



# **Office of Resilience and Coastal Protection Updates**

**Florida Department of Environmental Protection**



# Beaches Updates

**Lainie Edwards, Ph.D., Deputy Director  
Office of Resilience and Coastal Protection**



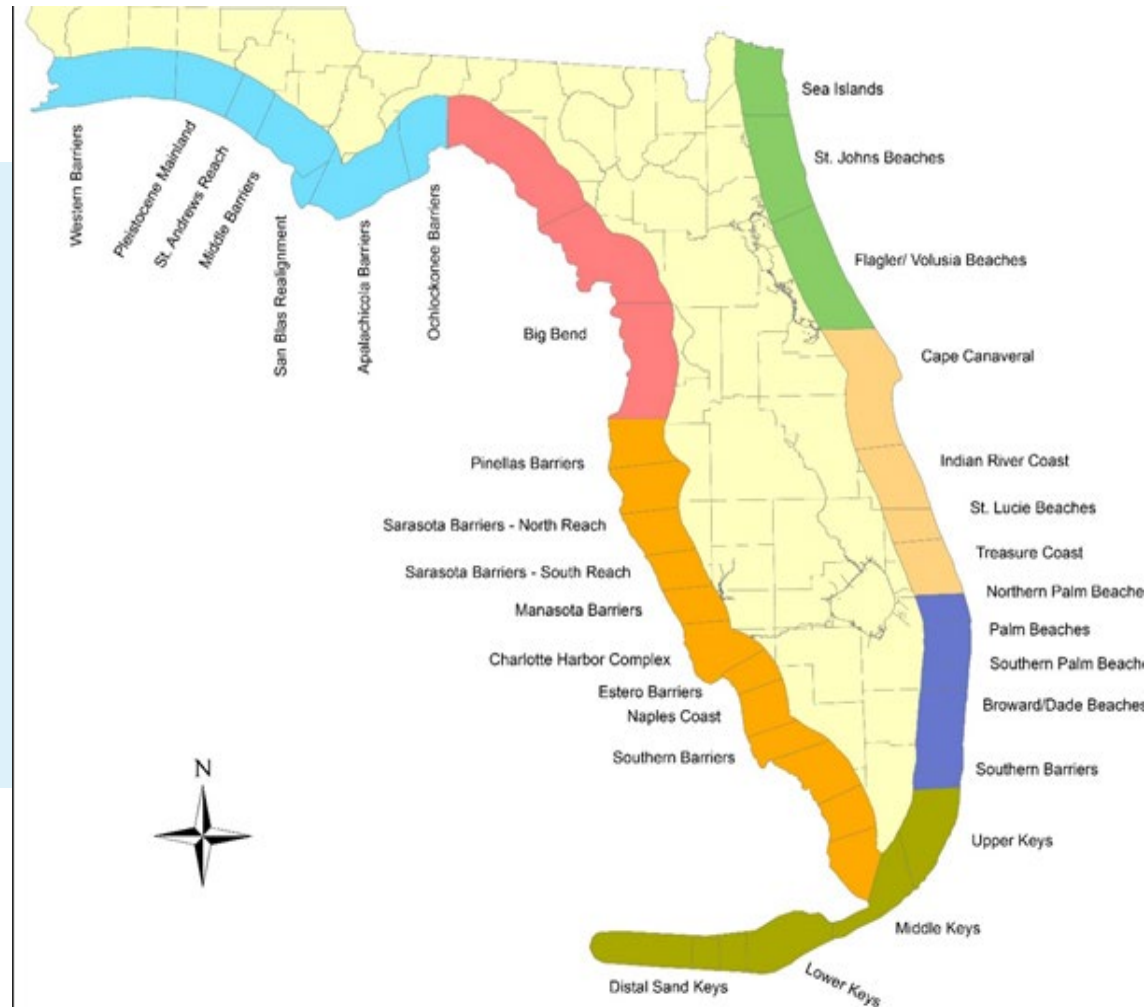
# Topics of Discussion

- SBMP and IMPs.
- Annual Inlet Bypassing Report.
- Turbidity Criterion Update.
- HCP Update.
- JCP Permitting.



# Beach Management Planning

- The Introduction of SBMP was updated in Dec 2020.
- Detailed Emergency Response section.
- Project Management Overview section.
- Next full update scheduled for 2022.





# Inlet Management Planning

The following inlet management plans have been updated in 2020/2021:

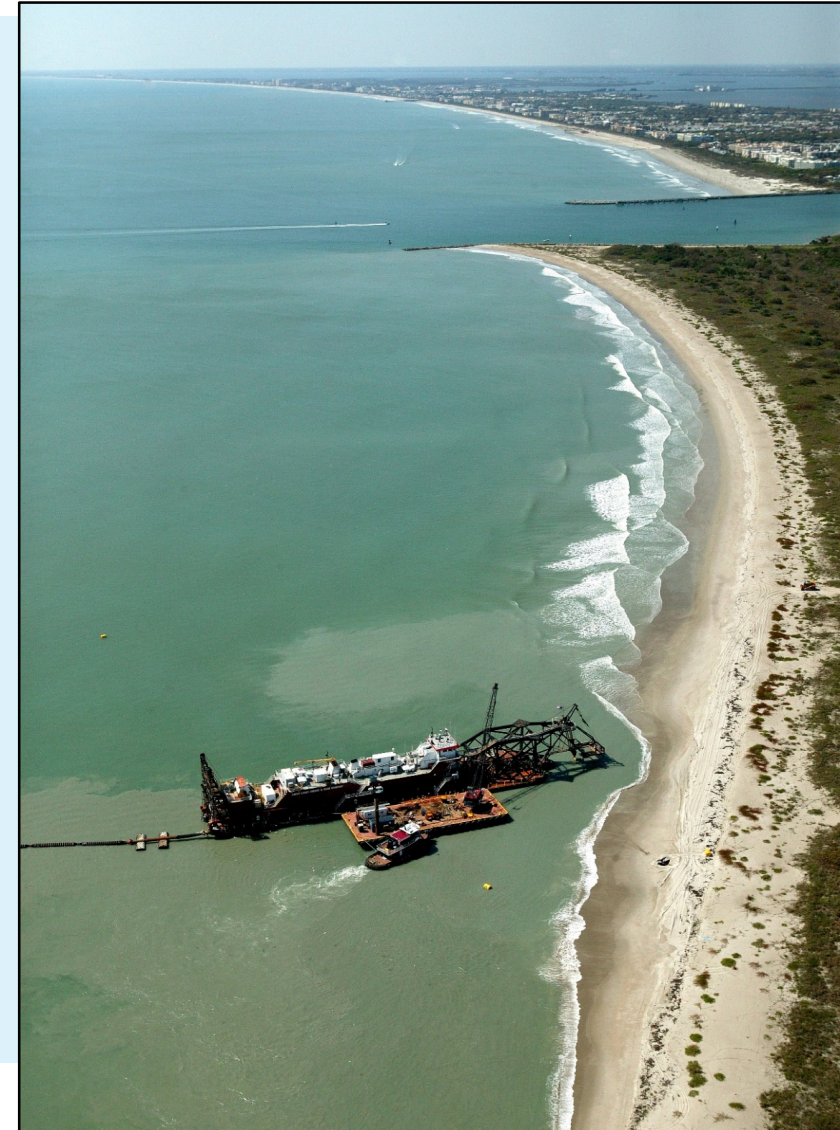
- **Ponce de Leon Inlet Management Plan (10-2020).**
- **Baker's Haulover Inlet Management Plan (08-2021).**





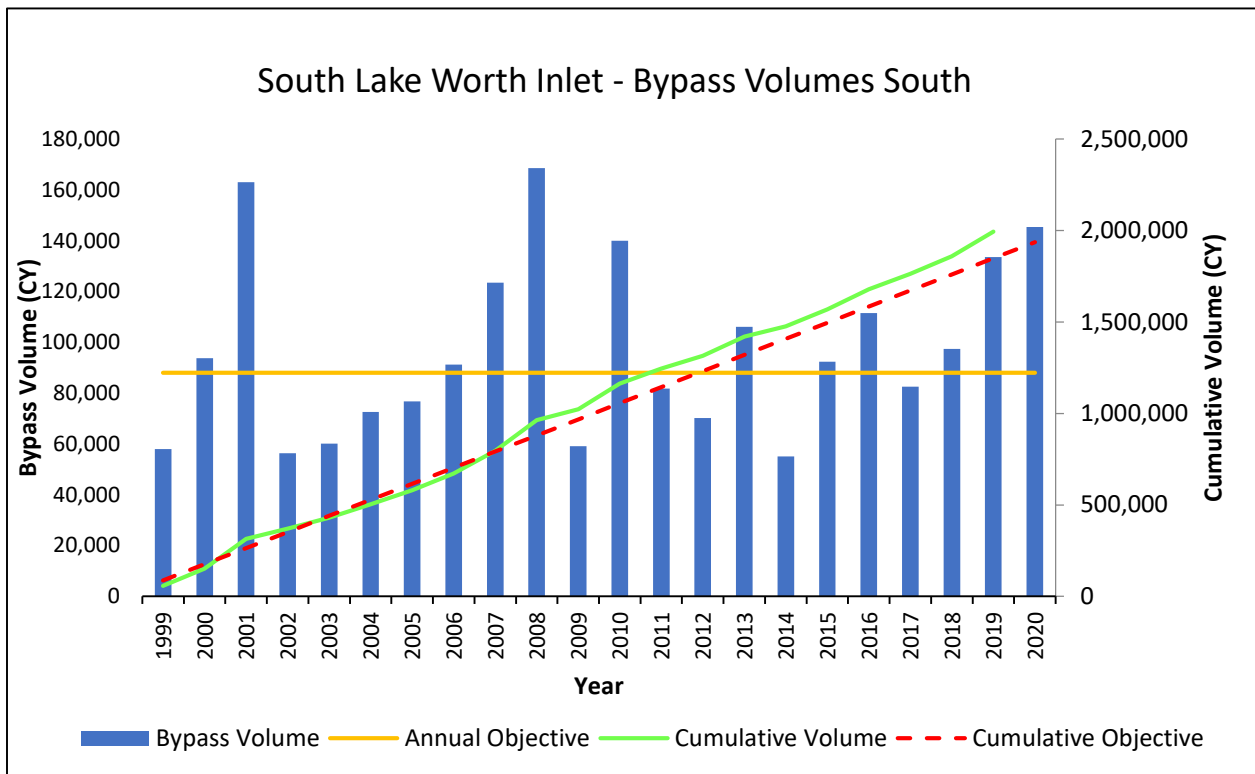
# Annual Inlet Bypassing Report

- Section 161.143 (5) F.S.: *The department shall update and maintain an annual report on its website concerning the extent to which each inlet project has succeeded in balancing the sediment budget of the inlet and adjacent beaches and in mitigating the inlet's erosive effects on adjacent beaches. The report must estimate the quantity of sediment bypassed, transferred, or otherwise placed on adjacent eroding beaches, or in such beaches' nearshore area, for the purpose of offsetting the erosive effects of inlets on the beaches of this state.*
- Highlights the surplus and/or deficit of bypassed material.
- Mitigation of the contemporary inlet effects (s. 161.142 F.S.).





# Annual Inlet Bypassing Report



| Bypassing Matrix            | North Bypass (CY) | South Bypass (CY) |
|-----------------------------|-------------------|-------------------|
| Cumulative Volume Bypassed: | 0                 | 2,138,892         |
| Cumulative Objective:       | 0                 | 1,936,000         |
| Annualized Volume Bypassed: | 0                 | 97,222            |
| Surplus (Deficit):          | 0                 | 202,892           |
| Percent Objective Met:      | N/A               | 110.48%           |

**Figure 6:** South Lake Worth Inlet bypass objective volume and actual bypass volumes south of the inlet. Included in the graph and table are the cumulative volume and cumulative objective.



# Annual Inlet Bypassing Report

Of the total 66 Florida inlets along the Atlantic Coast and Gulf Coasts, 25 are listed in the annual inlet bypassing report that are considered managed inlets.

<https://floridadep.gov/rcp/beaches-inlets-ports/documents/annual-inlet-report>







# Rule Development Update – Turbidity Criterion

Division of Environmental Assessment and Restoration is undergoing a Triennial Rule Review to periodically update Water Quality standards. One of standards being included in the update is the turbidity standard in 62-302, F.A.C.

- **DRAFT Rule Concept:**
  - Applies to all areas of coral reef or hardbottom.
  - Similar to OFW provisions.
  - 0 NTUs above background variability.
  - Implementation through permitting.
  - Criterion will require legislative ratification.





# Rule Development Update – Turbidity Criterion

- Next step – Notice of Proposed Rule.
- There will be additional commenting opportunity.
- <https://floridadep.gov/dear/water-quality-standards/content/triennial-review-water-quality-standards>.





# Habitat Conservation Plan

FDEP, FWCC and a steering committee, in a stakeholder-driven process, drafted a Florida Beaches Habitat Conservation Plan (HCP), which establishes wildlife protection standards for coastal construction and beach operations, and guides DEP and permit applicants in avoiding, minimizing and mitigating threats to coastal wildlife through coastal construction permits.

## HCP Includes:

- Activities and species for incidental take authorization.
- Description of the plan area.
- Identification of potential impacts.
- List of alternatives.
- Duration of the Permit.
- Minimization and mitigation measures.
- Funding and implementation of the Plan.





# Habitat Conservation Plan

The draft HCP was approved by the Steering Committee and shared with the U.S. Fish and Wildlife Service in the spring of 2019. Prior to implementation of the Plan and requirements of an associated federal Incidental Take Permit, the Florida Legislature must authorize changes to coastal construction policies in state law, Chapter 161, Florida Statutes.

## Path Forward Options:

- Modify / Refine Mitigation and Implementation Plan Chapters.
- Evaluate legislative changes needed for implementation.
- Promote HCP's minimization measures within CCCL as voluntary BMPs.
- <https://floridadep.gov/rcp/coastal-construction-control-line/content/florida-beaches-habitat-conservation-plan>.



# JCP Permitting Successes

- BIP, along with support from CEG, successfully permitted every project from the 2018 supplemental funds.
- Highest permitting load to date.
- Fast turnaround time.





# Florida's Beach Management Funding Assistance Program

Hanna Tillotson, Environmental Administrator  
Office of Resilience and Coastal Protection, Tallahassee  
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# Why Restore Beaches?

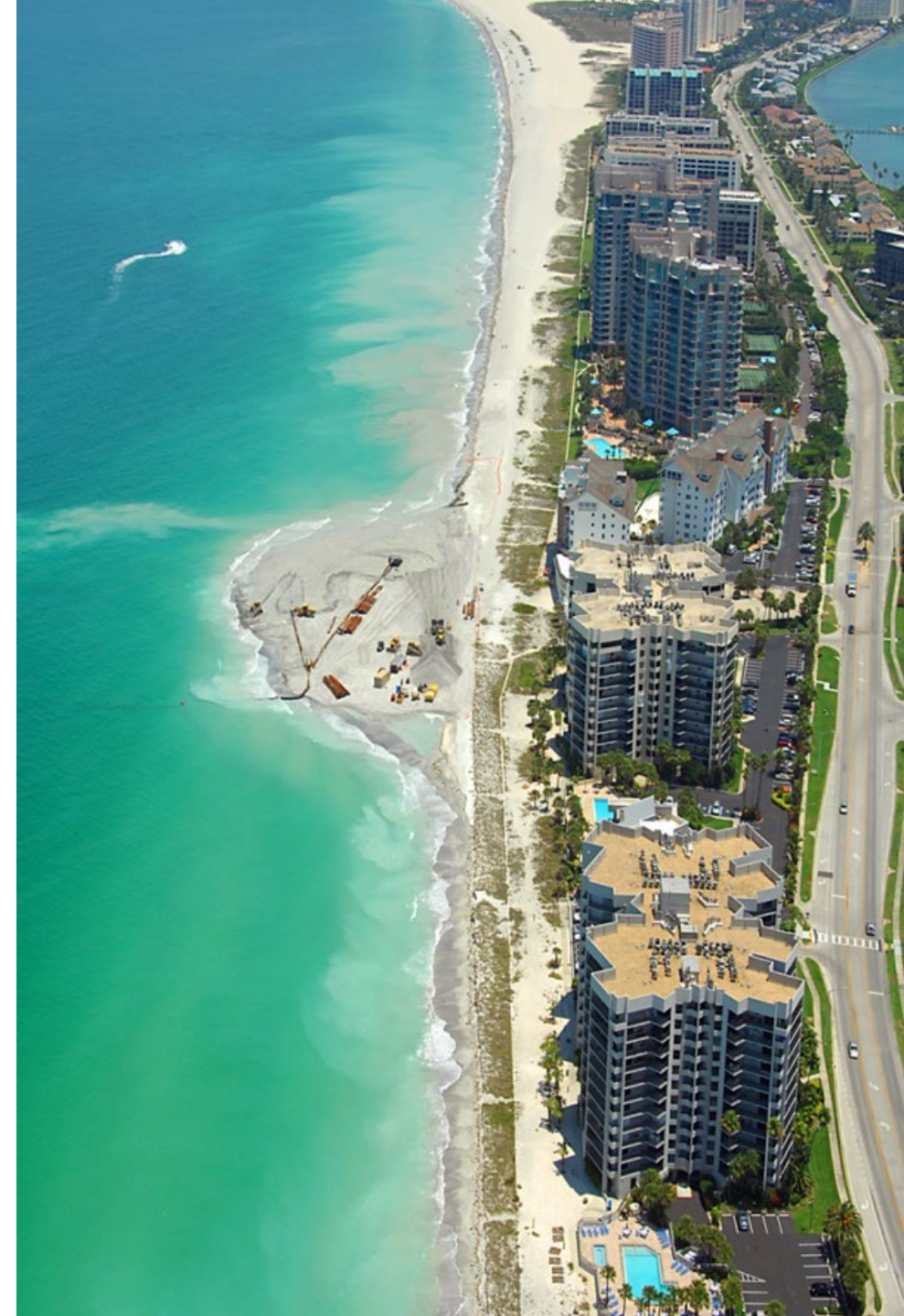
- Florida depends on its 825 miles sandy shoreline to protect infrastructure from storms, provide critical habitat, and provide recreational and economic opportunities
- 426.6 miles designated as critically eroded
- 253.1 miles restored and maintained
- Beach management generates a \$5.4 return for every \$1 investment of state's expenditures<sup>(1)</sup>



# Statutory Authority

## *Chapter 161, Florida Statutes*

- Develop and implement a comprehensive, long-range, statewide beach management plan for erosion control; beach preservation, restoration and nourishment; and storm and hurricane protection
  - Critical Erosion Report
  - Strategic Beach Management Plan
  - Inlet Management Plan
  - Long-Range Budget Plan
  - Local Government Funding Request







# Shoreline Eligibility

## *State Funding*

- Designated as critically eroded by the Department
- Proposed strategies consistent with the Strategic Beach Management Plan or Inlet Management Plan
- Monitoring work required by state and federal permit
- State cost share percentage calculated by public access pursuant to Rule 62B-36, F.A.C.





# State Funding

## *Local Government Funding Request*

- Since 1998, Florida Legislature has dedicated nearly \$1.1 billion
  - \$109 million for hurricane recovery
- Local government-sponsored projects: Feasibility studies, design and permitting, construction of erosion control structures and engineered sand placement, and physical and biological monitoring





# State Funding

## *2019 Statutory Changes*

- Amended project ranking criteria
  - Beach projects
    - Considers tourism-related impacts, value of upland property, dune addition, previous state funding, accessible beach area, armored shoreline within designated critical habitat areas
  - Inlet projects
    - Considers increased bypassing improvements, cost-effectiveness of using inlet sand, enhanced longevity of proximate beach projects, and previous state funding
- State cost share percentage for inlet projects





# Legislative Reports

## *2019 Statutory Changes*

- **3-Year Work Plan**
  - Prioritized project list for proposed phase and funding estimates for years 1-3 based on eligibility, ranking criteria, and readiness to proceed
- **Long-Range Budget Plan**
  - Comprehensive, statewide project list for proposed phase and funding estimates for years 4 and 5
- **Improves project funding and planning estimates**





# Legislative Appropriation

## *Fiscal Year 2021/2022*

- **\$100 million from Land Acquisition Trust Fund for projects consistent with comprehensive, long-term management plan (Sections 161.161 and 161.101, Florida Statutes)**
  - Local Government Funding Request
  - Projects on lands managed by the State
  - Contractual services and administration
- **\$50 million American Rescue Plan Act**
  - Storm repair projects





# Local Government Funding Request

*Fiscal Year 2022/2023*

- Funding requests for 44 beach and inlet projects received by application deadline, July 31
  - 36 beach projects (13 monitoring-only)
  - 8 inlet projects (1 monitoring-only)
- Total state cost share request of \$63.75 million





# Cost Sharing for Resilient Coastlines

Partnerships with local, state, and federal governments are crucial to preserve, protect, and restore Florida's sandy shorelines



Before restoration



After restoration



# Resilience Updates

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# Topics of Discussion

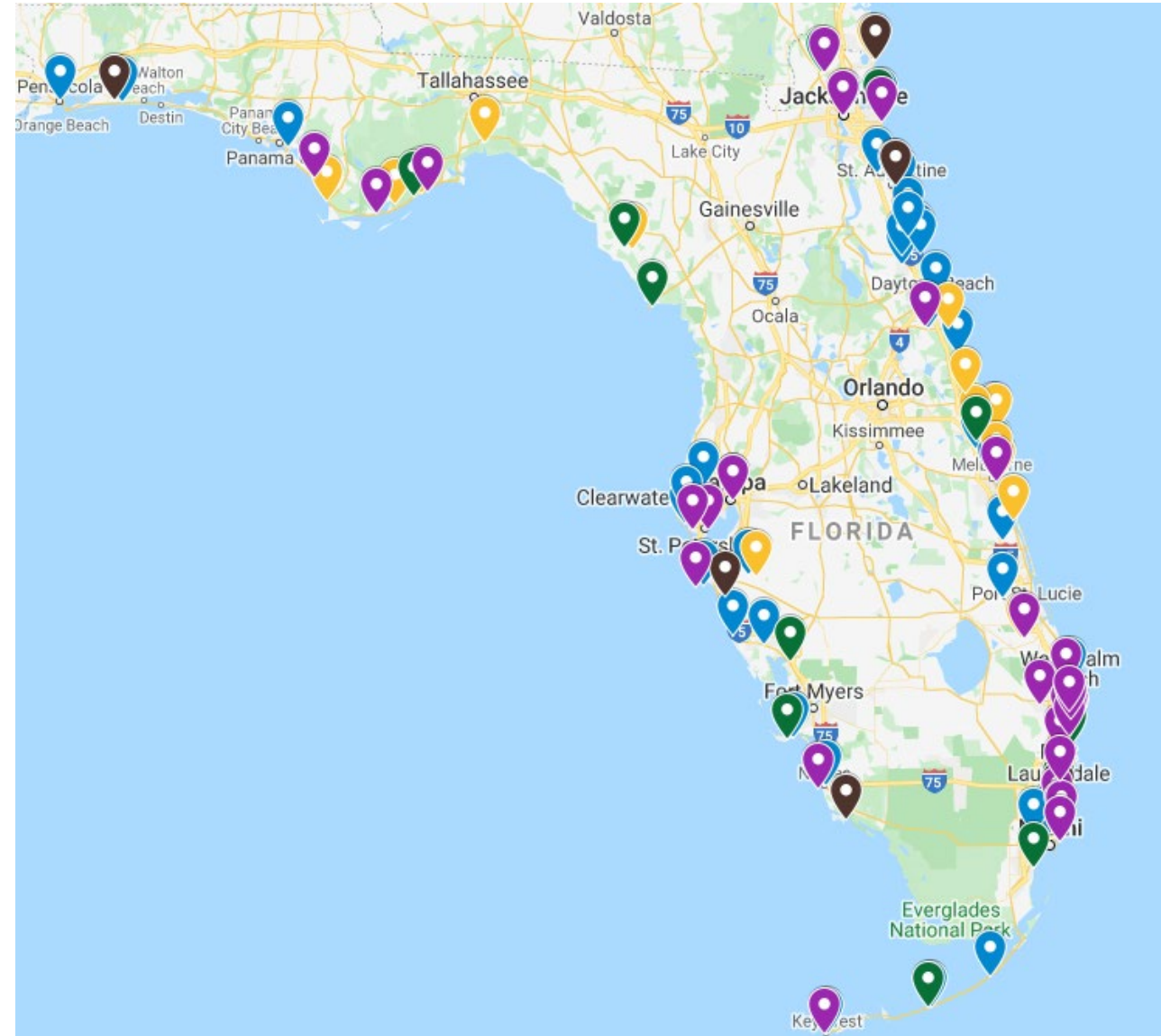
- Florida Resilient Coastlines Program
- SLIP Study (s. 161.551, F.S.)
- Resilient Florida
- Florida Coastal Mapping Initiative



# Florida Resilient Coastlines Program

- **\$6.5 Million Allocated**
- **97 Total Awards**
  - *11 Implementation Projects*
  - *86 Planning Projects\**
- **129 Cities and Counties**

\*Planning Projects include Peril of Flood, Vulnerability Assessments, Adaptation Plans and Regional Coordination





# Sea Level Impact Projection s. 161.551, F.S. (SB 178)

|                         |   |
|-------------------------|---|
| <b>June 29</b><br>2020  | <ul style="list-style-type: none"><li>• SB 178 signed by Governor DeSantis</li></ul>  |
| <b>October</b><br>2020  | <ul style="list-style-type: none"><li>• SLIP Study Requirements Development</li></ul>   |
| <b>November</b><br>2020 | <ul style="list-style-type: none"><li>• Notice of Rule Development</li><li>• Stakeholder Roundtables</li></ul>                              |
| <b>December</b><br>2020 | <ul style="list-style-type: none"><li>• SLIP Tool Web Application Mock-up</li></ul>   |
| <b>January</b><br>2021  | <ul style="list-style-type: none"><li>• Rule Development Workshop 1</li><li>• Incorporation of Comments into Draft Rule Language</li></ul>  |
| <b>February</b><br>2021 | <ul style="list-style-type: none"><li>• Refinement of Draft Rule Language</li><li>• Rule Development Workshop 2</li></ul>                   |
| <b>March</b><br>2021    | <ul style="list-style-type: none"><li>• Comments due March 1</li><li>• Finalize Rule Language</li></ul>                                     |
| <b>April</b><br>2021    | <ul style="list-style-type: none"><li>• Publish Notice of Proposed Rule</li><li>• File JAPC Package</li><li>• JAPC Comment Period</li></ul> |
| <b>May</b><br>2021      | <ul style="list-style-type: none"><li>• Public Hearing if Requested</li><li>• JAPC Comments due by May 20</li></ul>                         |
| <b>June</b><br>2021     | <ul style="list-style-type: none"><li>• File with Department of State</li></ul>   |
| <b>July</b><br>2021     | <ul style="list-style-type: none"><li>• Rule Becomes Effective</li><li>• Launch of SLIP Tool Web Application</li></ul>                      |



SLIP Studies

Section 161.551, F.S.

Adaptation

# Sea Level Impact Projection Study Tool

Determining risk for Florida coastline construction projects

The purpose of the Sea Level Impact Projection (SLIP) Study Tool is to facilitate the conduction of SLIP studies for state-funded construction within the coastal building zone in accordance with Section 161.551, F.S.



## SLIP Studies

Learn more about SLIP Studies and how to create a report using this website

[Continue](#)



## Section 161.551, F.S.

Learn more about the Florida statute that mandates SLIP studies.

[Continue](#)



## Adaptation

Learn about adaptation strategies for your construction projects.

[Continue](#)



Use the tools below to view base map and coastal flooding spatial data.

### Sea Level Rise

Use the vertical slider to simulate water level rise, the resulting inundation footprint, and relative depth.



**Water Depth**

Low-lying inland areas prone to flood at selected sea level rise scenario

Water levels are relative to local Mean Higher High Water Datum. Areas that are hydrologically connected to the ocean are shown in shades of blue (darker blue = greater depth).

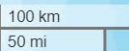
Water Level (feet)

SLIP Study Tool

Create Report

Coastal Layers

- Sea Level Rise
- NOAA Regional Scenarios
- Flood Zones
- Storm Surge Flood Depths
- High Tide Flooding
- Wind Zones
- Terrain
- Wildlife Index
- None



Nassau THE BAHAMAS



Use the tools below to view base map and coastal flooding spatial data.

Coastal Layers

- Sea Level Rise (i)
- > NOAA Regional Scenarios (i)
- Flood Zones (i)
- Storm Surge Flood Depths (i)
- High Tide Flooding (i)
- Wind Zones (i)
- Terrain (i)
- Wildlife Index (i)
- None

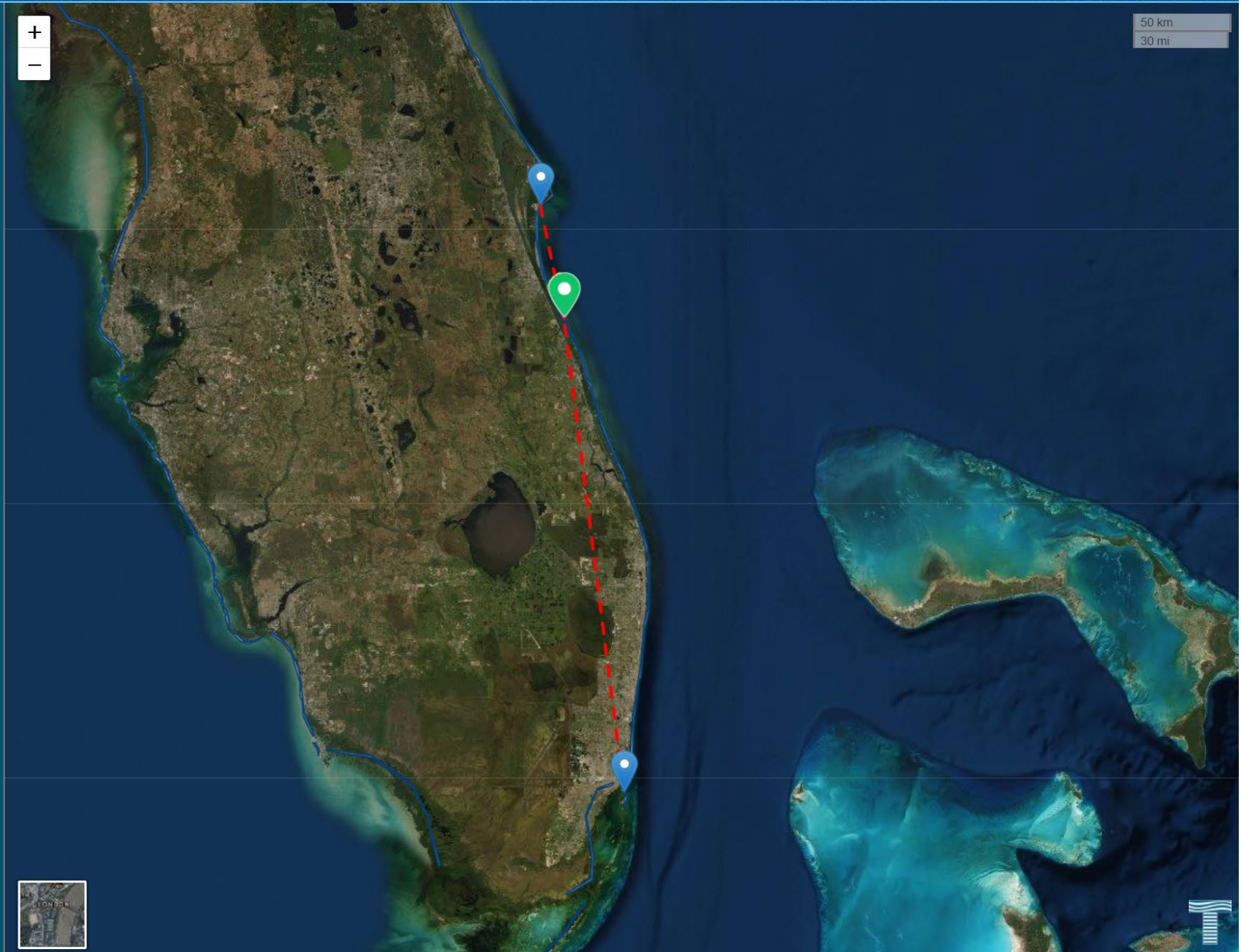
NOAA Regional Scenarios

Click a location on the map to see the interpolated regional sea level rise for the selected scenario. Elevations are in NAVD88 (ft).

Intermediate High ▾

Virginia Key, FL  
Trident Pier, FL

|      |            |
|------|------------|
| 2100 | : 2.86 ft  |
| 2080 | : 1.81 ft  |
| 2060 | : 0.99 ft  |
| 2040 | : 0.37 ft  |
| 2020 | : -0.06 ft |





Use the tools below to view base map and coastal flooding spatial data.

SLIP Study Tool

Create Report

Coastal Layers

- Sea Level Rise (i)
- NOAA Regional Scenarios (i)
- Flood Zones (i)
- Storm Surge Flood Depths (i)
- High Tide Flooding (i)
- Wind Zones (i)
- Terrain (i)
- Wildlife Index (i)
- None

### High Tide Flooding

● Shallow Coastal Flooding

Annual occurrences of tidal flooding—exceeding local thresholds for minor impacts to infrastructure—have increased 5- to 10-fold since the 1960s in several U.S. coastal cities. The changes in high tide flooding over time are greatest where elevation is lower, local RSL rise is higher, or extreme variability is less.

In a sense, today's flood will become tomorrow's high tide, as sea level rise will cause flooding to occur more frequently and last for longer durations of time.

The red layer in the map represents areas currently subject to tidal flooding, often called "recurrent or nuisance flooding."





Use the tools below to view base map and coastal flooding spatial data.

### Create Report

You have activated the "Create Report" tool. In order to create a new SLIP Study report use the map pane to the right to navigate to your project area. Click on the desired project area on the map and the "Create Report" form will pop up. Enter the required information and click "Create Report".

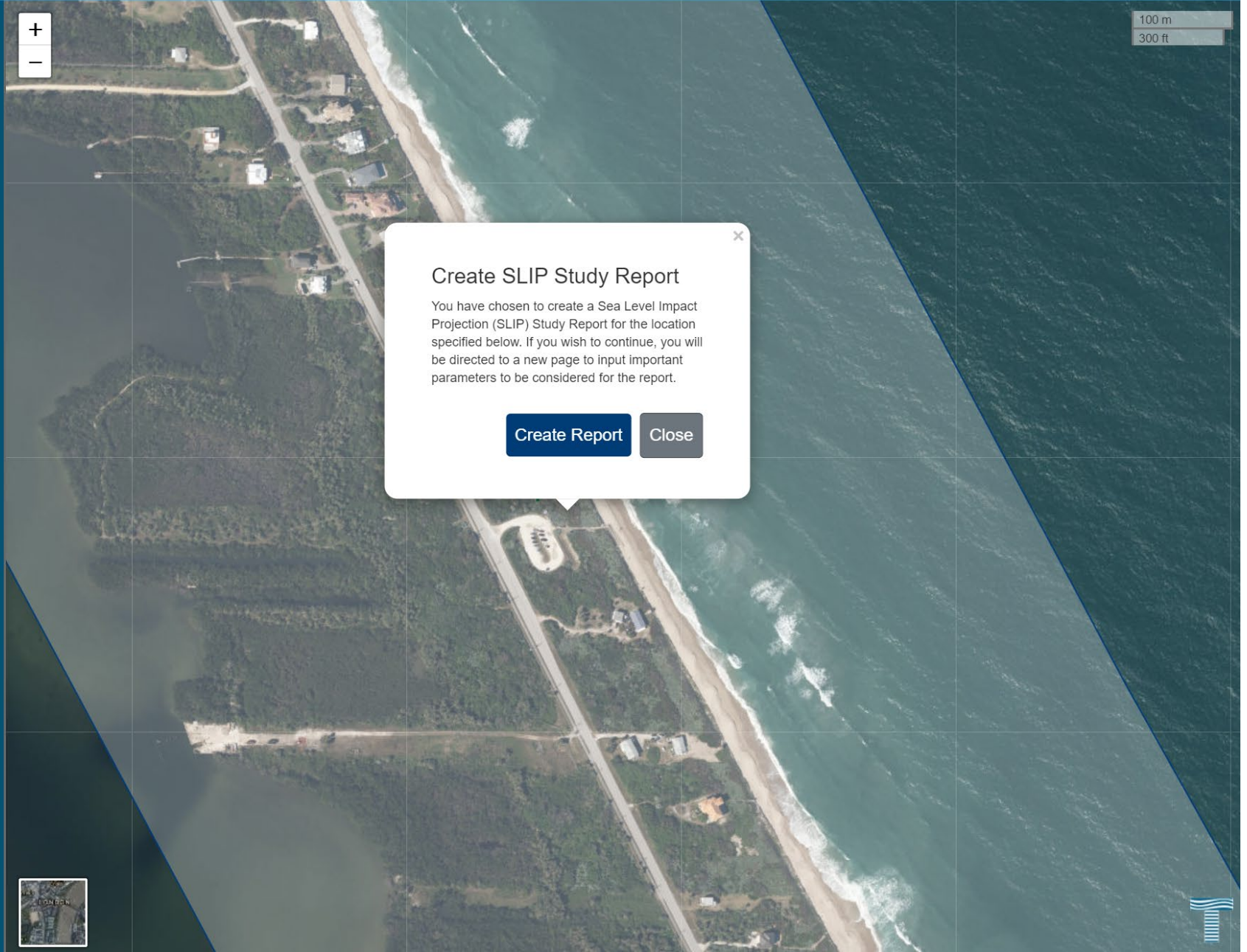
If you would like to cancel the "Create Report" process, click "Cancel Report" on the left side of this page.

#### SLIP Study Tool

Cancel Report

#### Coastal Layers

- > Sea Level Rise ⓘ
- NOAA Regional Scenarios ⓘ
- Flood Zones ⓘ
- Storm Surge Flood Depths ⓘ
- High Tide Flooding ⓘ
- Wind Zones ⓘ
- Terrain ⓘ
- Wildlife Index ⓘ
- None



**Create SLIP Study Report**

You have chosen to create a Sea Level Impact Projection (SLIP) Study Report for the location specified below. If you wish to continue, you will be directed to a new page to input important parameters to be considered for the report.

Create Report Close







## Create SLIP Study Report

\*Denotes required values

\*Project Name:

\*Category:


\*Construction type:

Critical Elevation (ft NAVD88):

\*Construction Start Year:

\*Expected Life (years):

\*Estimated Construction Cost (\$):

Create Report

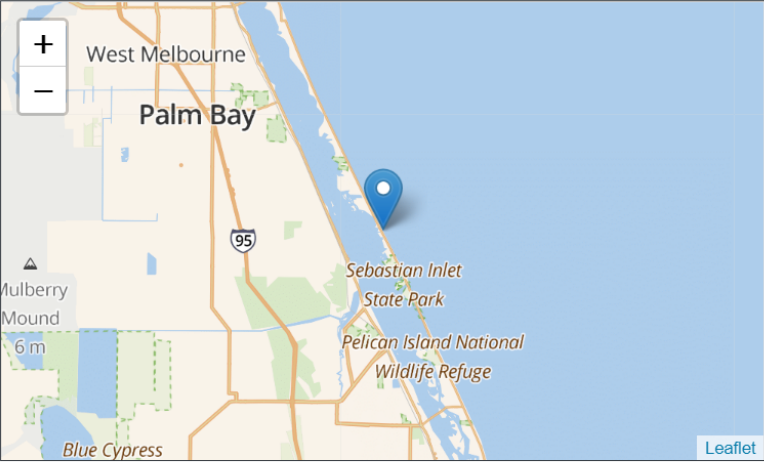
Cancel



Save Report

# Sea Level Impact Projection (SLIP) Study Report (Demo version)

|                                  |                          |
|----------------------------------|--------------------------|
| Project name                     | Bonsteel Park Platform   |
| Coordinates                      | -80.47 W, 27.90 N        |
| Project category                 | Horizontal               |
| Construction type                | Bridge                   |
| Construction start year          | 2021                     |
| Expected life (years)            | 40                       |
| Estimated Construction Cost (\$) | \$20,000                 |
| Critical elevation (ft NAVD88)   | 20.1                     |
| Organization                     | Taylor Engineering, Inc. |
| Report Date                      | 5/4/2021, 10:07:14 AM    |



## Results

Average Annual Chance of Flood Damage: **5%**



| Metric  | Value |
|---|-------|
| FEMA Flood Hazard Zone                          | VE    |
| Base Flood Elevation (ft NAVD88)                | 13    |
| Int-High Sea Level Rise (year 2060) (ft NAVD88) | 0.85  |
| Wind Zone (mph)                                 | 180   |

The cumulative results of the SLIP Study were found to be moderate, meaning the selected location is moderately favorable when considering coastal hazards related to potential sea level impacts. More explanation will be forthcoming in future versions.



## Potential Beneficial Adaptation Strategies

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Based on the results of the SLIP Study, the following adaptation strategies may be beneficial to consider in the construction design. These are not recommendations, merely standard strategies used to mitigate risk.

### **Build on Partially Elevated Areas**

Building on partially elevated areas reduces the flood risk locally.

| Metric                           | Value     |
|----------------------------------|-----------|
| Solution Timeline                | Long Term |
| Scale                            | Micro     |
| Adaptation Infrastructure        | Hybrid    |
| Degree of Protection             | Medium    |
| Relative Cost (\$, \$\$, \$\$\$) | \$\$      |

### **Flood Barriers (Passive or Active)**

Barriers around a building system utility components to protect from flooding.

| Metric                           | Value        |
|----------------------------------|--------------|
| Solution Timeline                | Intermediate |
| Scale                            | Micro        |
| Adaptation Infrastructure        | Gray         |
| Degree of Protection             | Medium       |
| Relative Cost (\$, \$\$, \$\$\$) | \$\$         |



## Potential Public Safety and Environmental Impacts

Based on the results of the SLIP Study, consider the following potential public safety and environmental impacts.

### Flood Risk

When factoring in the flood zone, base flood elevation, terrain, and sea level rise trends for the project location, a moderate flood risk is present.

### Wind Risk

The project location was found to be located in an area of high wind risk with a C (waterfront) classification and potential wind speeds of 150 mph. There is potential risk from flying debris.

### Explosion Risk

The high wind risk in this project location may contribute to a higher risk of explosion due to potential downed powerlines.

## FEMA Flood Hazard Information

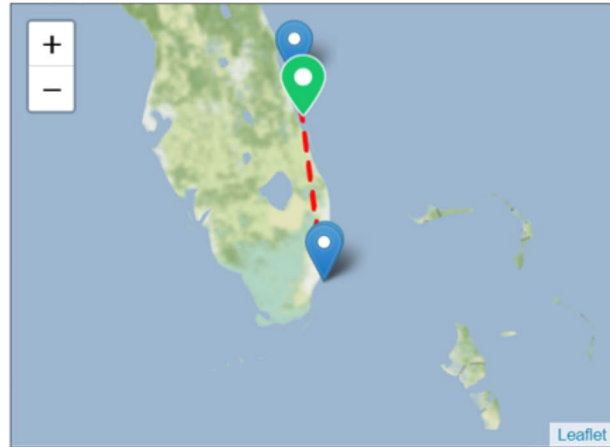
|                        |                    |
|------------------------|--------------------|
| Flood Zone             | VE                 |
| Zone subtype           | COASTAL FLOODPLAIN |
| Static BFE (ft NAVD88) | 13                 |
| Depth (ft NAVD88)      | Not Applicable     |
| Velocity               | Not Applicable     |
| Vertical Datum         | NAVD88             |



The base flood elevation (BFE) is provided in NAVD88 for VE, AE, and AH special flood hazard zones. For AO special flood hazard zones though, FEMA does not calculate BFE. Instead, flood depth relative to the ground elevation is provided.

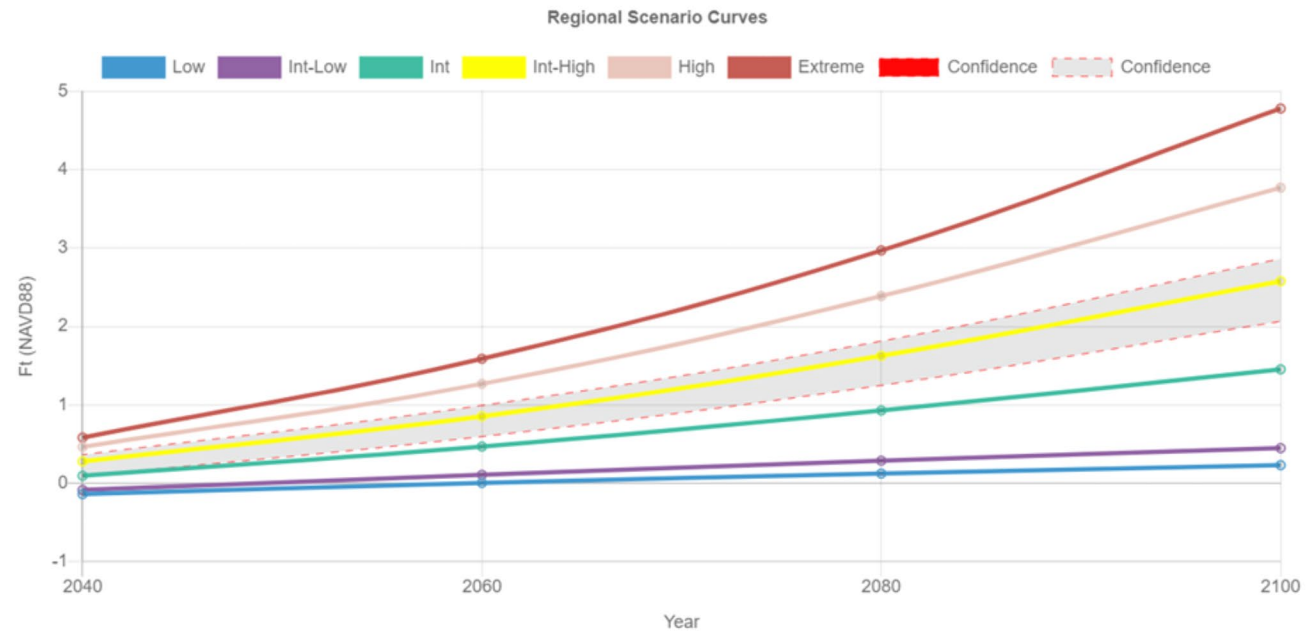


## Regional Sea Level Rise Scenarios



NOAA Regional Scenarios (ft)

| Scenario                 | 2040        | 2060        | 2080        | 2100        |
|--------------------------|-------------|-------------|-------------|-------------|
| Low                      | -0.14       | 0.01        | 0.12        | 0.23        |
| Intermediate Low         | -0.08       | 0.11        | 0.29        | 0.45        |
| Intermediate             | 0.10        | 0.47        | 0.93        | 1.45        |
| <b>Intermediate High</b> | <b>0.28</b> | <b>0.85</b> | <b>1.63</b> | <b>2.58</b> |
| High                     | 0.46        | 1.27        | 2.39        | 3.77        |
| Extreme                  | 0.58        | 1.59        | 2.97        | 4.78        |





# Resilient Florida

Section 380.093, F.S.



# Resilient Florida Grant Program

- Focused on planning
  - Comp plan amendments, especially compliance with the Peril of Flood statute
  - Vulnerability assessments
  - Adaptation/resilience plans
  - Projects to adapt critical assets

## CONTEXT

- Assemble a steering committee
- Set guiding principles and motivations
- Establish planning area and describe geographic context
- Define public outreach approach and opportunities for community participation

## ADAPTATION STRATEGIES

- Assess adaptive capacities
- Prioritize adaptation needs
- Identify adaptation strategies
- Integrate into existing plans

## VULNERABILITY ASSESSMENT

- Conduct an exposure analysis
- Conduct a sensitivity analysis
- Assign focus areas

## IMPLEMENTATION STRATEGIES

- Assess implementation capabilities
- Create a schedule of activities, actions, and actors
- Monitor and evaluate



Figure 1. Communities can follow this roadmap of steps to create an adaptation plan.



# Consistent Vulnerability Assessments

- Will comprise the Statewide Vulnerability Assessment and be the basis for the Statewide Resilience Plan
- Encompass entire city or county and all critical assets\*
- Use most recent publicly available DEM and generally accepted analysis and modeling
- Address Peril of Flood compliance if applicable
- Assess flooding using, at least, Intermediate Low and Intermediate High scenarios from NOAA 2017 for at least 2040 and 2070
  - Tidal flooding, including future high tide flooding
  - Current and future storm surge flooding
  - Rain-fall induced flooding to the extent practicable
  - Compound flooding





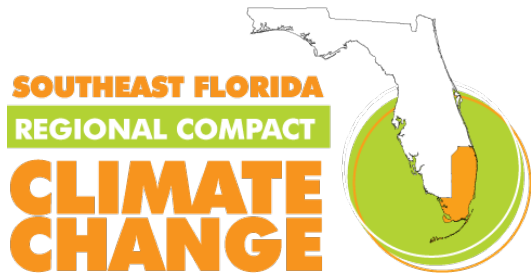
# Statewide Flooding & Sea Level Rise Resilience Plan

- **3-year rolling plan of projects taken from vulnerability assessments**
- **Year 1 Preliminary Plan uses already completed local vulnerability assessments**
- **Year 2 will update the Year 1 plan**
- **Year 3 and following will use projects identified in the Statewide Vulnerability Assessment**
- **Counties and municipalities, regional resilience entities (on behalf of a member), WMDs and flood control districts may submit projects to DEP starting 9/1/21.**
- **Minimum 50% cost share unless the applicant is a “financially disadvantaged small community”**



# Regional Resilience Entities

- Funding for regional resilience entities to assist communities and coordinate intergovernmental solutions
  - Technical assistance
  - Coordinate multijurisdictional vulnerability assessments
  - Develop project proposals to go into the Resilience Plan





# Florida Flood Hub

- Designates the College of Marine Science at USF to serve as the lead institution to engage other academic and research institutions, private partners, and financial sponsors to coordinate efforts to support applied research and innovation to address the flooding and sea level rise challenges of the state.



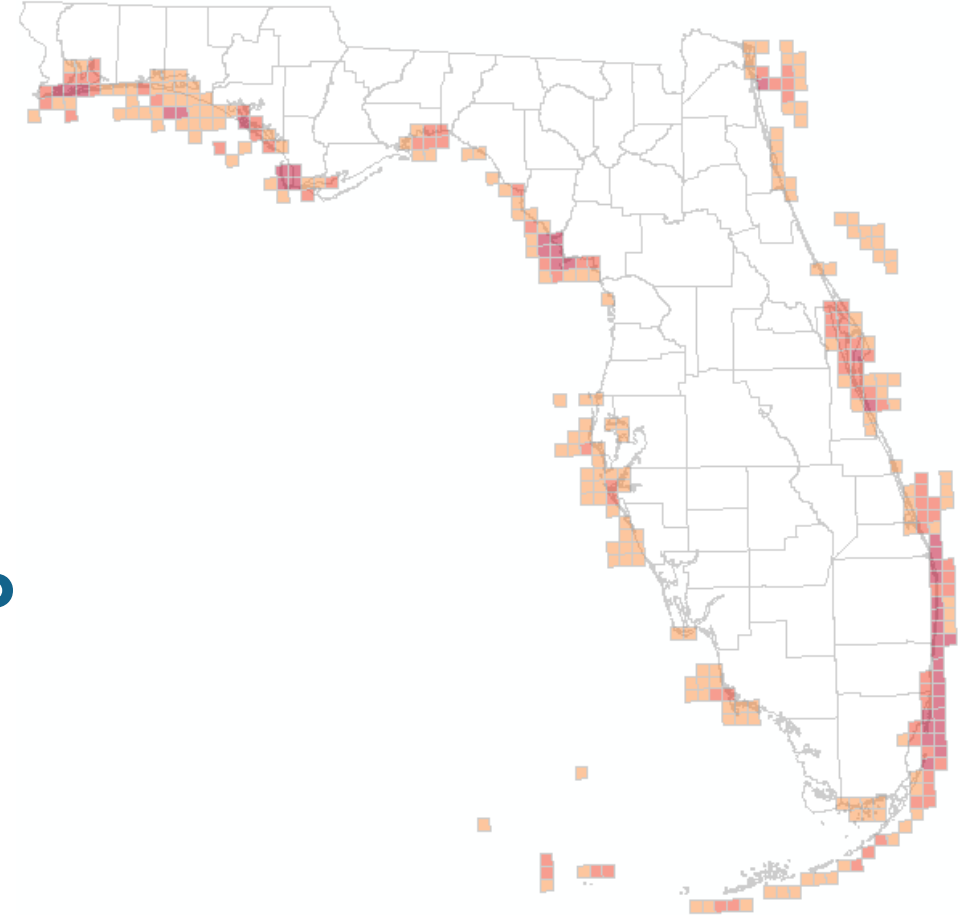


|                        | Resilient Florida Grant Program  |   | Comprehensive Statewide Flood Vulnerability Data Set and Assessment   |   | Statewide Flooding and Sea Level Rise Resilience Plan   | Regional Resilience Entities   | Florida Flood Hub  |
|------------------------|--|---|---|---|---|--|--|
|                        | <i>Planning Grants</i>   | <i>Resilience Projects</i>  | <i>Data Set</i>   | <i>Assessment</i>   |   |  |  |
| Activities             | Provides funding for comprehensive plan amendments, Peril of Flood, vulnerability assessments, adaptation plans, and projects to adapt critical assets to the effects of flooding and sea level rise. Provides a methodology for completing vulnerability assessments. | “The nonrecurring sum of \$500,000,000 from the Resilient Florida Trust Fund is appropriated in Fixed Capital Outlay for the Resilient Florida Grant Program authorized in Senate Bill 1954.” | Provides for the collection and aggregation of data from vulnerability assessments that are existing, those completed from grant program, and to fill any gaps. | This section provides for the incorporation of the data collected for the data set and other analyses into a statewide sea level rise vulnerability assessment. | Statewide Flooding and Sea Level Rise Resilience Plan will be developed and submitted to the Governor and Legislature. The Plan will work on a 3-year rolling planning horizon and will consist of ranked projects that address the risks of flooding and sea level rise identified in the Statewide Flood and Sea Level Rise Vulnerability Assessment. | Provides funding to regional entities that are established by local governments to provide technical assistance on multijurisdictional projects. | Provides for the establishment of the Florida Flood Hub at USF's College of Marine Science. The Flood Hub will serve as the lead institution and will engage other institutions and partners to coordinate research and innovation around the flooding and sea level rise challenges facing the state. |
| Deadlines              | Application portal opens: July 1, 2021. Applications due September 1, 2021   |   | Data Set due July 1, 2022.  | Assessment due July 1, 2023.  | Application portal opens: July 1, 2021. Applications Due September 1, 2021. Plan due to EOG/Legislature December 1, 2021. Starting December 1, 2023, the Resilience Plan will be based on the Statewide Assessment.   | Application portal Opens: July 1, 2021. Applications due September 1, 2021   | Annual Report due July 1, 2022.  |
| Annual Funding         |  |   |   |   |   |  |  |
| FY 21-22               | \$20,000,000   | \$500,000,000   | \$4,000,000   |   |   | \$2,000,000  |  |
| FY 22-23 (anticipated) | ?  | ?   | ?   |   | Up to \$100,000,000   | ?  |  |



# Florida Coastal Mapping Initiative

- **\$100,000,000 appropriation provided for bathymetric LiDAR/Sonar on continental shelf**
- **Federal coordination**
- **Nearshore (0-20 m); Deep water (20-200 m)**
- **Build on priority initiated by the FCMaP**
- **Compliment topographic LiDAR flown 2020, anticipated to be available Spring, 2022**





# Contact Information

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**Thank you!**