

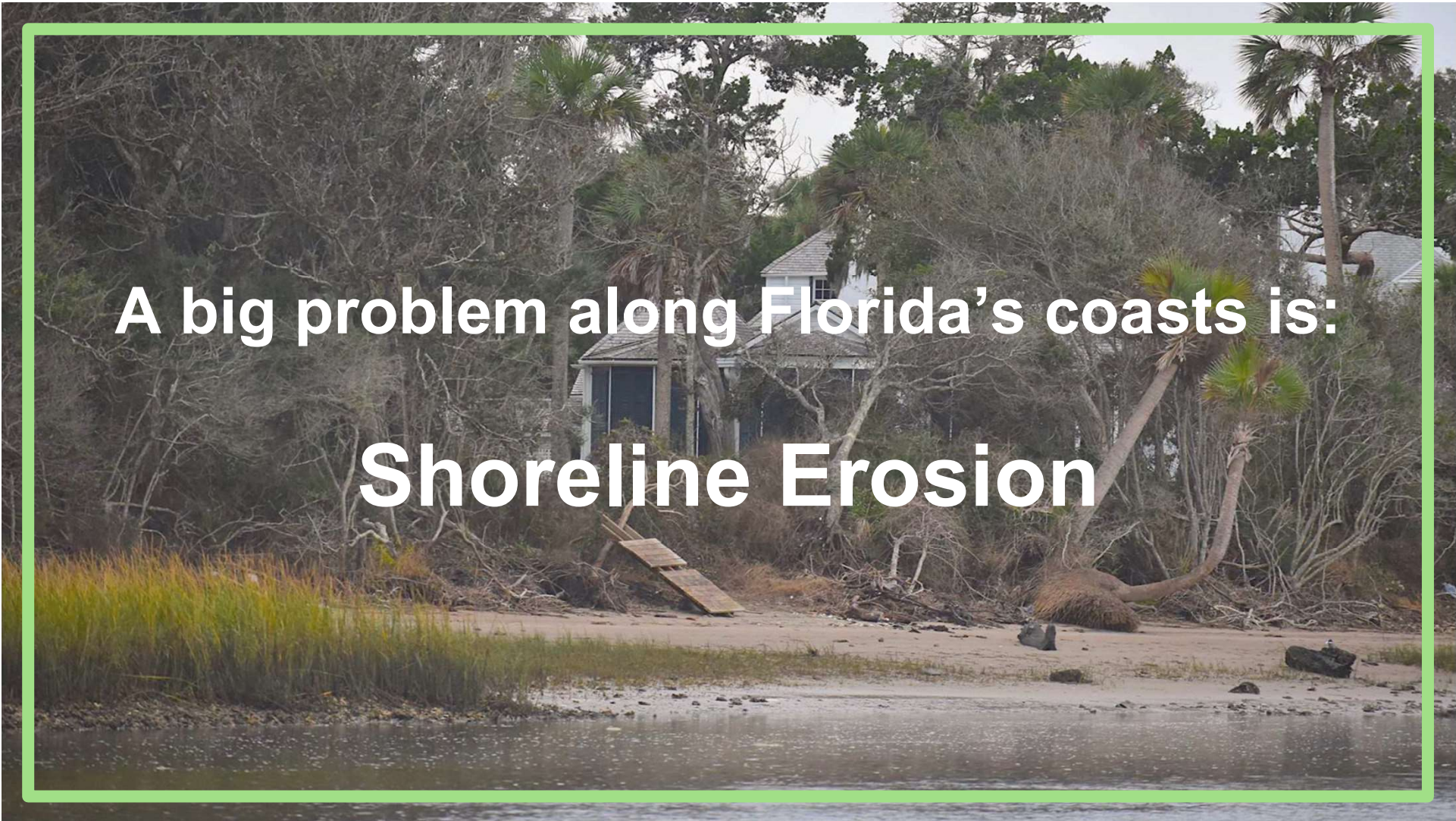
Growing Mangroves and Protecting Florida's Shorelines



Florida Shorelines

- Florida is well known for many things, but especially for our Florida beaches!
- Unfortunately, Florida's beaches and shorelines face many problems that impact the wildlife and people that live here



A photograph showing a house partially obscured by dense trees and a fallen wooden ramp leading to a body of water, illustrating shoreline erosion. The house is a two-story structure with a grey roof and blue siding. The trees are a mix of green and bare, suggesting a coastal environment. The water is calm and reflects the sky. The entire image is framed by a green border.

**A big problem along Florida's coasts is:
Shoreline Erosion**

What is shoreline erosion?

Shoreline erosion is a natural process where waves and wind wear down soil and rock and transport it away from from the coast.

Even though this process occurs naturally, there are many things that increase shoreline erosion and threaten people's property and Florida wildlife.



Shoreline erosion on a beach exposes roots and topples palm trees.

What things can increase shoreline erosion?



Land Development

- Replaces plants with concrete and buildings
- Leaves shoreline prone to erosion



Recreational Boating

- Creates large waves that remove soil and plants



Hurricanes

- Creates powerful wind and storm waves
- Intensifies damage to shorelines



Sea Level Rise

- Developed and eroded shorelines are more threatened by sea level rise

Impacts of Shoreline Erosion



Loss of natural habitats



Damage to public and private property



**What can we do to prevent
shoreline erosion?**



Common Shoreline Stabilization Method:

Seawalls: Walls made of concrete or large rock materials built along the edge of a shoreline

- Used to prevent erosion of an inland area
- Tries to hold land/sediment in place using a wall and blocking water
- Unfortunately, these walls have a few issues...

The Downside of Seawalls

- Seawalls reflect waves, increasing wave energy
- Waves bounce off the wall erode sand away from the bottom of the seawall
- This can eventually lead to seawall collapse and increases erosion of the land that was supposed to be protected





What Scientists are Doing: Living Shorelines

- A shoreline protected from erosion and stabilized with plants, rocks, oysters, and other natural materials.
- Combats erosion, intense wave energy, floods, and sea level rise
- Restores natural habitat for plants and animals

In Florida, one of the main plants used in living shoreline projects are:

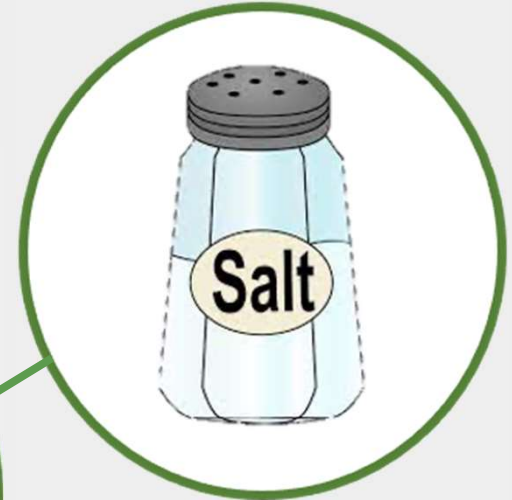
Mangroves!



What is a mangrove?



A tree that grows along tropical, coastal swamps



Uniquely adapted to survive in saltwater

Red Mangroves

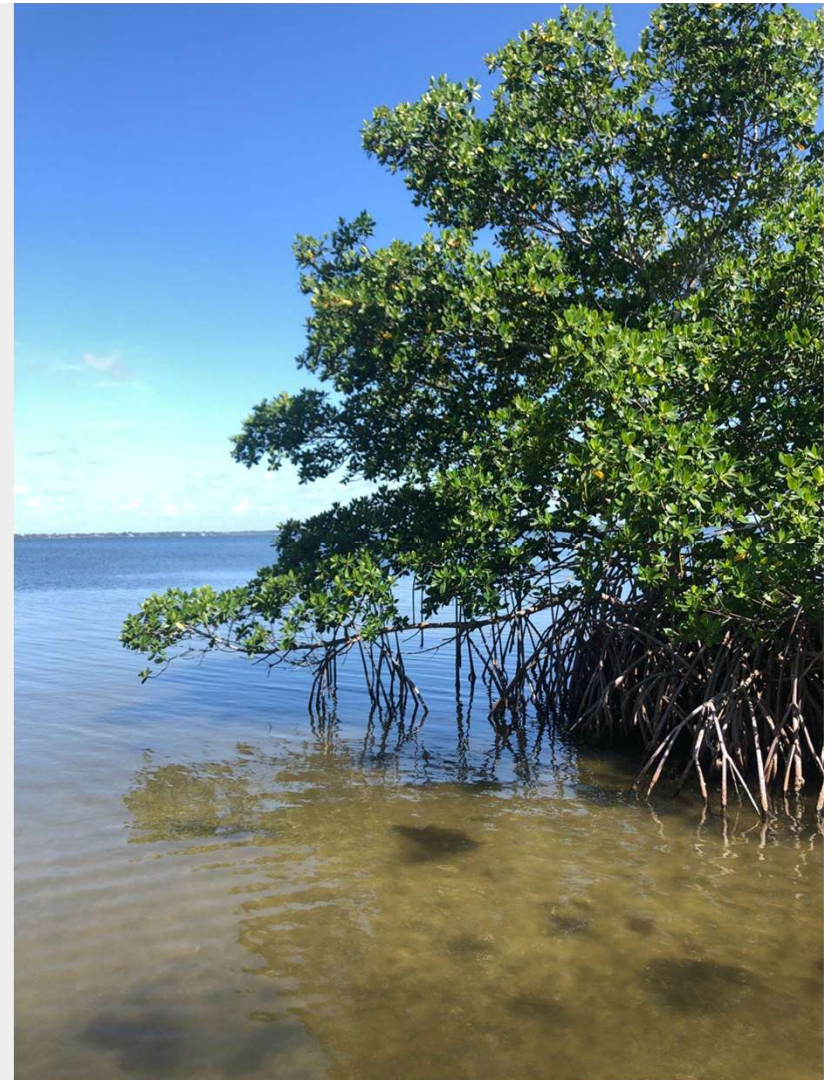


A red mangrove seed is called a "propagule"



Red mangrove roots are called "prop roots"

Young Red Mangrove



Mangroves: A solution to shoreline erosion?



Mangrove prop roots store sand and dirt, preventing erosion and keeping up with sea level rise.



Mangroves create homes for coastal animals like fish, crabs, and birds.



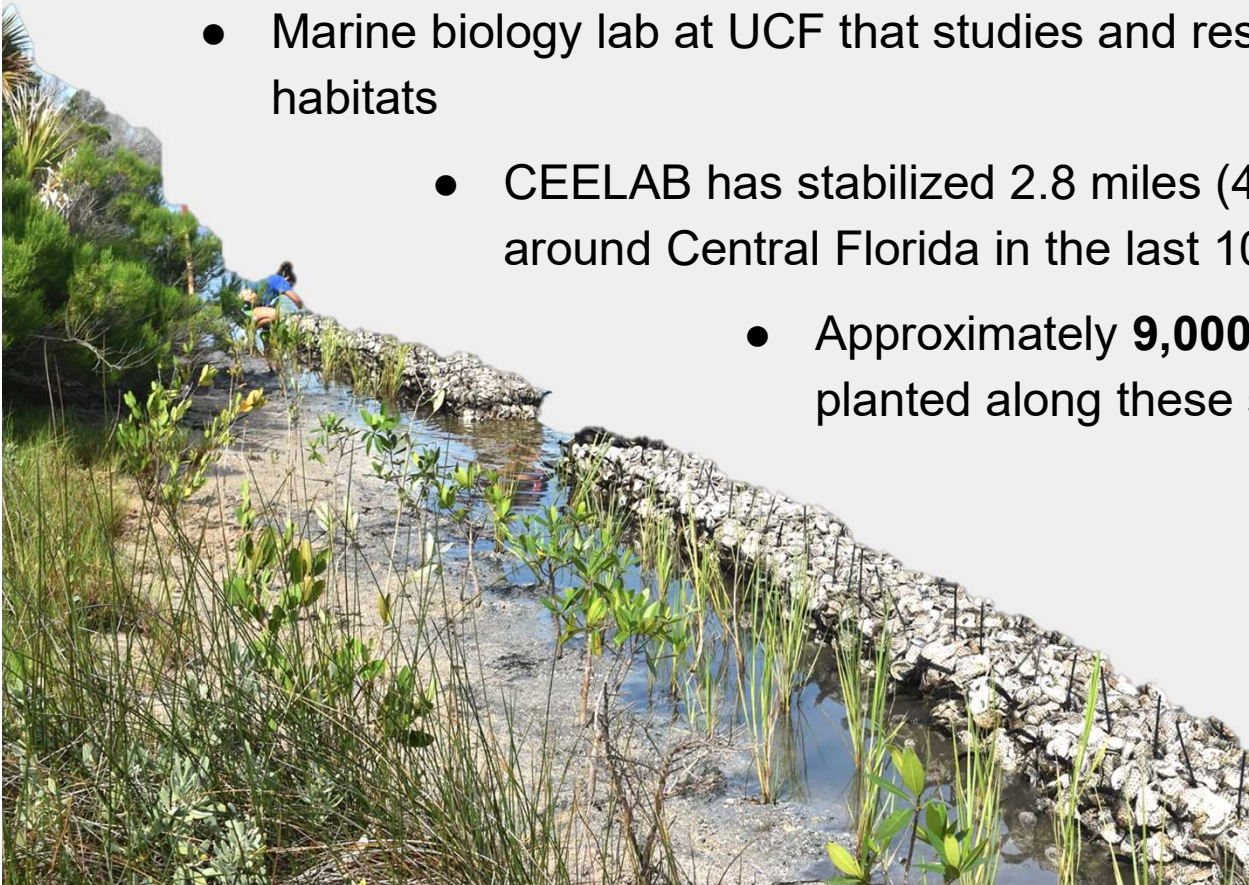
Mangroves shield land from large waves and prevent flooding.

<https://www.youtube.com/watch?v=aoMrLYJOdA4>

Coastal and Estuarine Ecology Lab



- Marine biology lab at UCF that studies and restores coastal Florida habitats
 - CEELAB has stabilized 2.8 miles (4.5 km) of shorelines around Central Florida in the last 10 years
 - Approximately **9,000** mangroves have been planted along these shorelines!



Where Do You Come In?

Seedling Mangrove



28%
chance of
survival

3 Year Old Mangrove



76%
chance of
survival

- Each year CEELAB plants hundreds of mangroves on eroded shorelines
- Mangroves need to be 2-3 years old to have the best chance of surviving on eroded shorelines
- But caring for young mangroves is a lot of work!
- By planting and growing these mangroves you support CEELAB and provide them with the mangroves that will stabilize and protect Florida shorelines.

Impact of Growing Mangroves:

Your mangroves!



Highly eroded shoreline



Newly planted living shoreline



Living shoreline 10 years later. Mangroves have grown and eliminated shoreline erosion.

Growing Mangroves:



Your teacher hand-collected mangrove propagules.



You plant the propagules...



By the end of the school year they'll grow bright, green leaves.



...and care for them for the year.



Then CEELAB collects your mangroves.

The mangroves are housed at UCF until restoration time.



...and planted to help protect Florida's coasts.



Then your mangroves are taken to eroded shorelines...



To become a beautiful living shoreline, made possible by you!

**Thank you for helping
protect Florida's coasts!**

