



Florida Living Shorelines

Department of Environmental Protection – South District Linkup
Wednesday, October 6, 2021

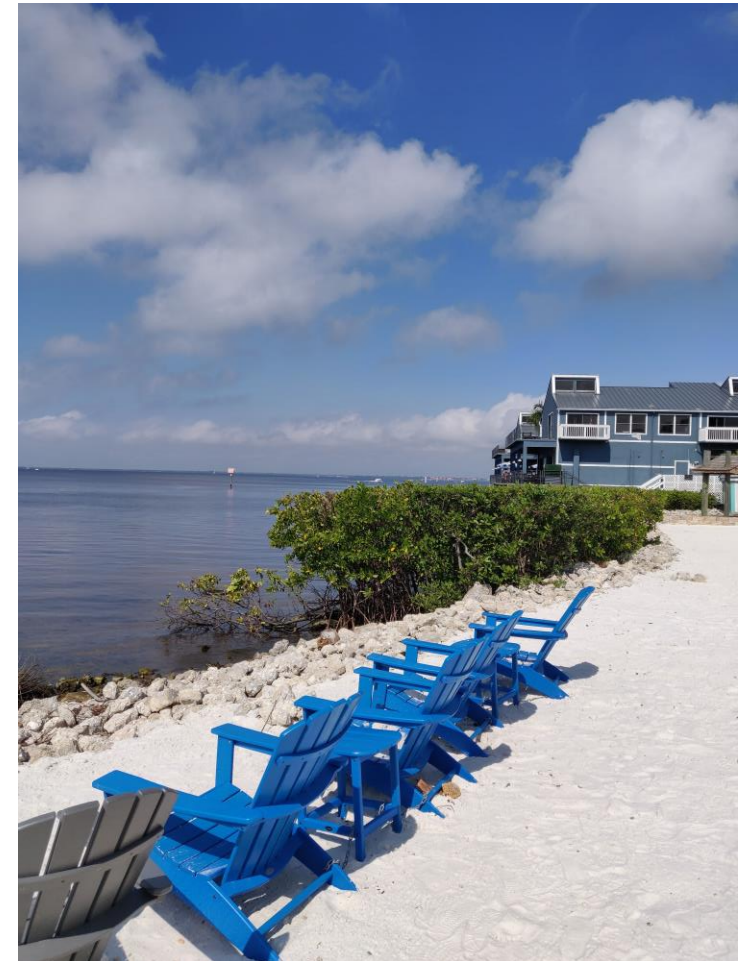
**Emma Huggins, Planner, Resilient Florida
Office of Resilience and Coastal Protection
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What is a Living Shoreline?

“A shoreline management practice that provides erosion control benefits; protects, restores, or enhances natural shoreline habitat; and maintains coastal processes through the strategic placements of plants, stone, sand fill, and other structural organic materials (e.g. biologs, oyster reefs, etc.)” – National Oceanic and Atmospheric Administration.

Also often referred to as nature-based solutions or green infrastructure.





Pros & Cons of Living Shorelines

Pros:

- Protect shorelines from erosion.
- Absorb wave energy.
- Provide habitat for fish and other living resources.
- Improve water quality and restore nutrients.
- Increase stability over time.
- Relatively low cost.

Cons:

- Protection varies by location and wave energy.
- Less effective where much of the shoreline is already hardened.
- Obtaining permits can be a lengthy process.

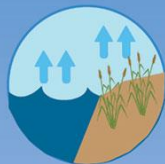


LIVING SHORELINES SUPPORT RESILIENT COMMUNITIES

Living shorelines use plants or other natural elements—sometimes in combination with harder shoreline structures—to stabilize estuarine coasts, bays, and tributaries.



One square mile of salt marsh stores the carbon equivalent of **76,000 gal of gas** annually.



Marshes trap sediments from tidal waters, allowing them to **grow in elevation** as sea level rises.



Living shorelines improve **water quality**, provide fisheries **habitat**, increase **biodiversity**, and promote **recreation**.



Marshes and oyster reefs act as natural **barriers** to waves. **15 ft** of marsh can **absorb 50%** of incoming wave energy.



Living shorelines are **more resilient** against storms than bulkheads.



33% of shorelines in the U.S. will be **hardened** by **2100**, decreasing fisheries habitat and biodiversity.



Hard shoreline structures like **bulkheads** prevent natural marsh migration and may create seaward **erosion**.



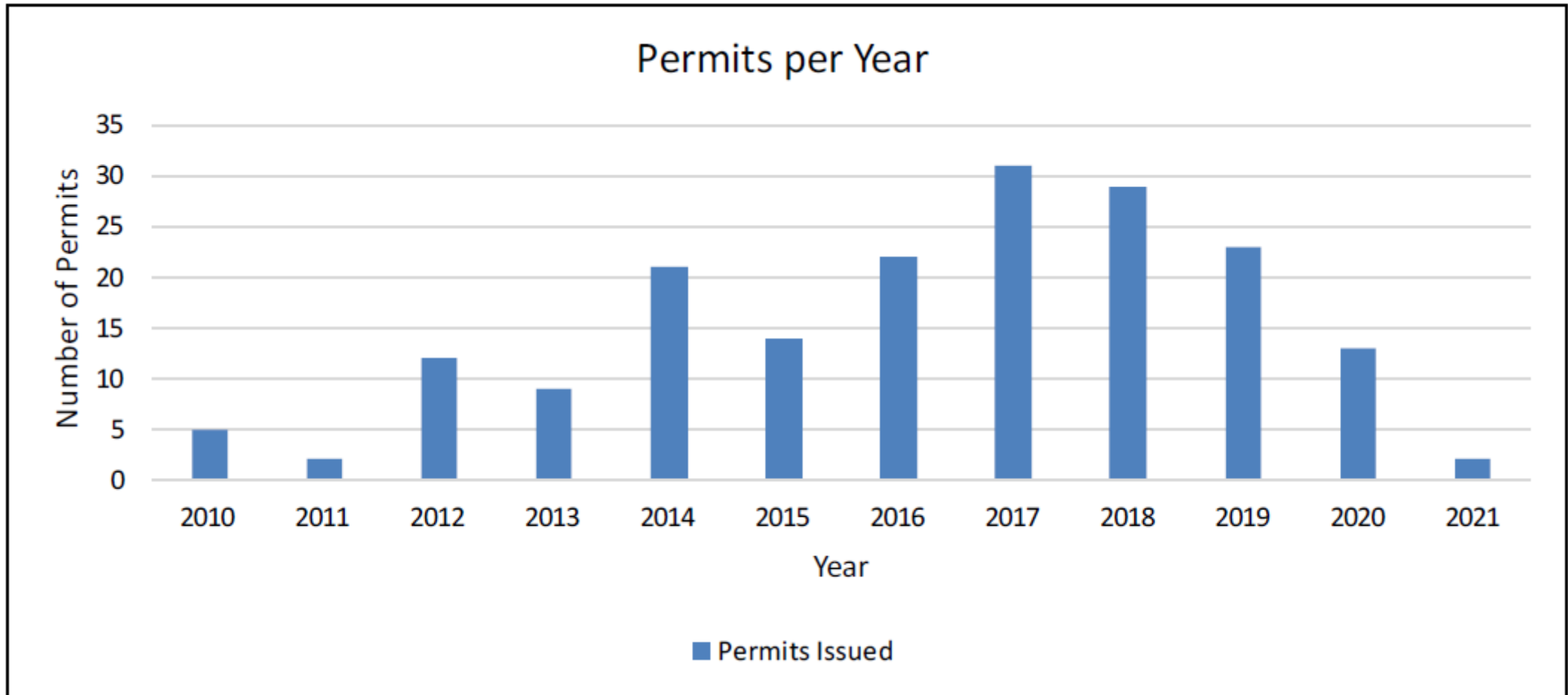


FDEP Living Shoreline Permit Database

- Project was completed in June 2021.
- Cummins Cederberg served as the consultant on the project.
- Permits administered in Florida from 2010 onwards were retrieved, verified and analyzed. 196 total permits.
- Database will be available in the future.
- The database will feed information into the <https://floridalivingshorelines.com/> website in order to keep it updated.



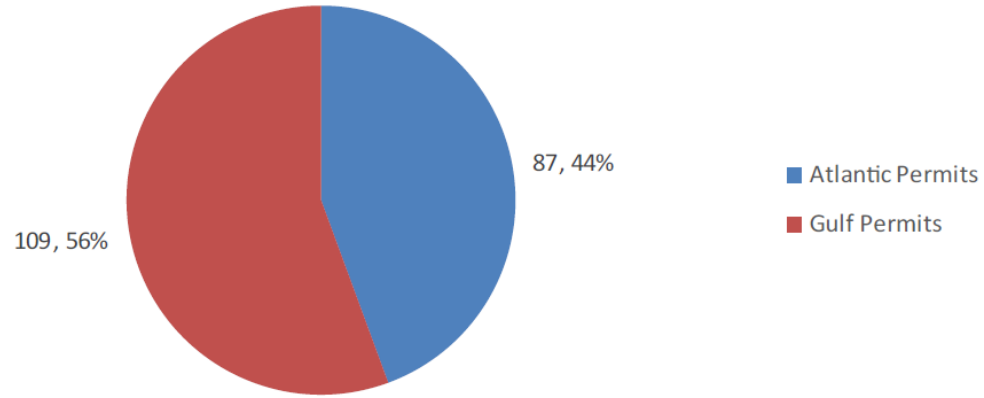
Database Summary



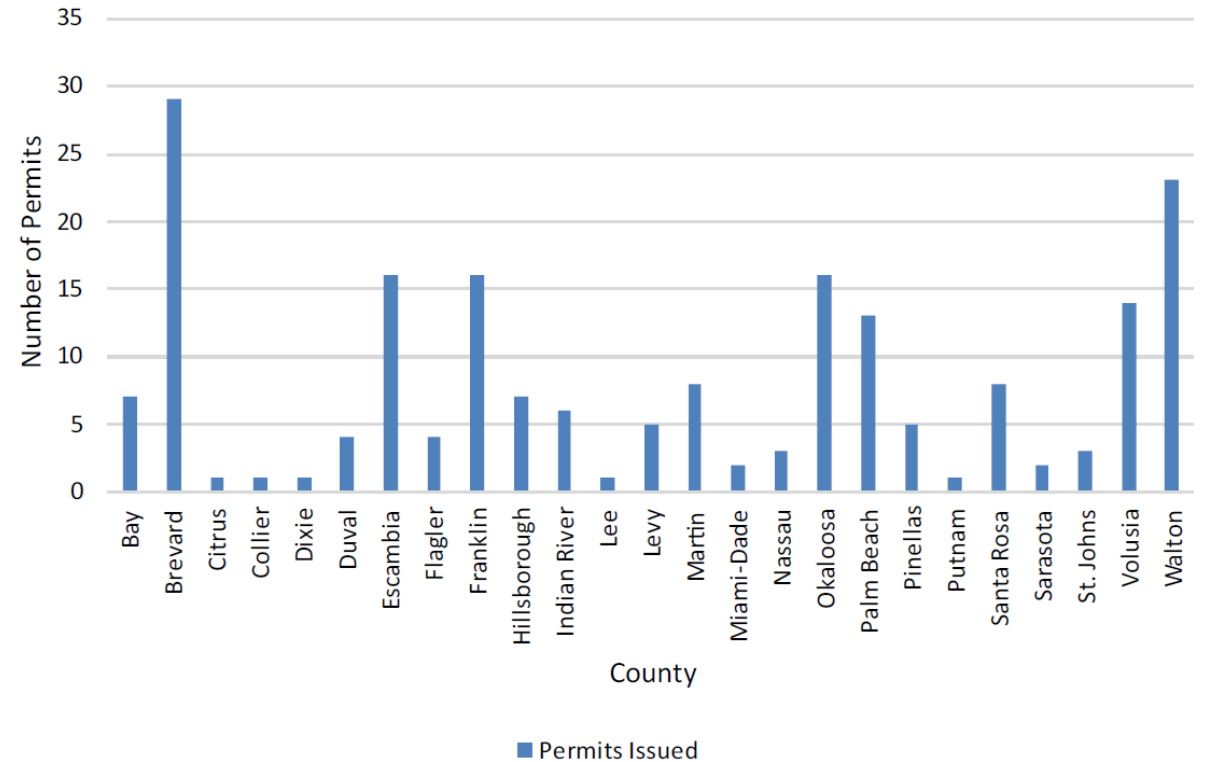


Database Summary

Permits Issued Per Coast



Permits per County





Map of Florida by regions

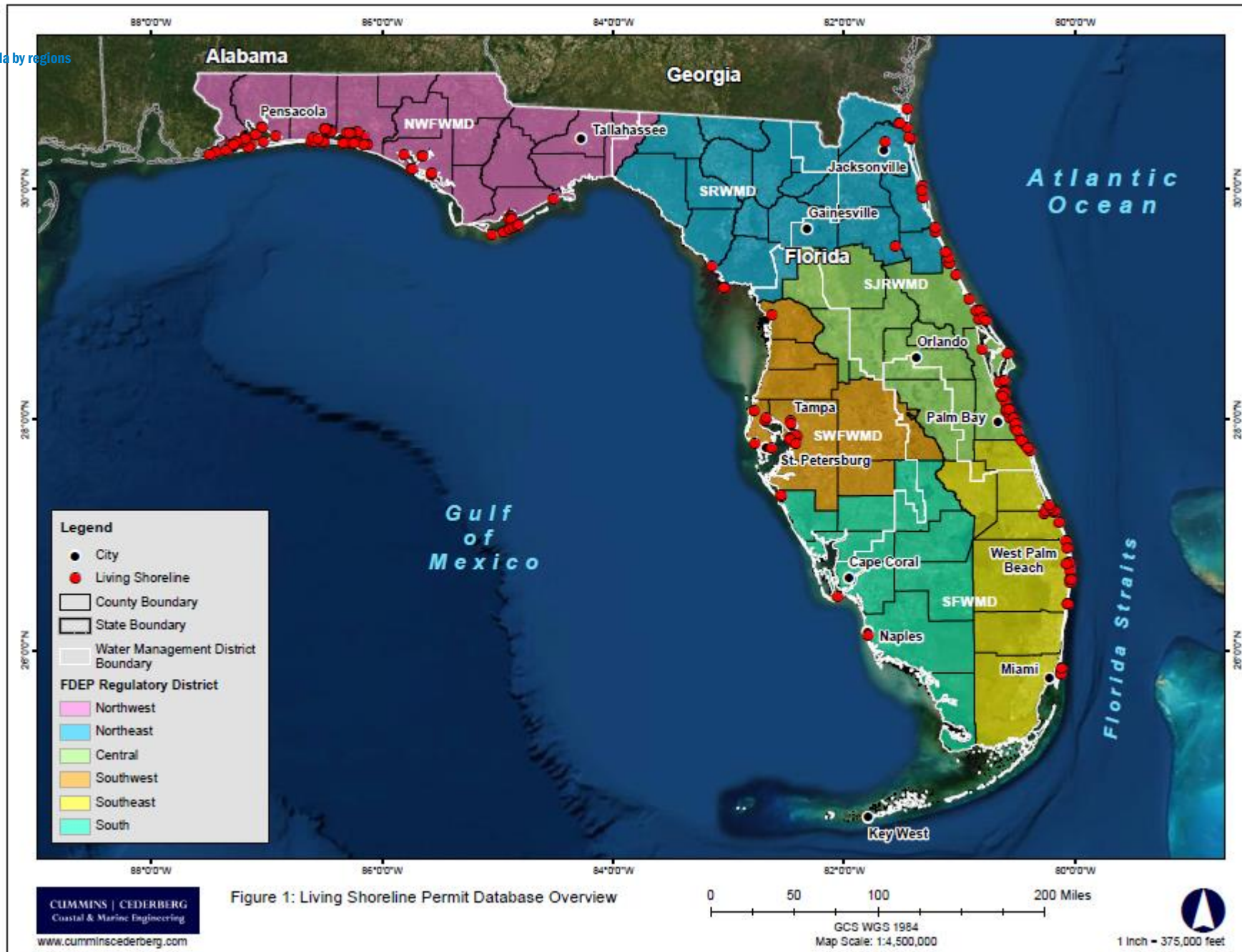
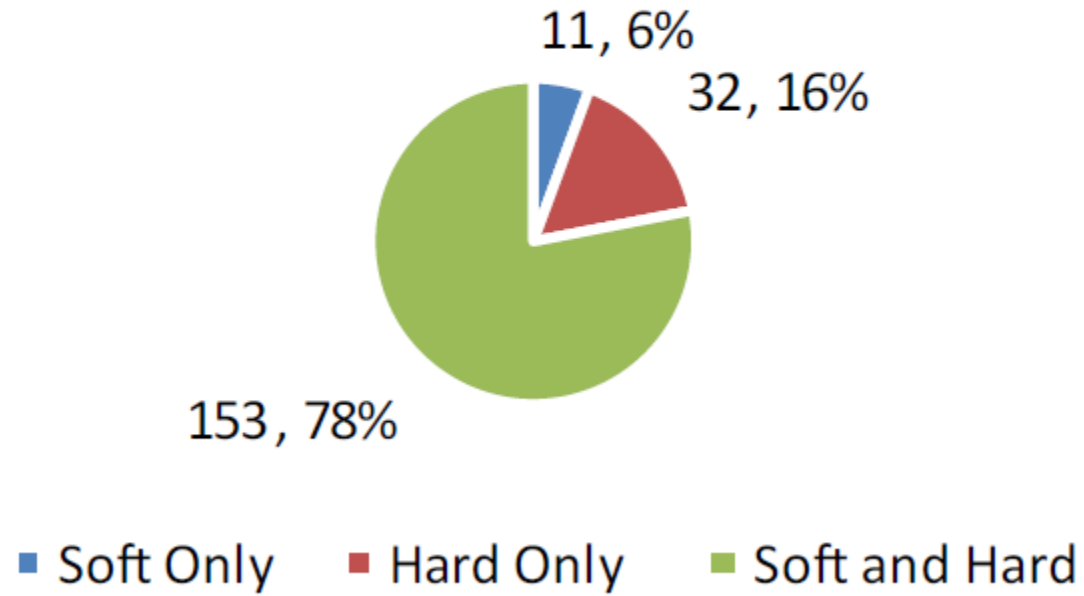


Figure 1: Living Shoreline Permit Database Overview



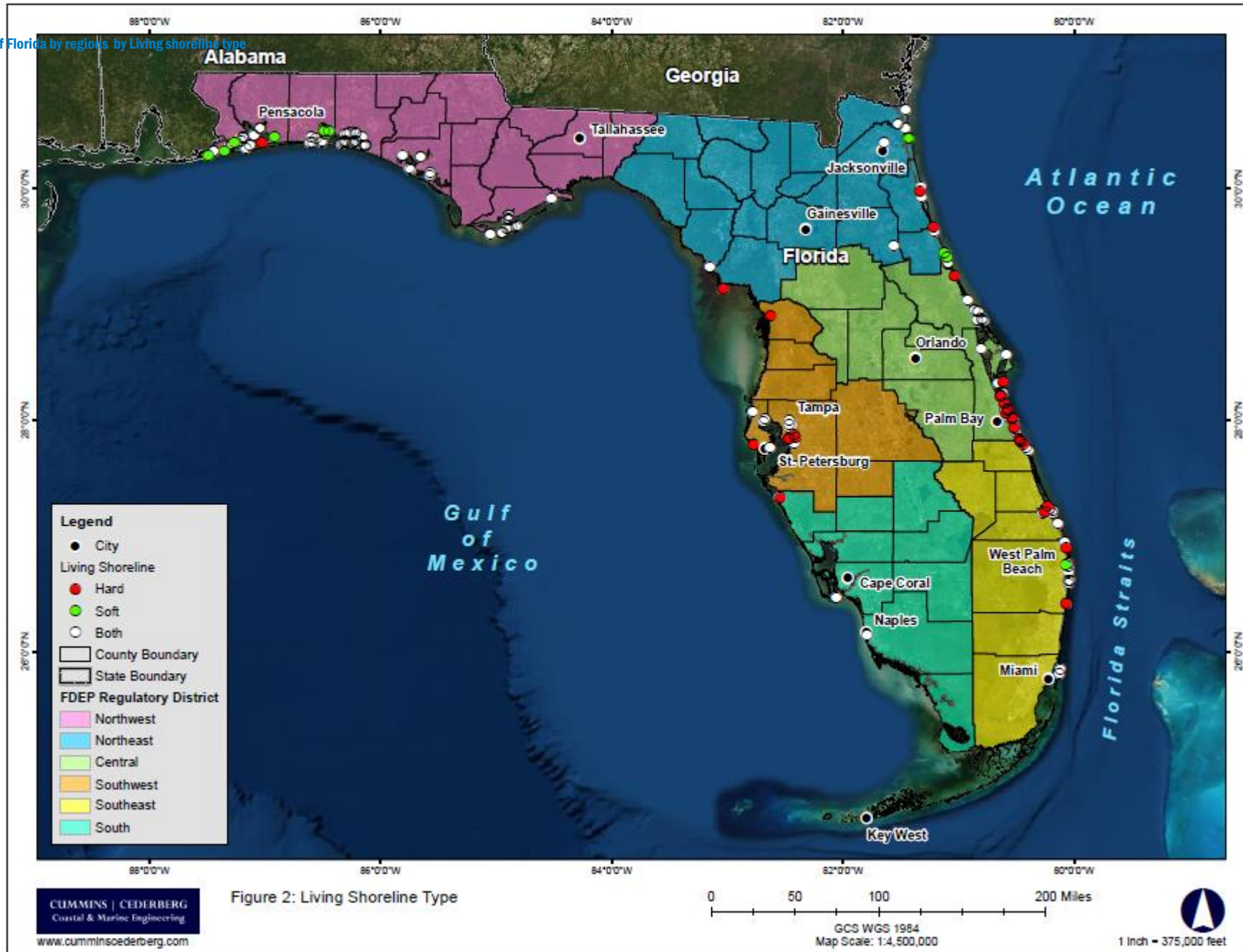
Database Summary

Types of Living Shorelines



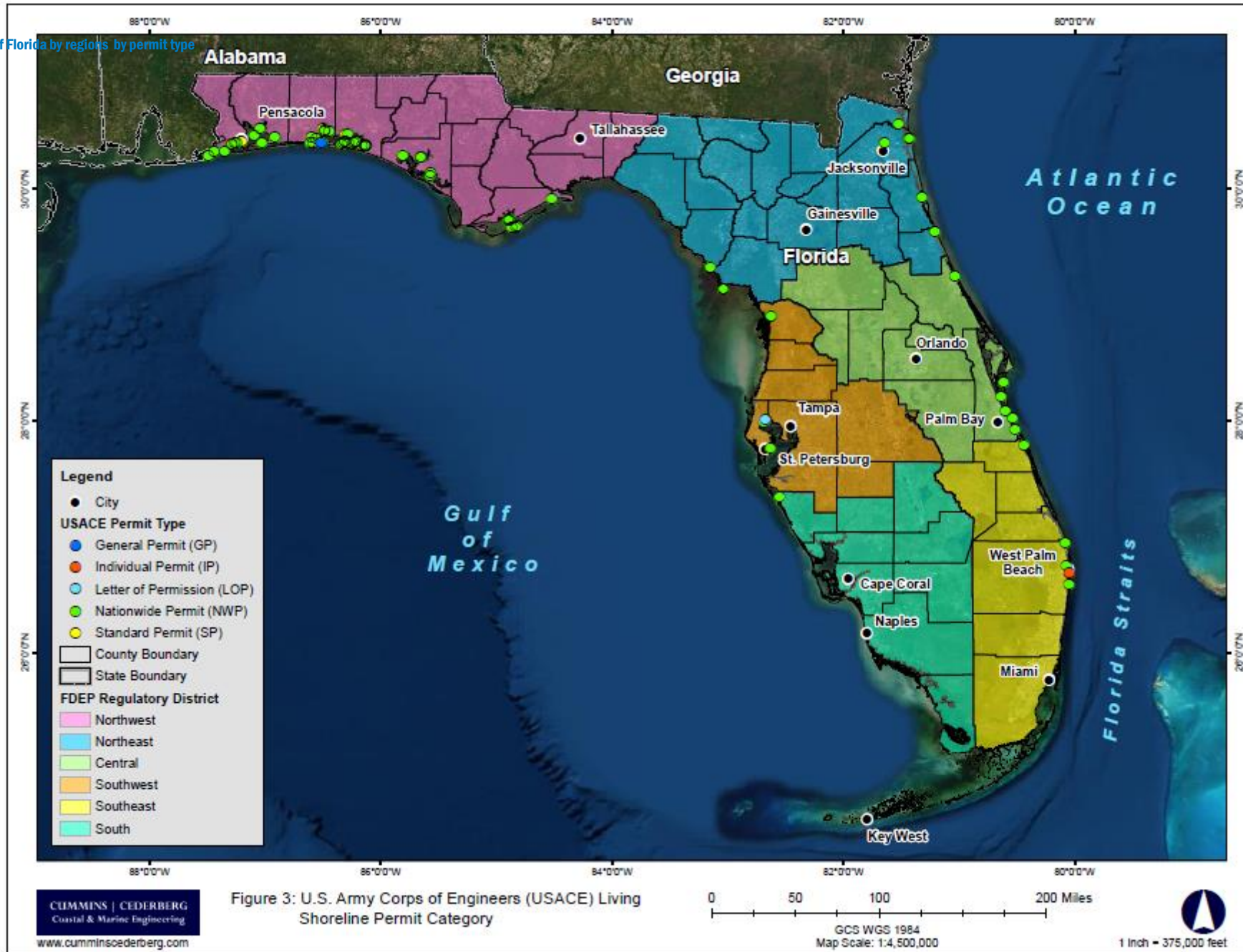


Map of Florida by regions by Living shoreline type



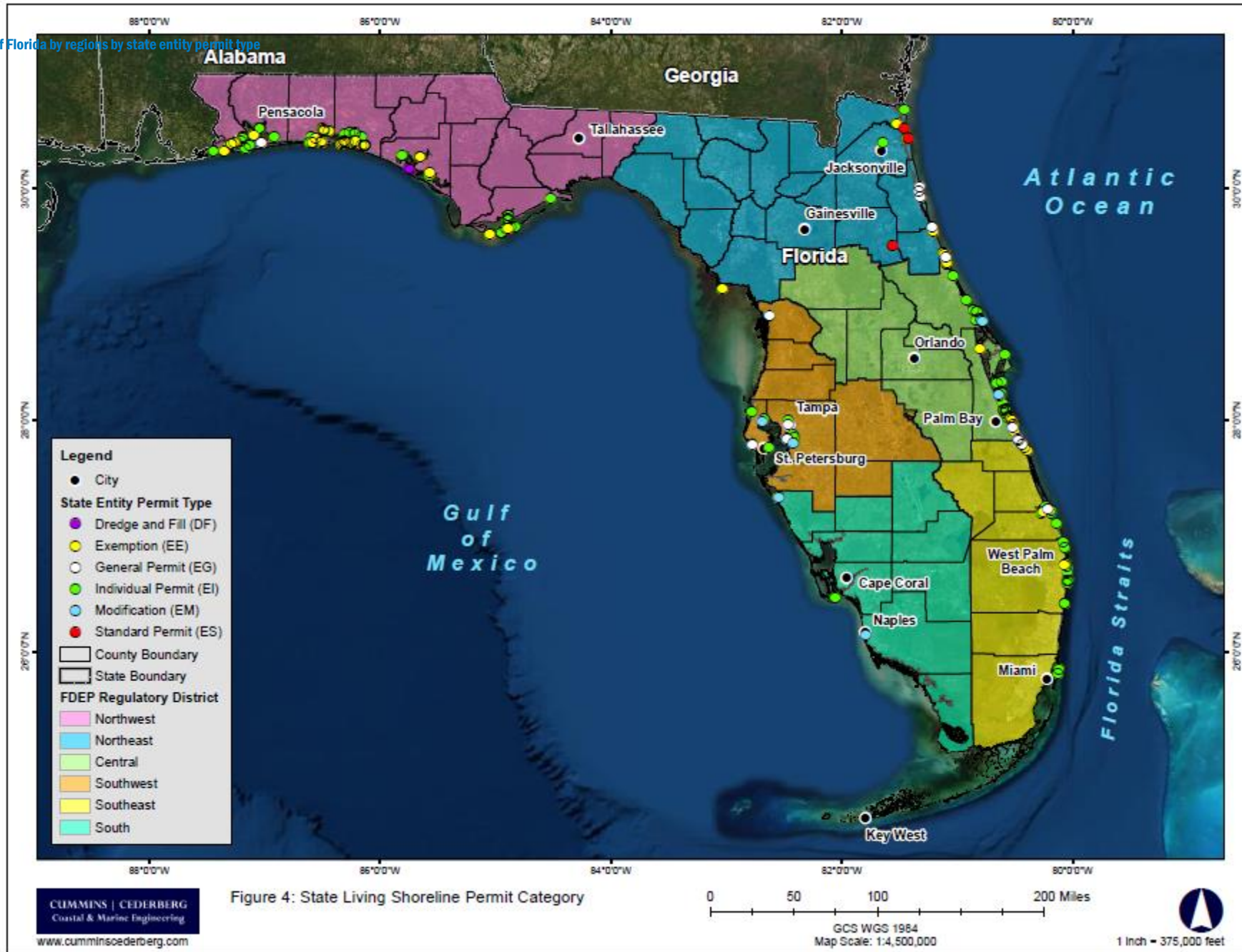


Map of Florida by regions by permit type





Map of Florida by regions by state entity permit type





FDEP Funded Living Shorelines

The Florida Resilient Coastlines Program (FRCP) provides grants for planning and implementation of resiliency measures. The following received FRCP grants that were related to living shorelines:

- R2117 “Floridatown Park”, Santa Rosa County, \$125,000.
- R1801 “A resilient shoreline on State Road A1A in Miami Beach”, City of Miami Beach, \$34,965.
- R1803 “Resilient Shoreline Softening on Sarasota Bay Boulevard of the Arts”, City of Sarasota, \$174,337.



Floridatown Park Coastal Resiliency Project

Project Background

Large population growth in the community has put tremendous pressure on its natural resources.

Historical recurrences of storm surge and flooding has resulted in a degradation of this area.

The community didn't want to harden the shoreline, since this can interrupt natural shoreline processes, eliminate habitat for marine species and birds, and degrade water quality.

The community decided to design and implement a natural resource based shoreline protection system.

Project involved an assessment of the specific site conditions and to identify appropriate nature based solutions for the park.



Floridatown Coastal Resiliency Project Phase II

Project Objectives:

- Increase shoreline resilience.
- Stormwater management.
 - Plan for increased flow of the existing water culvert.
 - Accommodate the drainage of the roadway/parking area.

Additional Goals:

- Retain/enhance the existing sand beach.
- Protect the historic Cypress trees.
- Continue to allow for recreational activities at the park and beach.





Existing Conditions



26 W. CEDAR STREET, SUITE 800
PENSACOLA, FL 32502



FLORIDATOWN LIVING
SHORT-TERM PROJECT

DESIGNED BY AND PREPARED FOR: FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, 1119 N. POWER STR. TALLAHASSEE, FLORIDA 32310
DESIGNED BY AND PREPARED FOR: JACOBS ENGINEERING GROUP, 3701 UNIVERSITY BLVD., SUITE 200, PALM BEACH, FLORIDA 33480

JACOBS

CIVIL
EXISTING CONDITION

1"-400'
VERIFY SCALE
BAR IS ONE INCH OR
EQUivalent

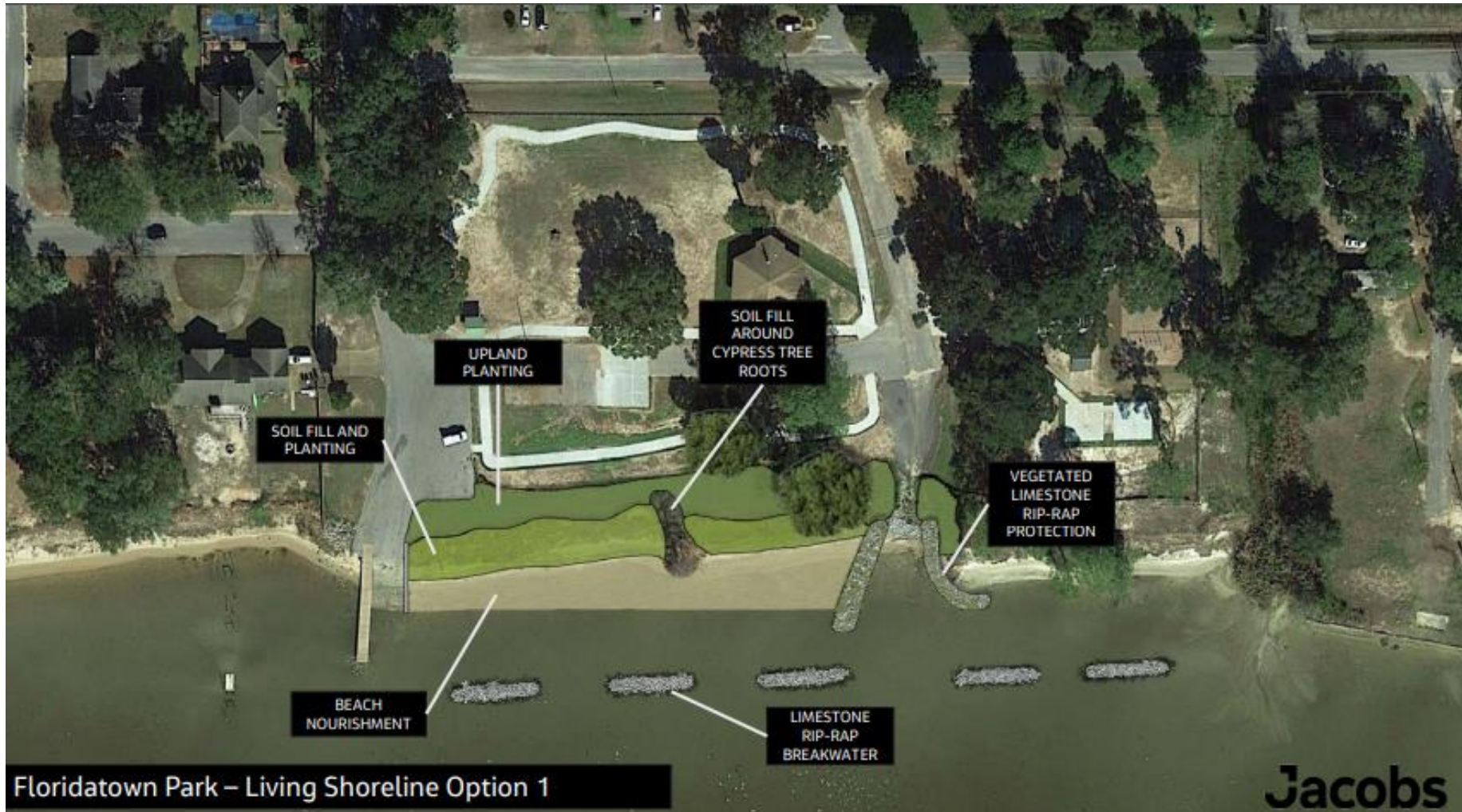
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Floridatown Coastal Resiliency Project Phase II

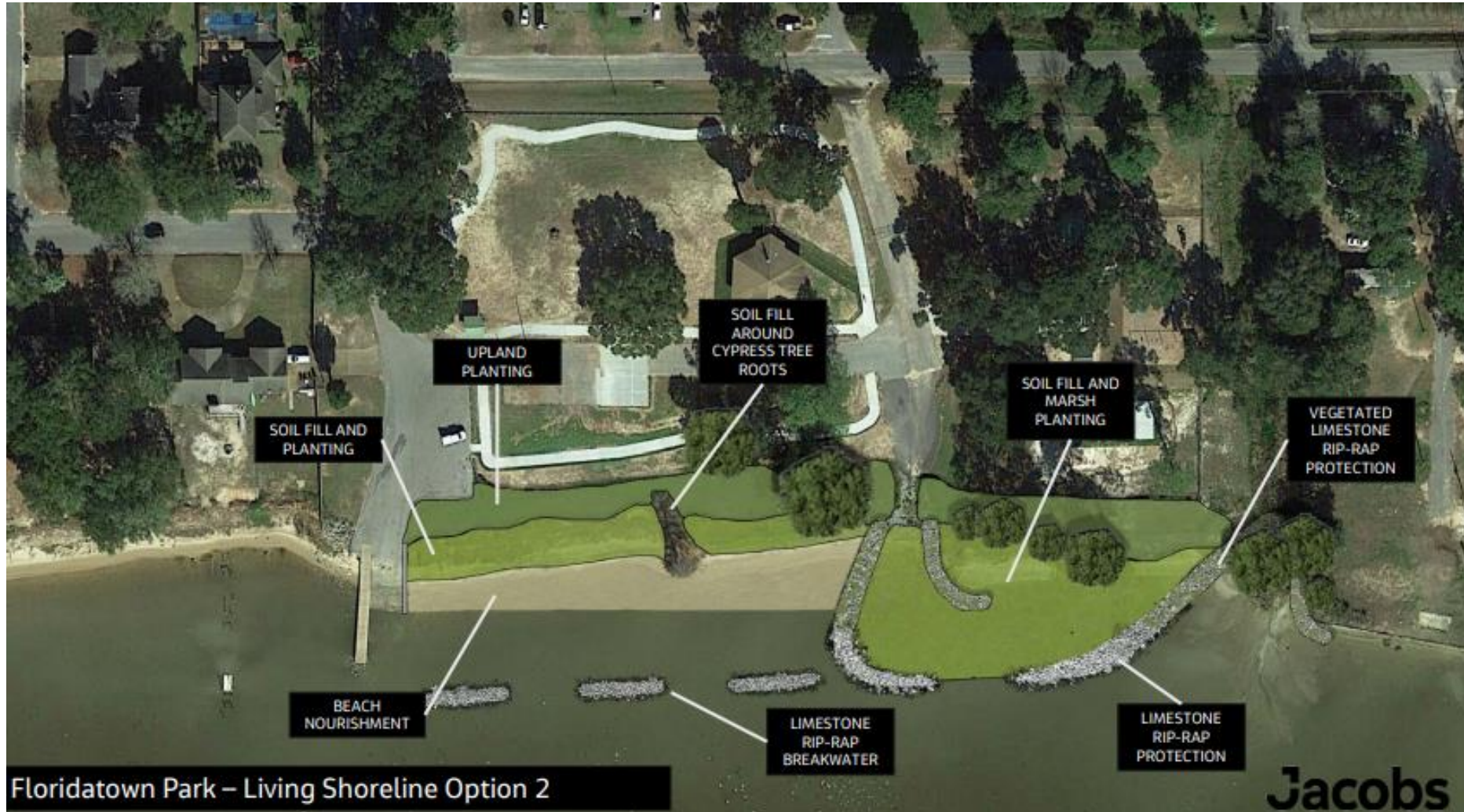
Design
Option 1





Floridatown Coastal Resiliency Project Phase II

Design
Option 2



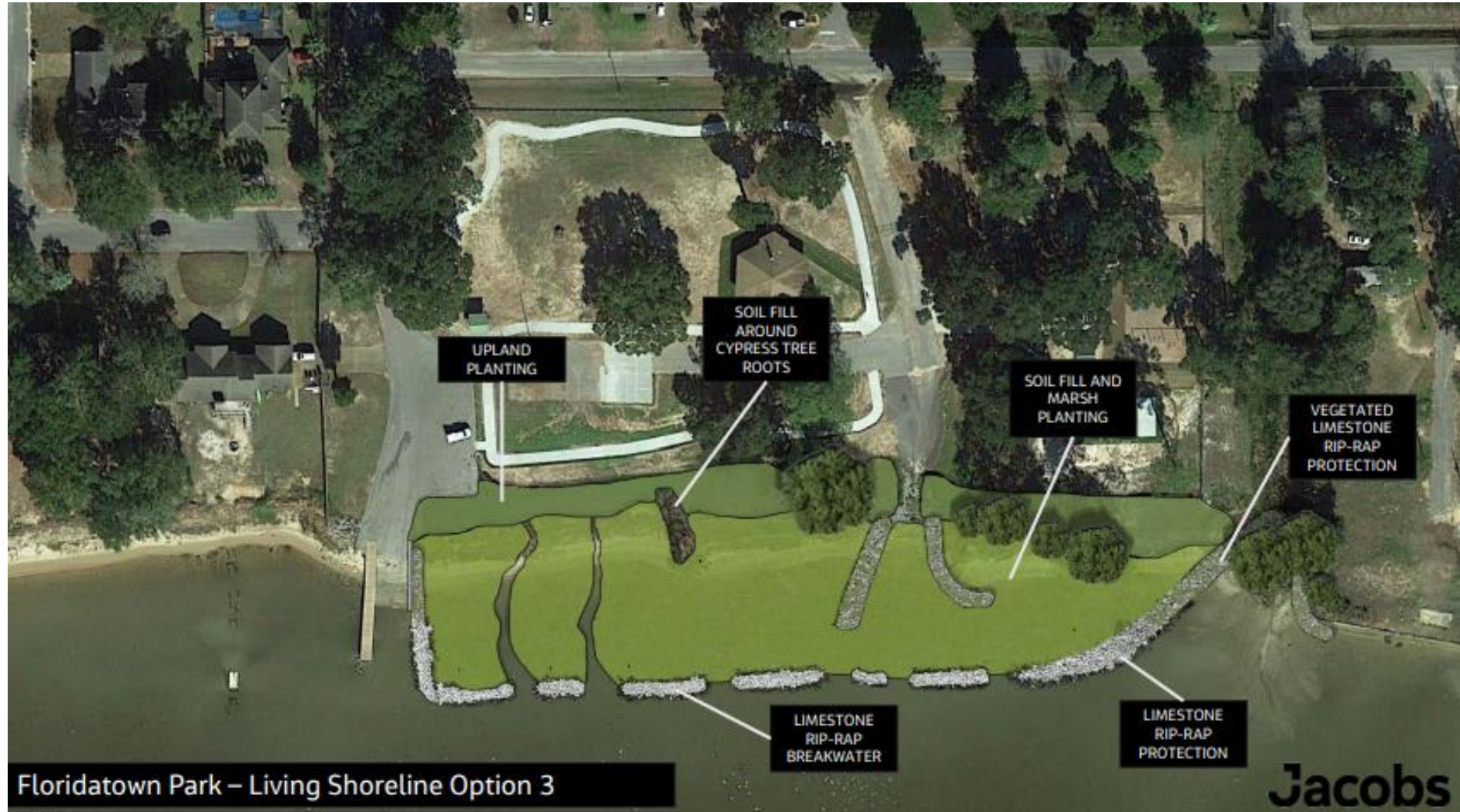
Floridatown Park – Living Shoreline Option 2

Jacobs



Floridatown Coastal Resiliency Project Phase II

Design
Option 3





Floridatown Park Coastal Resiliency Project

Next Steps for Floridatown:

- The project coordinator from Santa Rosa County has applied to FDEP and the USACE for a permit for the living shoreline.
 - The required DEP permit is an “Individual Permit”
 - The required USACE permit is a “Nationwide Permit 27” and this is because the project is located within “retained waters” and needs to comply with Clean Water Act, Section 404.
- Write up about the project in the Pensacola News Journal.
- Anticipated Construction—watch this space!

Pace's historic Floridatown Park is getting a 'living shoreline' upgrade

Annie Blanks Pensacola News Journal

Published 4:53 a.m. CT Mar. 9, 2021

[View Comments](#)



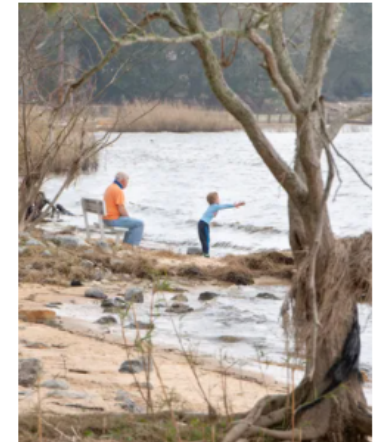
One of Santa Rosa County's oldest and most historic parks is getting a major environmentally friendly upgrade.

Floridatown Park, located in Pace on the Escambia Bay, is the recipient of a \$175,000 grant from the Florida Department of Environmental Protection Coastal Resilience Grant Program to create a living shoreline along the beach area of the park.

The living shoreline will use natural vegetation and other elements of nature already existing in the ecological area to create a seawall of sorts that protects the park and surrounding land from erosion.

“When you have waves and storm surge, it can damage your shoreline over time and cause erosion,” said Shelley Alexander, Santa Rosa County's environmental programs coordinator. “The standard practice is to use seawalls, like concrete embankments or vertical seawalls, but that's not very sustainable and it contributes to the loss of habitats, like shoreline wildlife, oysters, shrimp and marshland.”

The county is currently in the design and engineering phase of the project, with construction expected to start in early 2022. County officials held a public workshop in November 2020 to present Pace residents with three options for the living shoreline project, and the most popular option was chosen.



Jeff Benton watches as his grandson, Hudson Benton, 4, tosses a rock into Escambia Bay at Floridatown Park in Pace on Jan. 25, 2021. Gregg Pachkowski/gregg@pnj.com



A Resilient Shoreline on SR-A1A in Miami Beach

Project Background

SR A1A experiences chronic tidal flooding due to low road and seawall elevations, and aging infrastructure making the road unpassable for pedestrians and vehicles.

Many residential and commercial needs depend solely on SR A1A.

A partnership between the City and FDOT to raise the roadway, rehabilitate the shorelines and protect the key transportation corridor from flooding is in place.

The Resilient Shoreline plan included using a green infrastructure design to buffer the roadway.

Habitat creation and ecological benefits will be additional bonuses to the main resiliency.



A Resilient Shoreline on SR-A1A in Miami Beach

Project
Location





A Resilient Shoreline on SR-A1A in Miami Beach

FDEP funded the design and permitting of a 0.47-acre mangrove planter in the waterway adjacent to SR A1A, with the following details:

- Rock or concrete rubble base planter underlying layers of filler stone and top soil mixture of organic material and sand.
- Riprap to configure a peak shape, extending 1.34 feet above the mean high water elevation to contain the soil.
- 5-foot-wide gaps at the north and south ends and every 75 feet along to allow for natural hydrodynamic flow and the passage of fish and wildlife into the habitat.





Resilient Shoreline Softening on Sarasota Bay

Project Background

Over 80% of Sarasota Bay's shorelines are hardened, mostly with seawalls

Seawalls have unintended consequences for wildlife and resilience because they eliminate the habitat and buffering functions of natural, vegetated shorelines.

The City of Sarasota has 328 feet of bayfront shoreline that has severe erosion, resulting in significant loss of public property and threatening to affect nearby private property.

This project is the first phase of a years long city initiative to transform a 53-acre site to a more inclusive and welcoming community waterfront destination.

The project provides an opportunity to educate local residents and visitors on the function and benefit of living shorelines, including climate adaptation, habitat creation and erosion prevention.



Resilient Shoreline Softening on Sarasota Bay

Project Objectives:

- Use funds for materials and labor to remove a seawall and replace it with a sloped revetment.
- Restore a living shoreline and breakwater.
- Provide education to the park visitors on the benefits of living shorelines and climate adaptation by providing signage.



Removal of the existing seawall



Resilient Shoreline Softening on Sarasota Bay



Planting in the early stages

Educational signage





Living Shorelines Considerations

- What are the physical site conditions?
- Are ecologically valuable aquatic habitats or animals living along the shoreline at the site?
- How should the effects of sea level rise and water level changes be considered in living shorelines projects?
- What balance between green (softer) and gray (harder) stabilization is appropriate given particular site conditions?
- What kind of maintenance is associated with living shoreline projects?



Thank you!

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