



# Welcome!

St. Augustine, FL  
Back Bay Coastal Storm Risk Management  
Feasibility Study

Environmental Subgroup Meeting

**PLEASE MUTE YOUR PHONE AND COMPUTER TO  
AVOID BACKGROUND DISRUPTIONS.**

**WE WILL START PROMPTLY AT 10:35**

→ Please sign in with your name and affiliation in the meeting chat ←



# St. Augustine, FL Back Bay Coastal Storm Risk Management Feasibility Study

## Environmental Subgroup Meeting August 4, 2023

*Team of Professionals Making Tomorrow  
Better*



**U.S. ARMY**



US Army Corps of Engineers  
**BUILDING STRONG®**

Presented by:  
**Darren Pecora, Environmental Lead, Biologist**  
**Katie Lebow, Project Biologist**  
US Army Corps of Engineers  
Jacksonville District





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# Who's Here?

Please enter your name and affiliation in the meeting chat by clicking on the chat button



## USACE Project Delivery Team

Jason Harrah – Project Manager  
Marty Durkin – Planning Technical Lead  
Katie Bailey – Planning  
Patrick Snyder – Engineering Technical Lead  
Collin Ries – Coastal Engineer  
Michelle Vieira – Coastal Engineer  
Amanda Bredesen – H&H Engineer  
Sheila Arias-Roman – H&H Engineer  
Laura Gaudier – Cost Engineer  
Kiara Flores – Geotech Engineer  
Barbara Nist – Geologist  
Glorimar Torres & Darin Moore – Geomatics  
Darren Pecora – NEPA Lead Biologist  
Katie Lebow – NEPA Biologist  
Zuzana Chovanec – Cultural Resources Lead  
Jackson Hooten – Water Quality/Permitting  
Vongmony Var – Economics Lead  
Joel Belsterling – Economics  
Chris Bukolt – Real Estate Specialist  
Brandon Burch – Operations  
Katie Gwin – Office of Counsel  
Gloria Mitchell – Budget Analyst  
Ingrid Padilla – Scheduler  
David Ruderman – Corporate Communications Office



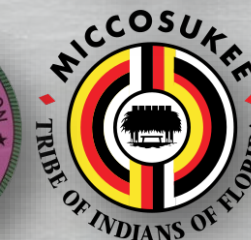
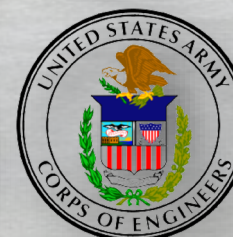
CITY OF  
**ST AUGUSTINE**  
EST. 1565



THE MUSCOGEE NATION



**NOAA**  
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# Meeting Intent

## St. Augustine Back Bay CSRM Study



- The intent of this forum is to allow federal, state and local agencies, and tribal governments to exchange views, information or advice relating to alternatives for the St. Augustine Back Bay CSRM Study and the potential impacts to the surrounding areas.
- This meeting is not a forum for official policy discussion or formulation.
- The project delivery team and sub teams perform technical staff functions. Members are encouraged to participate and share their technical skills and knowledge.
- Comments from the public will be accepted at the end of the meeting.



1. Opening Remarks
2. Meeting Purpose
3. Study Overview
4. Scope, Schedule, and Budget
5. Environmental Review Process & Schedule
6. Data Availability
7. Additional Discussion (including agency concerns)
8. Public Comment

- Introduce participants to the project scope
- Identify goals of the Environmental Subteam
  - ▶ *The purpose of this and future meetings is to take a deep dive into environmental related questions, concerns, etc. specifically related to the study and future development of alternatives to address flooding with City of St. Augustine (COSA).*
  - ▶ Seek input from resource agencies
  - ▶ Develop routine communication strategy with agencies
- Determine schedule for future meetings
- Provide project updates

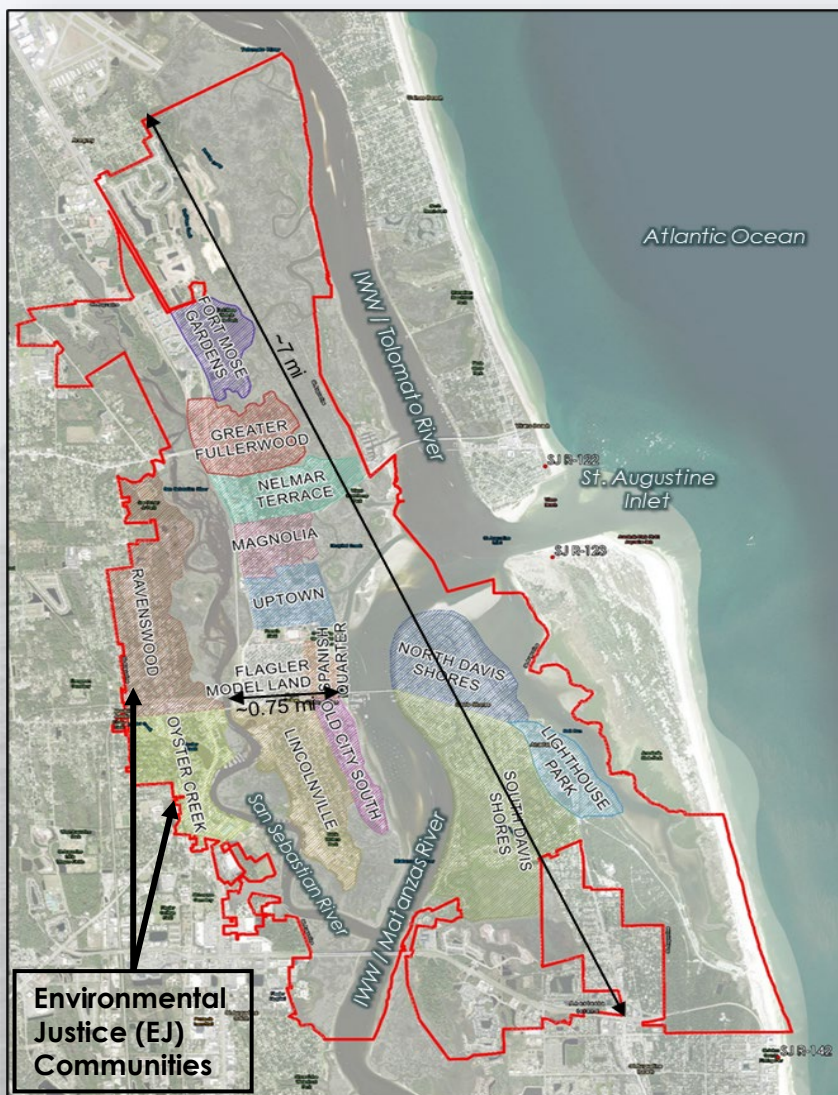




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# Study Overview

## St. Augustine Back Bay CSRM Study



### House Resolution 2646 (June 21, 2000): St. Johns County, Florida

Resolved by the Committee on Transportation and Infrastructure of the United States House of Representatives, That in accordance with Section 110 of the River and Harbor Act of 1962, the Secretary of the Army, acting through the Chief of Engineers, is **requested to survey the shores of St. Johns County, Florida**, with particular reference to the advisability of providing beach erosion control works in the area north of St. Augustine Inlet, the shoreline in the vicinity of Matanzas Inlet, and adjacent shorelines, as may be necessary in the interest of **hurricane protection, storm damage reduction, beach erosion control, and other related purposes.**

### Non-Federal Sponsor (NFS): City of St. Augustine (COSA)

POC: Jessica Beach, P.E., Chief Resilience Officer, [jbeach@citystaug.com](mailto:jbeach@citystaug.com)

### Study Area

- Entire COSA Municipal Boundary
- 17 Distinct Neighborhoods
- 3 Separate Land Masses
- Interconnected Water Bodies

### Objectives to be achieved within the City of St. Augustine over a 50-year period of analysis from 2035-2085 are to...

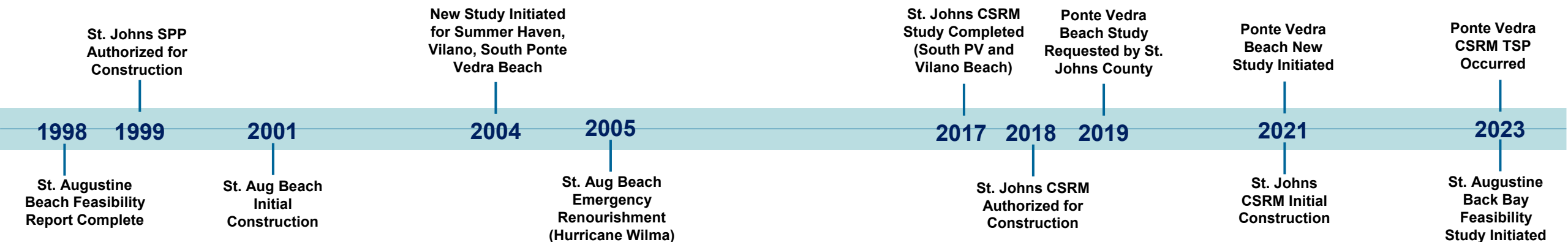
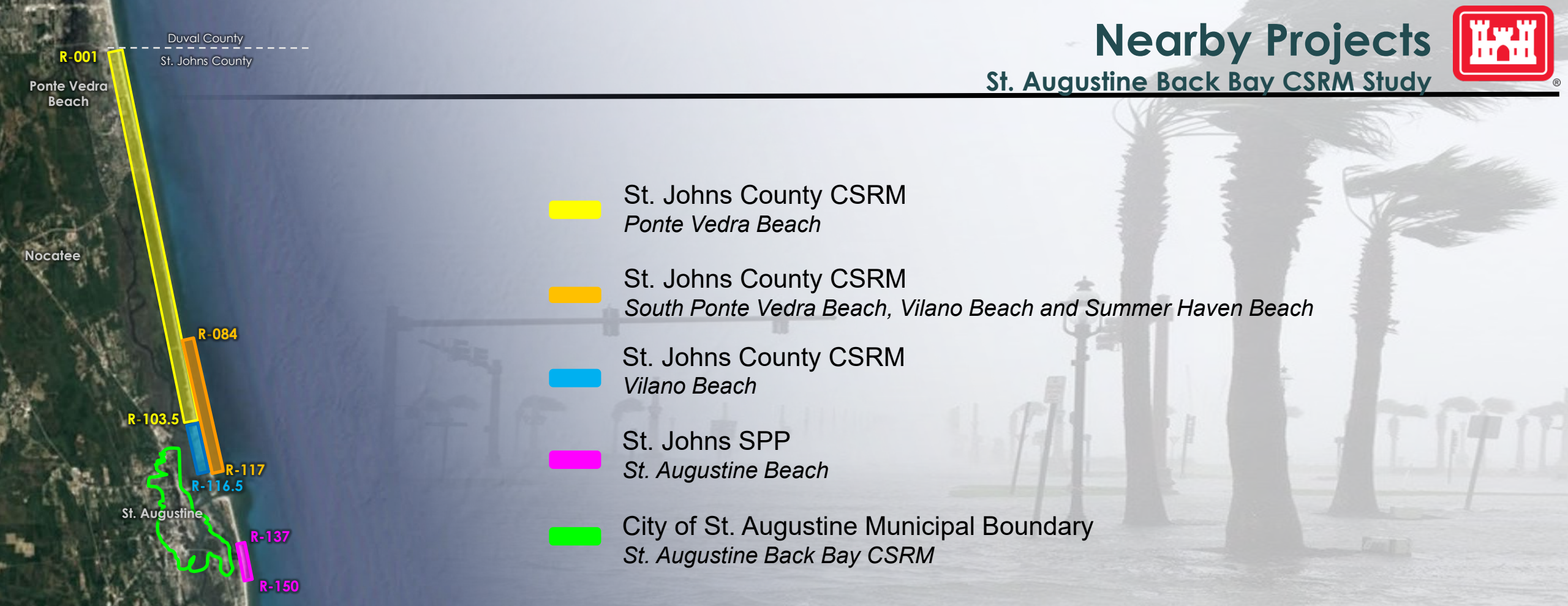
1. Manage risk of coastal flood damages.
2. Manage risk to health and life-safety.
3. Preserve cultural and natural resources and maintain aesthetic quality.
4. Manage flooding impacts to the local economy.





# Nearby Projects

## St. Augustine Back Bay CSRM Study







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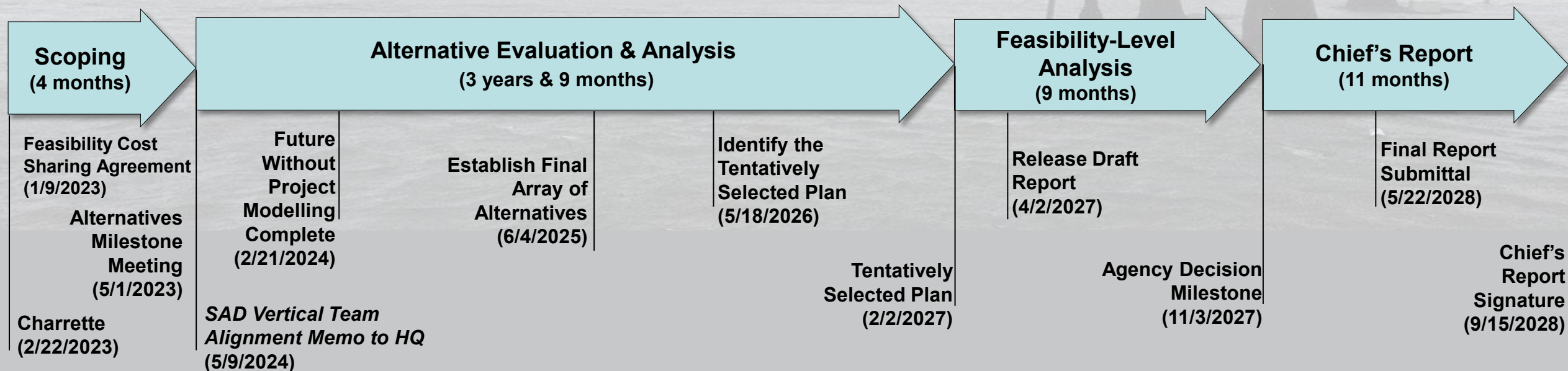
# Schedule & Budget Overview



**5 years & 9 months, \$7.3M**

## **Key Components of the Study Scope:**

- Entire City of St. Augustine (COSA)
- Compound Flooding
- Full Array of Alternatives & Comprehensive Benefits
- National Environmental Policy Act Document (EIS or EA TBD)
- Robust Community Outreach





**< 4.5 ft:** Mean High High Water + High Sea Level Change 2073 OR Highest Astronomical Tide + Intermediate Sea Level Change in 2073

**< 7 ft:** Coastal Hazard Systems (CHS) (model) "5-year" Surge OR City Planning Flood Level

**< 9 ft:** CHS "50-year" Surge





# INITIAL ALTERNATIVES



## Measure Function → Initial Array of Alternatives

Wall/Levee/Dune features stop flooding at the back bay shoreline.

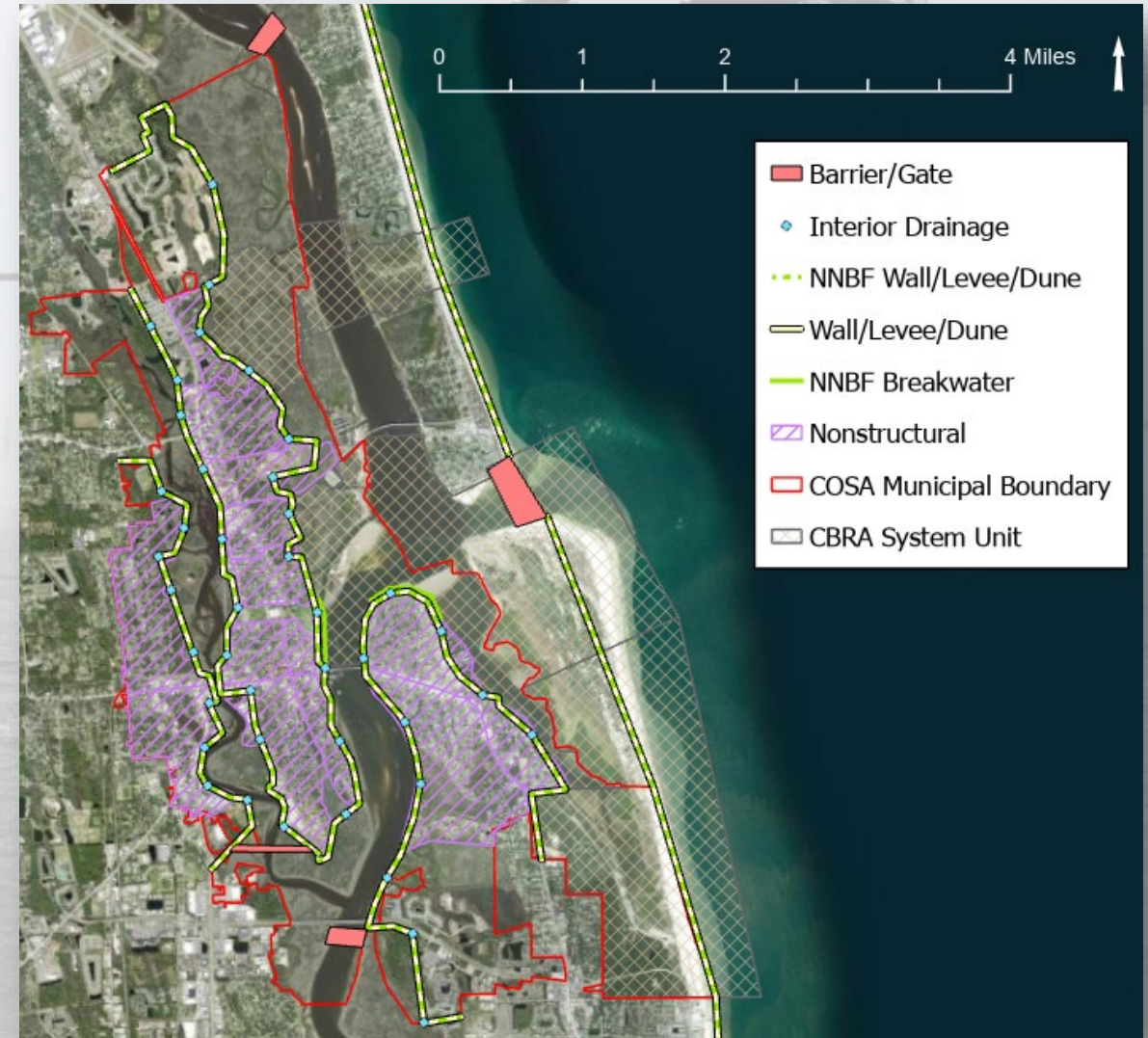
Surge Barrier/Gate features stop flooding before it gets into the back bay waters.

Interior Drainage features get flooding out of upland areas.

Nonstructural features reduce flood risk without directly effecting flooding processes.

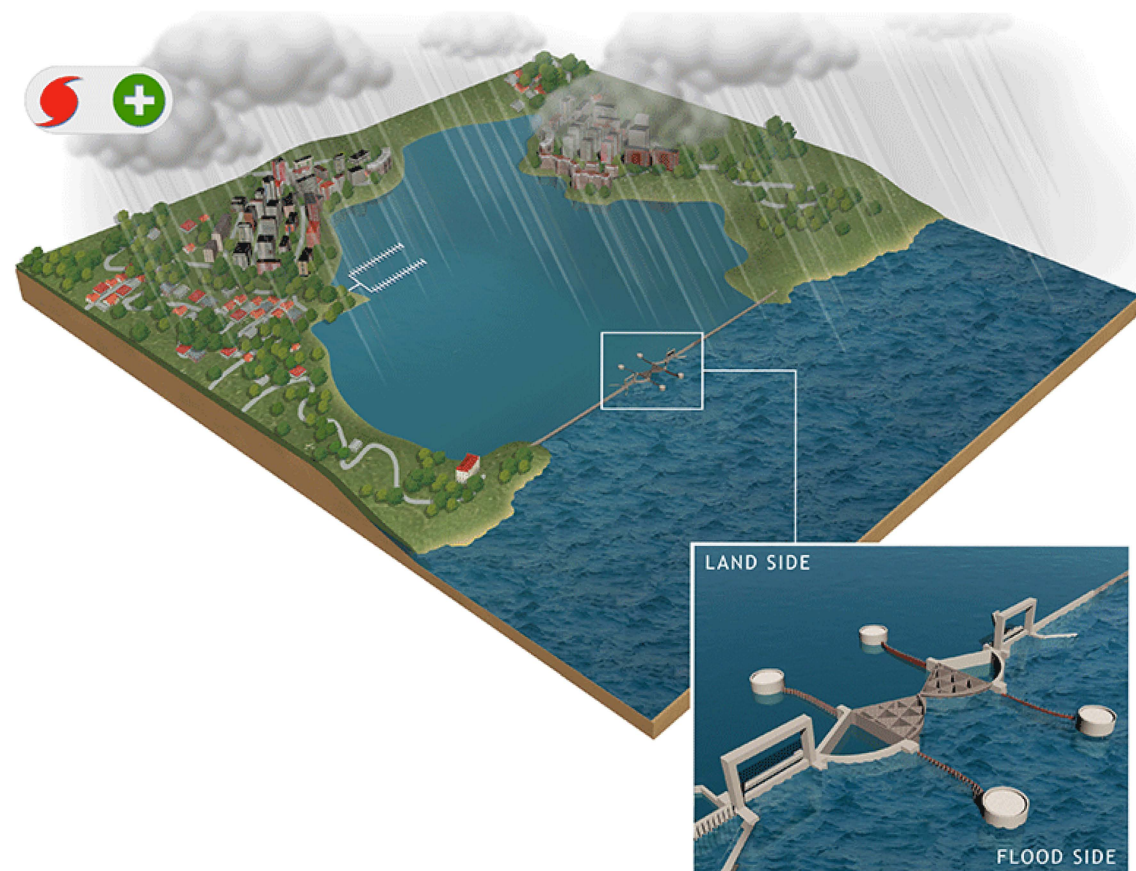
Breakwaters/NNBFS can reduce wave energy before it gets to the back bay shoreline.

0. No Action
1. Wall/Levee with Interior Drainage Features & Breakwaters/NNBFs
2. Storm Surge Barrier at Inlet(s)/IWW with Wall/Levee/Dune tiebacks
3. San Sebastian River Flood Gate with Wall/Levee & Interior Drainage Features & Breakwaters/NNBFs
4. All Nonstructural
5. Wall/Levee with Interior Drainage Features & Breakwaters/NNBFs & Nonstructural
6. Storm Surge Barrier at Inlet(s)/IWW with Wall/Levee/Dune tiebacks & Nonstructural



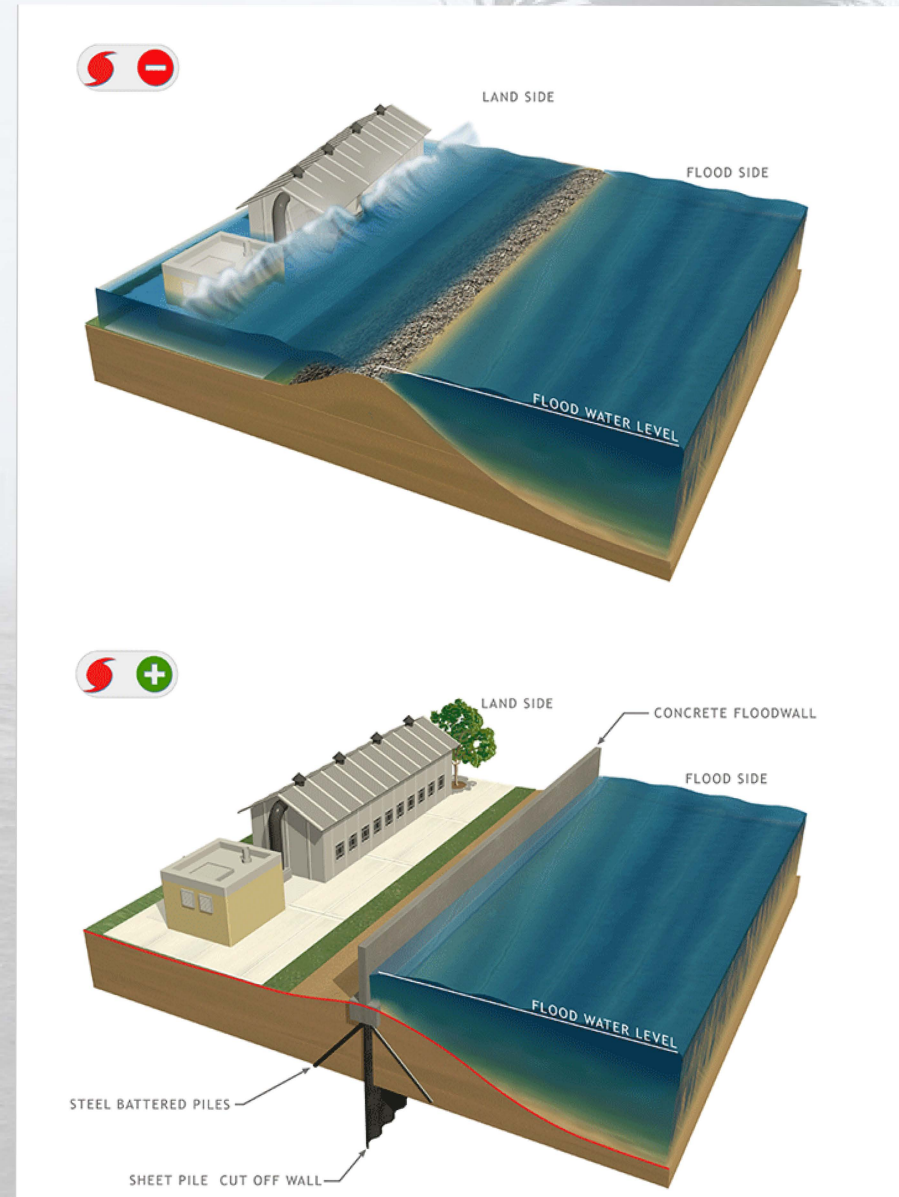
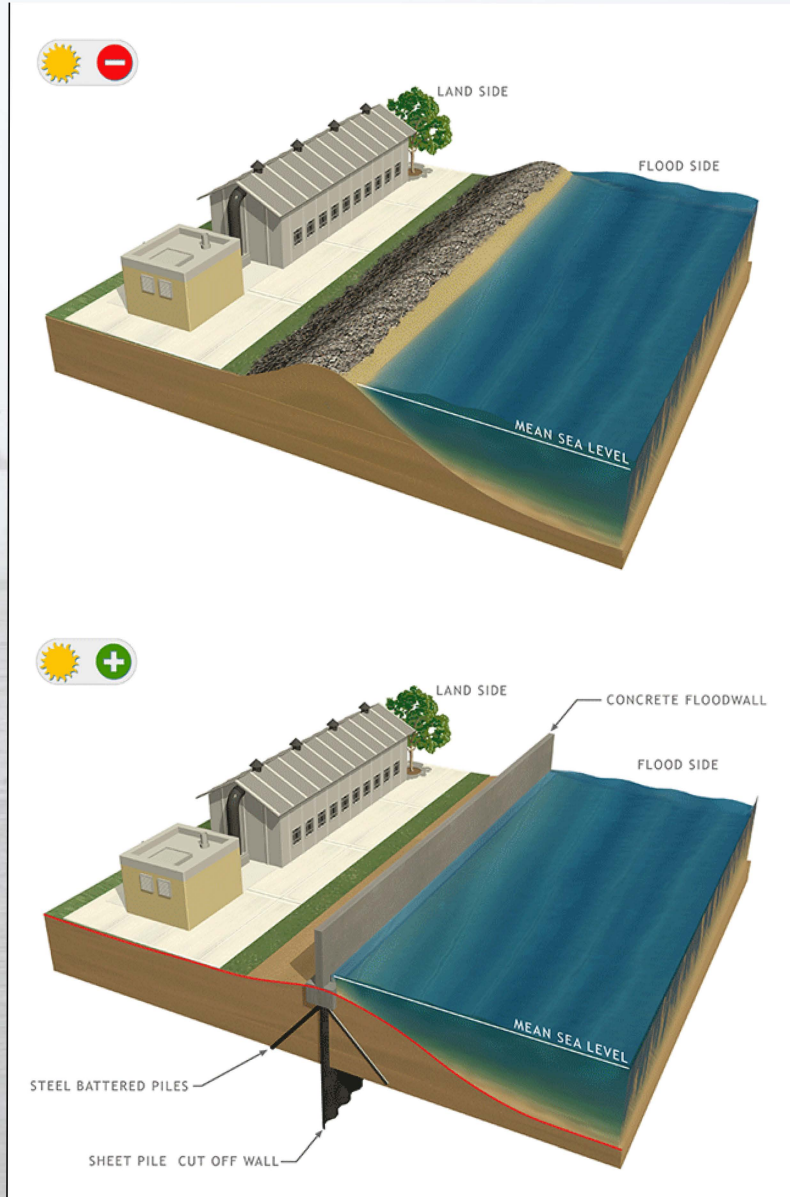


# Alternative Examples – Storm Surge Barriers



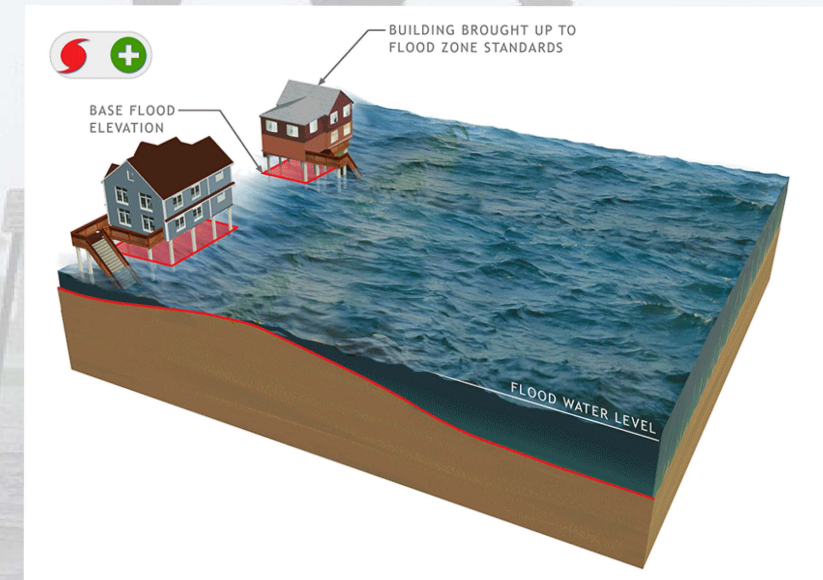
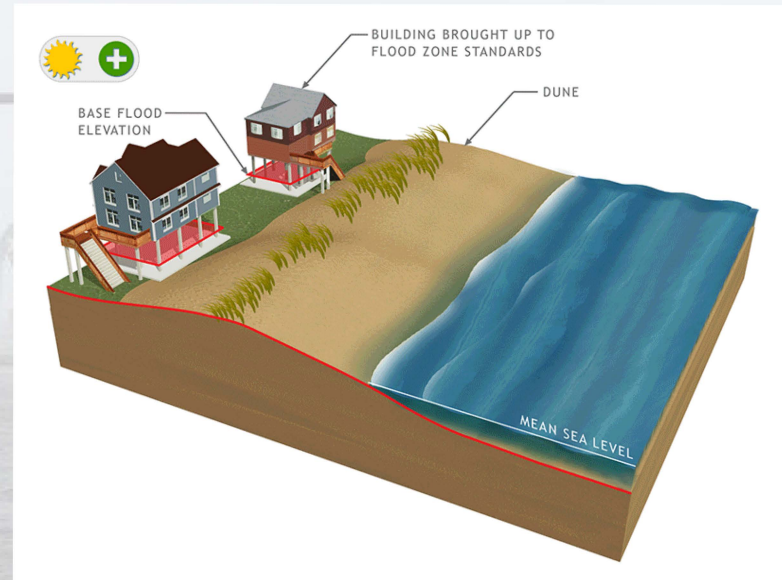
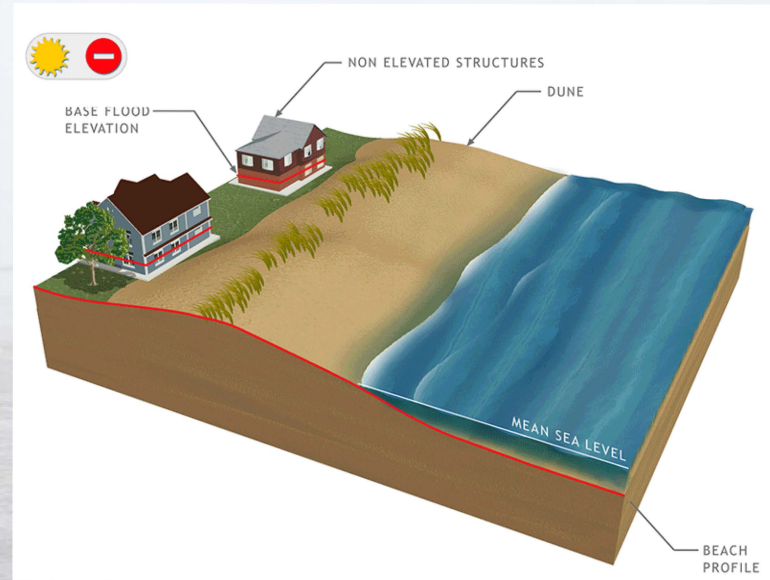


# Alternative Examples – Floodwalls



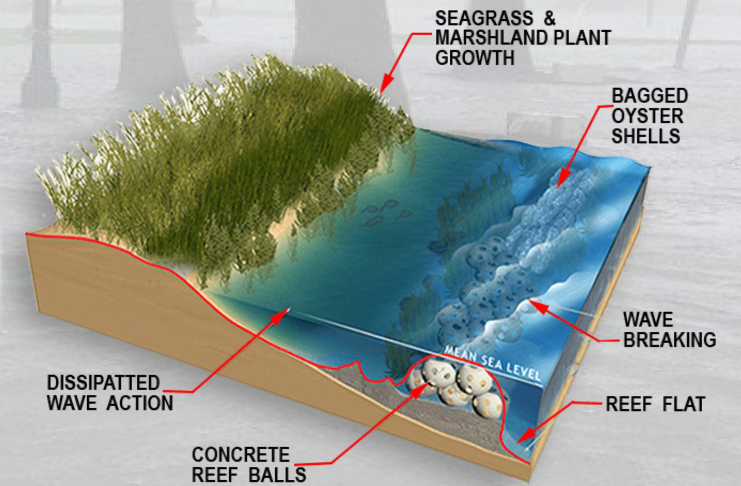
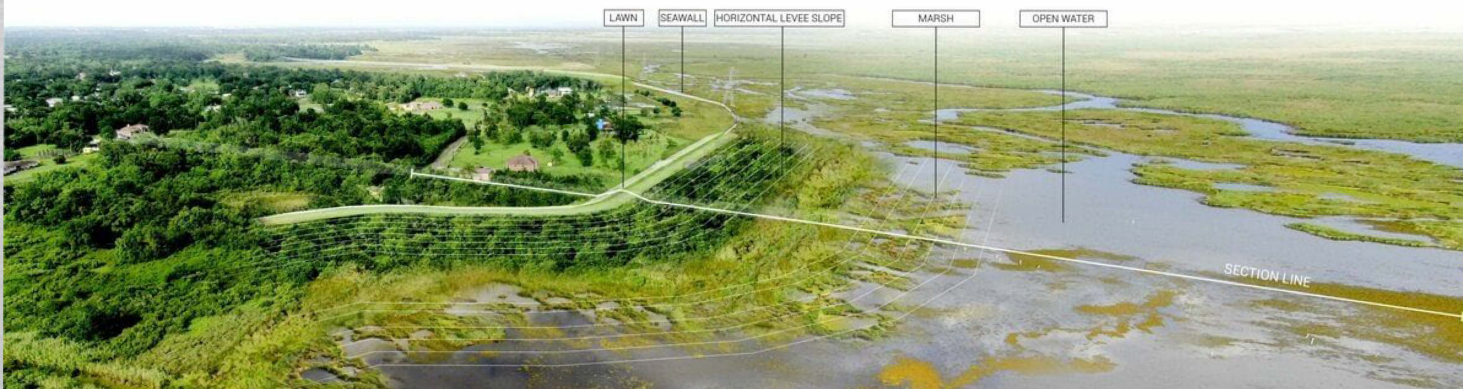
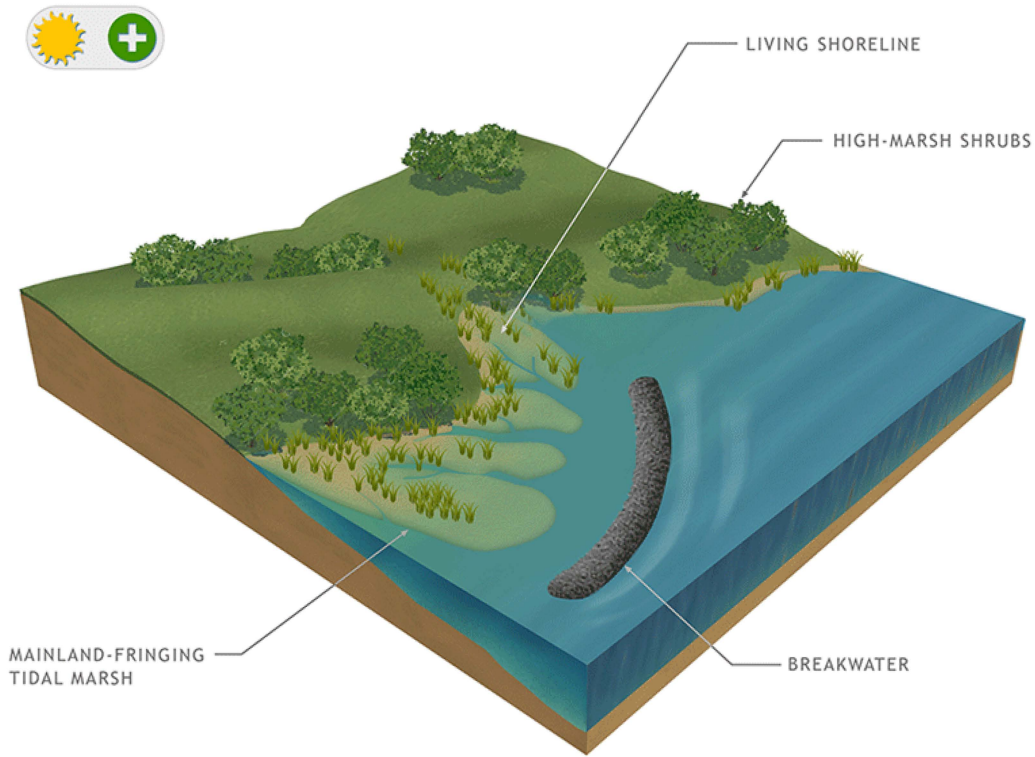
# Alternative Examples – Non-Structural

(Elevating Structures, Floodproofing, Ring Walls, Acquisition/Relocation)





# Alternative Examples – Natural & Nature-Based Features

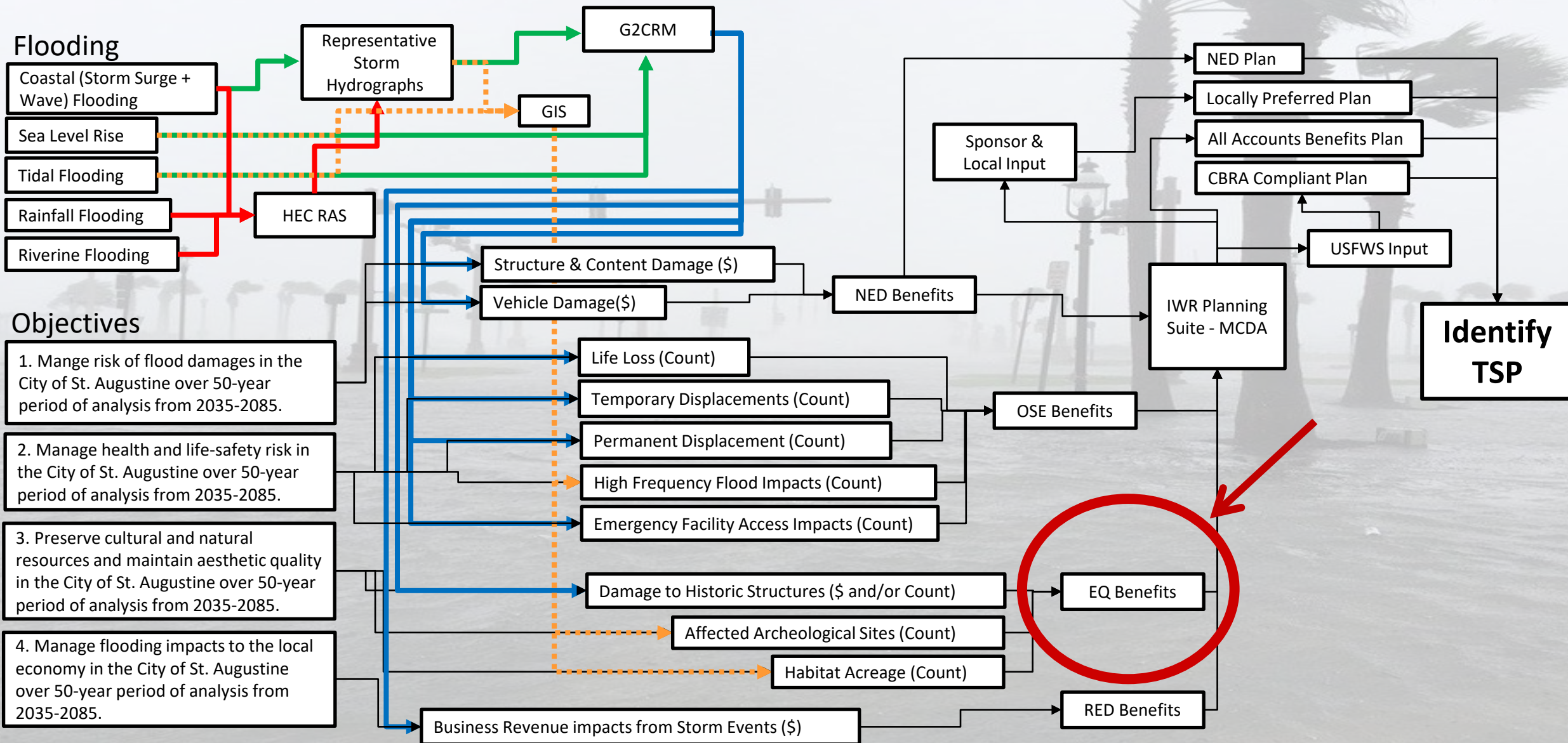






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# PLAN FORMULATION STRATEGY





# Environmental Considerations

## St. Augustine Back Bay CSRM Study



- Aesthetics
- Air Quality
- Essential Fish Habitat
- Contaminants
- Navigation
- Noise
- Environmental Justice
- Recreation
- Benthic Resources
- Socioeconomics
- Threatened & Endangered Species
- Water Quality
- Fish & Wildlife Resources
- Tourism



Tourism

In cities like St. Augustine, tourism is a significant contributor to the economy, to local and non-local interests, to socialization, and to visitors' enjoyment and willingness to return.

Wildlife Resources such as unlisted species and their habitats can significantly impact other resources such as recreation, tourism, navigation, and aesthetics.



Wildlife Resources



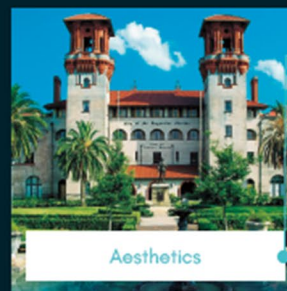
Socioeconomics

Large scale projects such as this can have significant socioeconomic effects such as controlled relocation, environmental justice concerns, cost of living changes, and more.

Coastal cities like St. Augustine rely heavily on their waterways and effects to navigational routes, channels, barriers, or obstacles can be a significant concern.



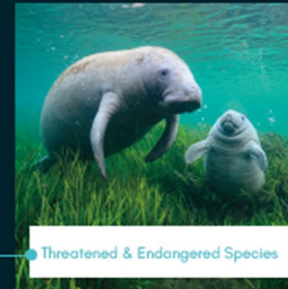
Navigation



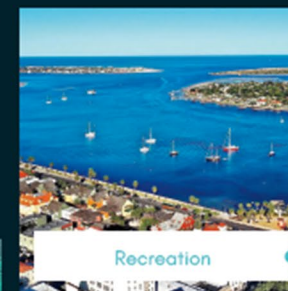
Aesthetics

The aesthetic properties of the city are a significant draw for tourism and history, as well as local and non-local visitors alike.

Threatened and Endangered (ESA-Listed) Species are each considered and protections included in the analysis during the NEPA process.



Threatened & Endangered Species



Recreation

Recreation in the city takes many forms such as biking, fishing, photography, swimming, and more.

As the oldest city in the United States, preservation of the numerous cultural resources in St. Augustine will be a significant concern considered during analysis.



Cultural Resources

### Guana Tolomato Matanzas National Estuarine Research Reserve (GTMNERR)

- Protected area
- Guana River Marsh Aquatic Preserve
- Designated by the State of Florida as an Outstanding Florida Water (Class III)
- High Dunes (30-40ft) with well established vegetation
- Protects 76,760 acres spanning nearly 40 miles of coast
- Holds 61 known archaeological sites
- Wetlands
  - Estuarine & Marine Deepwater
  - Freshwater Emergent
  - Freshwater Forested/Shrub Wetland
  - Freshwater Pond
  - Lake
  - Riverine

- Harbors a variety of species including mammals, birds, reptiles, amphibians, fish, and plants
  - West Indian Manatee
  - Anastasia Island Beach Mouse
  - Eastern Black Rail
  - Florida Scrub-jay
  - Piping Plover
  - Rufa Red Knot
  - Red-cockaded woodpecker
  - Wood Stork
  - Eastern Indigo Snake
  - Sea Turtles (Green, Hawksbill, Leatherback, Loggerhead)

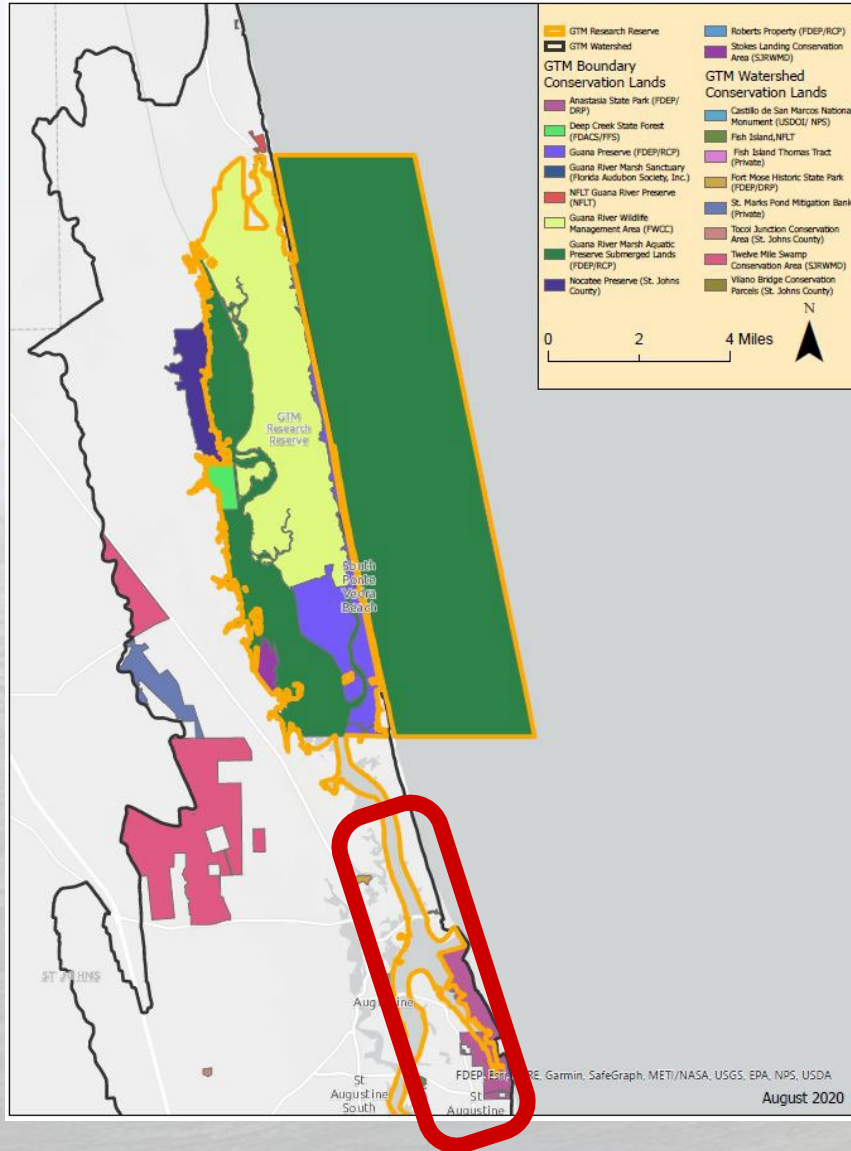


- Coastal Range Monuments
- City of St. Augustine Boundary
- GTMNERR Boundary





### Guana Tolomato Matanzas National Estuarine Research Reserve (GTMNERR)



- Northern conservation lands
  - Anastasia State Park
  - Nocatee Preserve
  - Deep Creek State Forest
  - And more





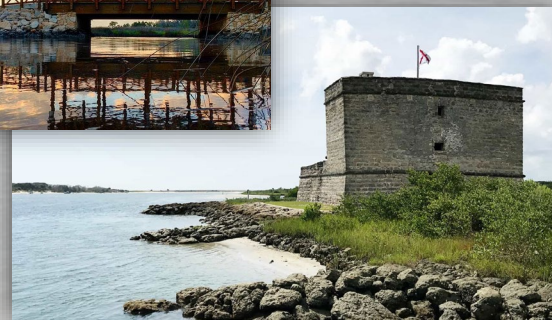
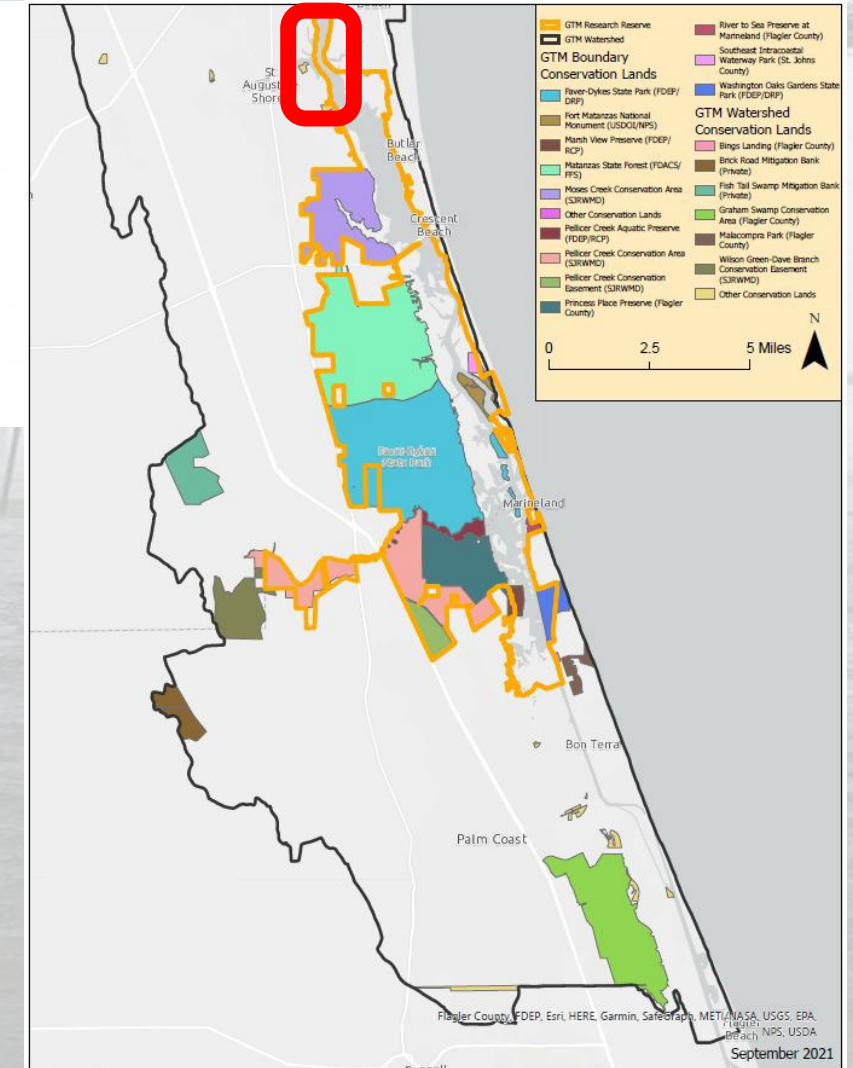
# Environmental Considerations

## St. Augustine Back Bay CSRM Study



### Guana Tolomato Matanzas National Estuarine Research Reserve (GTMNERR)

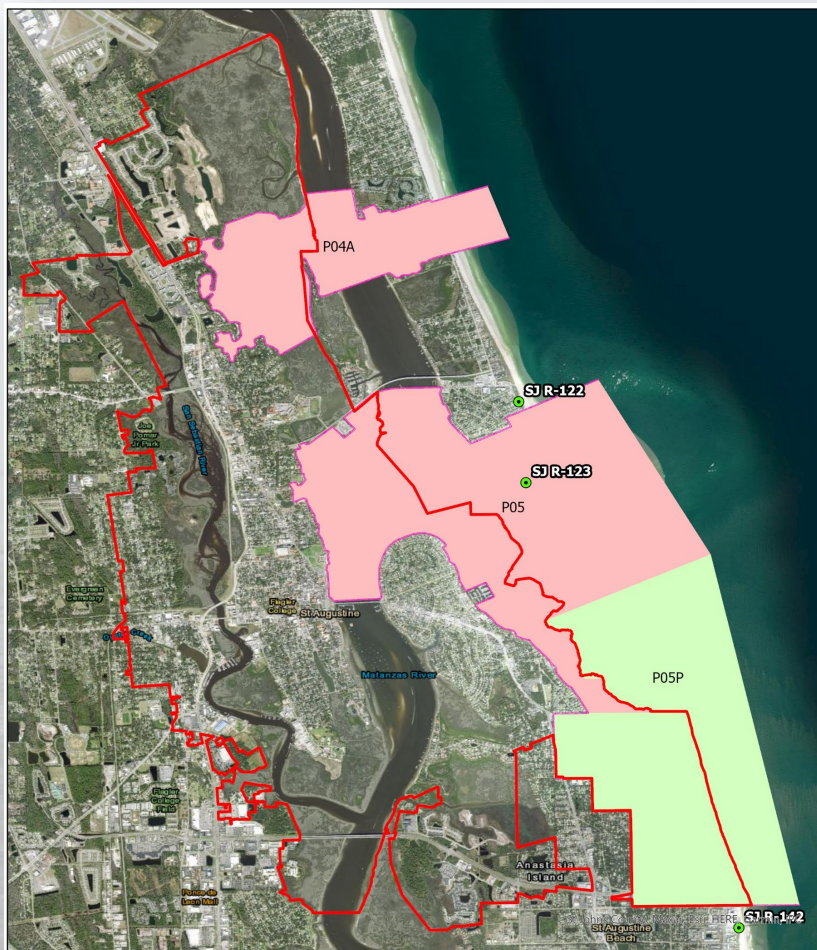
- South conservation lands
  - Faver-Dykes State Park
  - Fort Matanzas National Monument
  - Matanzas State Forest
  - Princess Place Preserve
  - Southeast Intracoastal Waterway Park
  - And more





# Environmental Considerations

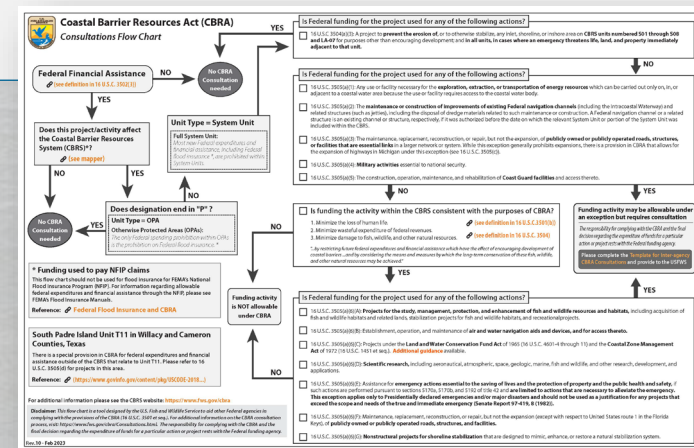
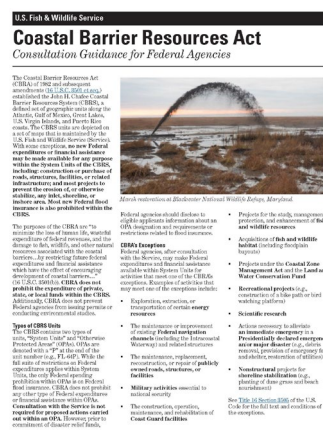
## St. Augustine Back Bay CSRM Study



- Coastal Range Monuments
- City of St. Augustine Boundary
- Otherwise Protected Area
- System Unit
- CBRs\_Buffer\_Zone\_03122019
- <all other values>

## Coastal Barrier Resources Act (CBRA)

- Established in 1982
- Maintained by the US Fish and Wildlife Service (USFWS)
- Most new Federal expenditures and financial assistance, including Federal flood insurance, are prohibited within System Units.
- There are no construction restrictions within Otherwise Protected Areas (OPAs)
- Federal flood insurance is not permitted in OPAs either.





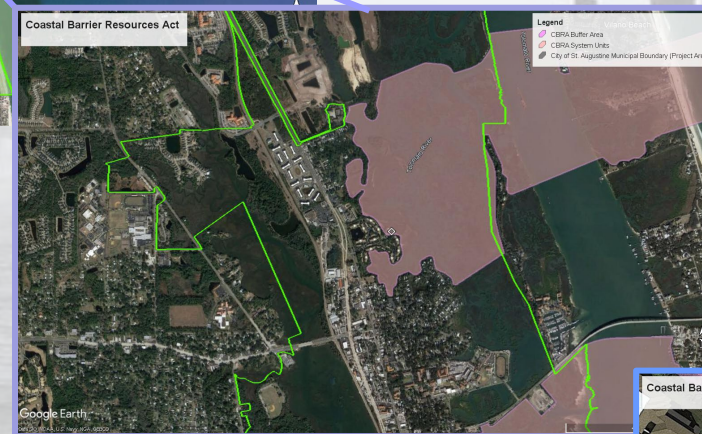
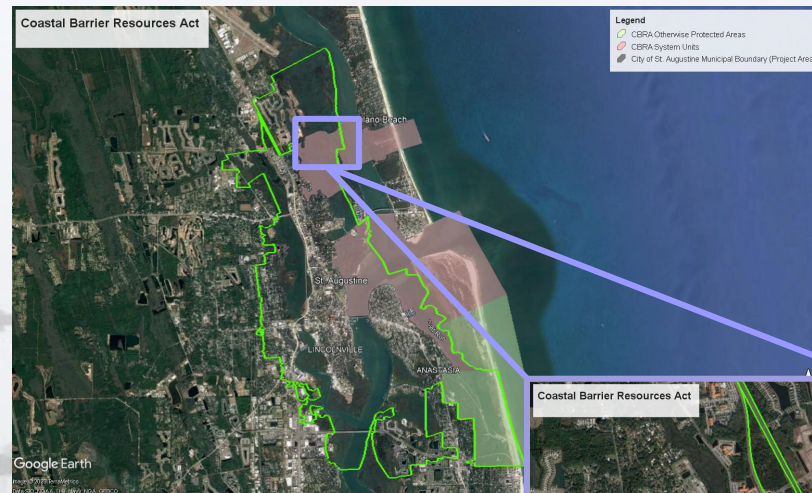
# Environmental Considerations

## St. Augustine Back Bay CSRM Study



### CBRA System Units:

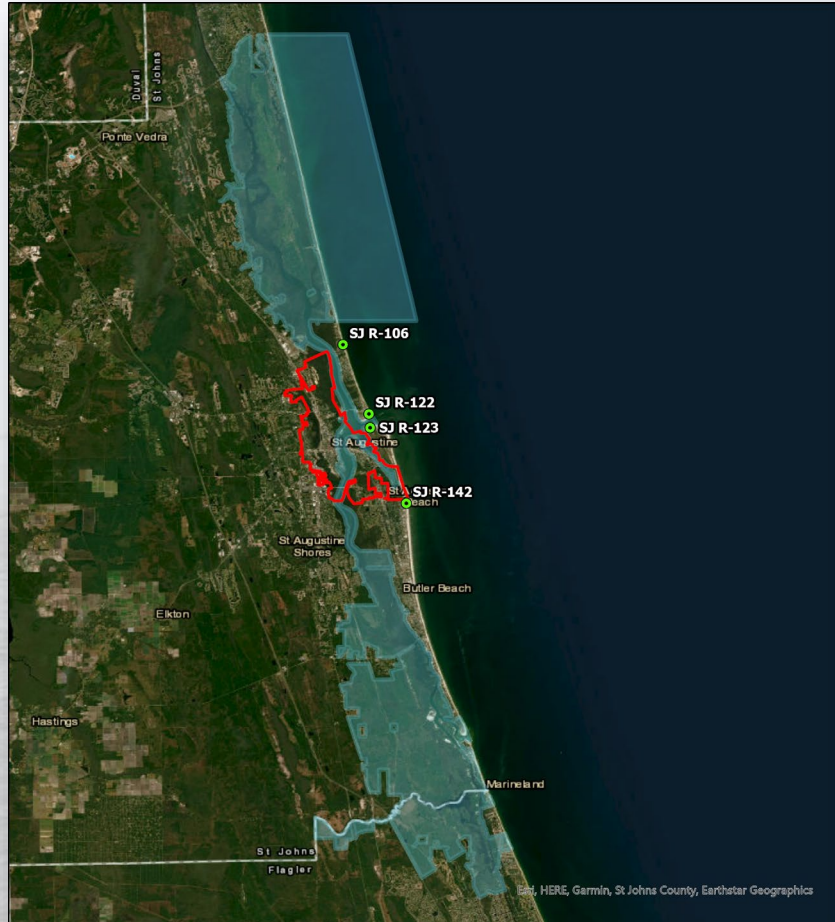
*“are predominately comprised of privately owned areas, though they may also contain areas that are held for conservation and/or recreation. Most new Federal expenditures and financial assistance, including Federal flood insurance, are prohibited within System Units.”*





# Environmental Considerations

## St. Augustine Back Bay CSRM Study



- Coastal Range Monuments
- City of St. Augustine Boundary
- GTMNERR Boundary

### \*Fish and Wildlife Resources

- ▶ Recreational and commercial fishing
- ▶ Ecotourism

### \*Threatened and Endangered Species

- ▶ Florida Manatee
- ▶ Loggerhead Sea Turtle
- ▶ Rufa Red Knot
- ▶ Piping Plover
- ▶ Anastasia Island Beach Mouse
- ▶ North Atlantic Right whale

### Marine Mammals

- ▶ Resident Dolphins

### \*Migratory Birds

### \*Aesthetics

- ▶ Tourism

### \*Wetlands (EFH)

- ▶ Estuarine marsh (*Spartina*, *Juncus*)
- ▶ Mangroves (Black Mangrove)

### \*Benthic Resources: Oyster Reefs (EFH)

- ▶ Oyster reefs – harvesting areas

### \*Water Quality

- ▶ Monitored by stakeholders

### \*Guana Tolomato Matanzas National Estuarine Research Reserve (GTMNERR)

- ▶ Protects 76,760 acres spanning nearly 40 miles of coast
- ▶ Network of conservation areas managed by 7 stakeholders



Future Without Project - \* Indicates resource likely impacted by Storms/Sea Level Change



# Environmental Considerations

## St. Augustine Back Bay CSRM Study



- Wetlands
  - ▶ The city is surrounded by water and wetlands
  - ▶ Estuarine marsh (*Spartina*, *Juncus*)
  - ▶ Mangroves (Black Mangrove)
  - ▶ Actively monitored by GTMNERR and other stakeholders
  - ▶ Ongoing and future studies
- Benthic Resources: Oyster Reefs
  - ▶ Oyster reefs around the city – mapped by stakeholders
  - ▶ Active Shellfish harvesting areas in Salt Run
- Water Quality
  - ▶ Actively monitored by GTMNERR and other stakeholders
  - ▶ Long-term data sets from several monitoring stations





# Environmental Considerations

## St. Augustine Back Bay CSRM Study



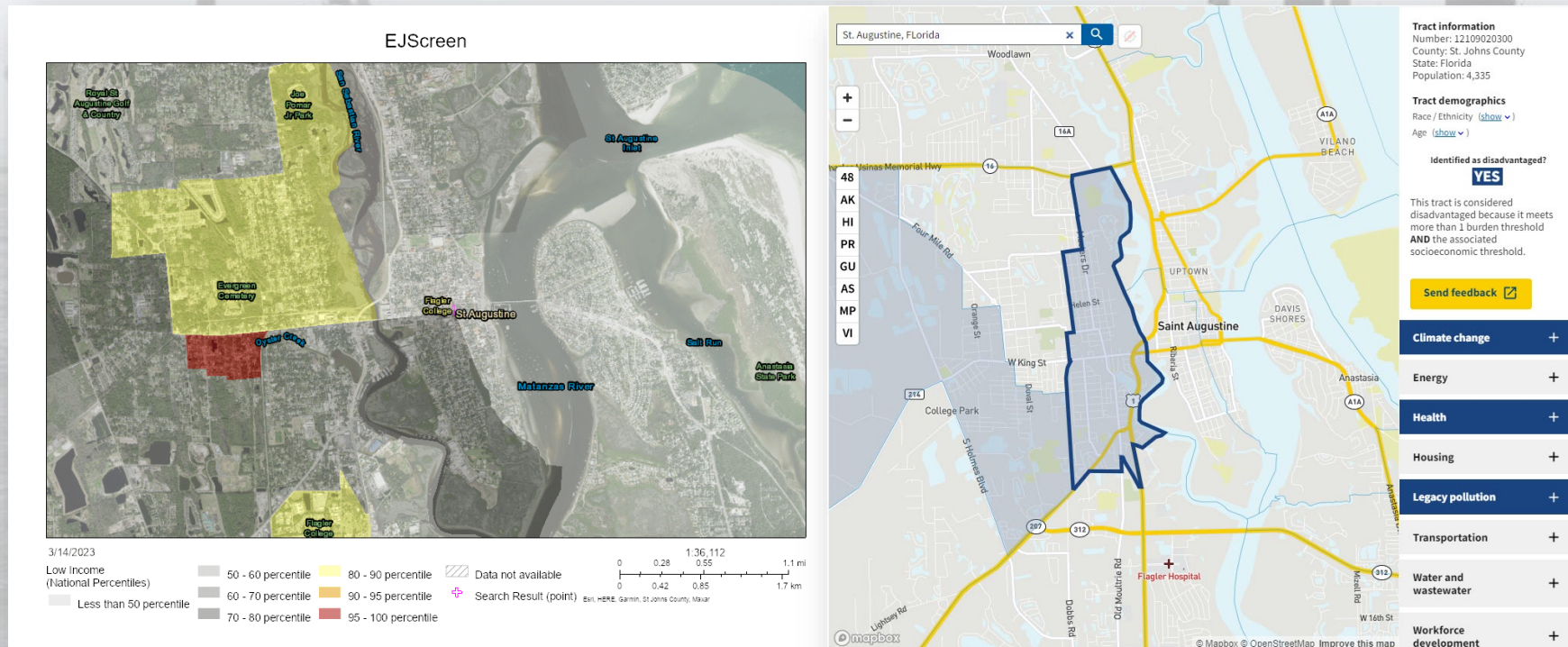
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  - ▶ Actively monitored by GTMNERR and other stakeholders
  - ▶ Long-term data sets from several monitoring stations





### ■ Environmental Justice Communities

- ▶ *Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.*





# Environmental Compliance

## St. Augustine Back Bay CSRM Study



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### ■ Endangered Species Act

#### ► Designated Critical Habitat

- North Atlantic Right Whale (NARW)
  - ▷ Southeastern Calving Areas
- Loggerhead Sea Turtle
  - ▷ Nearshore Reproductive Habitat

#### ► NMFS

- NARW
- Atlantic Sturgeon
- Swimming Sea Turtles
- Giant Manta Ray
- Smalltooth Sawfish

#### ► USFWS

- Nesting Sea Turtles
- Piping Plover & Rufa Red Knot
- Anastasia Island Beach Mouse
- Florida Manatee
- Eastern Indigo Snake
- Wood Stork

#### Area of Interest (AOI) Information

Area : 95.66 km<sup>2</sup>

Mar 14 2023 22:04:38 Eastern Daylight Time



#### Summary

Name	Count	Area(km <sup>2</sup> )	Length(m)
All Critical Habitat Polyline	0	N/A	0
All Critical Habitat Polygon	2	23.39	N/A

#### All Critical Habitat Polygon

#	Scientific Name	Common Name	Listed Entity	Area(km <sup>2</sup> )
1	Eubalaena glacialis	Whale, North Atlantic right	Whale, North Atlantic right	11.61
2	Caretta caretta	Sea turtle, loggerhead	Sea turtle, loggerhead [Northwest Atlantic Ocean DPS]	11.78



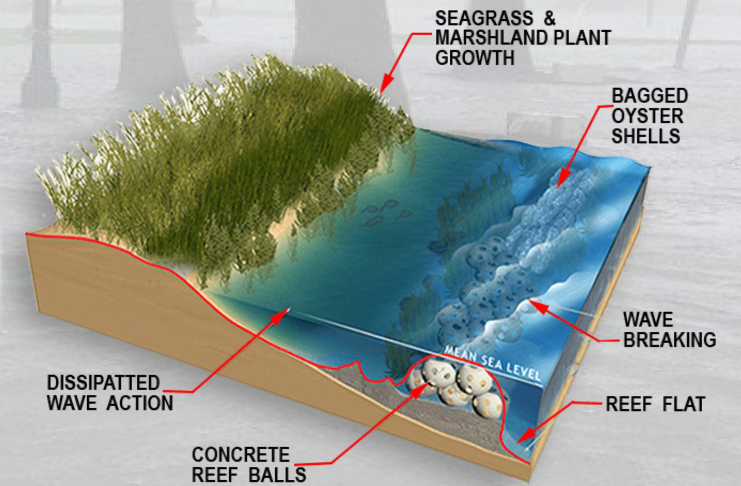
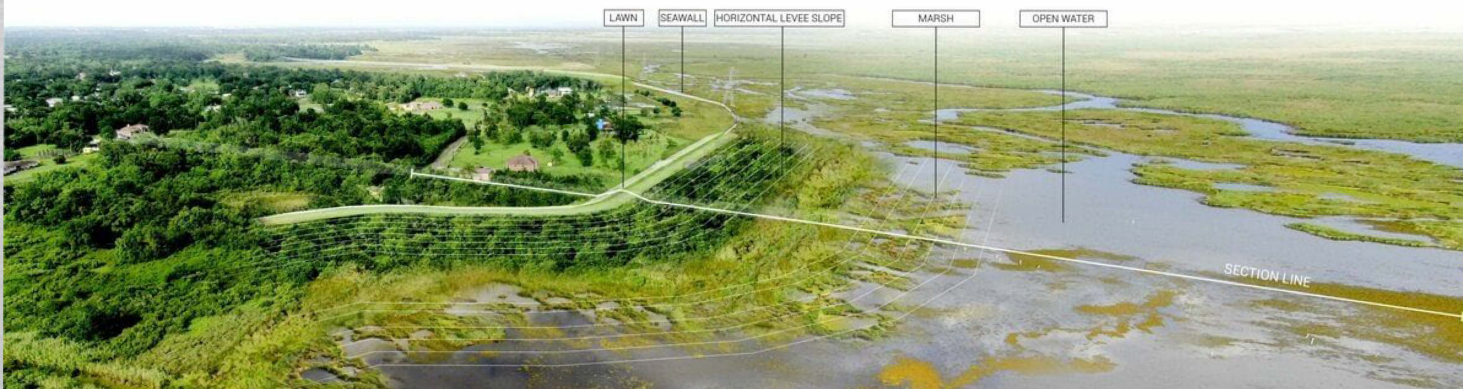
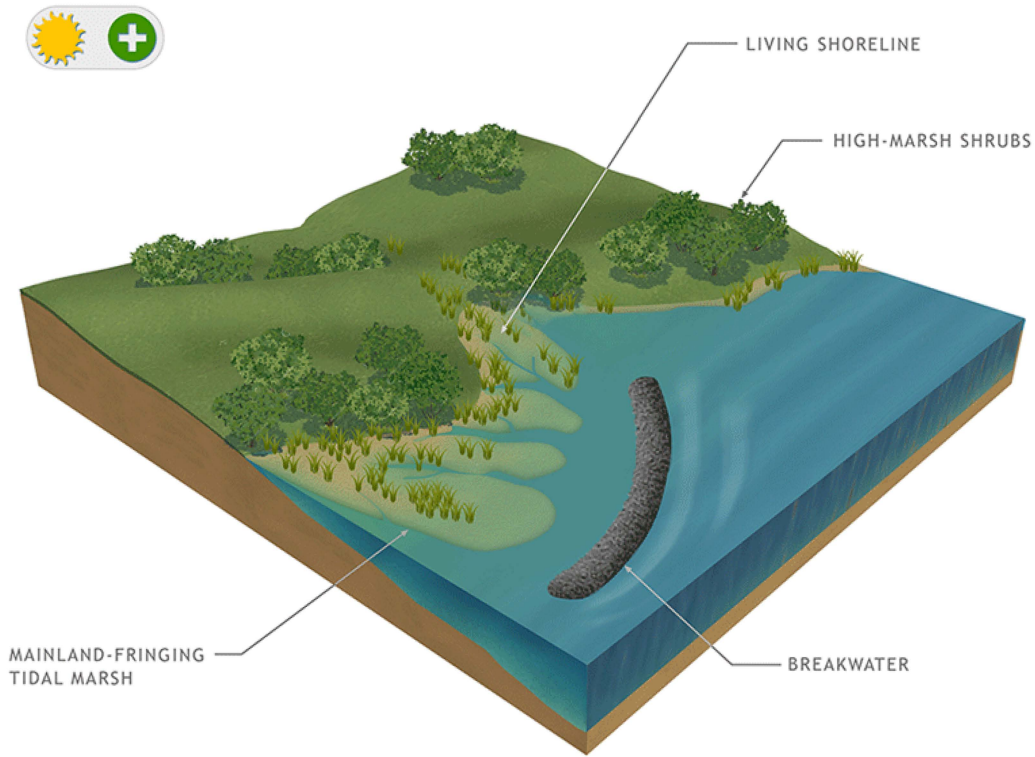
- Identify goals of the Environmental Subteam
  - ▶ *The purpose of this and future meetings is to take a deep dive into environmental related questions, concerns, etc. specifically related to the study and future development of alternatives to address flooding with City of St. Augustine (COSA).*
  - ▶ Seek input from resource agencies
  - ▶ Develop routine communication strategy with agencies
- Determine schedule for future meetings (in-person)
- Provide project updates



- What management measures would work best in this project area?



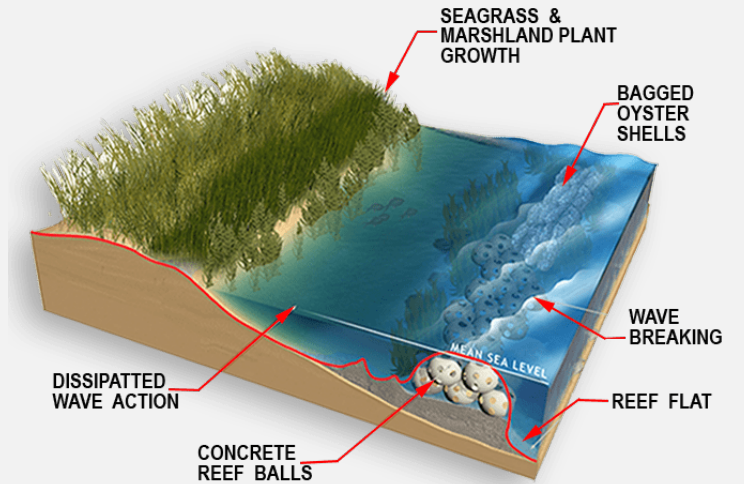
# Natural & Nature-Based Features





## ***Potential Features to Consider:***

- Spartina Marsh
- Juncus Marsh
- Mangroves
- Oyster Reef
- Oyster Shells
- Seagrass Planting
- Living Shoreline
- Sand Placement (such as dunes or berms)
- Breakwaters
- Seawalls
- Etc.

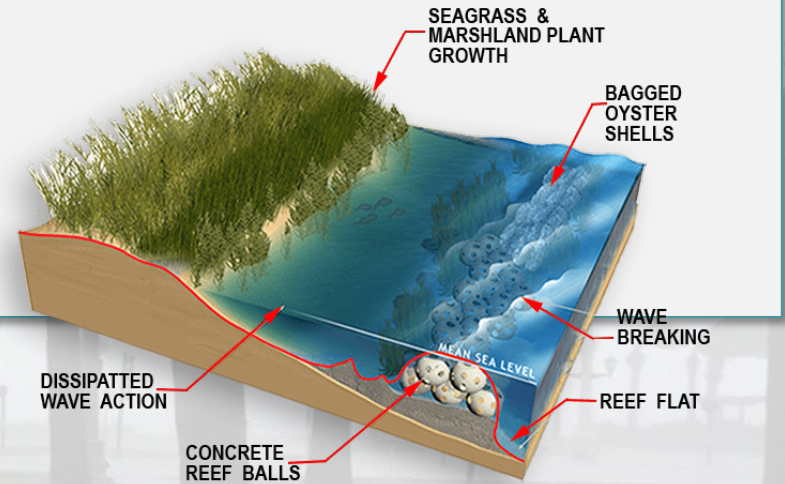




# Alternative Examples – *Natural & Nature-Based Features*

## ***Mitigation Options:***

- Mitigation Banking
- Construction of Potential Mitigation Areas
  - Available Parcel Identification
- Land Acquisition







# We want your input!

## St. Augustine Back Bay CSRM Study



[CESAJ-St.AugBackBayCSRM@usace.army.mil](mailto:CESAJ-St.AugBackBayCSRM@usace.army.mil)



<https://www.saj.usace.army.mil/Missions/Civil-Works/Shore-Protection/St-Johns-County/City-of-St-Augustine-Florida-Back-Bay-Feasibility-Study/>

[www.facebook.com/JacksonvilleDistrict](https://www.facebook.com/JacksonvilleDistrict) and @JaxStrong



- Sponsor Remarks
- Federal Agency Questions/Comments
- State Agency Questions/Comments
- Local Agency Questions/Comments






## Public Comment Period



Please keep comments to 2 minutes or less to allow time for everyone to speak

Feel free to use the chat function  or to unmute and speak





# Closing Remarks



[www.saj.usace.army.mil/Missions/Civil-Works/Shore-Protection/St-Johns-County/City-of-St-Augustine-Florida-Back-Bay-Feasibility-Study/](http://www.saj.usace.army.mil/Missions/Civil-Works/Shore-Protection/St-Johns-County/City-of-St-Augustine-Florida-Back-Bay-Feasibility-Study/)

[www.facebook.com/JacksonvilleDistrict](https://www.facebook.com/JacksonvilleDistrict) and @JaxStrong

[CESAJ-St.AugBackBayCSRM@usace.army.mil](mailto:CESAJ-St.AugBackBayCSRM@usace.army.mil)



# Thank you!

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**Environmental Lead:** Darren Pecora

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**Project Biologist:** Katie Lebow

[Kathryn.E.Lebow@usace.army.mil](mailto:Kathryn.E.Lebow@usace.army.mil)

*Team of Professionals Making Tomorrow Better*



**U.S. ARMY**



**US Army Corps of Engineers  
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# WE ARE HIRING!

## Join the Jacksonville District Team

### Seeking to fill multiple positions:

Biologist, Physical Scientist, Program Analyst, Engineers, Geologist, Chemist, Landscape Architect and many more.

Scan the QR Code



Or visit

[www.saj.usace.army.mil/NowHiring](http://www.saj.usace.army.mil/NowHiring)



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