



## Virtual Reality Tour #2

### Living Shoreline

#### To implement this tour, you will need:

The tour link: <https://ths.li/TgSNLK>

A way for your students to view/interact with the tour:

- Option 1: smartphones with Google Cardboard or other viewers
- Option 2: students view the tours via desktop computers or tablets
- Option 3: project the tour on a screen at the front of the room for students to view together

#### Background Information

This tour showcases the Living Shoreline project led by the UF/IFAS Nature Coast Biological Station (NCBS) located in Cedar Key, Florida.

We hope that students learn more about the following objectives:

- Hardened Versus Natural Shorelines
- The use and purpose of a measurement pole
- The differences that occur before and after a living shoreline is planted
  - Slides 1 and 2 are great direct comparisons.
- What is shoreline armoring, and why is it not good for the environment
- *Spartina alterniflora*
- Erosion, storm surge, and sea level rise
- Oyster Recruitment Domes
- Oysters

#### What You and Your Students Will See in the Tour

**This tour includes a series of five image scenes. You can click the image icon at the bottom of the screen to move between scenes on a desktop computer or tablet. Each scene includes information points that you can click on to read more information and view additional media about the area. You can use the following outline to guide students through the tour.**

## SCENE 1 – Construction of a Living Shoreline

- This slide is one of the beginning features of the living shoreline project. Sand is poured onto an armored shoreline (the concrete seawall pictures) in order to prepare for introduction of saltmarsh grass.
- Information Points
  - Hardened vs Natural Shorelines
    - A hardened shoreline is an interruption in the natural shoreline process
      - Ex: seawall, bulkhead
    - A natural shoreline is what a living shoreline is – a more environmentally friendly way to stability property against erosion
      - Mangroves and salt marsh
  - Measurement Pole
    - Used by the National Oceanic and Atmospheric Administration (NOAA) to show the public what sea level rise would look like during storm surge.
    - Storm surge is the rise in sea level during tropical storms and hurricanes where water is pushed onshore due to strong winds. This causes much flooding and damages.
  - Construction Machine
    - Reasoning for why sand is being dumped on the ground
  - Savanna Barry
    - UF/IFAS Regional Extension Agent who is also in charge of coordinating the living shoreline project. She went out every day to work on the construction of the living shorelines implemented in Cedar Key and coordinated volunteer events for the project.
  - Houses
    - Reference for the area of the living shoreline, which is taken place in Cedar Key, Florida.

## SCENE 2 – The living shoreline after construction and planting

- This slide serves as a direct comparison to the first slide. As you can see with the measurement pole, it is taken in the same exact place as the first 360 image, however you can see that it looks like a completely different and more natural area. That's the beauty of the living shoreline.
- Information Points
  - Measurement Pole
    - Reference point of comparison between the previous 360 picture and this one. Look at how much change has occurred!
    - Can you spot the differences?
      - More sand, more plants, no concrete, sand extends further into water creating a natural shoreline, new signage, no construction)
  - *Spartina alterniflora*

- *Spartina alterniflora* is the scientific name for smooth cordgrass/saltmarsh cordgrass. This plant is important in living shorelines for natural protection against erosion, and the main plant that is planted.
- Shoreline Armoring
  - Shoreline armoring is one of the main reasons for habitat loss, and occurs when seawalls, bulkheads, or large rocks are placed along shorelines.
  - Links to official UF/IFAS NCBS blog post by Savanna Barry detailing more about this concept.

### SCENE 3 – Living Shoreline at Low Tide

- This slide shows more of the infrastructure of the natural living shoreline that is normally not seen below the water. At low tide, it becomes more visible how much oyster recruitment has occurred, increasing the natural habitat complexity and animal recruitment into the area.
- Information Points
  - Oyster Reef Arc
    - Oysters are important and essential habitat providers for animals and serve as great tools to increase habitat complexity.
    - An adult oyster can filter up to 50 gallons of water per day.
  - Measurement Pole
    - Pointed out for reference, so students can see we only moved a little further down the area compared to previous images.

### SCENE 4 – Inside an Oyster Recruitment Dome

- Briefly mentioned in the NCBS building tour, oyster recruitment domes (or reef balls) are manmade cement structures that are placed in living shorelines and other areas to recruit oysters onto the structure. More oysters means cleaner water and increased habitat complexity.
- Information Points
  - Oyster Recruitment Dome
    - See above
  - Calipers
    - Tools to measure the dimension of an object.

### SCENE 5 – A working oyster recruitment dome

- This slide and information point serves as a direct comparison to slide 4. As you can see, many oysters have recruited to the structure, making it almost unrecognizable. Those oysters were attracted naturally to the structure and have already done wonders for the environment by providing more nooks and crannies for fish, invertebrates, and other organisms to live as well as filtering more of the water.

---

**VR UF/IFAS NCBS images & tour created by:**

Caroline Barnett, graduate student – UF Agricultural Education and Communication

Dr. Jamie Loizzo, assistant professor – UF Agricultural Education and Communication

**Image and content contributions:**

Dr. Savanna Barry, Dr. Micheal Allen, and Dr. Mark Clark – UF/IFAS NCBS

Kate Rose, graduate student – UF Fisheries and Aquatic Sciences

**Project funded by:**

Florida Sea Grant (spring 2021)

