

Regional Sediment Management South Atlantic Division Optimization Pilot

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RSM Center in SAD

CHALLENGES TO NAVIGATION TEAMS

- FUNDING
 - Amount and timing
- ENVIRONMENTAL Regulations/Windows
 - Funding
 - Reasonableness/Scientific backing
- PLACEMENT SITES
 - Availability, cost, env requirements
- STAKEHOLDER needs/concerns
- MITIGATION requirements
 - Funding
- POLICY/REGULATION/CONTRACTING HURDLES
 - Assoc with funding, windows, federal standard, authorities

****Lack of resources to focus on improvement of above**



RSM Optimization: Bottom Line Up Front

Number one challenge to USACE mission is funding/budget
NAV = \$2B/2MCY

2MCY can be an asset or a liability

What does maximum efficiency look like to a program?

Implications: budget, costs, permitting, conservation of resources, USACE/NAV as a resource



RSM: Cross Business Line Benefits

2013 SAJ RSM VALUE TO THE NATION

FY13 NAVIGATION RSM	TOTAL COST (NAV)	PLACEMENT	BEACH VOLUME**	ROUGH VALUE TO FRM***
Port Everglades* (partial)	\$ 1,898,489	Broward SPP	96,126	\$5,959,812
Palm Beach Harbor	\$ 4,870,074	Palm Beach Co NF	420,000	\$6,300,000
Ft Pierce Inlet	\$ 3,299,090	Fort Pierce SPP	191,000	\$2,330,200
St Lucie Inlet	\$ 6,465,600	Martin Co. SPP	200,000	\$3,000,000
St Augustine Inlet	\$ 1,032,800	St Johns SPP	116,000	\$696,000
Ponce Inlet (SAW)	\$ 1,000,000	St Lucie SPP (NS)	141,000	\$2,115,000
AIWW-Jupiter Inlet	\$ 2,601,207	Palm Beach Co	55,000	\$825,000
AIWW-Haulover Inlet		Dade Co. SPP	120,000	\$6,180,000
	\$ 22,067,060			\$27,406,012
King's Bay EC (NAVY)	\$ 8,030,480	Nassau Co SPP	121,046	\$ 1,361,768

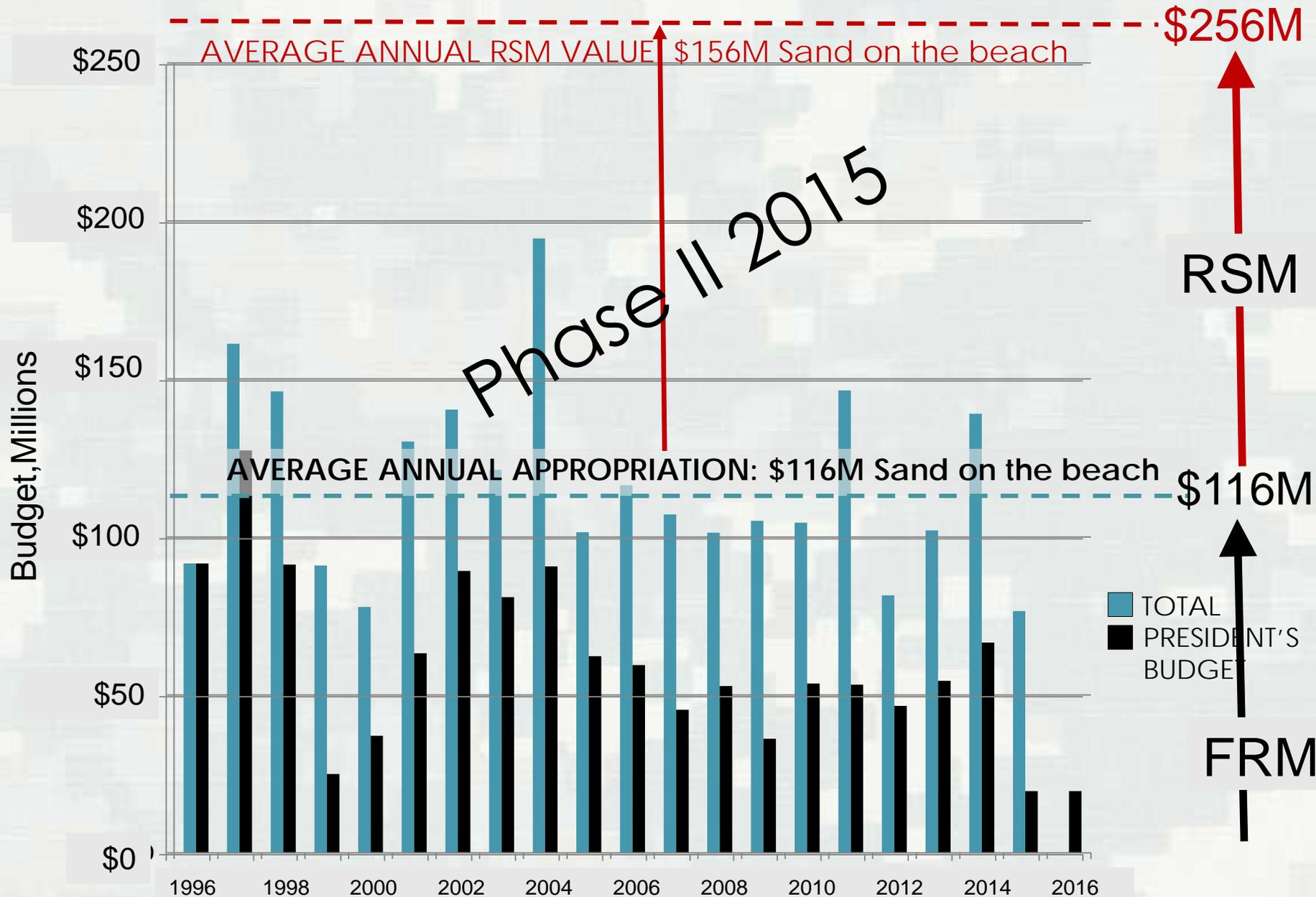
Phase 1 2014

INCREASED VALUE TO NATION

* Includes \$1.2M NF (MOA)
 ** Includes 15% placement losses
 *** Contract costs only, additional FRM value for E&D/S&A not included



20 YEARS OF FEDERAL APPROPRIATIONS FOR BEACHES (C, I, O&M)



Phase III 2015 – Proof of Concept RSM Optimization Pilot - SAD

Where can we find efficiency within and between projects
FRM, NAV, ECO, non-Federal

What are Districts doing well now?

Where is there remaining potential?

- Identify challenges (R&D, policy, environmental)

Maximize use of existing data/tools and provide for:

- Transparent and defensible value dashboard & tool
- Knowledge management

What is Value? Project execution that does not
otherwise need to be paid for by the taxpayer



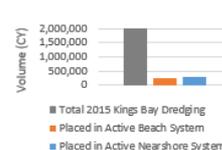
Products: Report

- Fact sheets for all projects:
 - Summary statistics
 - Summary data of projects
 - Dredging information: dredge intervals, volumes, placement options
 - Identified RSM projects, opportunities, value
- Division and District Roll-Up Fact Sheets
 - Summary Statistics
 - Identified areas of successes and opportunities
 - Identified policy and process hurdles
- Web Application

7.2.2 Fernandina Harbor/U.S. Naval Station Kings Bay Maintenance Dredging and Nassau County Shore Protection Project

Summary

SAJ is currently managing dredge material from the 100% Navy funded Kings Bay Maintenance Dredging Project in an environmentally beneficial and economically efficient manner. SAJ beneficially uses beach quality material on the Nassau County Shore Protection Project (SPP) and beach placement areas associated with Fort Clinch and places nearshore quality material in a nearshore placement area.



RSM Value	
FED (NAV):	\$2.25 M
FED (FRM):	\$0.85 M
*Other:	\$2.7 M
*Total:	\$3.6 M

Beneficial Use of Dredged Material: 28%

Figure 22. Total volume of sediment dredged from Kings Bay in FY15 (standard dredge cycle: 1 year) including volume placed in active regional sediment system. Total annual estimated value of \$3.6 million as a result of implemented RSM strategies. Other: value to state for placing sand on state park beach at no cost to state.

The value of the implemented sediment management strategy is approximately \$3.6 million (\$2.6 for beach quality material, \$1 million for nearshore quality material) annually with an estimated annual value of \$2.25 million and \$0.85 million to the Navigation (NAV) and Flood Risk Management (FRM) projects, respectively (Figure 3). Annual value associated with beach quality material was estimated at \$2.6 million because the strategy eliminates the need for a separate Nassau County SPP every eight years (\$1.7 million), provides a cheaper placement option than the Ocean Dredge Material Disposal Site (ODMDS) (\$0.4 million), and provides \$0.5 million of beach quality sand to Fort Clinch at no cost to the federal government (Figure 4). As mitigation for downdrift erosion impacts per Section 111, the Kings Bay navigation project is required to pay 50% of the cost for the Nassau County SPP. Therefore, the estimated annual value of \$1.7 million to the FRM project was split evenly between the NAV and FRM programs. Beach quality material is currently placed at the northern reaches of the Nassau County SPP. To ensure sufficient storm damage reduction at the southern reaches of the SPP, the FRM project provides the additional funding (approximately \$1 million every four years) to transport the beach quality material farther south.

*Implementation of RSM nearshore material placement strategy could provide an additional value of \$2.7 million annually to Nassau County.



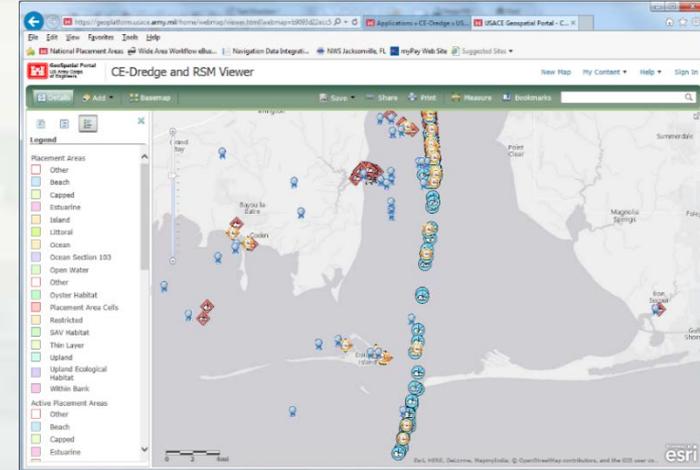
Figure 23. Map of northeast Florida indicating locations of interest associated with the Kings Bay Navigation and Nassau County SPP projects.

Annual value associated with nearshore quality material was estimated at \$1.0 million for the NAV program and is primarily a function of the shorter distance to the nearshore placement area relative to the



Products: Web Application

- Web service that leverages and enhances existing USACE tools.
- Navigation Integration Framework
 - Integrated with CE Dredge & other NAV systems
 - Potential to integrate eHydro planning quantities and CSAT (Corps Shoaling Analysis Tool) for out year budgeting projections
 - Updating, expanding National Placement Areas database
- Provides transparency and knowledge management
- Collaboration with USACE Partners
 - SAM Spatial Data Branch, ERDC Coastal Hydraulics Lab, RSM funded R&D
 - Agency and Non-federal partners



US Army Corps of Engineers.
Engineer Research and Development Center

eHydro Navigation Channel Condition Reporting

Description The eHydro application enables districts to produce consistent survey plots, channel tabulations, and metadata from survey soundings. The application also uses a framework of channel boundaries, project depths, stationing and channel quarters, ensuring consistent and reliable reference.

eHydro is based on ESRI[®] ArcGIS software, and reads HYPACK[™] hydrographic survey data to produce least depths for channel quarters, channel condition reports and indices, planning quantities, and metadata files. The application also applies background imagery and feature data to produce condition plots. Data for outside reporting, such as condition reports and indices, soundings and contours, are automatically uploaded to an enterprise server for outside dissemination. The software and user procedures are designed to easily integrate in a district's normal survey data processing workflow.



eHydro produces channel condition plots for outside navigation interests using consistent data layers and appearance



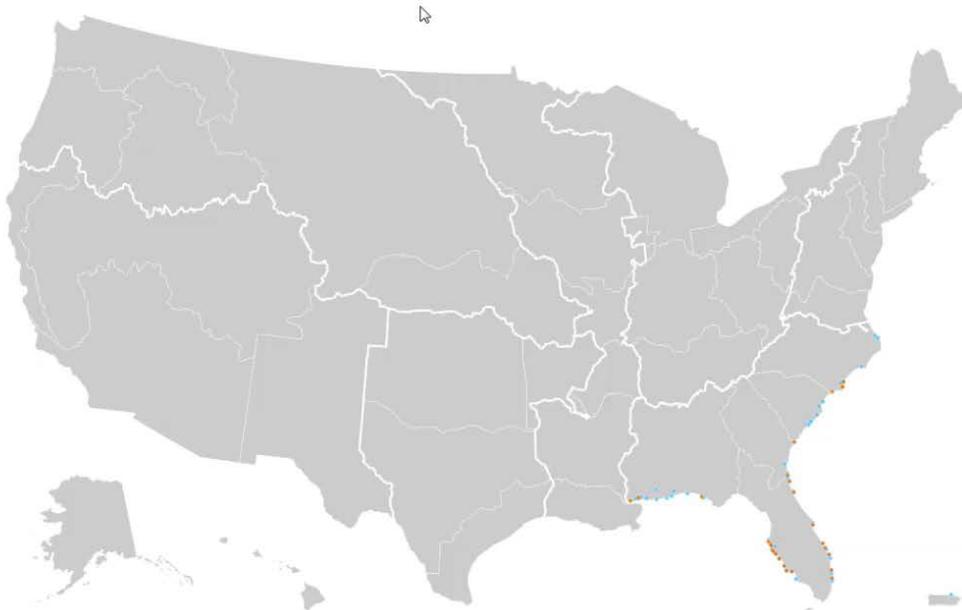
WEB APPLICATION DEMONSTRATION

(website to be posted to RSM website when final)

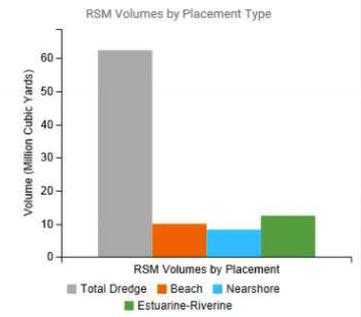




USACE



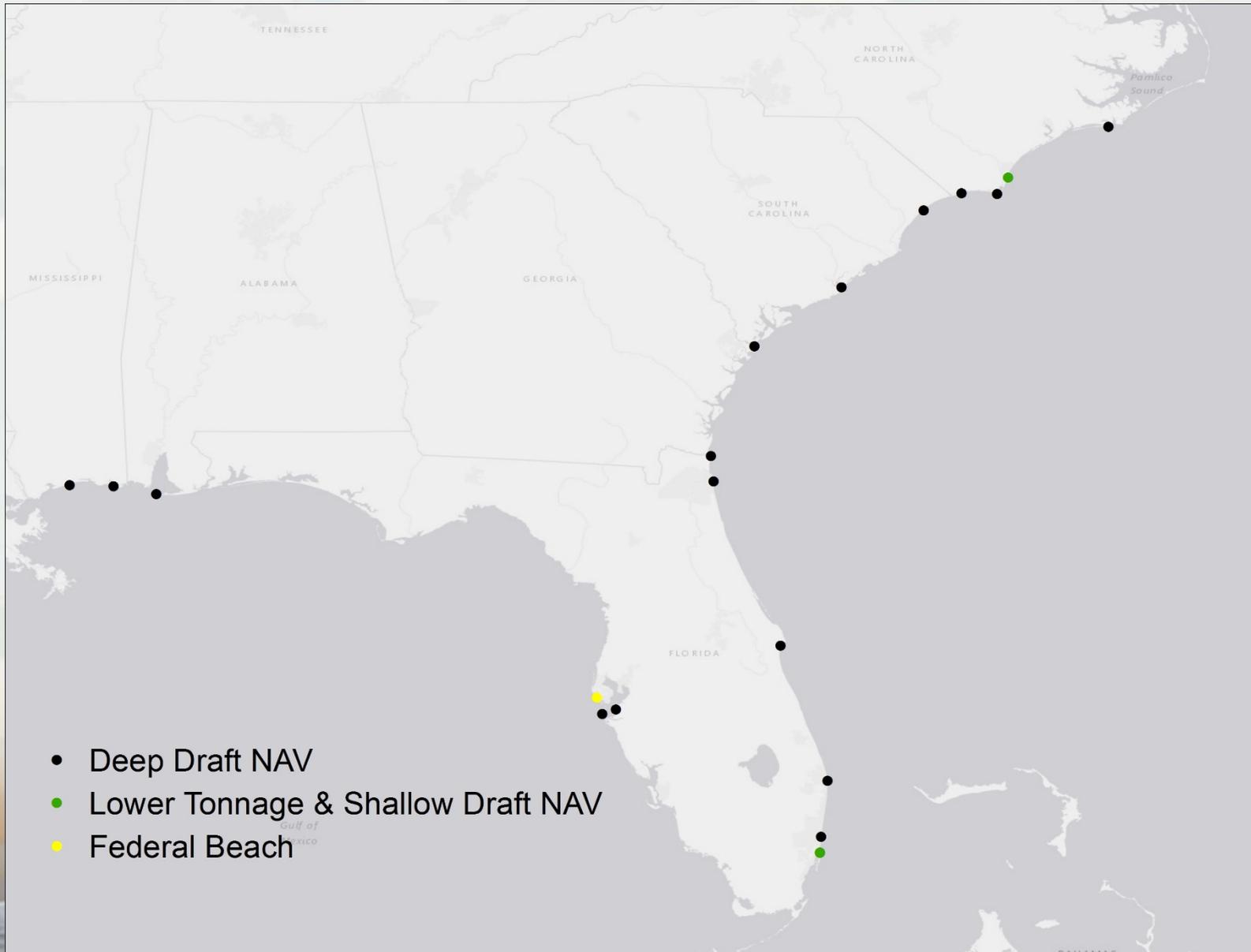
Summary



Project Type	Implemented RSM Annual Value	Identified RSM Opportunity Annual Value
Navigation	\$65.85 Million	\$3.8 Million
Flood Risk Management	\$13.05 Million	\$5 Million
Other	\$17 Million	\$7.2 Million
Total	\$95.9 Million	\$16 Million

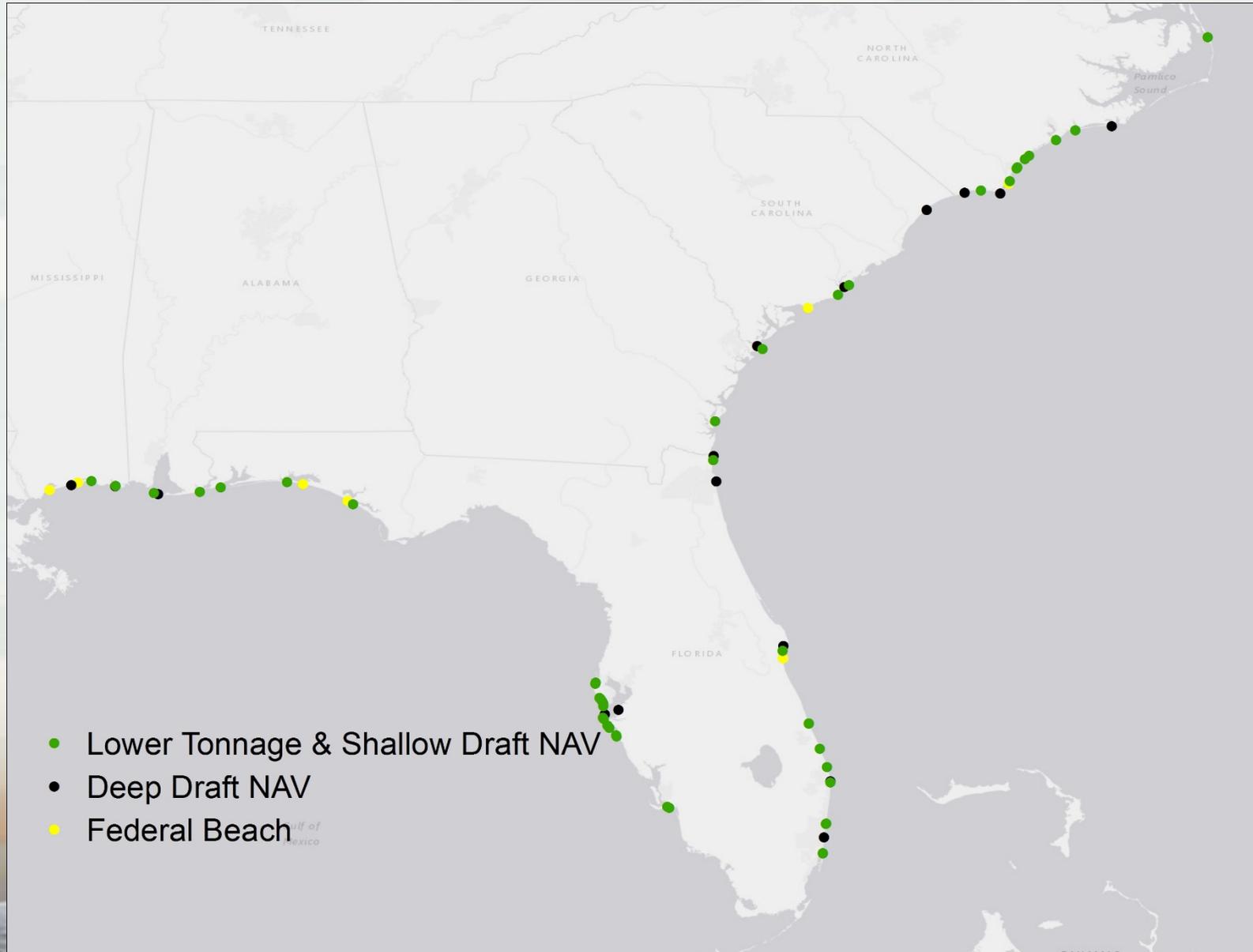
SAD Dredge Program – Baseline vs. Optimized

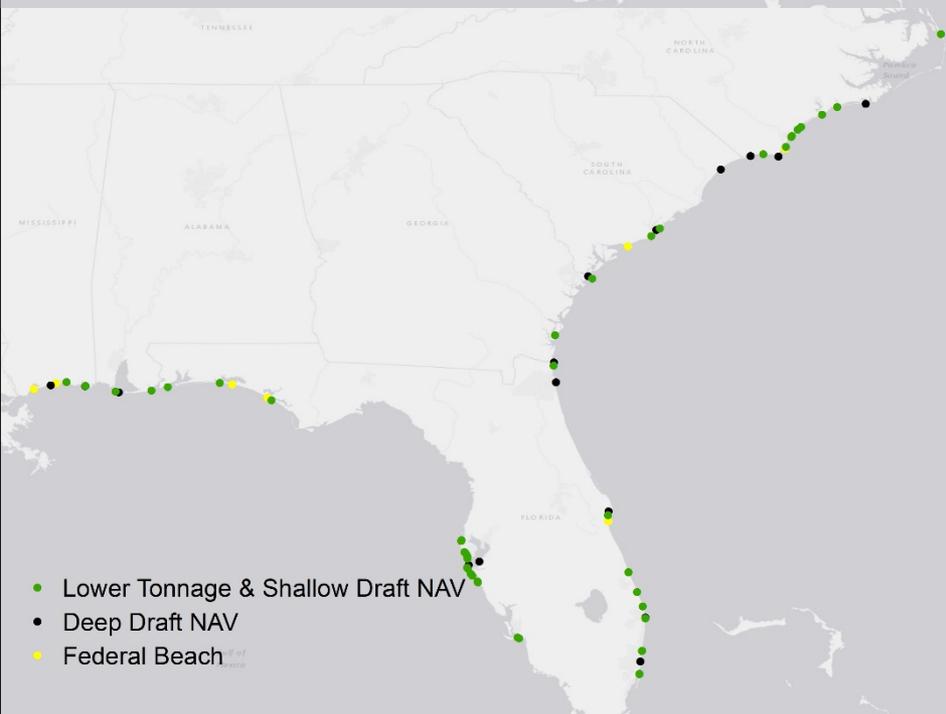
Assuming \$250M annual dredging budget



SAD Dredge Program – Baseline vs. Optimized

Assuming \$250M annual dredging budget*





What does it mean?: Budget

Efficiencies are there for the taking

+71% more project execution
 NAV execution **+29%, \$63.3M**
 FRM execution **+49%, \$14.6M**
 FRM RSM Beach Lifecycle Value :
+\$350M

>\$16.6M in regional/local value

Reduce long term DMMA/ODMDS costs

There is much more left on the table
 4 deepening in SAD, **98MCY, \$2.3 B**
NO RSM planned

NAVIGATION mitigation requirements

NAVIGATION MITIGATION: 9 projects in SAD

- Current annual cost to SAD NAV > \$15 M in SAD
 - Additional Section 111 evaluations pending
- Potential cost to SAD NAV <\$2M annually, with RSM reassessment
 - This same concept could apply to ecosystem mitigation requirements

“...about 80 percent of the non-storm induced erosion on Florida’s East Coast is due to inlets,”
Bob Dean, Sc.D., University of Florida

If we don’t change the way we do business there will be more and more mitigation projects on the books and more Fed requirements in general.

Brevard County, Canaveral Harbor, FL (North Reach)
Brevard County, Canaveral Harbor, FL (All Reaches)
Canaveral Harbor, FL (Sand Bypass)*
Folly Beach, SC
Fort Pierce Beach, FL*
Nassau County, FL*
Sarasota County, FL (Venice Element)
St. John's County, FL*
Wrightsville Beach, NC



What do we need?

- Willingness to change
- Budgetary and Policy support
 - Recognition of cross business line benefits
 - Ability/encouragement to budget across business lines and appropriations
 - Planning/economics and 3x3x3 consideration
 - NAV subject matter experts to help drive change

4 deepenings in SAD

98MCY, \$2.3 B

It's time for a dramatic shift in how we budget for projects

- Business lines can co-exist, they just need to coordinate



Next steps:

- Tool available for FY17 workplan/FY18 budget build in SAD
 - Flag projects that cross business lines/maximize value
 - Flag issues that need resolution (policy, R&D, etc)
- Roll out, receive feedback, improve tool as needed
 - Leverage and inform other USACE initiatives
- Expand concept to inland systems, reservoirs and dams
- **Provide similar capability to other Divisions/Districts**
- Refine values to include long term maintenance costs and value of fine grained sediments (ECO)
- Outreach beyond USACE to include other agencies



Thank You!

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BUILDING STRONG®

CHALLENGES TO NAVIGATION TEAMS

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What does this mean?: Budget

Efficiencies are there for the taking: RSM & Dredge Optimization

We are increasing NAV execution by **29%, \$63.3M**

And FRM execution by **49%, \$14.6M**

FRM RSM Beach Lifecycle Value : **\$350M**

And providing >\$16.6M in regional/local value
reducing long term DMMA and ODMDS costs

And supporting healthy resilient systems

There is much more left on the table

4 deepenings in SAD, **98MCY, \$2.3 B**

NO RSM planned

