

SOS: Saving our Shoreline

Presentation to COASI on
February 21, 2026



Agenda

History of Beach
Erosion and
Replenishment

Feasibility Study
Scope

Beach Protection
Measures

Current Status

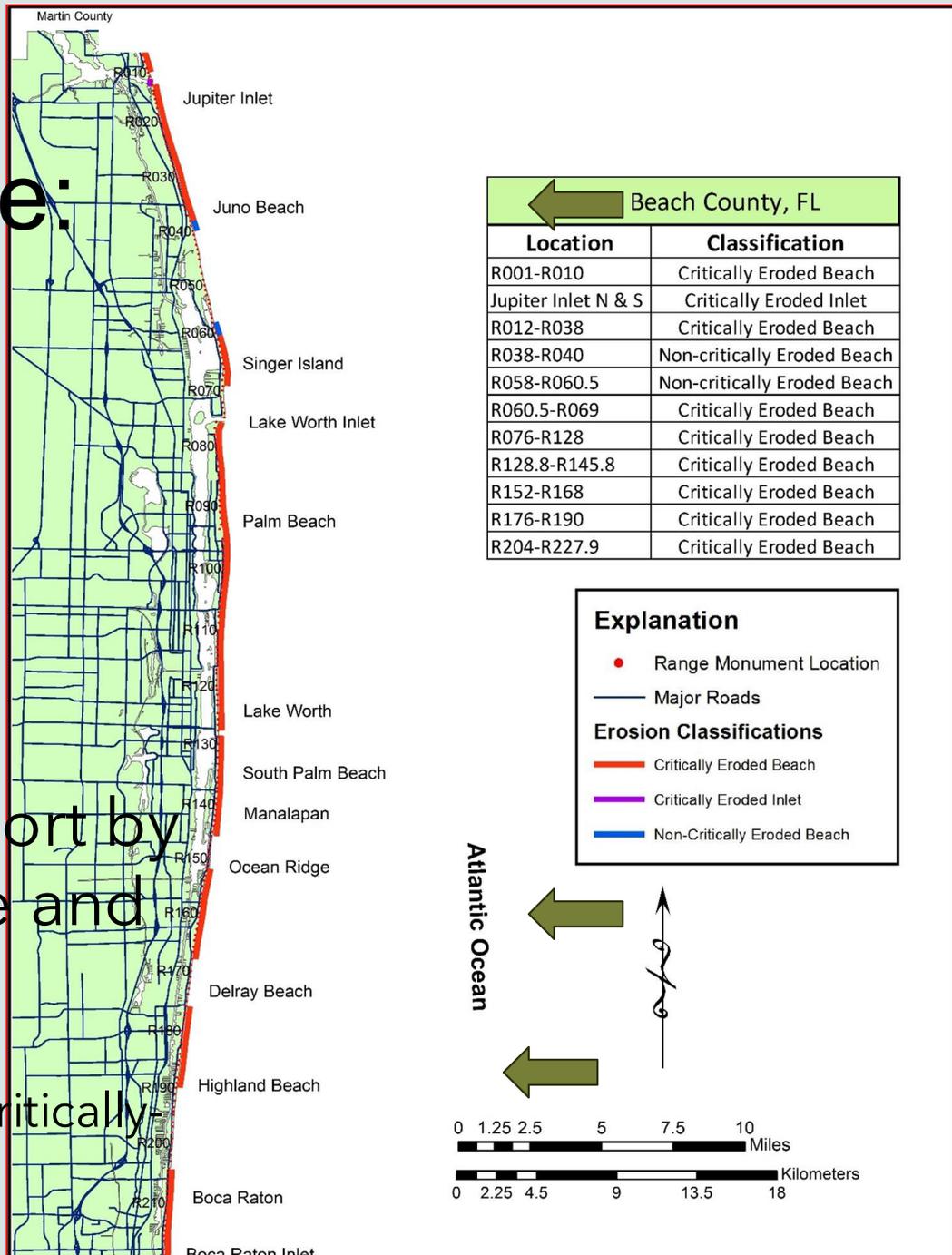
Next Steps



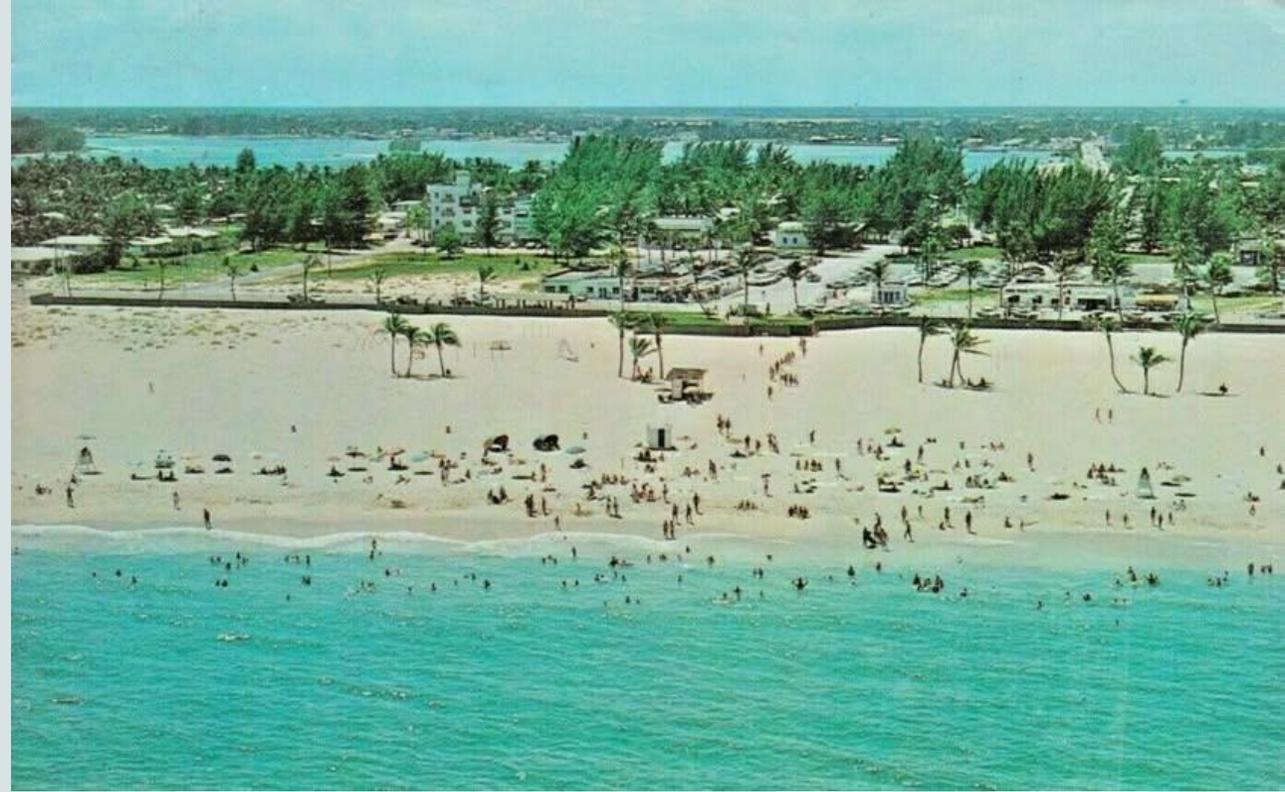
We are Not Alone:

PBC Beaches Recognized as Critically Eroded

Source: August 2024 Report by
FDEP Office of Resilience and
Coastal Protection
<https://floridadep.gov/rcp/coastal-engineering-geology/documents/critically-eroded-beaches-florida>



Singer Island Beaches: Then and Now





Public vs Private Beaches

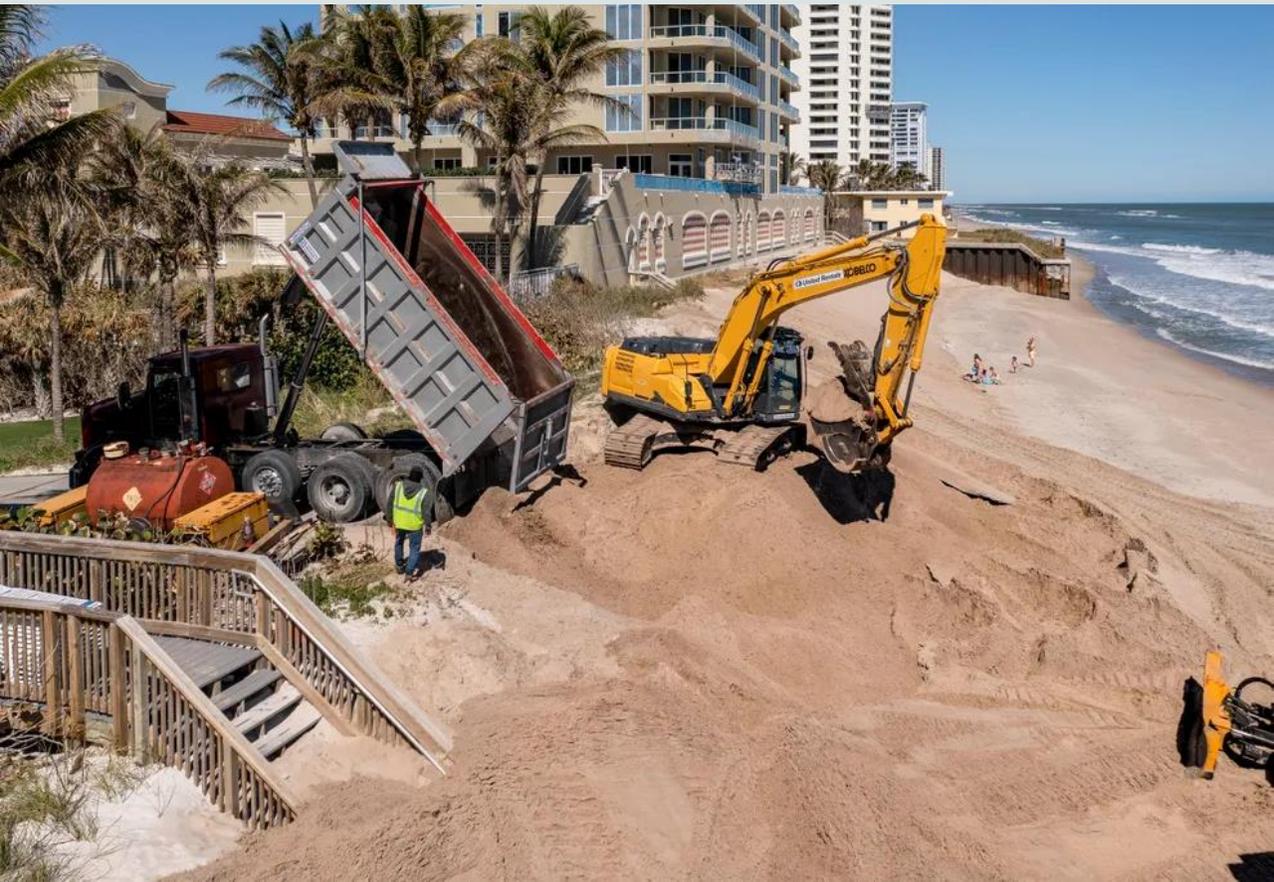


Private beaches don't qualify for federal/state funding for restoration

- Must have public access points every $\frac{1}{2}$ mile with parking lot and restroom
- Must allow public use landward of MHWM
- Only a few non-contiguous locations qualify: Macarthur Park to Eastpointe and Ocean Reef Park to Seawinds
- Section starting $\frac{1}{2}$ mile north of Ocean Reef Park is private

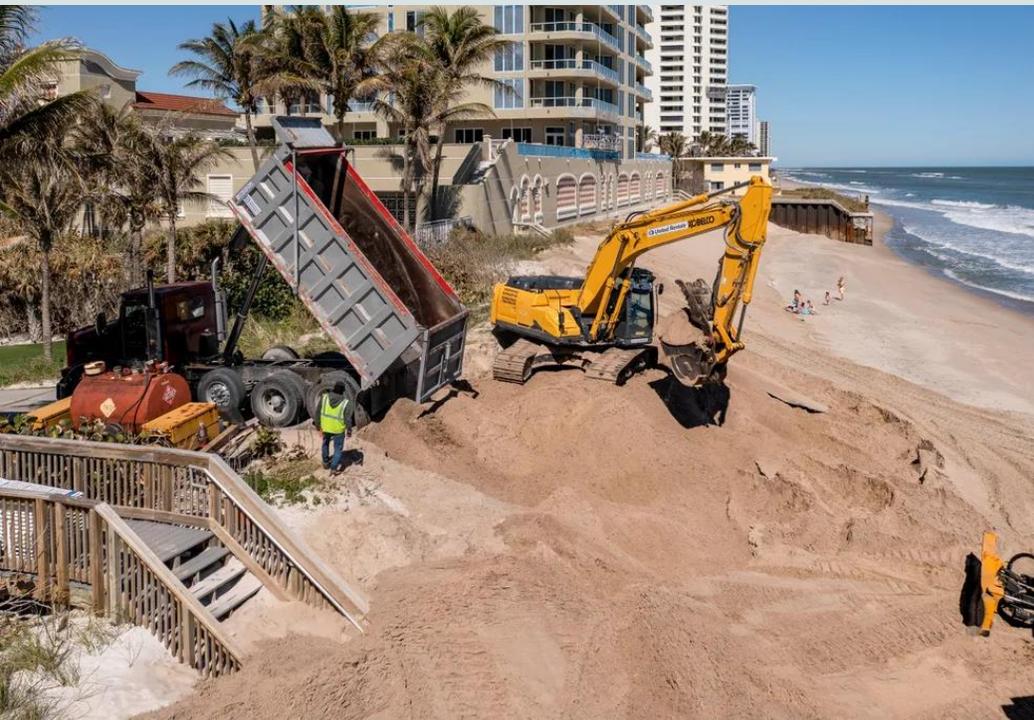
Replenishment remains a County and City responsibility

Beach Replenishment: A Temporary Fix



- In 2023-2024, Palm Beach County had been replenishing public beaches and beaches without seawalls
- Councilman Glen Spiritis spearheaded effort to garner County commitment to replenish dunes over a 1.4-mile length along Singer Island
- City and County signed 10-year agreement in October 2024
- Cost share 80% County/20% City, except mid-island portion is paid 50/50
- City to provide up to \$1M/year

Current Status of Beach Replenishment



- Seawall construction affects ability and timing
- Sand must be dry for replenishment
- Need unobstructed access for trucks
- No replenishment was performed in late 2025
- County is declining to perform replenishment for winter of 2026
- City has contacted EPA for assistance with access and material
- County is offering City 20% reimbursement of costs

Seawalls Protect Property, Not Beaches

In Progress:

Ocean's Edge (top photo)

Eastpointe

Aquarius

Sea Dunes

Sea Grape

Del Fino (bottom photo)

Seawalls impede access for beach replenishment and can contribute toward beach erosion



Beach Protection vs. Turtle Migration and Nesting: Competing Interests?



Nesting Sea Turtles Love Our Beaches!

Palm Beach County is a primary habitat in Florida for nesting season, March-October

MacArthur Park is epicenter

State takes turtle protection very seriously

BUT.....





King Tides and Beach Erosion Have Impacted Turtle Nesting!

- Failure to protect beaches over the past decade has resulted in lost habitat



Prior Beach Protection Efforts



- 2006 PBC study recommended breakwaters over 1.2-mile length of Singer Island (mid- to northern section)
- Project was funded with \$30M
- Environmental organizations contested USACE findings of no effects on turtle migration
- Rejected by FDEP in 2011 following court ruling filed by intervening agencies
- FDEP: No structural beach protection measures will be permitted

Beach Protection Feasibility Study Commenced July 2025



- Driving force was petition effort by Singer Island Environmental Committee in April 2024, sent to PBC Commissioners and Riviera Beach Council members
- PBC agreed to undertake study late 2024
 - Drafted scope of work; reviewed by Riviera Beach
 - Issued Request for Proposals from pre-qualified firms
- Coastal Engineering Firm Foth Olsen was retained to perform the study by PBC ERM
- \$500K Study is jointly funded by Palm Beach County and City of Riviera Beach

Feasibility Study Scope



- Perform investigations of existing tidal and beach conditions, wave action, erosion patterns, and marine habitat, including sea turtles
- Identify potential beach protection measures with focus on long-term stabilization
- Develop computer models to simulate their performance and determine which measures would be most effective
- Consider their permitability by FDEP, Army Corps of Engineers, Fish and Wildlife Management, etc.
- Estimate costs and identify logistic issues affecting implementation
- Recommend most cost-effective and permittable measures

Possible Beach Protection Measures to Consider

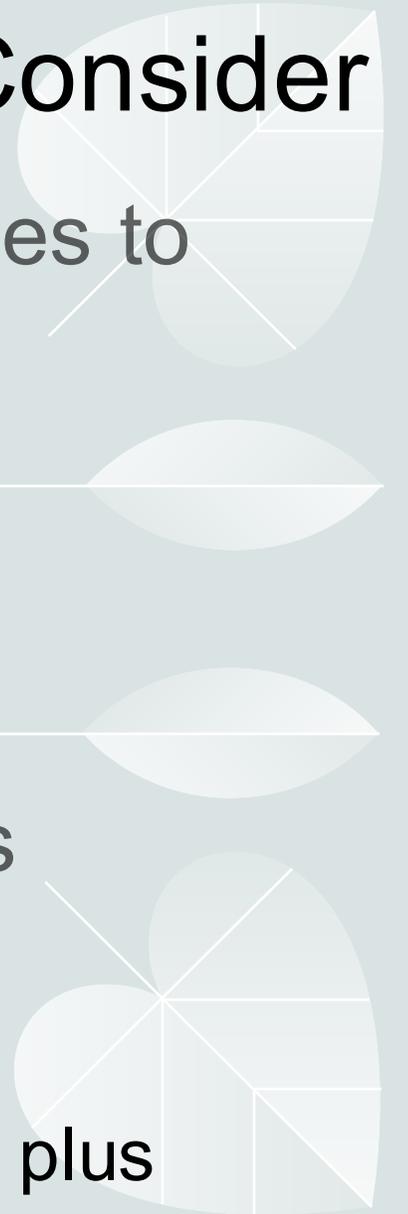
Offshore: Attenuate
Wave Energy

- Breakwaters
- Groins/Jetties
- Seaweed Beds
- Artificial Reefs

Onshore: Stabilize Dunes to
Prevent Washout

- Gabions/Rip Rap
- Plantings
- Woven mesh blankets
- Many others....

Solutions are most often combinations of these measures plus beach nourishment!



Measures Selected by Foth Olsen for Further Analysis: Offshore

- Segmented Breakwaters – parallel to beach, near or offshore
- T-Groins and Short-Profile Groins – perpendicular to beach
- Artificial Reefs to replace affected hardbottom habitat (all alternatives)
- Beach seeding in combination with the above measures; requires periodic replenishment

Segmented Breakwaters

Near shore or further offshore

Near shore focuses on habitat protection; offshore protects beaches

Gap spacing is a critical design factor

Used at Peanut Island, Marco Island, Miami Beach and other Florida beaches

Can be up to 70% effective in attenuating wave energy if not submerged

Will affect hardbottom due to their anchoring



T-Groins



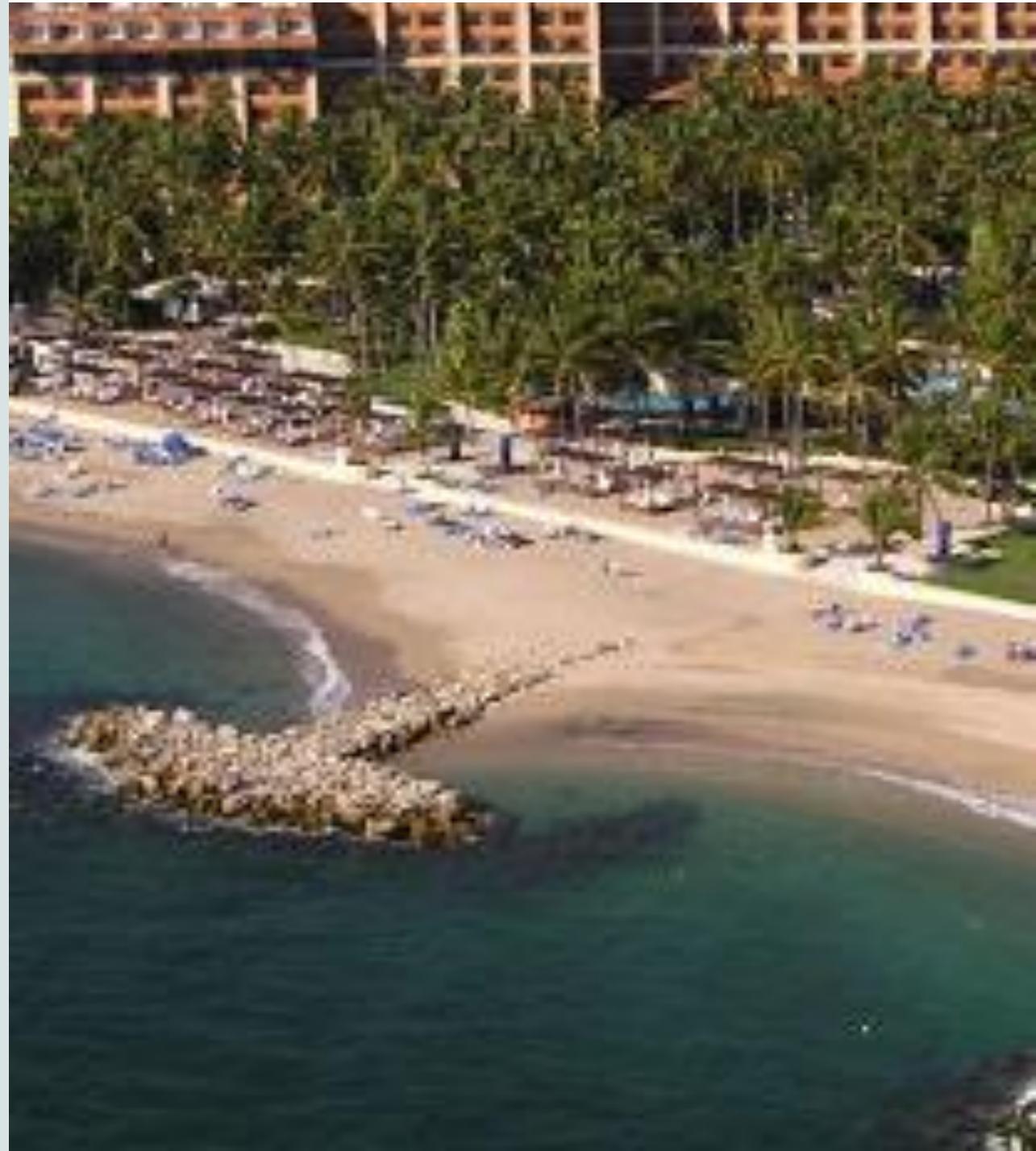
Have a perpendicular spur at the seaward end

Diffract waves, creating eddies for better sand retention and compartmentalizing the beach.

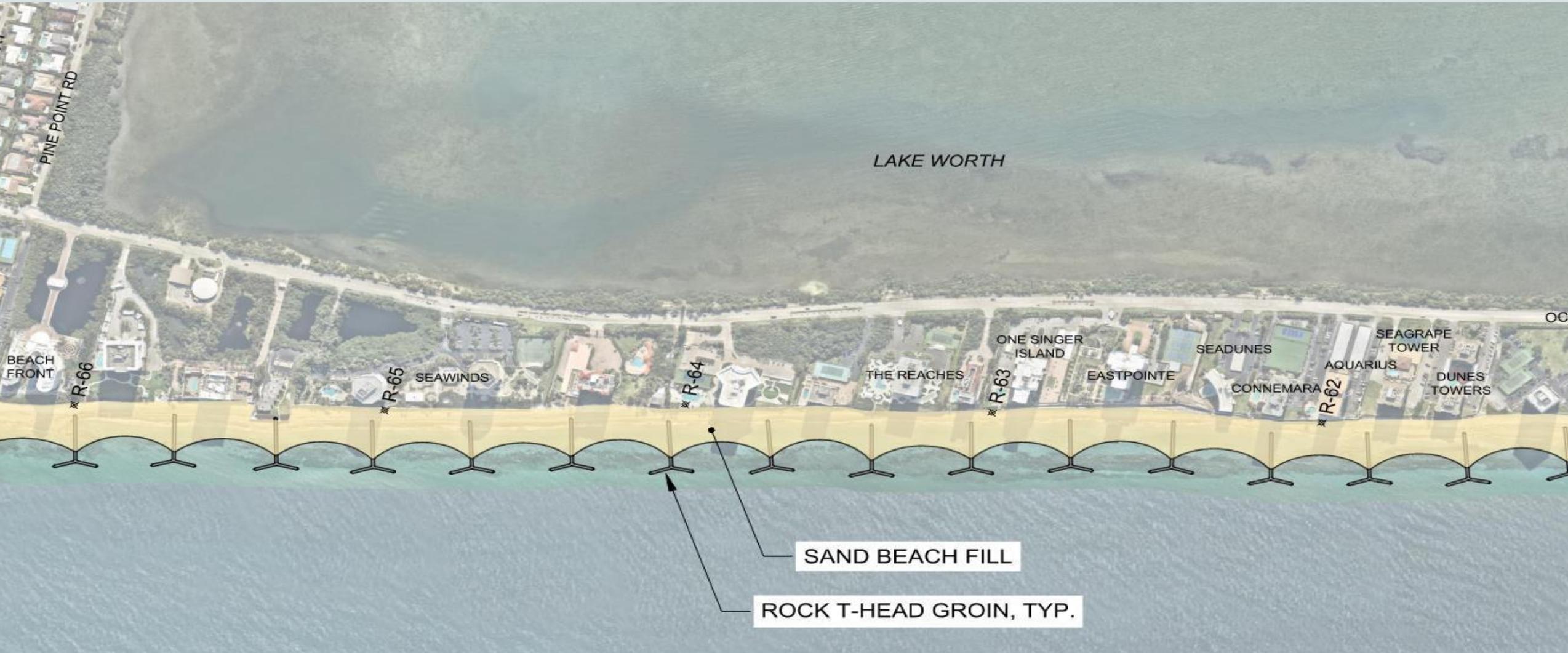
Varying lengths, based on wave height and downdrift patterns

Also accompanied by beach replenishment and hardbottom remediation

Used at Fisher Island



T-Groin Installation Concept



Short, Low-Profile Groins

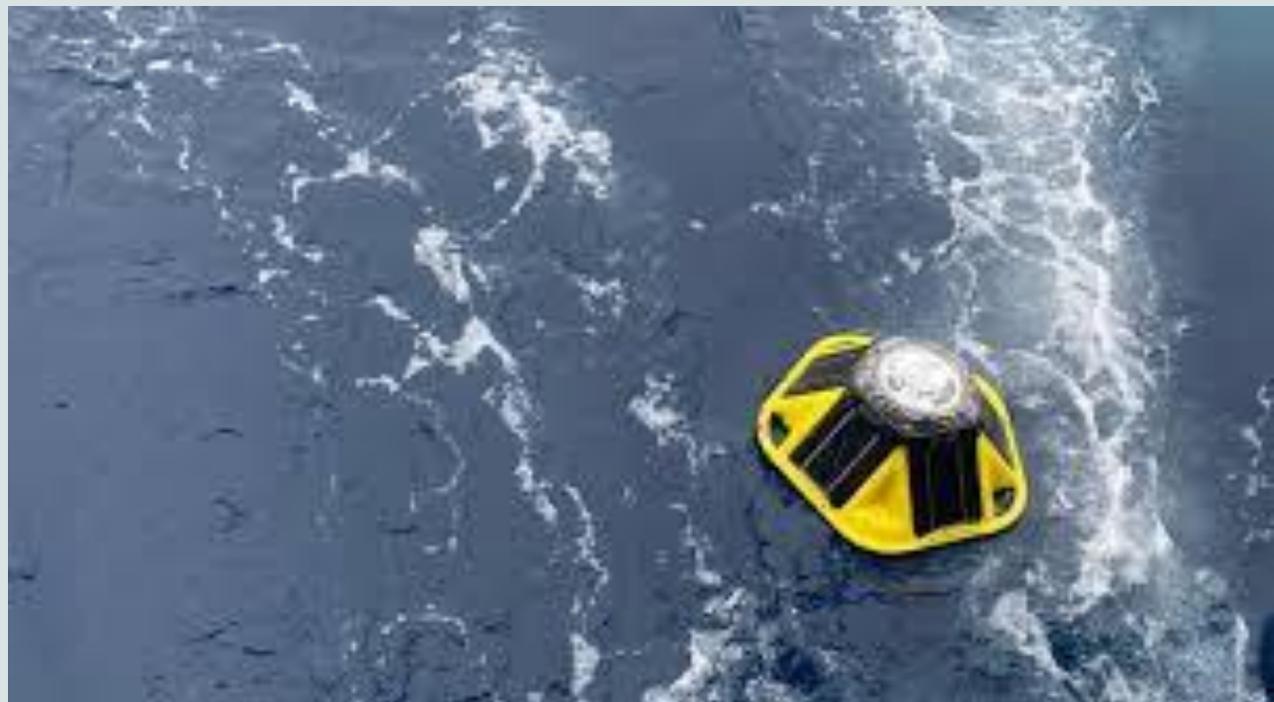
- Extend partway into the surf zone; captures less sand than T-Groins but allows more wave energy and sediment to pass
- Reduces downdrift
- Also accompanied by beach replenishment and hardbottom remediation
- Used at Deerfield Beach (right photo)



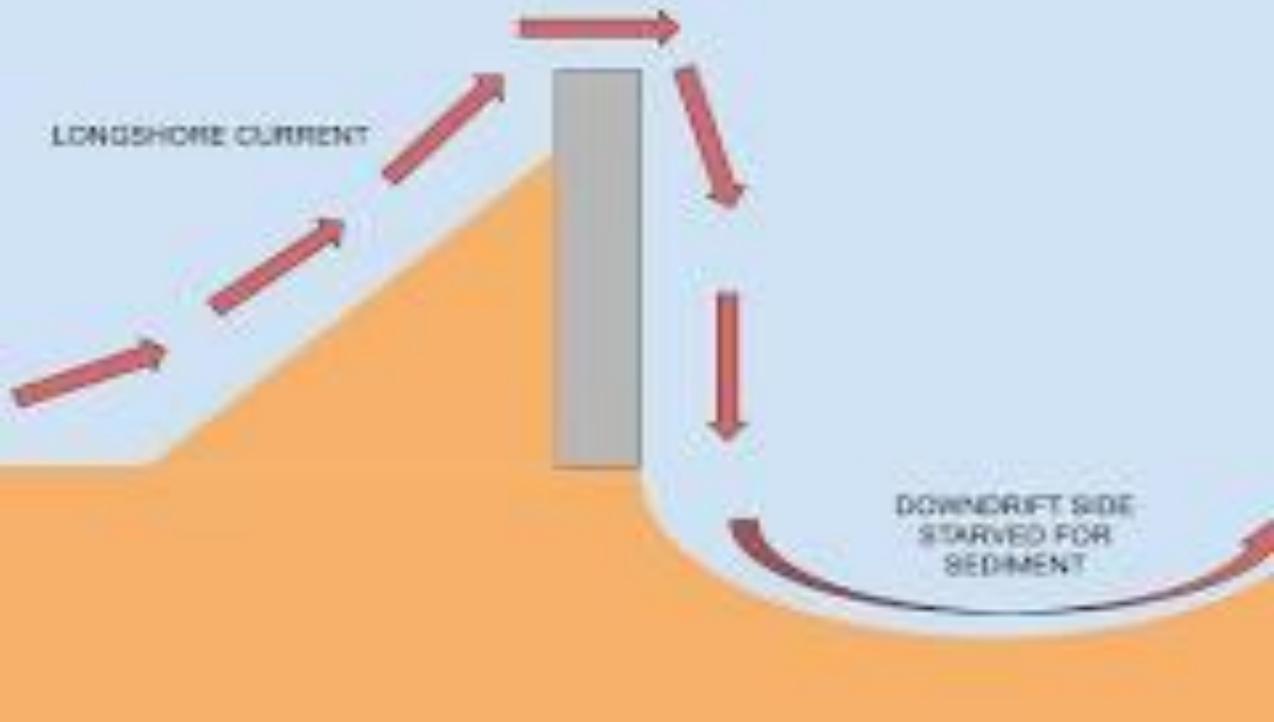


Current Status of Feasibility Study

- Performing field investigations and monitoring
- Installed two wave gauges on buoys in October 2025
- Need a long data collection period (at least 18 months)
- Obtained ocean weather/ wave “hindcast” for 1979-2024
- Developing wave attenuation models for each alternative



Feasibility Study Evaluation Criteria



- Effectiveness/ability to stabilize shoreline
- Downdrift impacts
- Environmental impacts – turtles, birds, fish
- State and federal permit requirements
- Cost to construct
- Implementation logistics

Regulatory Considerations



Agencies

- US Army Corps of Engineers
- US Fish and Wildlife Service
- National Marine Fisheries Services
- Florida DEP
- Florida Fish and Wildlife Conservation Commission

FFWCC: Protected Habitat for Federally Listed Species under the Endangered Species Act and The Florida Marine Turtle Protection Act (F.S. 379.2431)

FDEP: Resources are on submerged sovereign lands (FDEP)

NMFS: Assessment & Consultation under the Magnuson-Stevens Fishery Conservation and Management Act



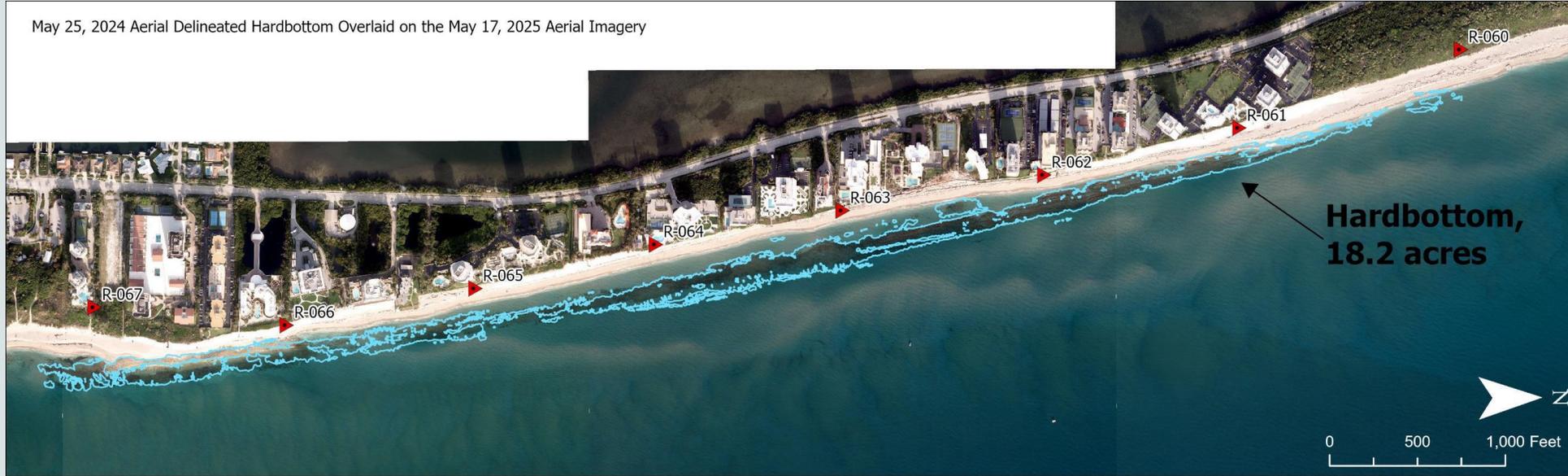
More Regulatory Considerations

Florida Uniform Mitigation Assessment Rule 62-345 F.A.C.

“Hardbottom resources can only be adversely impacted if impacts are justified, avoided, and/or minimized to the greatest extent practicable and appropriately mitigated.”

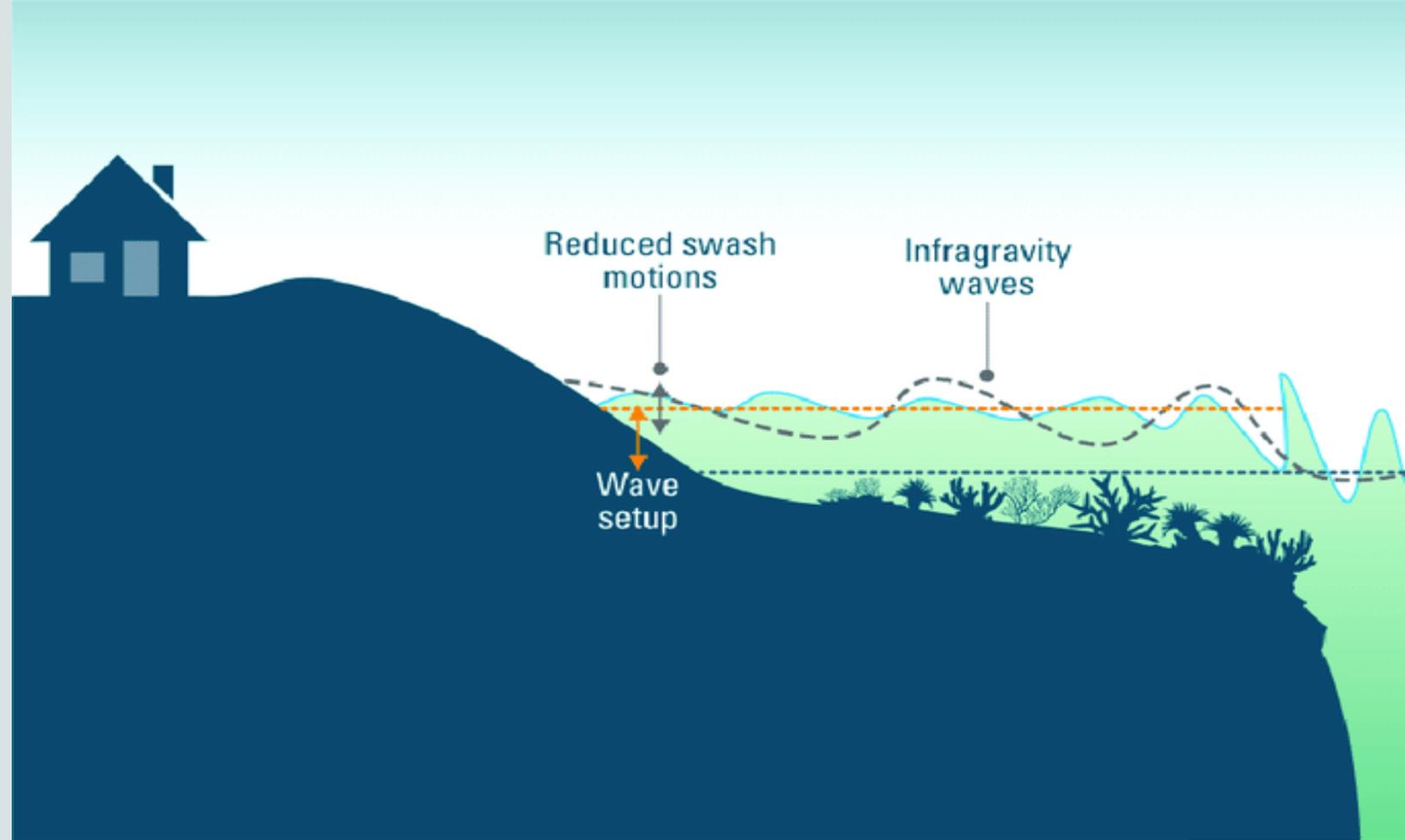
- Impacts on hardbottom is a key factor
- Hardbottom is located throughout the entire length of Singer Island Coast
- Endangered species and other marine life forage on rocks
- Need to replace affected hardbottom using artificial reefs at a cost of \$1.5M-\$4M per acre
- Must not impede turtle migration and nesting
- Permit process will take 2 years and cost \$100K, plus annual monitoring at \$500K

Hardbottom is Extensive Throughout Singer Island Shoreline



Artificial Reefs

- Proven to attenuate wave energy
- Can be constructed of a wide range of materials: tires, coral, shells, reefballs, etc.
- Used throughout US and abroad
- Require FDEP permits even though more holistic approach



FDEP: A Change in Perspective?



- Foth Olsen is carefully examining the NO ACTION scenario!
- Sea Turtle nesting has been severely impacted by beach erosion
- DEP needs data to support the construction of structures and may now consider them
- County is lobbying the State to consider changing its rule on public access for funding eligibility

This is Not a Quick Fix!



- Feasibility Study will be completed in **July 2027** (~1.5 years from now)
- Environmental Impact Study: at least 1-1.5 years (Draft and Final)
- Design: 0.5 years
- Permitting/Funding: 1-2 years
- Construction: 1-2 years
- **Total timeframe = ~6-8 years**

Singer Island Matters!



- All the City's ocean beaches are located on Singer Island
- SI tourism/beaches affects RB and PBC economy
- Increased property values increase City and County tax revenues
- Singer Island contributes 53% of RB property taxes, so we are influential!

Next Steps: You Can Help!



- Attend public Riviera Beach and Palm Beach County meetings in person or remotely
- Express your concerns to City Council members and Palm Beach County Commissioners
- Lobby to change state regulations precluding funding private beach replenishment:
<https://mast.house.gov/email;>
and
ross.dietrich@mail.house.gov



FAQs



- **Why won't the FDEP approve emergency measures since they protect turtle nesting habitat?**
- **We have several public access areas to the beach. Why aren't these recognized as public beaches to qualify for state funds?**
- **Why can't we construct beach protection measures that were approved and are being used elsewhere?**
- **Why can't the flat portion of our beaches be extended seaward?**
- **Why can't sand being dredged from other locations be used to replenish our beaches?**



SI Environmental Committee

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