calendars for a Cleanup!

Volunteers are needed to participate in the Great American Cleanup at Grandview Park on Saturday, March 21.

The Keep America Beautiful Great American Cleanup is the nation's largest community improvement program which takes place annually in an estimated 15,000 communities nationwide. This is a land-based cleanup with the majority of volunteers needed to walk the sites to pick up trash. The recommended minimum age to participate is ten years old.

Visit **tampabaywatch.org/volunteer** to sign up!

Got a Question? Ask a Scientist!

Q What's the grass on our coastline?

A That is marsh grass! It is extremely important in our Tampa Bay area!

Marsh grasses are plants that include rushes, sedges, and grasses that live in the intertidal zone along the shoreline. An intertidal zone—which means "in between the tides"—is the area along a shoreline that is submerged or under the water during high tide and exposed to the air at low tide. Because of the ever-changing conditions, many different kinds of life can be found in this area: both ocean and land animals!

Marsh grasses are an important habitat and a vital part of the marine food web. Many animals eat algae that grows on its stems, like mussels and snails. Once the grasses die, they decompose and break down, eventually being eaten by crabs, molluscs, and other marsh organisms. Marsh grasses are also an important habitat and home, as they provide protection from predators, and nesting for many native coastal and migratory birds.

Marsh grasses are beneficial for the environment. They help reduce erosion, protect the shoreline, and prevent pollutants from entering our waterways! Cord grasses, as well as many other marsh grass species, have strong root systems called "rhizomes" that hold the plant steady. This branching web of special roots traps and collects sediment, soil, and other materials that cause sediment buildup. This collection helps grow our coastline and beaches! Additionally, the rhizome roots and extra soil help fight against erosion, which is what happens when the shoreline gets washed away by water, waves, or wind.

Marsh grass at high tide

Wave energy is the main cause of erosion. Studies have shown that 15 feet of salt marsh on our coastline can reduce low energy from waves by over 50%! Scientists estimated that coastal marshes provide over $20 billion worth of storm protection and shoreline stabilization in the United States every year! Marsh grasses are extremely important for keeping many coastlines—including Tampa Bay's—protected.

Sources: chesapeakebay.net, coast.noaa.gov, plants.ifas.ufl.edu, tampabaywatch.org; floridainshoreangler.com.

Expand Your Mind!

Meet & Greet: Marsh Residents of Tampa Bay

MARSH FIDDLER CRAB

Uca pugnax

Marsh fiddler crabs are small brown crabs varying in shade. The male fiddlers are known for having one enlarged claw used for attracting a mates. Marsh fiddler crabs dig burrows around smooth cord grasses. These crabs have symbiotic relationships with marsh grass- they both benefit from living together. The mud fiddler crabs receive protection from the marsh grasses and the crab's burrows increase drainage and the amount of oxygen in the soil benefiting the marsh grasses.

Sources: : animaldiversity.org , esajournals. onlinelibrary.wiley.com, chesapeakebay.net; calphotos.berkeley.edu

MARIAN'S MARSH WREN

Cistothorus palustris marianae

Marian's marsh wrens are small brown wrens reaching only around 5 inches long with white bands above their eyes. These small marsh wrens builds dome shaped nests among coastal marsh grasses like smooth cordgrass and black needle rush. Male marsh wrens will fly up to around 23 feet to show ownership of their nests and to attract mates. Males will also court females by singing to them. Because these birds live along the coastline their main threat is destruction of marsh habitat.

Sources: fnai.org, myfwc.com; Glenn Bartley/ VIREO, audubon.org

MARSH PERIWINKLE SNAIL

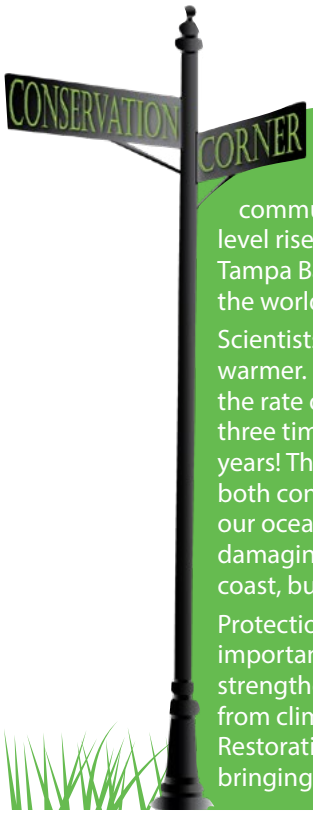
Littoraria irrorata

Marsh periwinkle snails are found from New York all the way down the coast to central Florida!

These snails spend most of their time in marsh habitats on smooth cordgrass. Scientists use periwinkles to help evaluate the health of many marshes, because they are sensitive to chemical changes in their environment.

Sources: animaldiversity.org, blog.wfsu.org, cwc.lumcon.edu; nicholas.duke.edu

Our education programs get kids into the bay!



Coastal Impacts and Marshes

Over half of the population in the United States lives on the coast. Coastal communities are greatly exposed to risks like sea level rise, increased storms, flooding, and erosion. The Tampa Bay area ranks as one of the top-ten areas in the world vulnerable to sea level rise.

Scientists report that the Earth's climate is getting warmer. According to NOAA, within the past 30 years, the rate of warming across the globe has been around three times greater than the rate over the last 100 years! The melting of land ice and water expansion both contribute to the rising volume of the water in our oceans. Water rising on our coastline can have damaging effects to habitats like marsh grass on the coast, but also to animals and humans living there!

Protection and restoration of marsh grasses are important strategies that should be carried out to strengthen our coastlines to withstand and recover from climate change impacts like sea level rise. Restoration projects like marsh grass plantings—bringing the marsh grass habitat back to the way it used to be—will help create conditions that will allow native habitats to adapt to the changing environment. Support and funding for these types of projects are important.

Volunteers planting marsh grass.

Restored salt marshes provide natural flood protection against sea level rise. As sea level rises, restored healthy tidal marshes can continue to build up to match the rise in water levels. Tampa Bay Watch's educational programs *Bay Grasses in Classes* and *Estuary EDventures* are working to educate local students about their local estuary and about the potential impacts of our changing planet on coastal habitats. And Tampa Bay Watch also utilizes the community to accomplish large-scale native marsh grass plantings. Volunteer opportunities are listed on our website!

Sources: *chesapeakebay.net, climate.gov, climate.nasa.gov, coast.noaa.gov, fws.gov, nationalgeographic.org, tampabaywatch.org*

Fun Facts about Marshes

- One acre of salt marsh captures and converts at least 3.2 metric tons of carbon dioxide every year!
- The Florida Everglades is the largest marsh system in the United States.
- It has been estimated that around 200 species of fish and 150 species of birds depend on wetlands for their survival in the United States.
- Scientists have estimated that Florida has lost around 10% of its salt marshes.

Sources: fws.gov, nationalgeographic.org, nrc.gov

Did You Know...

Salt marshes act like filters! Marsh grasses filter pollutants such as heavy metals, herbicides, pesticides, and excess nutrients, stopping them before they can enter the ocean!

Source: oceanservice.noaa.gov

Fun Activity:

Pretty Periwinkles

Have fun designing your own marsh periwinkle snail! Make sure to ask for adult supervision.

Materials:

- Sea snail shells
- Paints
- Paint brush
- Clay or model magic
- Toothpicks or pipe cleaners
- Glue (hot glue works best)

Instructions:

1. Paint your shell any color you would like. Add unique designs!
2. While your shell is drying, create your snail's body. Roll your modeling clay into a small "S" shape.
3. Next, design your snail's face. You can use a toothpick to create your snail's face or you can paint it on to the clay.
4. Break a toothpick in half and poke the pieces into the modeling clay on the top of your snail's head to make the antennae. You can also use small pieces of pipe cleaner for this step.
5. If your clay is wet, you may be able to press your shell directly on to your snail's body. If your shell is unable to stick, use a small amount of hot glue to attach your shell on to the lower half of the snail's S-shaped body.
6. Allow enough time for your clay and glue to dry!

Source: masandpas.com/painted-seashell-snails

TAMPA BAY WATCH
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Kids' Pages is a quarterly newsletter supplement to the *Bay Watch Log.*

Please get your kids involved and sign them up to be a member today! Email **membership@tampabaywatch.org** or visit tampabaywatch.org.

Cover masthead artwork drawn by Sarah Kelly, one of Tampa Bay's talented youth artists.

Estuary EDventures

TAMPA BAY WATCH

Kids' pages Investigations

Topic: Marsh grasses

Winter 2020 edition

Instructions: Read through the appropriate Kids' Pages edition and answer the questions below. Once all the questions have been completed, refer to the Answer Key to check your work.

Multiple Choice (choose one):

1. **Which answer best defines the term "intertidal zone"?**
   - (a.) The sand that builds up just offshore behind breaking waves.
   - (b.) The zone of the Earth's atmosphere with the highest concentration of carbon dioxide.
   - (c.) The area of shoreline between high tide and low tide.
   - (d.) The deepest zone of the ocean.

2. **What is the name for the strong root systems that hold marsh grasses steady in soft, muddy bottoms?**
   - (a.) Rhombus
   - (b.) Rhizome
   - (c.) Stem
   - (d.) Sediment

3. **What percentage of low-energy wave action can be reduced in an area with 15 feet of salt marsh grass growing along the coastline?**
   - (a.) 20%
   - (b.) 30%
   - (c.) 40%
   - (d.) 50%

4. **What is the largest marsh system in the United States?**
   - (a.) The Tampa Bay Estuary
   - (b.) Chesapeake Bay
   - (c.) The Florida Everglades
   - (d.) Death Valley National Park

5. **In the United States, what is the estimated number of fish species that depend on wetlands for their survival?**
   - (a.) 200
   - (b.) 100
   - (c.) 150
   - (d.) 300

Fill in the Blank:

6. **Marsh grasses are beneficial for the environment because they help reduce _____, protect our _____, and help prevent _____ from entering our waterways.**

7. **Erosion is what occurs when the shoreline gets washed away over time by these three environmental factors:**

   _____

   _____

   _____

8. **The main cause of erosion in the Tampa Bay estuary is _____ (two words).**

9. **Marsh fiddler crabs and smooth cordgrass have a _____ relationship: the crabs are sheltered by the grasses, while the grasses receive highly oxygenated soil from the crabs' burrows.**

Short Response:

10. In 3-5 sentences, please discuss **what threats sea level rise poses** for communities living on coastlines and **how marsh grasses impact those communities.** Provide at least two examples using the information from the *Conservation Corner* section of *Kids' Pages.*

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ANSWER KEY

1. A. Intertidal zone means "in between the tides."
2. B. This branching web of special roots also collects sediment, soil, and other materials to encourage buildup.
3. D. About half of low-wave energy can be mitigated with the presence of marsh grasses!
4. C. The Florida Everglades covers about 3,861 sq. mi., or 10,000 sq. km.
5. A. There are an additional 150 bird species that rely on wetlands as well!
6. Marsh grasses are beneficial for the environment because they help reduce **erosion,** protect our **shoreline,** and help prevent **pollutants** from entering our waterways.
7. Erosion is what occurs when the shoreline gets washed away over time by these three environmental factors:

   water
   waves
   wind
8. The main cause of erosion in the Tampa Bay estuary is **wave energy** (2 words).
9. Marsh fiddler crabs and smooth cordgrass have a **symbiotic** relationship: the crabs are sheltered by the grasses, while the grasses receive highly oxygenated soil from the crabs' burrows.
10. Answers will vary. ***Example answer:*** ***There are several risks coastline communities are facing including increased storms, erosion, flooding, and sea level rise. Marsh grasses support those communities by providing important habitat and natural flood water protection. Continued support of marsh grass education and restoration is pertinent to the continued longevity and benefit of our coastal ecosystems.***