Living Shoreline at Cannon's Point Preserve

Preserving the natural and scenic character of our island.

What Is the St. Simons Land Trust?

FOUNDED in 2000 by a group of dedicated community leaders who were concerned about overdevelopment and increased congestion on St. Simons Island

MISSION*: To preserve the island's natural and scenic character and to enhance quality of life for present and future generations*

TODAY:

- Approximately 1,000 acres on St. Simons Island preserved in perpetuity
- More than 1,200 annual supporters
- 501(c)(3) Non-Profit
- Accredited by the Land Trust Alliance

Preserving the natural and scenic character of our island.

Cannon’s Point Preserve

Cannon’s Point Preserve is the largest protected property owned by SSLT. The Preserve is 608 acres with 6 miles of shoreline, creek front, marsh front and riverfront habitat.

Location of the living shoreline at Cannon's Point Preserve

Preserving the natural and scenic character

Cannon's Point Preserve is owned by the St. Simons Land Trust, a 501 (c) 3 nonprofit organization directly involved in protecting the island's important land resources such as wetlands, maritime forests, and wildlife habitats. Its mission is to preserve the island's natural and scenic character, and to enhance the quality of life for our island community for present and future generations

St Simon's Land Trust P.O. Box 24615 St Simons Island, GA 31522 (912)-638-9109

What is a Living Shoreline?

Living shorelines on the Georgia Coast are a **natural approach** to shoreline stabilization that provide an alternative to traditional armored shorelines.

Why are they important?

These are novel engineering approaches that are constructed to provide **erosion protection of uplands** lying adjacent to estuarine waters.

Stabilization

Living Shorelines use **bioengineering** in combination with native vegetation plantings to **stabilize** or **enhance** wetland habitats.

Goals of Living Shorelines

The **primary goal** of a Living Shoreline is to avoid engineering designs that hinder or disrupt the natural connections between aquatic environments and adjacent uplands. **Secondary goals** include the preservation of tidal exchange, sediment conservation, natural plant communities and necessary shoreline dynamics associated with sea level rise.

Photo by Eliot VanOtteran

Where are living shorelines in Georgia?

- Sapleo Island- Ashantilly Site 2010
- Sapelo Island-Long Tabby Site 2010
- Little St. Simons Island 2013
- Cannon's Point Preserve 2015
- Skidaway Island State Park 2015
- Tybee Island Burton 4H Center 2016
- Little Cumberland Island-construction to begin summer 2020
- Honey Creek Episcopal Camp-applicant/property owner will likely begin permitting in the fall of 2020

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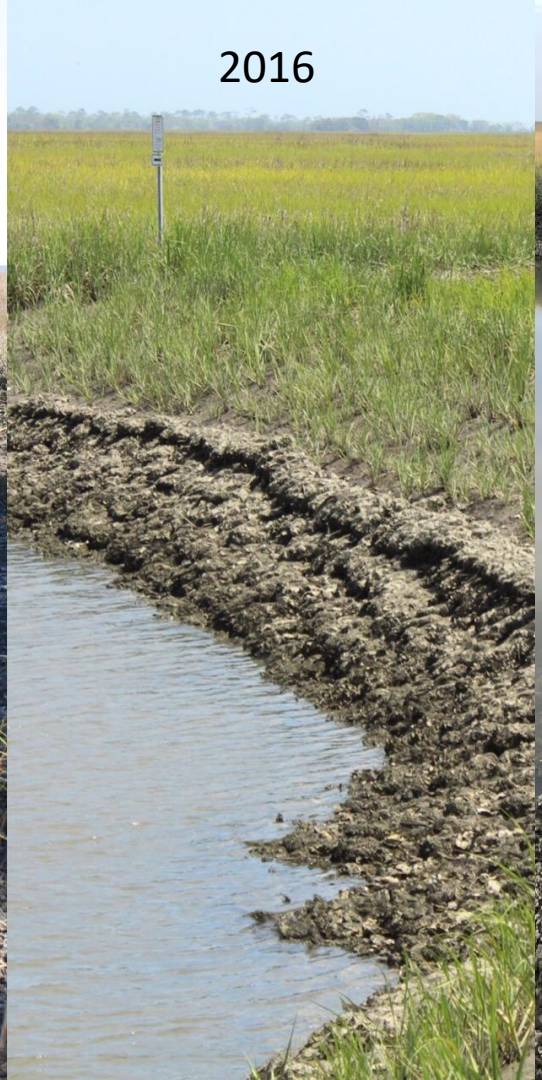
Cannon’s Point Preserve Living Shoreline

2014

2016



2020

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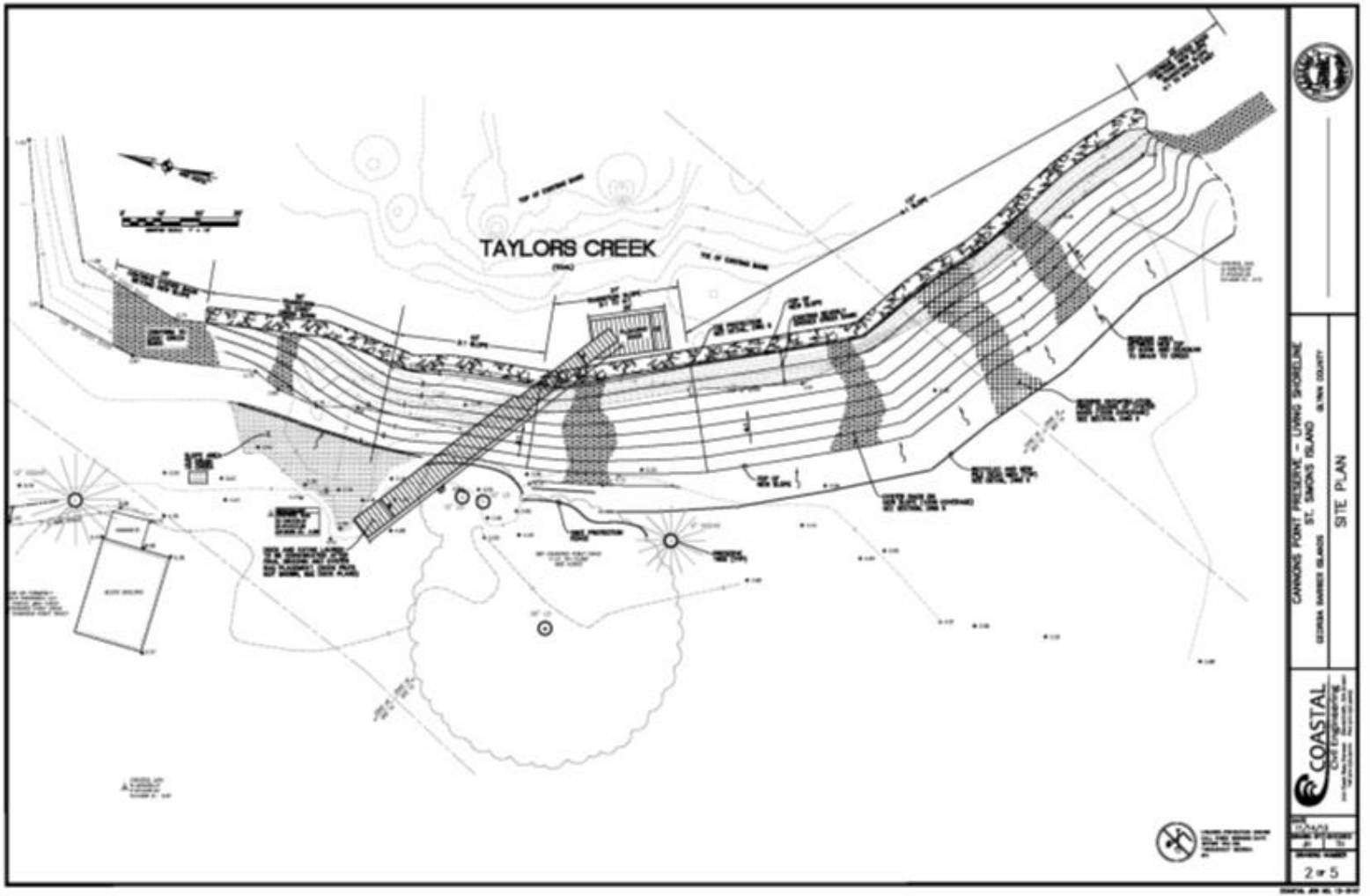

Engineering plans for Cannon's Point Preserve living shoreline

Cannon's Point Preserve Living Shoreline

- **8,000** bags of oyster shells used to start an oyster reef
- **637** volunteer hours
- *Spartina alterniflora* plugs and other native vegetation were planted
- The fourth demonstration living shoreline project in Georgia and the ***first*** to be accessible by vehicles, allowing it to be widely used for educational and training purposes
- Completed in **October 2015**

Partners who assisted with oyster shell bagging and native planting on this project include: St. Simons Land Trust volunteers, Brunswick Job Corps, The Nature Conservancy, Americorps, Boy Scout Troop 207, Bethlehem Christian Academy, Coastal WildScapes, College of Coastal Georgia, the University of Tennessee of Chattanooga, and Melanie and Doug Cranford

The Nature Conservancy's interns bagging the shells of **oysters**, a **keystone species**

Coastal WildScapes' volunteers planting the perennial ***Borrichia frutescens*** (common name: sea oxeye)

Volunteers planting additional native vegetation along the living shoreline

Plugs of another perennial deciduous native coastal plant, ***Spartina alterniflora*** **(cordgrass)**, after being newly planted in 2015

View of the CPP living shoreline site – with blooming ***Muhlenbergia capillaris*** (aka **Muhly grass)** -- during a king tide

Upland Component of the living shoreline with native vegetation including ***Muhlenbergia capillaris***

Living shorelines create **connectivity** between the estuary and the upland. This provides more natural movement for a variety of wildlife including the North American river otter (***Lontra canadensis***)

Resiliency of Living Shorelines

Storm Resiliency-2016

Hurricane Hermine

- Friday, September 2, 2016
- Tropical Storm for the Georgia Coast
- Wind gusts of 56mph SSW
- 0.77 inches of rain
- Tides of 7.21 feet
- The storm tracked NNE with only tropical storm force winds reaching St. Simons Island as the storm decreased in strength after making landfall
- Inspection of the living shoreline after the storm verified that the project remained **intact and stable** and served to protect the adjacent upland

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Rain and wind from Weather Underground. Tides from NOAA.

Storm Resiliency-2016

Hurricane Matthew

- Saturday, October 8, 2016
- Category 2 hurricane
- Recorded wind gusts on St. Simons Island were 62 miles per hour NNE
- 7.8 inches of rain
- Mandatory evacuations were issued for coastal Georgia
- The eye of the hurricane was approximately 50 miles off Georgia's coast with the bands reaching over the entire island
- Inspection of the living shoreline after the storm verified that the project remained **intact and stable** and served to protect the adjacent upland

Data from October 7, 2016. There is no data for St. Simons Island, Georgia on October 8, 2016 from www.wunderground.com

Site inspection on October 12, 2016 verified that the storm surge came up along the project, depositing wrack between the ***Borrichia frutescens/ Muhlenbergia capillaris*** transition zone

Looking west along Lawrence Creek, notice that the natural ***Spartina alterniflora*** appears to be heavily impacted as opposed to planted ***Spartina alterniflora*** along the living shoreline. This is likely due to the storm surge and helps to verify the **stability of the living shoreline project.**

Storm Resiliency-2017

2017-Hurricane Irma

- September 10-11, 2017
- Category 3 hurricane as it came up the western coast of Florida and downgraded to a tropical storm as it continued its path northwest through Georgia.
- Wind gusts of 60 mph were recorded ENE at the Brunswick Airport
- Mandatory evacuations were issued for coastal Georgia
- Inspection of the living shoreline after the storm verified that the project remained **intact and stable** and served to protect the adjacent upland

Wind from Weather Underground

Storm surge was roughly 157 feet from mean high tide line along the demonstration living shoreline. As the tide receded, it left behind wrack and debris along the upland and the creekbank.

Per the project design and the natural connectivity between the upland and creek, the living shoreline allowed for storm surge to over-wash the upland and leave the creekbank intact as the surge withdrew.

A single southern red cedar tree along the upland component of the project was lost during the storm. This is believed to be due to wind gusts and has not affected the stability of the project.

Looking east along Lawrence Creek, notice the living shoreline where the oyster reef and upland **remained stable** throughout storm.

College of Coastal Georgia Conservation Biology students assist with debris clean up

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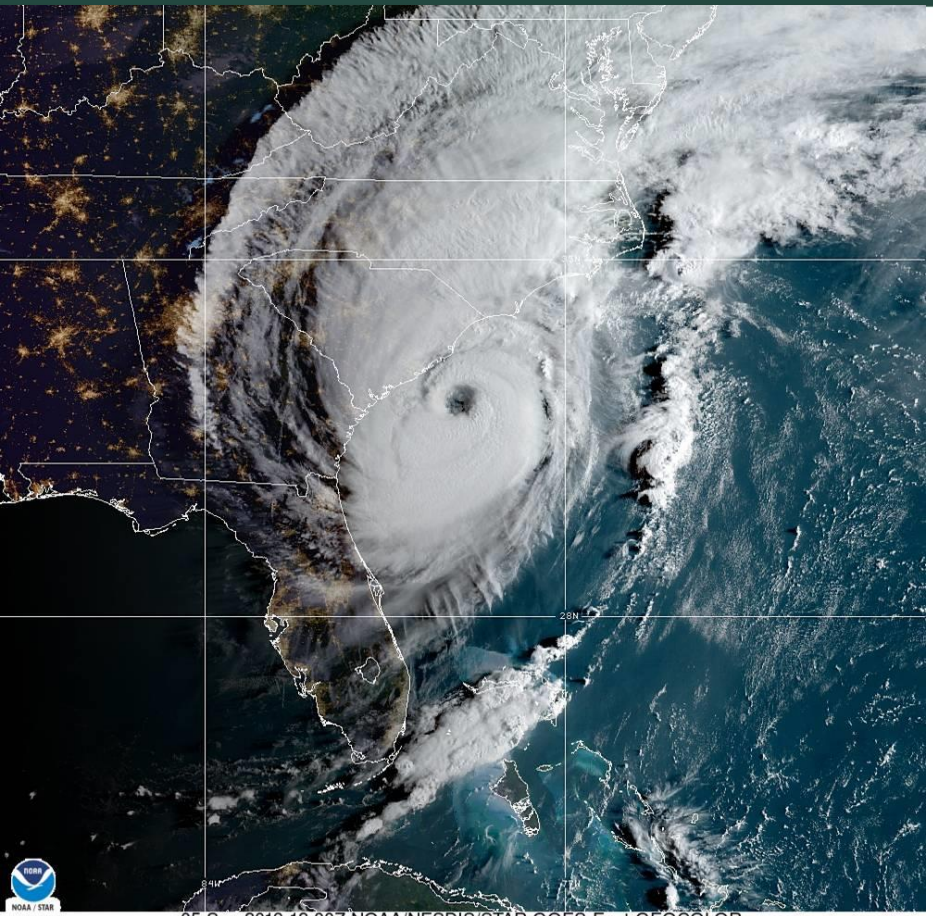
Storm Resiliency-2019



Hurricane Dorian

- Wednesday, September 4 -- Thursday, September 5, 2019, Dorian brushed the Georgia coast.
- Category 2 hurricane
- Tropical storm-force winds to St. Simons Island
- Sapelo Island Manager, Fred Hay, reported on Thursday, September 5 to The Darien News that “a gust of 55 mph was recorded yesterday, and we sat in the 40+ mph range for several hours”.
- Mandatory evacuations were issued for coastal Georgia
- Site inspection following the storm proved that the living shoreline at Cannon’s Point Preserve remained a great example of coastal resiliency as it has in past storms.

No significant wrack debris was left behind by the storm and the project remains intact. The living shoreline project at Cannon's Point Preserve has remained stable through:

- Tropical Storm Hermine
- Hurricane Matthew
- Hurricane Irma
- Hurricane Dorian

Biological Monitoring of the Living Shoreline With the College of Coastal Georgia

Dr. Tate Holbrook is joined by Conservation Biology students collecting oyster density data

Mean Oyster Density

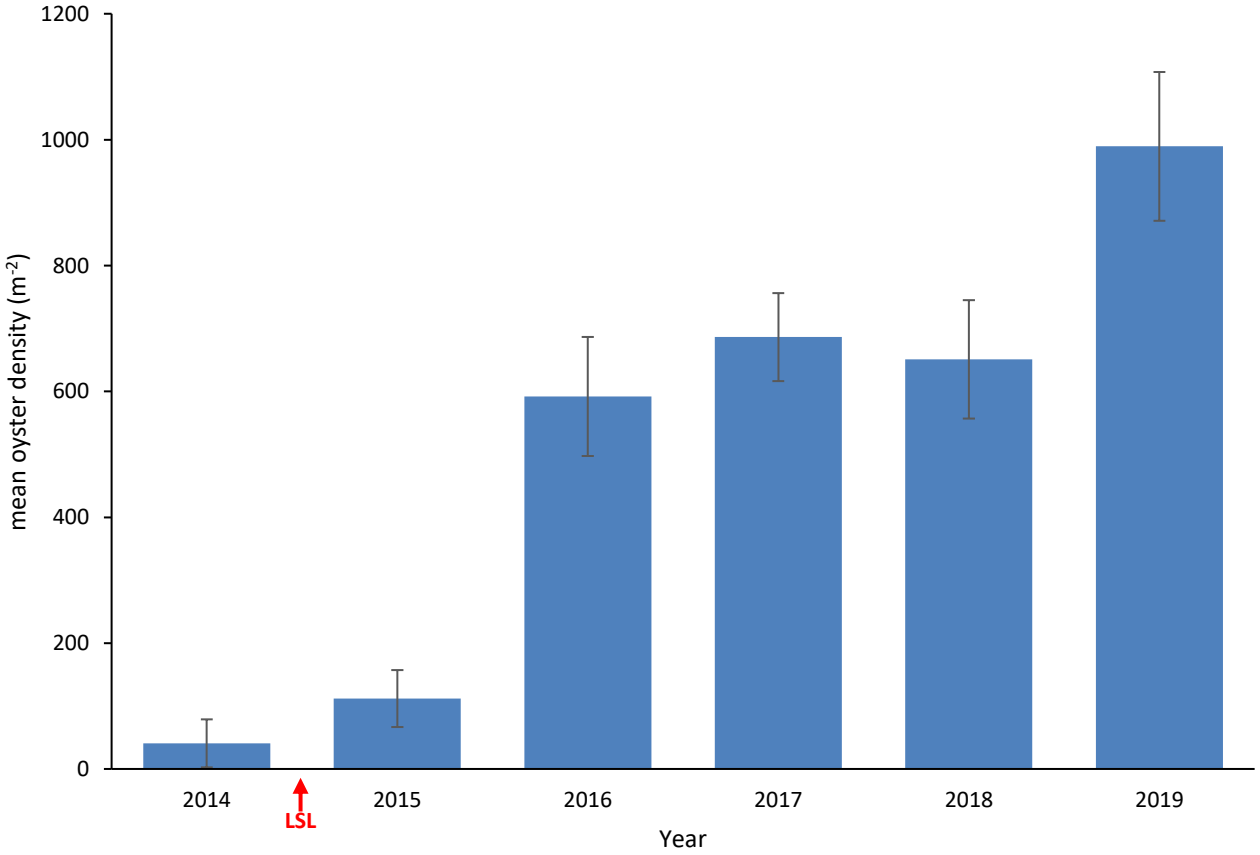


Figure 1. Mean (± SE) density of oysters (*Crassostrea virginica*) before and after the 2015 construction of a living shoreline (LSL) on Lawrence Creek, Cannon's Point Preserve, St. Simons Island. Live oysters measuring at least 10 mm in height were sampled in 0.25-m^2 quadrats along 8 transects in the lower intertidal zone at the end of each growing season.

Mean Spartina Density

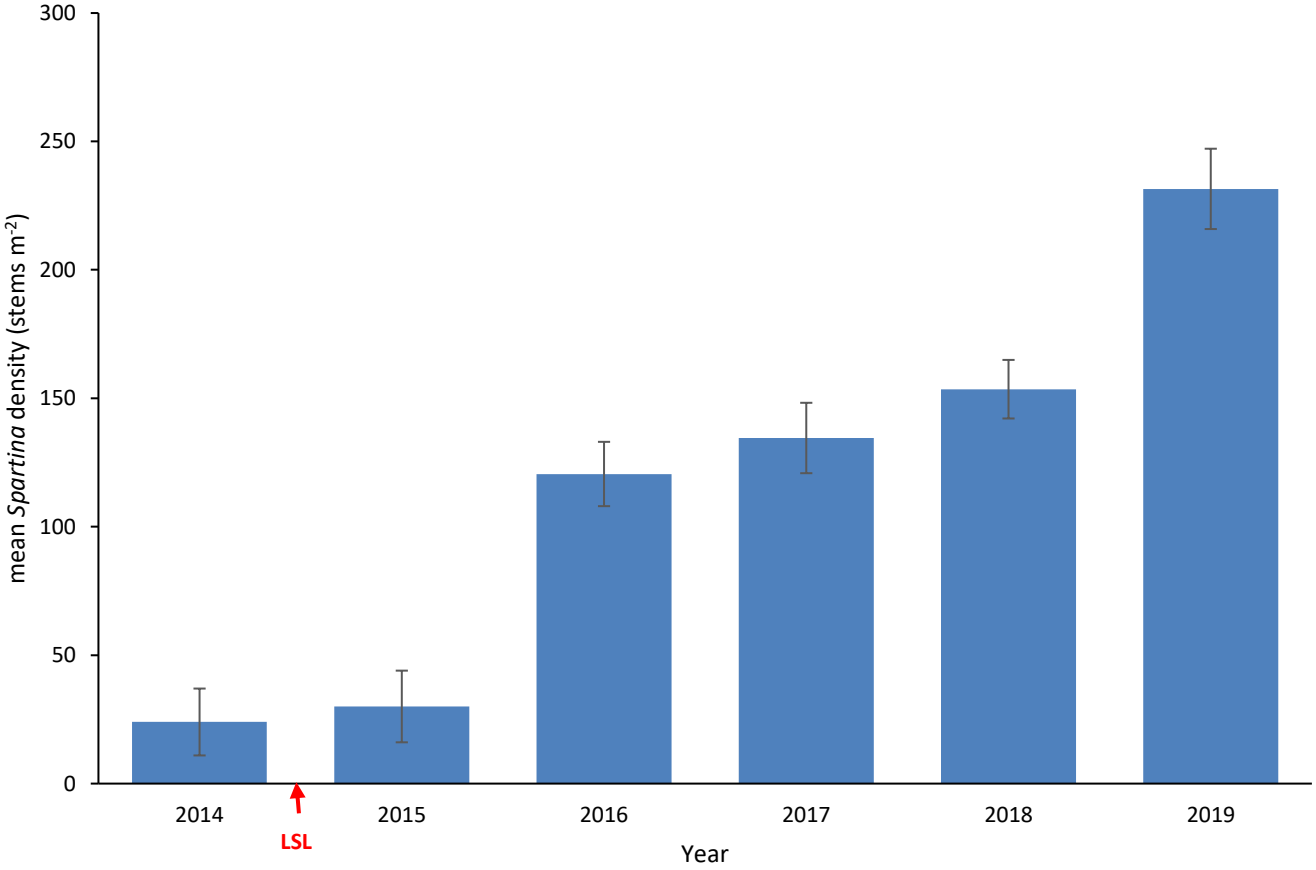
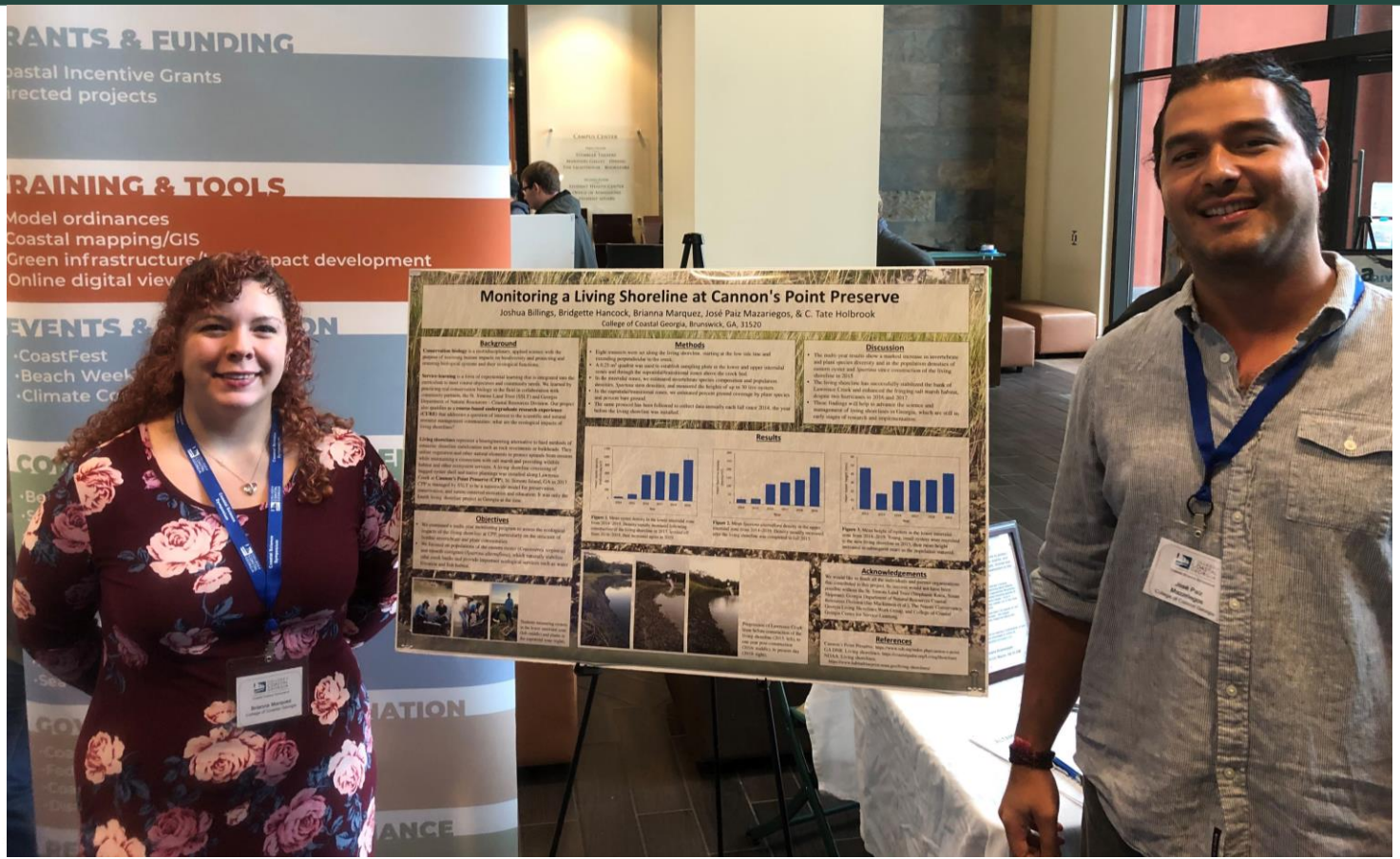


Figure 2. Mean (± SE) density of smooth cordgrass (*Spartina alterniflora*) before and after the 2015 construction of a living shoreline (LSL) on Lawrence Creek, Cannon's Point Preserve, St. Simons Island. Plants were sampled in 0.25-m^2 quadrats along 8 transects in the upper intertidal zone at the end of each growing season.

Service Learning



Conservation Biology students from the College of Coastal Georgia presenting their service-learning poster at the Coastal Science Symposium.

Educational Outreach

This project continues to act as an educational and training tool for a variety of partners, looking at ways to design alternative bank stabilization methods along Georgia's coast.

Educational Outreach

Biologist from the Georgia DNR's Coastal Resources Division educating a group on living shorelines

SSLT Task Force member utilizing the living shoreline to educate families

Georgia's Living Shoreline Working Group

Partner organizations come together to discuss ways to improve shoreline resiliency on Georgia's coast utilizing living shorelines.

Sapelo Island National Estuarine Research Reserve

Little St. Simons Island

Georgia Department of Natural Resources Coastal Resources Division

The Nature Conservancy

St. Simons Land Trust

College of Coastal Georgia

Marine Extension and Georgia Sea Grant University of Georgia | Sea Grant

Celebrating SSLT 20 Years

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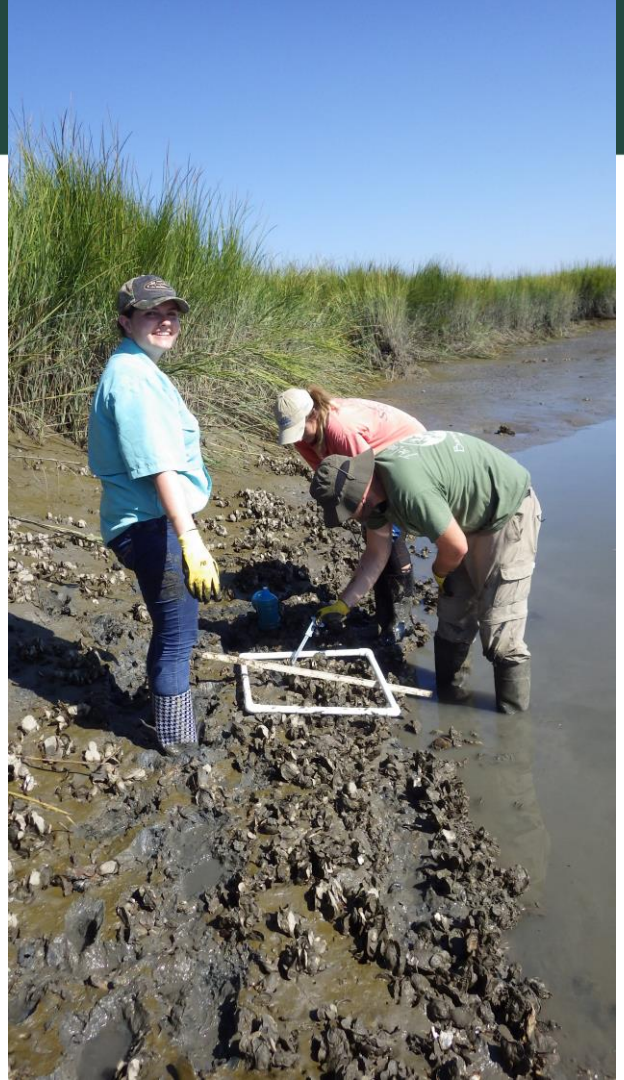
What Can YOU Do?

- **Support** green infrastructure.
- **Support** the continued efforts of coastal protection and nature-based solutions as alternatives to armored shorelines including research, management, and education through volunteering your time and/or providing financial contributions.
- Utilize **native plants,** including the ones mentioned in this presentation**,** in your home landscaping, especially when adjacent to the marsh and streams.
- Coastal property owners with erosion issues can **consider living shorelines for erosion control**.



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Additional Information

For additional information on Living Shorelines please visit the following websites:

St. Simons Land Trust
https://www.sslt.org/index.php/cannon-s-point/research/living-shoreline

Georgia Department of Natural Resources Coastal Resources Division
https://coastalgadnr.org/LivingShorelines

Contact Information:
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