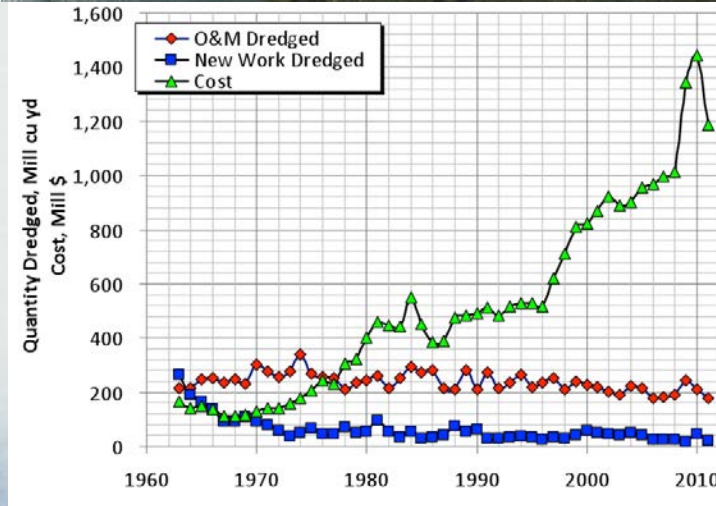


Regional Sediment Management In-Progress-Review Success & Challenges Meeting

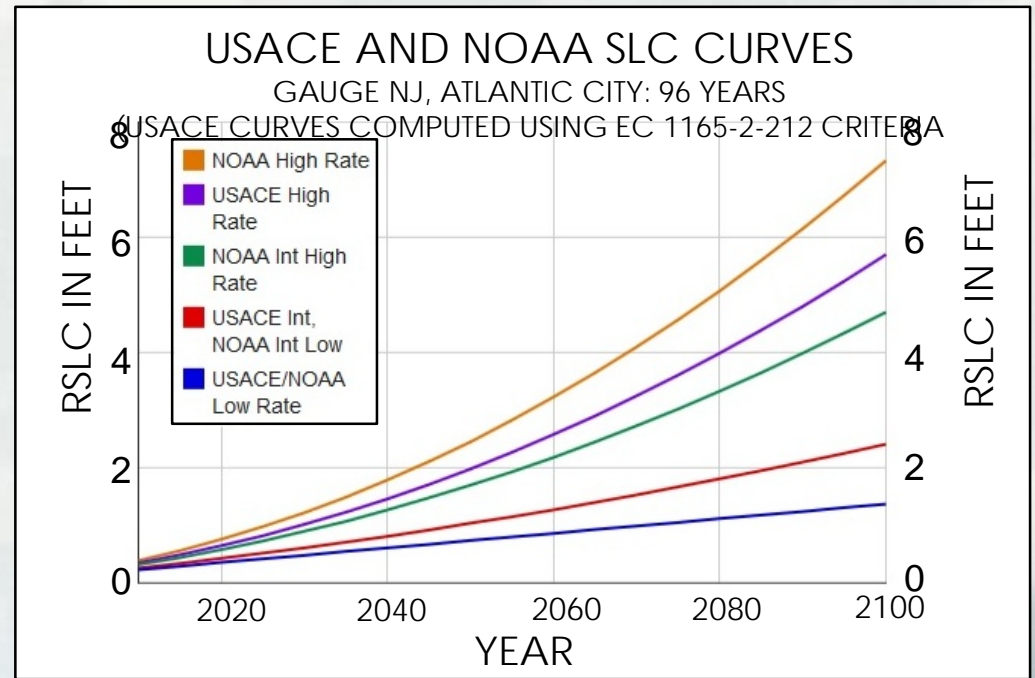
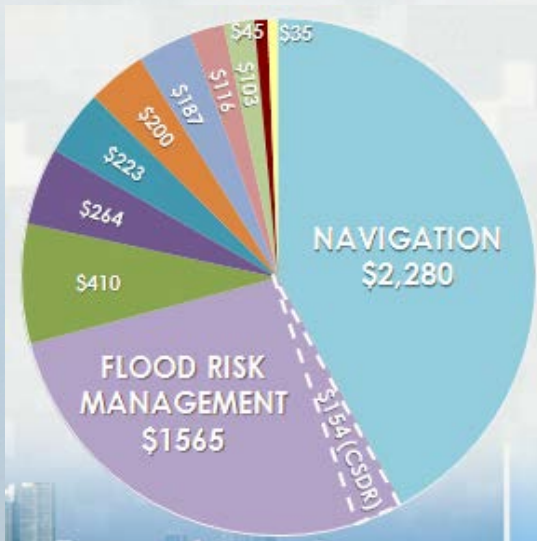
17-19 May 2016 Kitty Hawk, NC

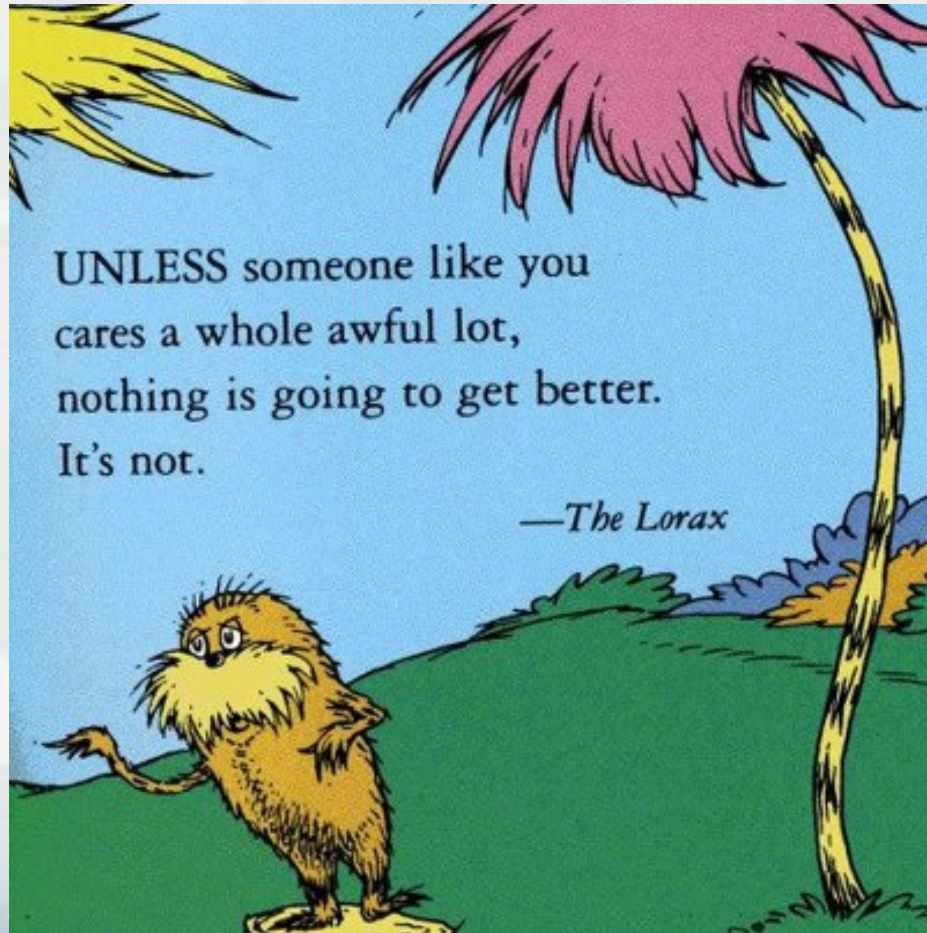


RSM is...



RSM: Sustainability Resiliency CWT IWRM





Districts helping Districts



RSM-RCX: What are our goals?

Short term: USACE Districts and vertical chain understands and appreciates value provided by RSM

Mid term: Districts consistently and routinely implementing RSM practices to the maximum extent practicable

Long term: RSM program, while led by USACE extends beyond organizational boundaries as a true National initiative

How do we get there?

- Identify biggest impediments
- Implement a focused deliberate strategy to overcome
 - Seek funding/ dedicated resources to focus and execute
 - Prioritize and execute in iterative spirals





Top 4 Challenges to RSM Implementation

1. Financial

- No incentive!, budget penalty vs. priority, no understanding or recognition of value, risk to execution (2101), coordination funds, non-Federal funding coordination

2. Authority/Policy

- Lack of understanding, unclear & inconsistent guidance. Cross, business lines, Fed Standard, CAP, 7a, other creative potential, risk/fear, 3X3X3

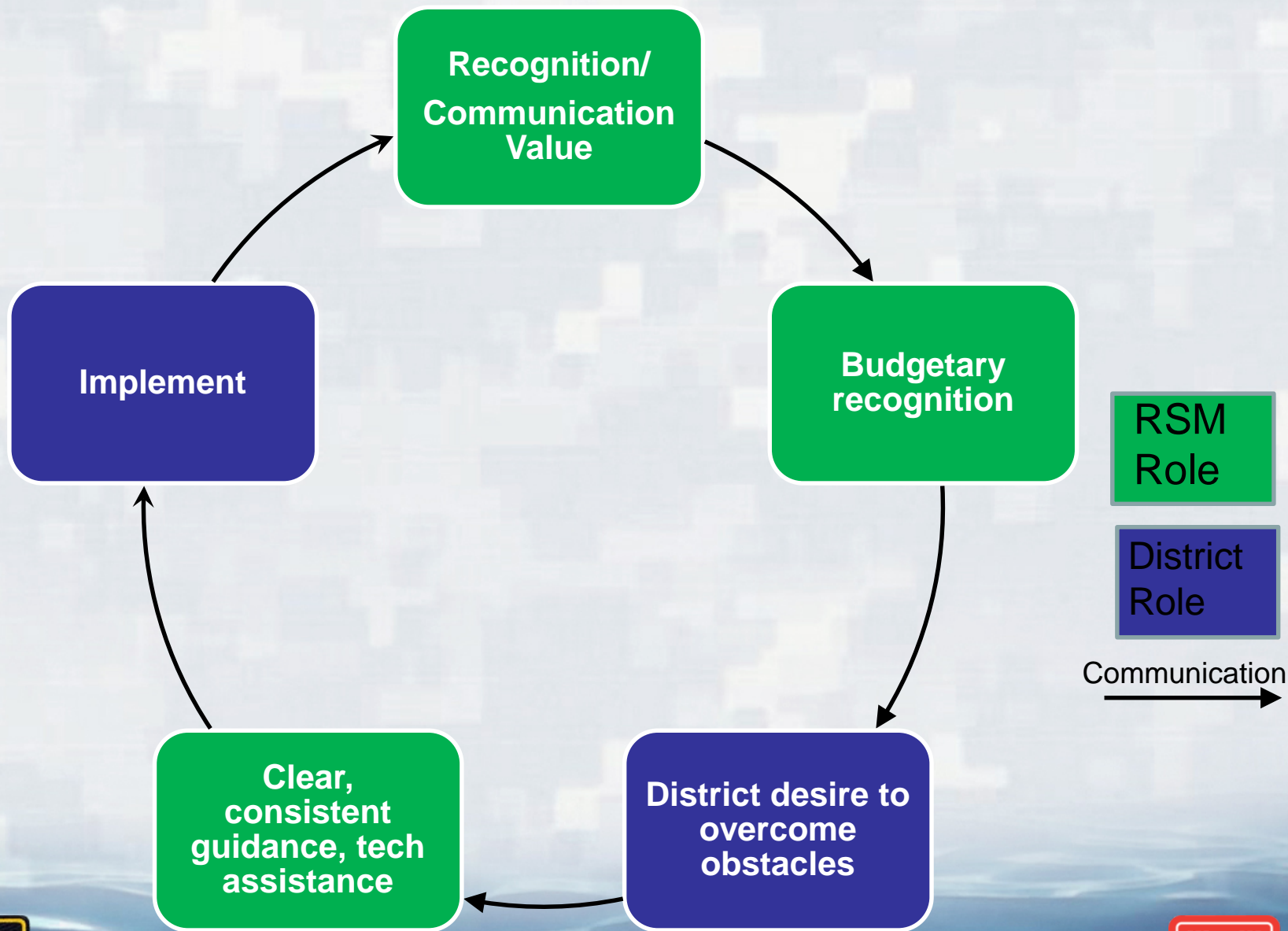
3. Environmental

- Risk, time, funding, coordination
- Understand issues and state of the science, what questions need to be answered

4. Operational

- Innovative techniques are required, risk, perceived expense.
- Understand issues and state of technology. Industry wants to help.







®



RSM Optimization: Bottom Line Up Front

- Practical implementation and achievement of IWRM
 - across 3 Business Lines (Navigation, FRM, and Environmental)
 - and 2 appropriations (CG and O&M)
 - in line with stated aims of Civil Works Transformation (CWT).
- Benefits include
 - saving millions of appropriated dollars;
 - maintenance of low-use projects;
 - local & regional benefit at no cost to the federal government;
 - tangible sustainability results for projects, people, and processes;
- Proof of concept and a tool to quantify RSM value so that it can be understood, recognized in the budget, tracked & communicated



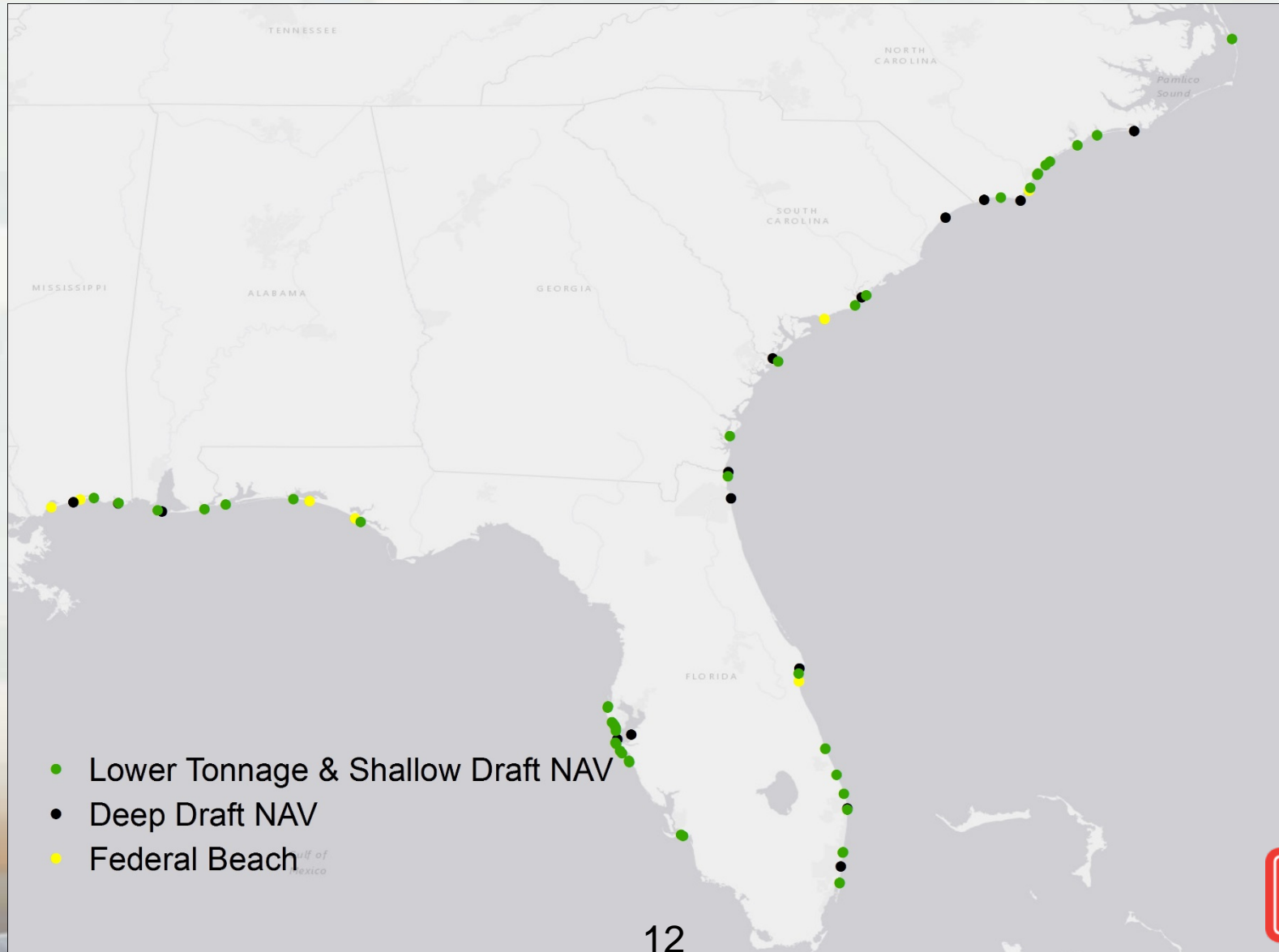
SAD Dredge Program – Baseline vs. Optimized

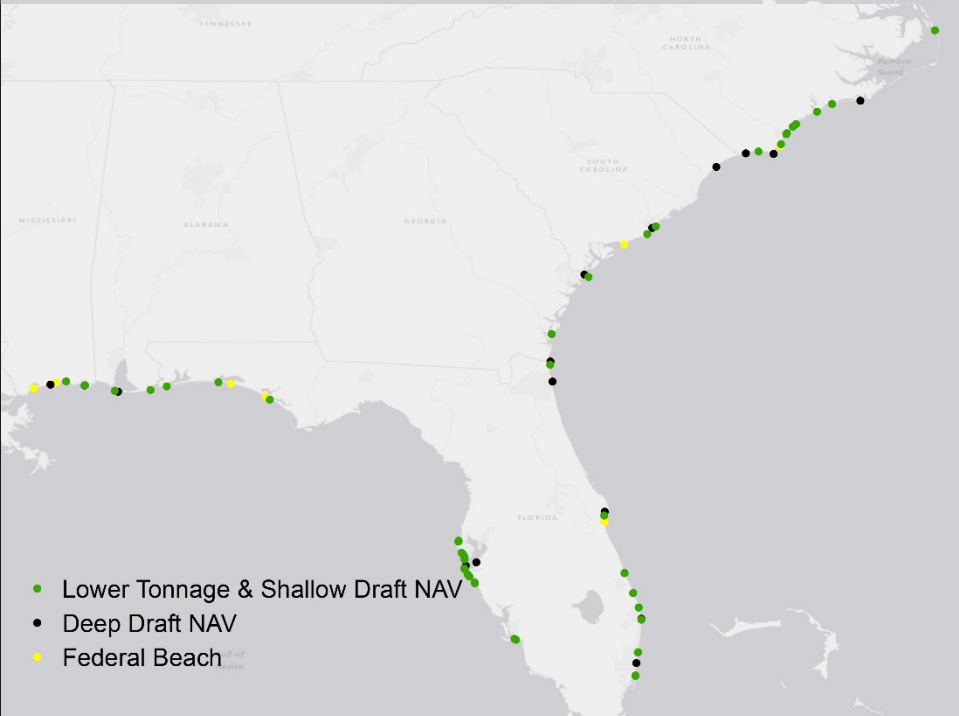
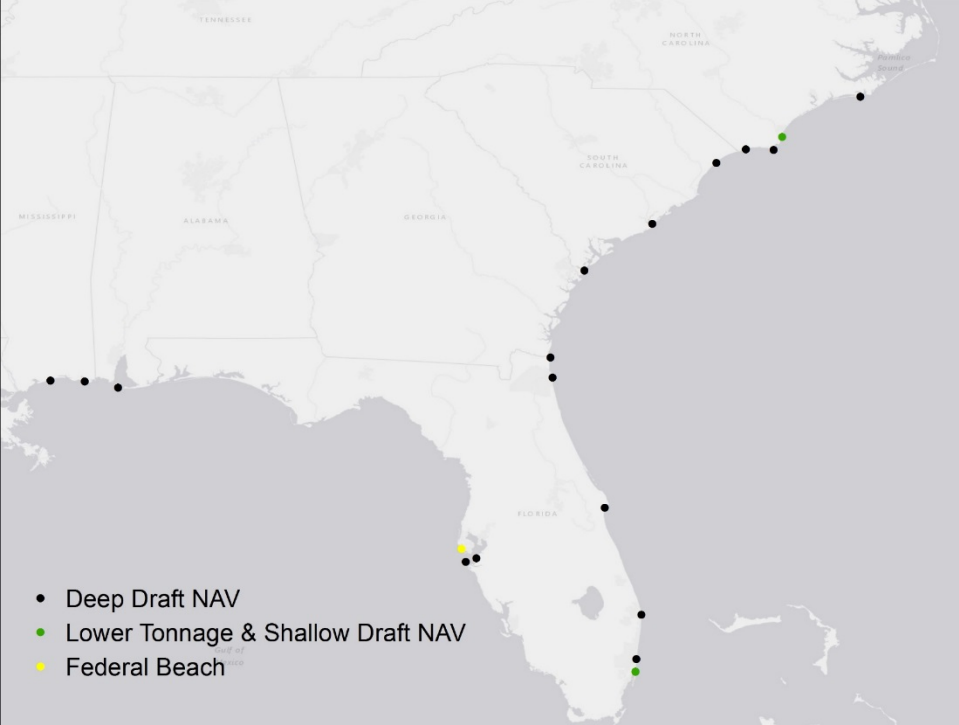
Assuming \$250M annual dredging budget



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**

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

The secret to change is to focus all
of your energy not on fighting the
old but on building the new.
-Socrates



What do we need?

- Willingness & DRIVE to change- Our WHY bigger than their NO
 - Further development of VALUE
- Budgetary and Policy support
 - Budgeting and planning across business lines and approps
 - Planning/economics and 3x3x3 consideration
 - Subject matter experts to help drive change

4 deepenings in SAD

98MCY, \$2.3 B

NO RSM planned

HELP US ANSWER THE QUESTION OF WHAT WE NEED TO DO BETTER



Methods



Consult with district experts: Project managers, operations managers, engineering, planning, operations

Define all reasonable dredging/placement options and beneficial uses

- Determine costs: actual contract costs, estimates
- Determine total project costs: USACE labor, Contract Cost (mob/demob, dredge volume x per CY cost)
- Lifecycle benefits of placement where available
- Unquantified value: wetland creation, cost of developing/maintaining upland/offshore placement areas

Calculate total costs and value for RSM strategies



U.S. ARMY



Products: Report

- Fact sheets for all projects:
 - Summary statistics
 - Summary data of projects
 - Dredging information: dredge intervals, volume estimates, 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

5.4.2 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.

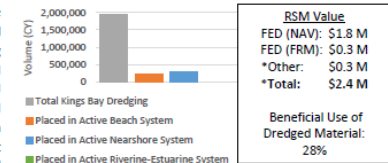


Figure 60. Total volume of sediment dredged from Kings Bay per dredge cycle (standard dredge cycle: 1 year). Total annual estimated value of \$3.6 million as a result of implemented RSM strategies. Other: value to state for placing sand on state park beach at no cost to state.

The value of the implemented sediment management strategy is approximately \$2.4 million (\$1.3 for beach quality material, \$1.1 million for nearshore quality material) annually with an estimated annual value of \$1.8 million and \$0.3 million to the Navigation (NAV) and Flood Risk Management (FRM) projects, respectively (Figure 60). RSM value is realized within the NAV Program alone and does not require combining of business lines (NAV and FRM) to calculate a net positive value.

Annual value associated with beach quality material was estimated at \$1.3 million because the strategy likely eliminates the need for a separate Nassau County SPP every eight years (\$0.6 million), provides a cheaper placement option than the Ocean Dredge Material Disposal Site (ODMDS) (\$0.4 million), and provides \$0.3 million of beach quality sand to Fort Clinch at no cost to the federal government (Figure 61). 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 \$0.6 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

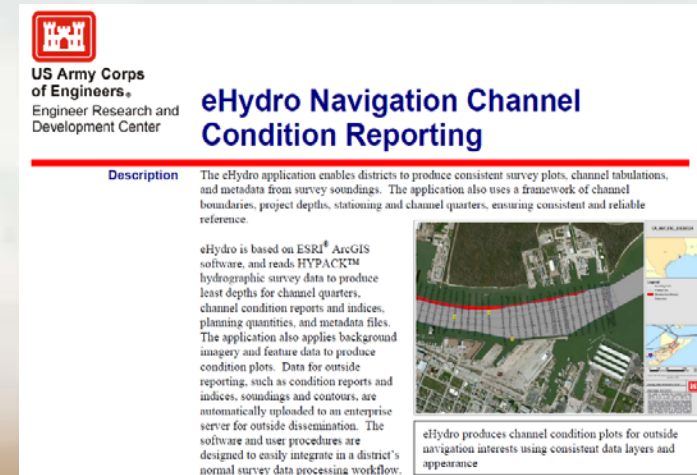
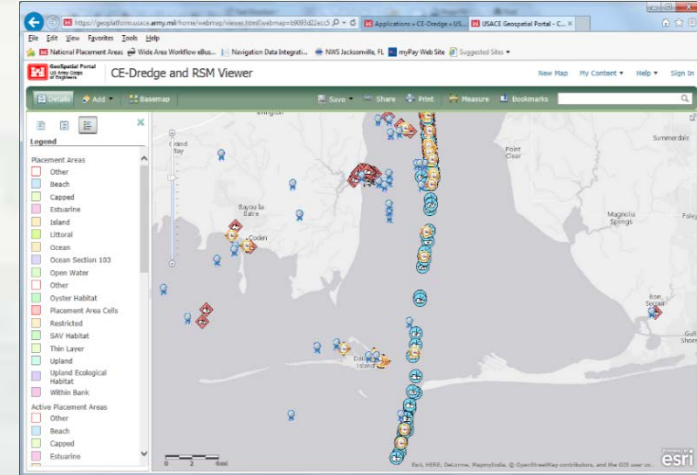


Figure 61. Map of northeast Florida indicating locations of interest associated with the Kings Bay Navigation and Nassau County SPP projects.



Products: Web Application

- Web service that leverages and enhances existing USACE tools.
- Navigation Integration Framework
 - Integrated with CE Dredge
 - 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



SAD RSM Optimization: Results

100+ Dredging Projects in SAD, 35.5MCY/yr
Ave annual cost: \$220M(NAV)+\$30M(FRM)=\$250M

Through RSM efficiency/value SAD is
Creating **\$96M in total value**
increasing Federal project execution by
\$79M or **32% total Federal**
\$65.9M NAV 30%
\$13.1M FRM 43%



And providing **>\$17.0M** in regional/local value
Regional contracts can increase savings by \$25M/yr



Total Dredge Volume and Value of RSM Implemented SAD NAV-FRM Projects

District	*Total Dredge Volume (CY)	% Managed by RSM Strategies	Annual RSM Value (\$ M)
SAD Total	62,421,600	49%	\$95.9
SAC Total	17,726,100	58%	\$38.8
SAJ Total	10,027,000	53%	\$27.6
SAM Total	18,996,500	56%	\$18.1
SAS Total	6,572,000	4%	\$0.0
SAW Total	9,100,000	48%	\$10.8

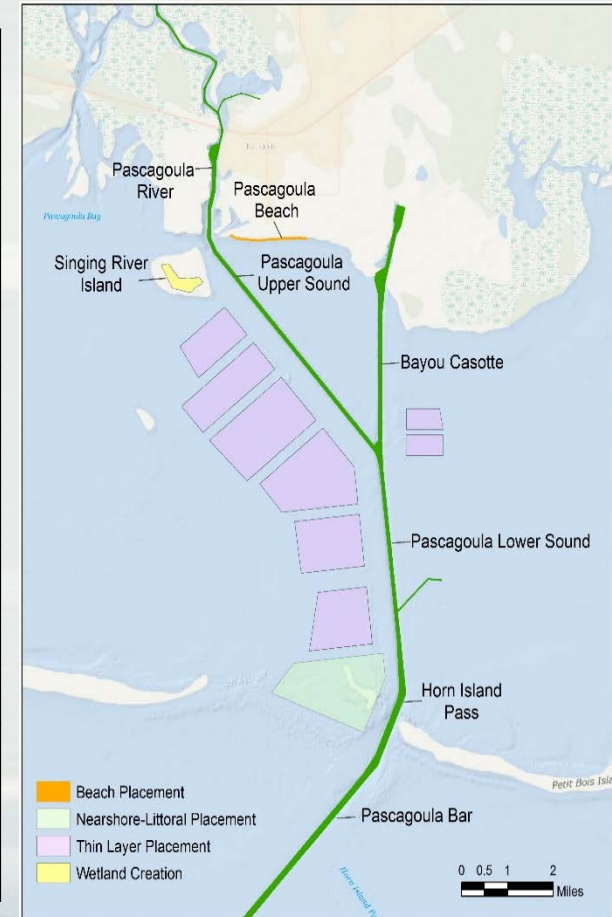
*Total dredge volume calculated as the sum of all material dredged from

NAV projects per dredge cycle.



SAD Projects with \$2+ Million in Annual RSM Value

<u>Project</u>	<u>Material RSMed</u>	<u>Annual RSM Value (\$ M)</u>	<u>Primary Benefactor</u>
Charleston Harbor	57%	\$37.6	NAV
Mobile Harbor	51%	\$11.9	NAV
Tampa Harbor	70%	\$4.5	Other
Pinellas Shallow Draft	100%	\$4.4	FRM
St. Aug - St. Johns	100%	\$4.2	NAV
Wilmington Harbor	29%	\$3.8	Other
Morehead City	42%	\$2.8	Other
Fort Myers	100%	\$2.5	FRM-NAV
Pascagoula Harbor	65%	\$2.5	NAV
Kings Bay - Nassau Co	28%	\$2.4	NAV
Baker's Haulover-Miami Harbor	100%	\$2.2	FRM



WEB APPLICATION DEMONSTRATION

<http://sajgis.saj.usace.army.mil/rsm-dash/>

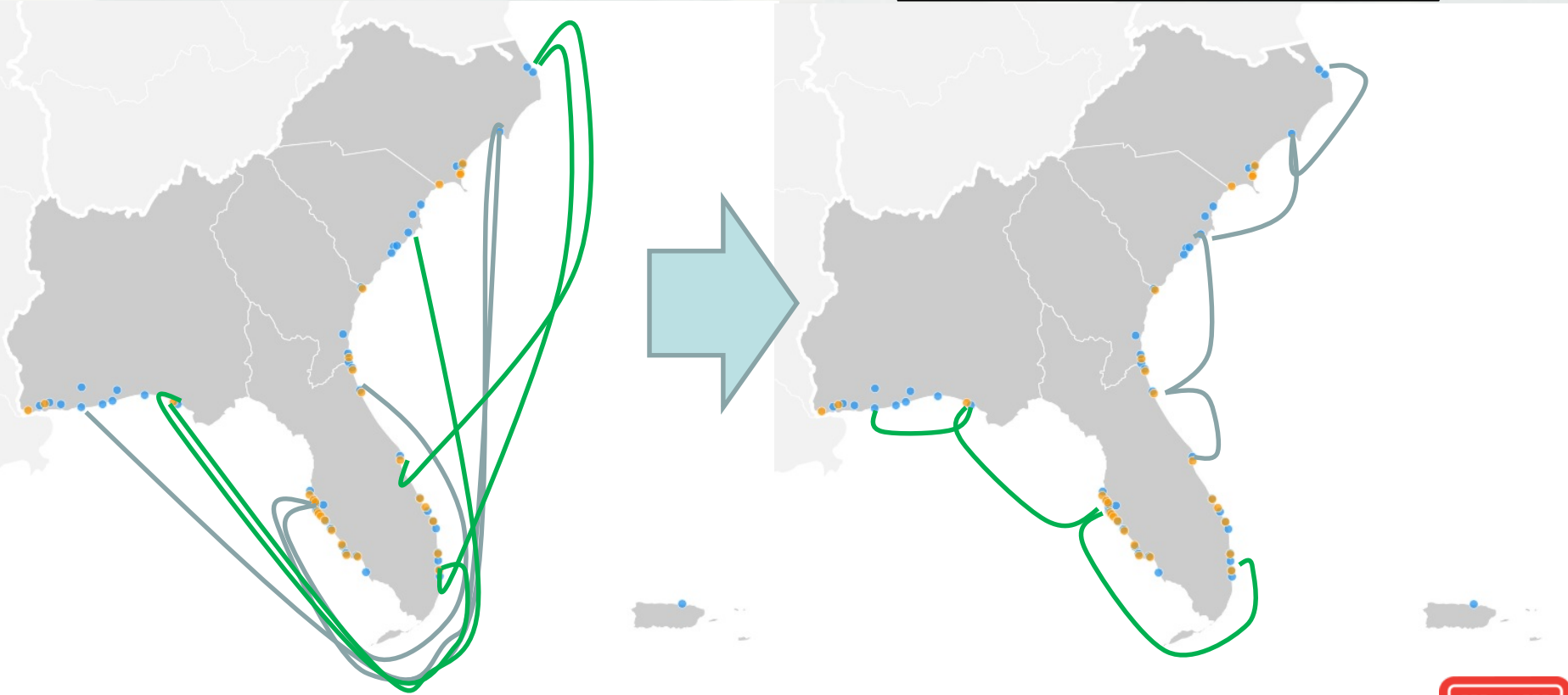
(website to be posted to navigation portal when final)



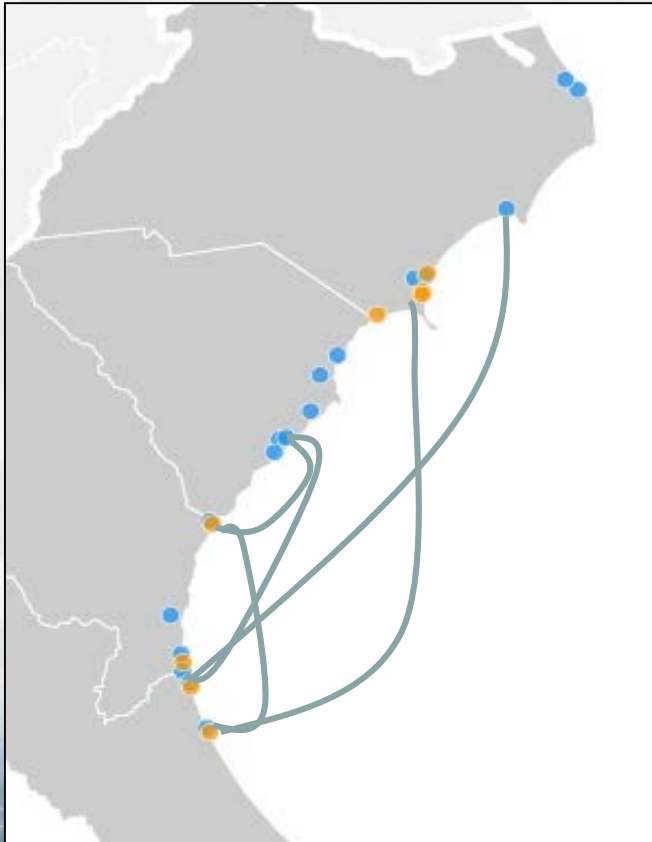
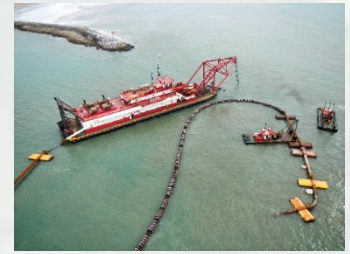
Scheduling Optimization Concept

- Schedules are uncoordinated
- Potential for inefficient dredge plant itineraries over course of dredging year
- Results in higher dredge mobilization costs

- While accounting for Project-level requirements and environmental work windows, schedule dredging so as to minimize mobilization costs.



Implications of Results



- Fleet scheduling model provides a quantitative way to evaluate the relative cost-effectiveness of various approaches to O&M dredging program execution.
- It also serves as a starting point for exploring the most promising candidate groups of projects for regional contracting.



Next Steps:

- Tool available for FY17 SAD workplan/FY18 budget build in SAD
- 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)
- Continue to communicate the value of RSM and assist in implementation throughout USACE and beyond



Thank You!

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