

ST LUCIE COUNTY, FLORIDA

St Lucie South Coastal Storm Risk Management Project



St. Lucie County Erosion District, Florida



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Meeting Attendees

St Lucie South Coastal Storm Risk Management Project

PRESIDENTS COUNCIL OF HUTCHINSON ISLAND(Board Members)

- **Charles Grande**, President
- **Harvey Alligood**, Vice-President
- **Lou Stoddard**, Secretary
- **Don W. Stacks**, Treasurer
- **Laura Jones**, Director
- **Susan McIntyre** Director
- **Len Amato**, Director

ST. LUCIE COUNTY

- **Glenn Henderson**, Erosion District Director
- **Jeff Bremer**, Deputy Administrator
- **Joshua Revord**, Senior Coastal Engineer

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- **Trisston Brown**, Proj. Manager for Shelley Trulock
- **Stacey Roth**, Planning Lead
- **William Reilly**, Engineer Lead
- **Tony Ledford**, Cost Engineer

ASSOCIATION MEMBERS

Admiral	Islandia East
Beachwood Villas	Las Tortugas
Claridge by the Sea	The Miramar
Diamond Sands	Miramar II
Dunewalk	Miramar Royale
Empress	Nettles Island
Holiday Out of St Lucie	Ocean Bay Villas
Hutchinson Island Beach	Ocean Dunes of Hutchinson
Club Hutchinson Island Club	Oceana North I
Hutchinson Sands	Oceana North II
Island Crest	Oceana South II
Island Dunes Oceanside I	Ocean Towers
Island Dunes Oceanside II	The Princess
Island Dunes Oceanside POA	Regency Island Dunes
Island Village 1	Sand Dollar Shores
Islandia I	Sea Winds
Islandia II	



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AGENDA

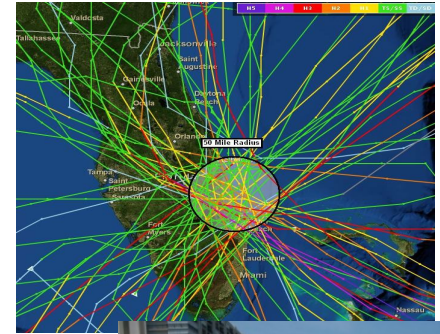
- **Jacksonville District's Supplemental Program**
- **Study Recap**
 - Objectives
 - Recommended Plan
 - Economics
 - Cost Summary
- **Project Schedule**
- **Open Q&A**
- **Construction Easements – St. Lucie County**
- **Frequently Asked Questions (time permitting)**



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Jacksonville District's Supplemental Program



2018 Bi-Partisan Budget Act

- \$3,588,252,000

- Studies/Investigations \$40,565,000
- FCCE Emergency \$186,670,000 *
- O&M \$47,250,000 *
- Construction \$808,422,000

- St. Lucie South Segment (\$20,276,000)
- Initially received the full financing, however it has been determined that project is not eligible for up front funding with pay back because of shoreline ownership.
- Only a small area would qualify.

- Puerto Rico \$2,505,345,000
- Between Brevard County down to Palm Beach County \$668M!

*Note: Subject to Availability



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STUDY AUTHORITY

On April 11, 2000, Resolution Docket 2634 granted the Corps of Engineers the authority to pursue a study of St. Lucie County area, which reads as follows:

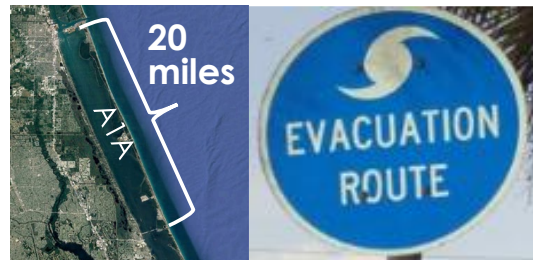
Resolved by the Committee on Transportation and Infrastructure of the United States House of Representatives, That the Secretary of the Army is requested to review the report of the Chief of Engineers for Fort Pierce Beach, Florida, published as House Document 84, 89th Congress, 1st Session, and other pertinent reports with a view to determining if modifications to the recommendations contained therein are advisable at the present time, with particular reference to providing improvements in the interest of shore protection and hurricane and storm damage reduction to the shoreline areas in St. Lucie County in the area north of the Ft. Pierce Inlet, the southern five miles of St. Lucie County, and adjacent shorelines."

PROBLEMS



Atlantis Condominium
September 2004 (Hurricane Frances)

**STORM DAMAGES DUE TO
EROSION, INUNDATION & WAVES**



**HURRICANE EVACUATION ROUTE
THREATENED (STATE ROAD A1A)**



LOSS OF HABITAT



**RECREATION OPPORTUNITIES
THREATENED**

OPPORTUNITIES

- **Must improve community & environmental resilience**

OBJECTIVES

- **Must reduce storm damage to infrastructure**, including the only emergency evacuation route for the study area
- **Must maintain environmental quality for listed species** (sea turtles & avian species)
- **Must maintain existing recreation (beach & nearshore)**



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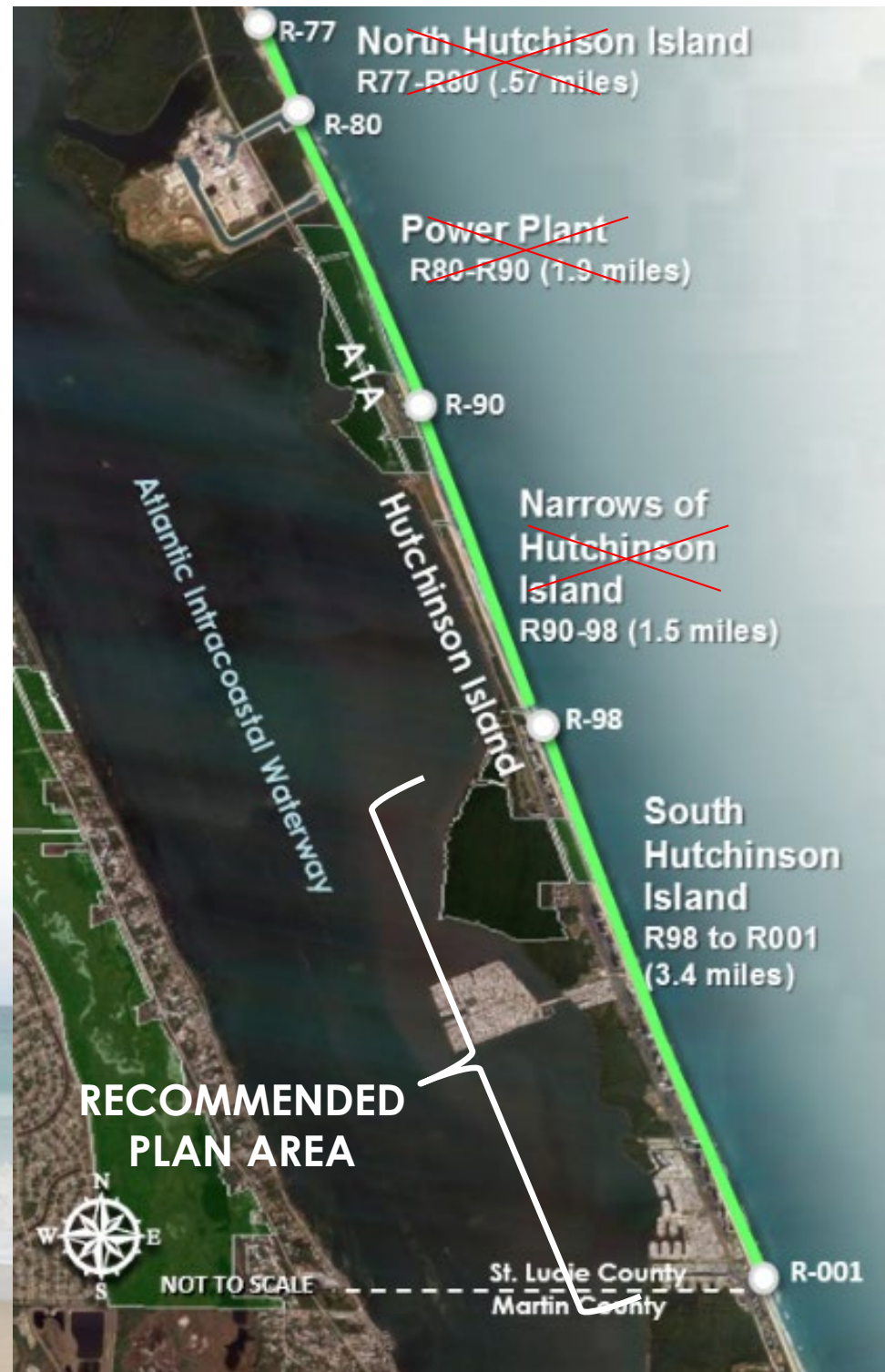


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STUDY AREA & PURPOSE

STUDY PURPOSE:

- 1) Determined if there was economic justification & Federal interest in Coastal Storm Risk Management (CSRM) in 4 reaches of St. Lucie County
- 2) Formulated a CSRM Recommended Plan that includes incidental opportunities to maintain environmental habitat



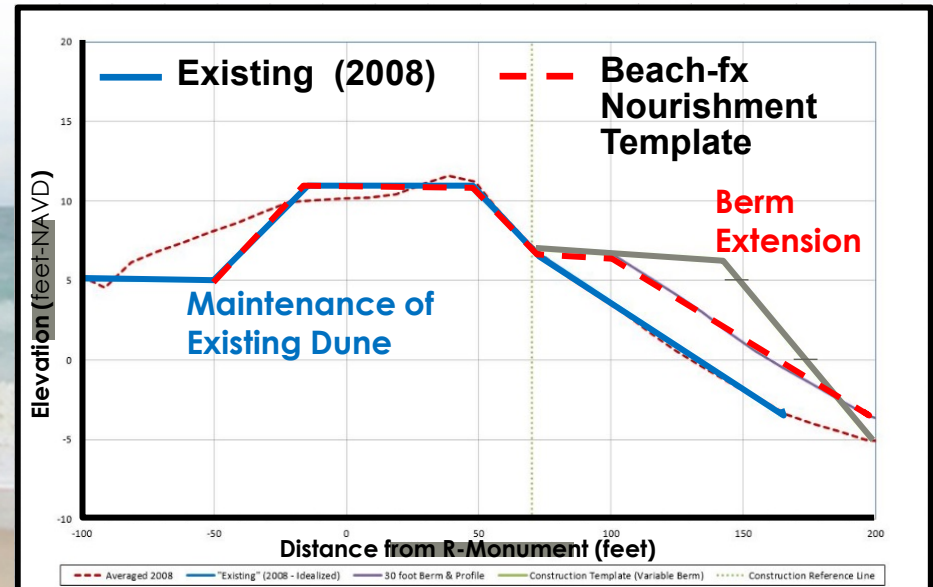
Taper
for Stability
R-98.5



RECOMMENDED PLAN

50-year
Participation

- 3.3-mile long project, including:
 - ▶ 20-foot beach & maintenance of 2008 dune
 - ▶ Plus tapers of up to a maximum of 1,000 feet at northern & southern ends
- Initial construction: 422,000 cubic yards
- 2 periodic nourishment events (18-year intervals): average 390,000 cubic yards per nourishment
- Sand Source: St. Lucie Shoals
- Project Costs (including contingency):
 - ~\$20.3M Initial Construction
 - ~\$91.9M Renourishments
- Cost Sharing:
 - ▶ Initial construction 35% fed/ 65% non-fed
 - ▶ Periodic nourishments: 27% Fed/73% non-fed
- Benefits Cost Ratio: 2.2 @ 2.875%



ST. LUCIE COUNTY LINE
MARTIN COUNTY LINE

R-115 + 1000 feet

Taper
for Stability

How did we come up with the Recommended Plan?

- Input all of the inventory adjacent to the project that could be damaged: homes/condos/commercial buildings/pools/tennis courts, etc.
- Input shoreline and dune positions.
- Created a database based on historical storms.
- Input into the model, see how each storm would damage the project area.
- Ran the model for various beach designs for 100 iterations, randomly chooses storms, but you get a good array of big, small storms, and average.
- Compared damages without a project over 50 years to various project alternatives over 50 years and determine plan which reasonably reduces damages compared to cost (maximizes net benefits*)

***Net benefits = Benefits-Cost**



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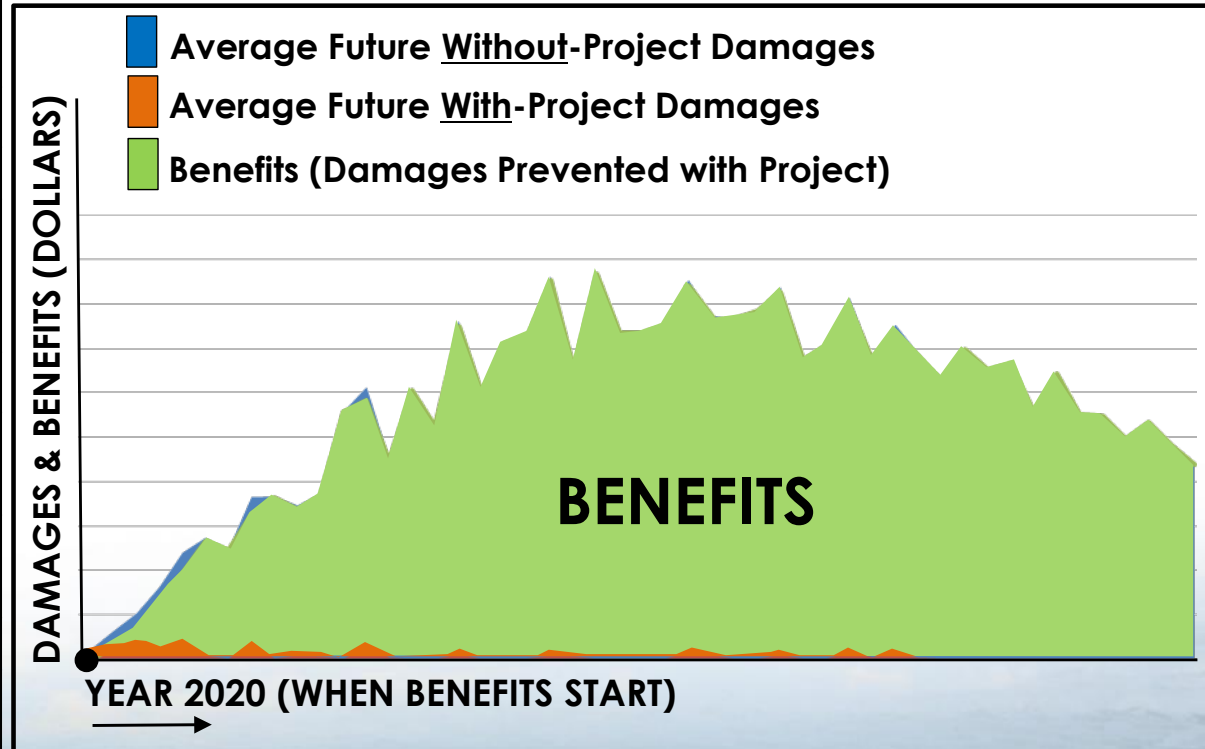
RECOMMENDED PLAN ECONOMIC SUMMARY

98% REDUCTION IN DAMAGES
(50-year period of analysis)

ECONOMIC SUMMARY

(FY19 price level, 50-year period of analysis, 2.875% discount rate)

Total Average Annual Cost	\$1,349,000
Average Annual Storm Damage Reduction Benefits	\$2,165,000
Average Annual Land Loss	\$234,000
Average Annual Recreation Benefits	\$566,000
Average Annual Total Benefits	\$2,965,000
Average Annual Net Benefits	\$1,616,000
Benefit Cost Ratio (BCR) (2.875 % discount rate)	2.20



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RECOMMENDED PLAN - COST SUMMARY



COST SHARING: PARKING/ACCESS & CBRA

-  4 existing public access points & parking
-  3 new access points added by Sponsor (June 2017)
-  CBRS Unit (Cost Shared in Dollman Park, per Section 6 exception (16 U.S.C. § 3505))

SUMMARY OF PROJECT COST SHARING (AS OF FY17)

R98.5- R115+1000 feet (PLACEMENT AREA, EXCLUDING 1,000 FEET TAPERS)

INITIAL CONSTRUCTION

ITEM	FEDERAL COST SHARE	FEDERAL COST	NON-FEDERAL COST SHARE	NON-FEDERAL COST	PROJECT FIRST COST
Coastal Storm Risk Management Costs	35%	\$7,096,600	65%	\$13,179,400	\$20,276,000
Non-federal LERRD Contribution*	-	-	-	\$725,000	-
Non-federal Cash Contribution	-	-	-	\$12,454,400	-

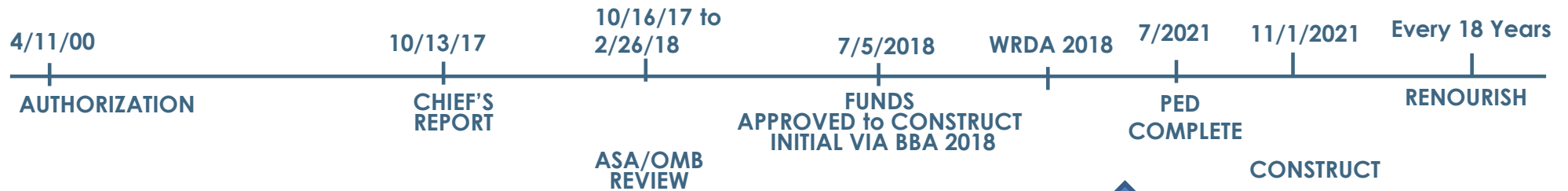
PERIODIC NOURISHMENT (50 year project life) (Fully Funded w/Inflation)

Periodic Nourishment	27%	\$24,813,000	73%	\$67,087,000	\$91,900,000
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* Includes non-federal administrative costs only

NOTE: Dollar values are rounded

TIMELINE



We are here!

What do we need?

- PPA executed!
 - Solidifies roles/responsibilities
 - Allows St. Lucie County to move forward with obtaining construction easements and access required AND get credit for those efforts.



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Open Q&A



FREQUENTLY ASKED QUESTIONS



Frequently Asked Questions

- **What actions are taken to ensure dunes/beach north of the Federal project remain healthy?**
 - Modeling looks at 100 year runs of misc. storms.
 - If there was damage identified it would have been included in recommended plan.
- **Can additional areas be added to the federal project?**
 - No; recommended plan is based on anticipated damages.
 - If additional areas were requested to be added, that would require re study.
- **Pros, Cons, Benefits of 50 year project?**
 - Once authorized project is eligible for FCCE funding, 100% federal cost.



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Frequently Asked Questions

- **Why is the opportunity rare/unique?**
 - Beach projects are not making the cut for the President's Budget.
 - We were funded for construction for the initial via the BBA, then follow up WRDA for future nourishments.
- **Other federal programs other than post hurricane?**
 - FEMA



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Frequently Asked Questions

- **Are the easements along the dune from each owner similar to previous projects?**
 - Perpetual construction easements for life of the project (50 years).
 - Not temporary.
- **What are the rules of the program in order to qualify for the federal share?**
 - Benefit to Cost Ratio
 - Authorization
 - **PPA executed Sponsor** ← We are here!
 - Non federal cash



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Frequently Asked Questions

- **What are the effects of being within or outside a CBRA zone?**
 - CBRA is designated by the FWS.
 - Fed government cannot do anything that would encourage development.
 - Construction within CBRA zones are 100% non federal responsibility.
 - We obtained an exception from FWS for Dolman Park since it is County owned. Therefore it can be cost shared.
 - 1 smaller CBRA area (about 150 linear feet) is in the project footprint and is not cost shared (100% non federal cost).
 - The overall cost share factors all of this in.



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Frequently Asked Questions

- **Importance of Public Access. What are actions that can be taken to increase the federal cost share?**
 - Requirement is $\frac{1}{4}$ mile north and $\frac{1}{4}$ mile south from each access/parking.
 - So really $\frac{1}{2}$ mile between each.
 - We used a more generous approach and used peak maximum visitation vs using beach capacity, which would have required more spots.
 - Look at public transportation to provide more access.



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Frequently Asked Questions

- **Where are the largest gaps, north and south terminus of each?**
 - Previous public access additions (3) prior to Chief's Report brought Fed share up by ~7%.
 - Largest gap between Dollman and Waveland (R105 to R109)~Empress to Seawinds
 - For example, installing public access and parking at Empress and Miramar could make ~4,500 more feet eligible and increase Fed share by ~17%
 - Another smaller gap between R113 and R115 (Island Crest and Windmill)



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Frequently Asked Questions

- **What is the difference between the 2018 Martin County project and this project?**
 - Apples vs. Oranges
 - There was a large modification to the 2018 Martin County project (an additional 162k cy of material).
 - Cost per cy for the modification was very low at <\$8.00/cy, which is not typical.
 - Planning, Engineering & Design costs are higher for initial projects vs. renourishments.
 - There were no real estate costs associated with the last Martin County project.



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Frequently Asked Questions

- **Construction Timing**

- Due to environmental windows, we cannot place sand on the beach until 1 Nov each year.
- We must be complete with all beach work by end of April.

- **Lessons learned.**

- Every project, continually modify templates and construction practices.
- After action meetings.



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Frequently Asked Questions

- **What happens if more bridges are built to the Island, will the 50 year project change?**
 - Project was designed and authorized based on damages incurred with the current inventory in place, current conditions.
 - If there was a major change to the area, a new report would be required to evaluate damages and change the project = New Authorization.



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Frequently Asked Questions

- **South Atlantic Coastal Study (SACS)**

- SACS holds public webinars.
 - Last held 5 March 2020.
- We are going to have focus area specific workshops this spring and summer.
- The north fork of St. Lucie River is in the East Central FL Focus Area.
- Also looking into vulnerabilities to St. Lucie River in and around Port St. Lucie.
- Study scheduled to complete in 2022



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Frequently Asked Questions

- **South Atlantic Coastal Study (SACS) - Any highlights, or new "best practices" already emerging or identified?**
 - We have several key products that are completed or close to completion.
 - Please see the SACS Tier 1 Risk Assessment on the SACS website (right hand side).
 - <https://www.sad.usace.army.mil/SACS/>



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Frequently Asked Questions

- **South Atlantic Coastal Study (SACS) - Any promising or new prospective cost-effective and efficient shoreline sand collecting or capturing technology on the horizon?**
- **Does the Army Corp support exploring new technology, such as the sediment collectors being used in the Galveston project, or the Holmberg technology being used in the Great Lakes?**
- **Will the Army Corp support us becoming involved in a feasibility study for new technology that may be used to reduce our rising nourishment costs?**
 - Please check out the RSM Optimization updates.
 - SAND Updates are not available yet but we do have workshops lined up for June. Invite will be coming out in the next few weeks.
 - <https://www.sad.usace.army.mil/SACS/>



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Frequently Asked Questions

- **South Atlantic Coastal Study (SACS) - Are there any anticipated changes to optimum dune profile / height to protect from warming, rising seas?**
 - Evaluating dune profiles to reduce storm damages is something that is being evaluated in SACS, however specific recommendations with respect to project dimensions are not anticipated to be made.



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Frequently Asked Questions

- **How can the President's Council develop greater participation and support for the beach projects?**
 - Meetings like this!
 - Understand what the 50 year project does for you.
 - Understand estimates are estimates. Costs are inflated, but are tools for planning.
 - Stay involved!



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THANK YOU!

