

Regional Sediment Management South Atlantic Division Optimization Pilot

Presented by:

Clay McCoy, PhD

Jackie Keiser, PG, PMP

Randy Goss

Taylor Johnson, GISP

Kelly Legault, PhD, PE

RSM Regional Center of Expertise

Jacksonville District



RSM: Navigation, Resiliency

- Dredging practices often removes sediment from active sediment systems
 - Loss of sediment in riverine/estuarine systems
 - Drowning of coastal marshes, loss of buffering capacity, erosion of estuarine shorelines
 - Loss of sediment in coastal systems
 - Erosion of downdrift beaches, loss of shoreline protection
- **GOAL: MAINTAIN NAVIGATION CHANNELS AND MAXIMIZE COASTAL RESILIENCY BY KEEPING SEDIMENT IN SYSTEM.**



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RSM: Optimization Pilot – SAD



Applied Integrated Water Resources Management

What does maximum efficiency look like in the budget?

- Federal: FRM, NAV, Eco (Federal Standard)
- Non-Federal

What are Districts doing well? Where are opportunities?

Identify challenges (R&D, policy, environmental)

Maximize use of existing data/tools and provide for:

- Transparent and defensible value dashboard & tool
- Knowledge management



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As of: <date>
POC: <name>

Baseline Annual Program \$250M



Optimized Annual Program \$250M



IMPLICATIONS

EFFICIENCIES ARE THERE FOR THE TAKING

- **+71%** more project execution
- NAV execution **+29%, \$63.3M**
- FRM execution **+49%, \$14.6M**
- **>\$16.6M** in regional/local value

REDUCE LONG TERM DMMA/ODMDS COSTS

THERE IS MUCH MORE LEFT ON THE TABLE
4 DEEPENINGS IN SAD, 98MCY, \$2.3 B

**IT'S TIME FOR A DRAMATIC SHIFT
IN HOW WE BUDGET FOR PROJECTS**

**Telling the Story
Return on Investment**



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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%	\$97.3
Charleston	17,726,100	58%	\$38.9
Jacksonville	10,027,000	53%	\$27.6
Mobile	18,996,500	56%	\$18.3
Savannah	6,572,000	4%	\$0.0
Wilmington	9,100,000	48%	\$12.5

*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

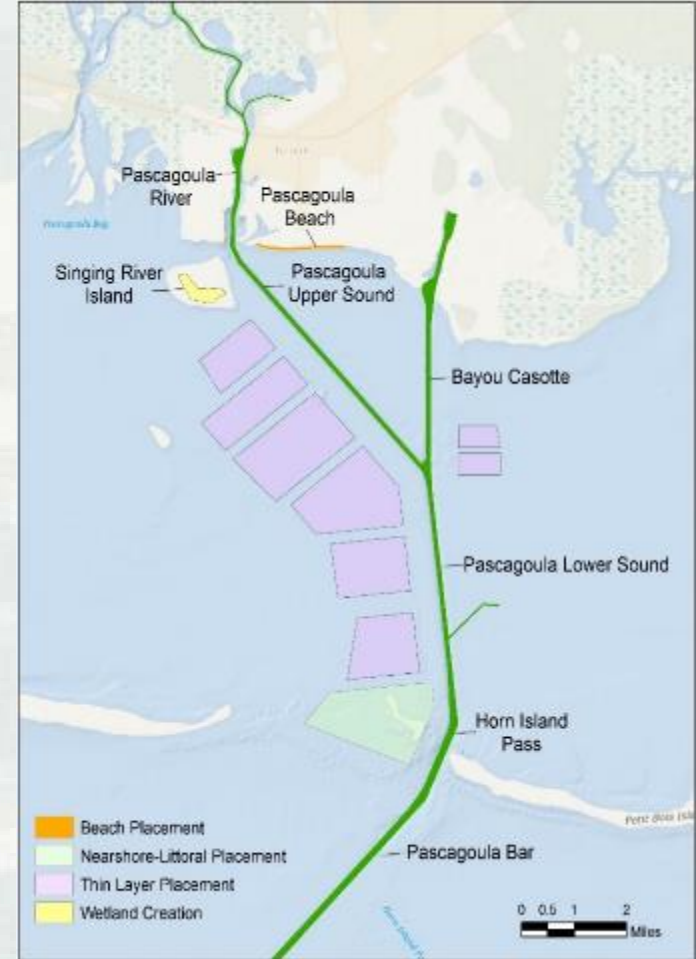


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Pascagoula Harbor

➤ 4 Coastal Resiliency/Beneficial Use Strategies (\$2.5 million annual value)

- Shore Protection (Pascagoula Beach)
- Wetland Creation (Singing River Island)
- Littoral Zone Placement
- Thin Layer Placement (Upper/Lower Sound)

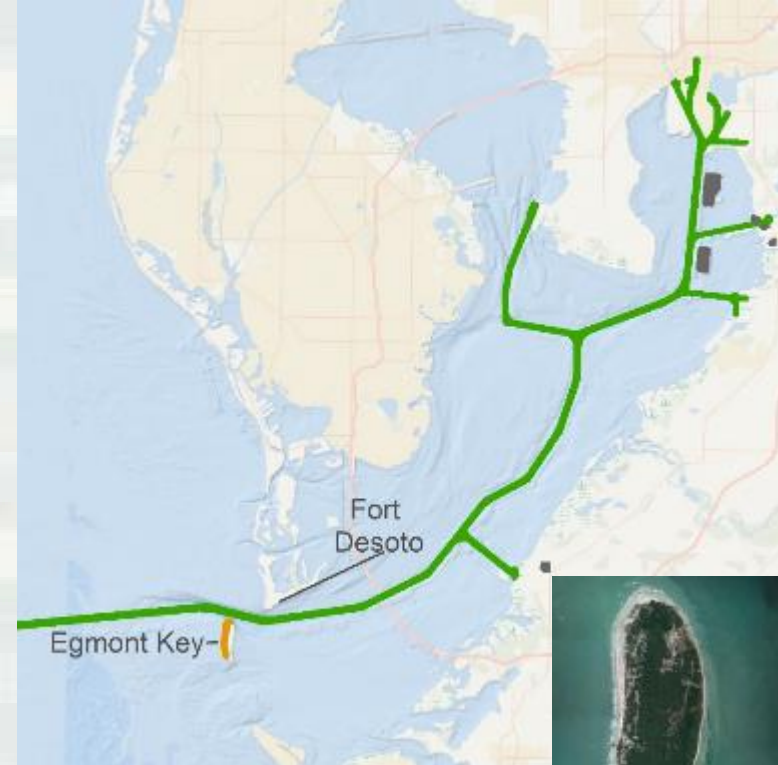


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Tampa Harbor

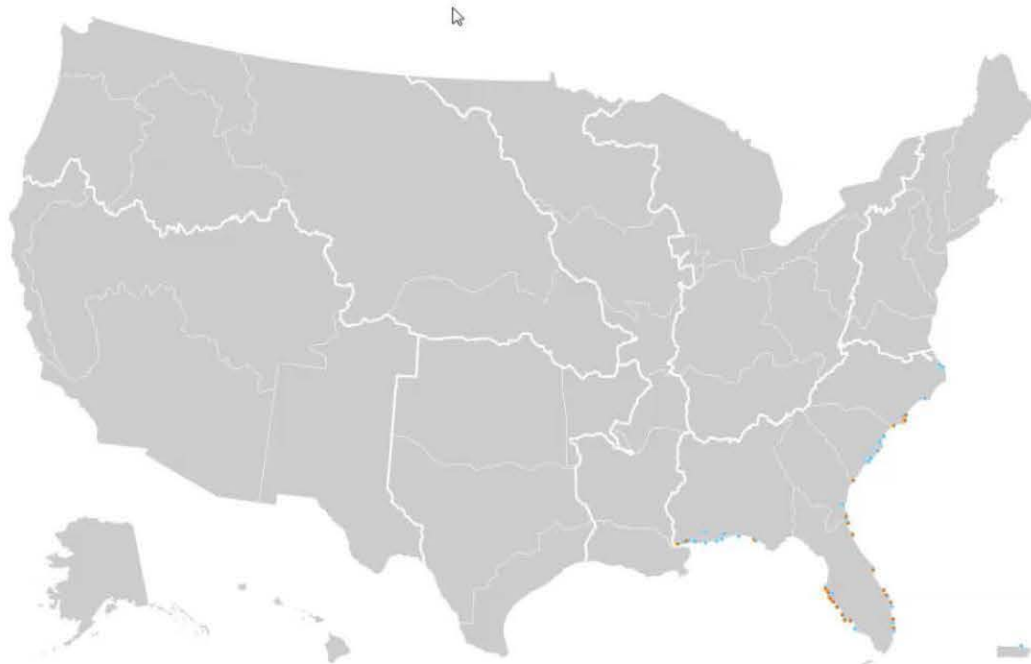
➤ Beneficial Use Strategy at Egmont Key (\$4.5 million annual value)

- Wildlife Refuge: Shore birds, sea turtles
- National Register of Historic Places
- Lighthouse (1858)
- Used in Seminole War, Civil War, Spanish-American War
- Managed by US Fish and Wildlife Service, Florida State Parks, Coast Guard

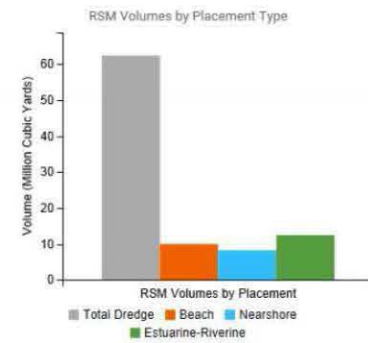


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WEB APPLICATION DEMONSTRATION



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

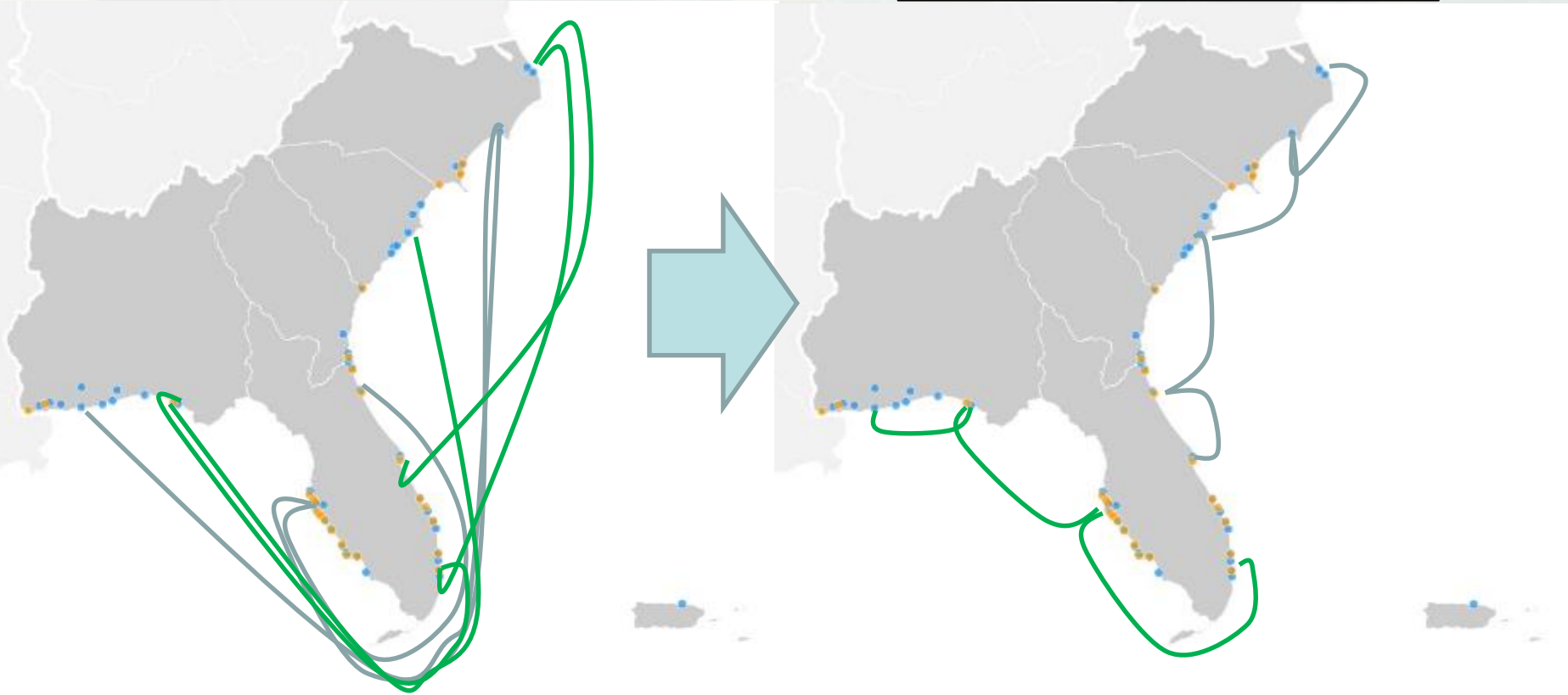


Scheduling Optimization

Value: ~\$20 M/Yr

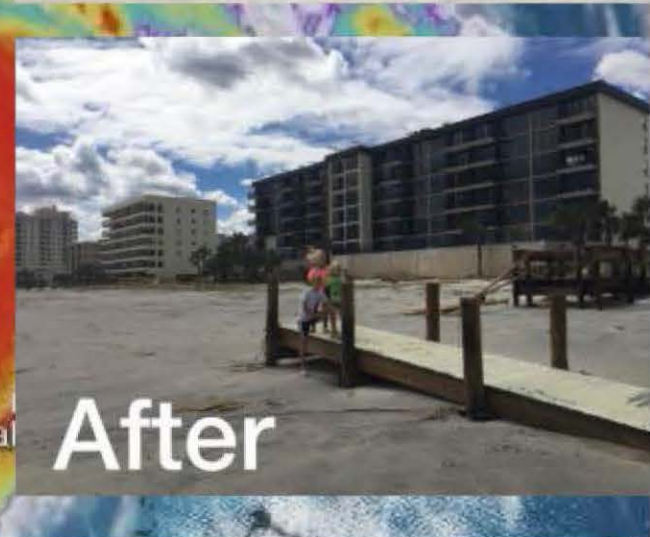
- Schedules are uncoordinated
- Potential for inefficient dredge plant itineraries over course of dredging year
- Results in higher dredge mobilization costs

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



Dr. Ned Mitchell, USACE-ERDC

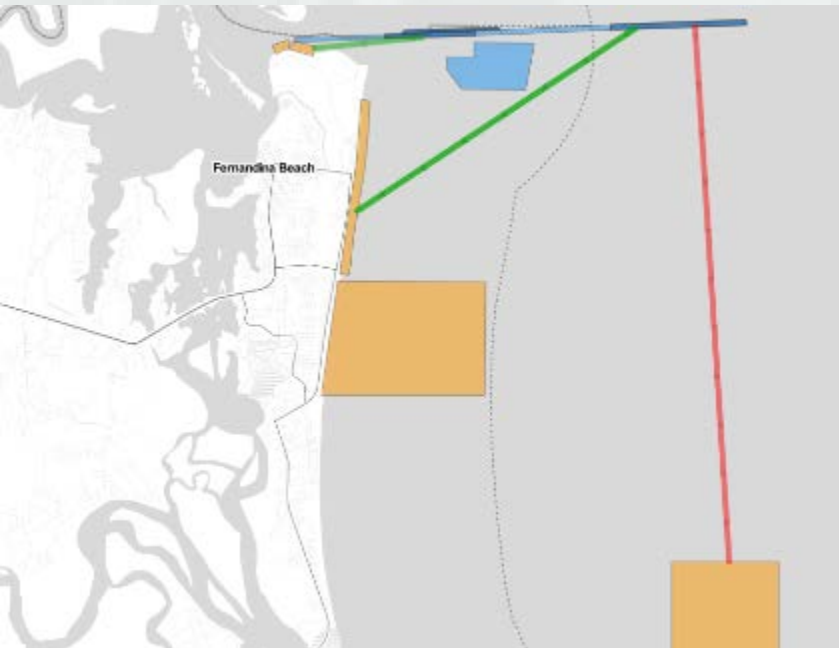
Hurricane Matthew: NE Florida



Hurricane Matthew and RSM: Nassau County

Place ~300,000 CY of beach sand annually

- Nassau County SPP
- Fort Clinch
- NAV project maintains beach
- Next scheduled placement in early 2017
- Estimated annual value of \$2.4 million





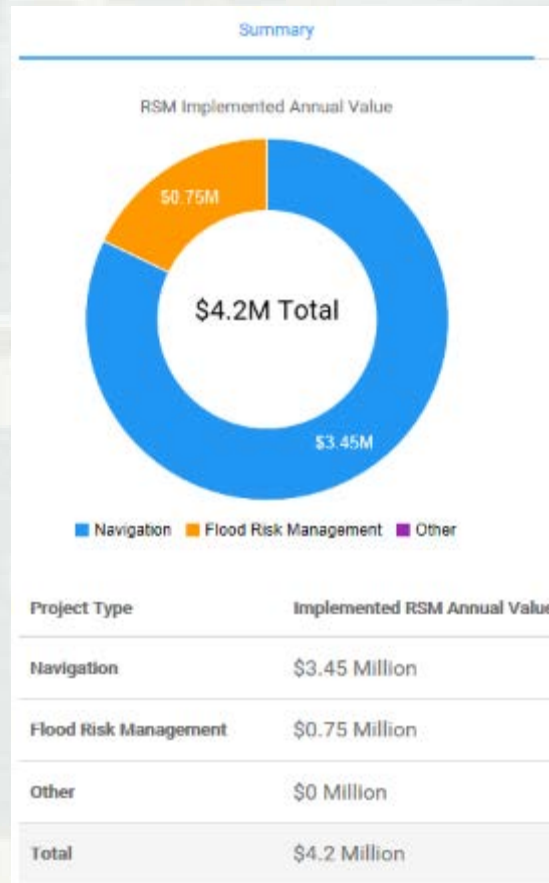
Post-Storm, Post + 1 Week



Hurricane Matthew and RSM: St. Johns County

Maintained by O&M dredging of Inlet and IWW

- 80% of beach quality material from Inlet and Ebb Shoal
- \$4.2 M in annual value



10 Oct 2016



Thank You!

For more information contact:

Clay McCoy, PhD

Clay.A.McCoy@usace.army.mil

Jackie Keiser, PG, PMP

Jacqueline.J.Keiser@usace.army.mil

RSM-Regional Center of Expertise, Jacksonville District

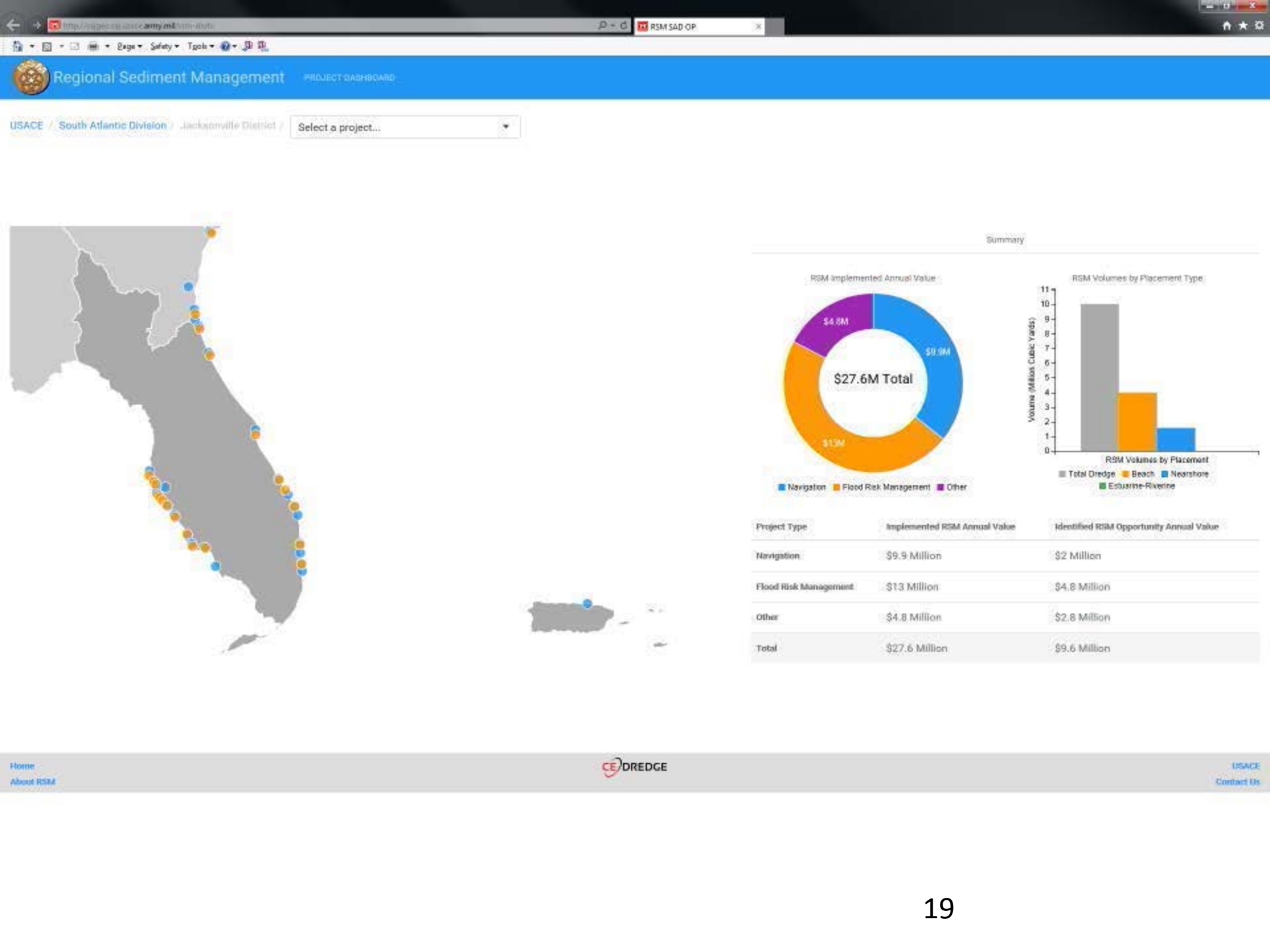
Linda Lillycrop

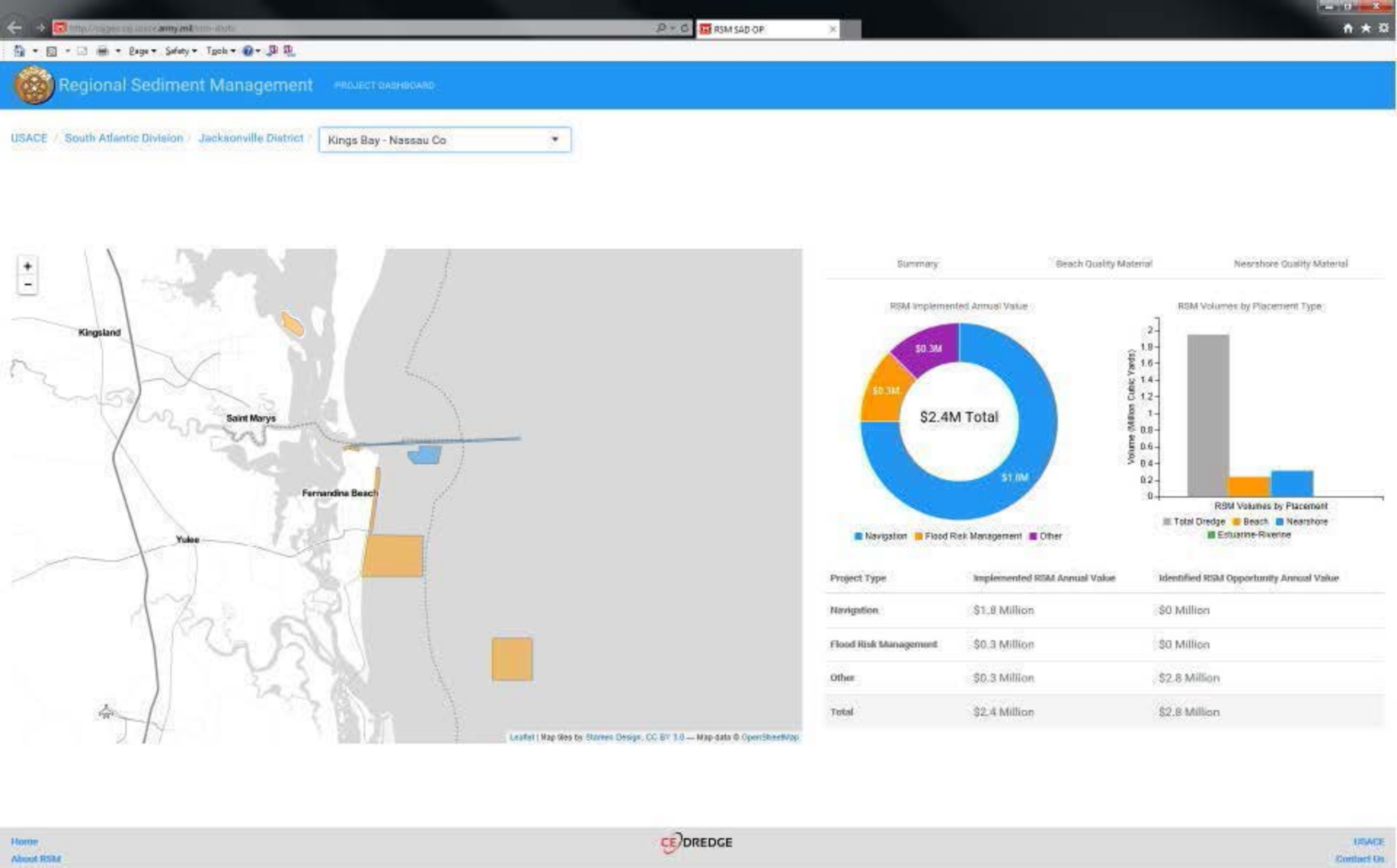
USACE RSM Program Manager, ERDC

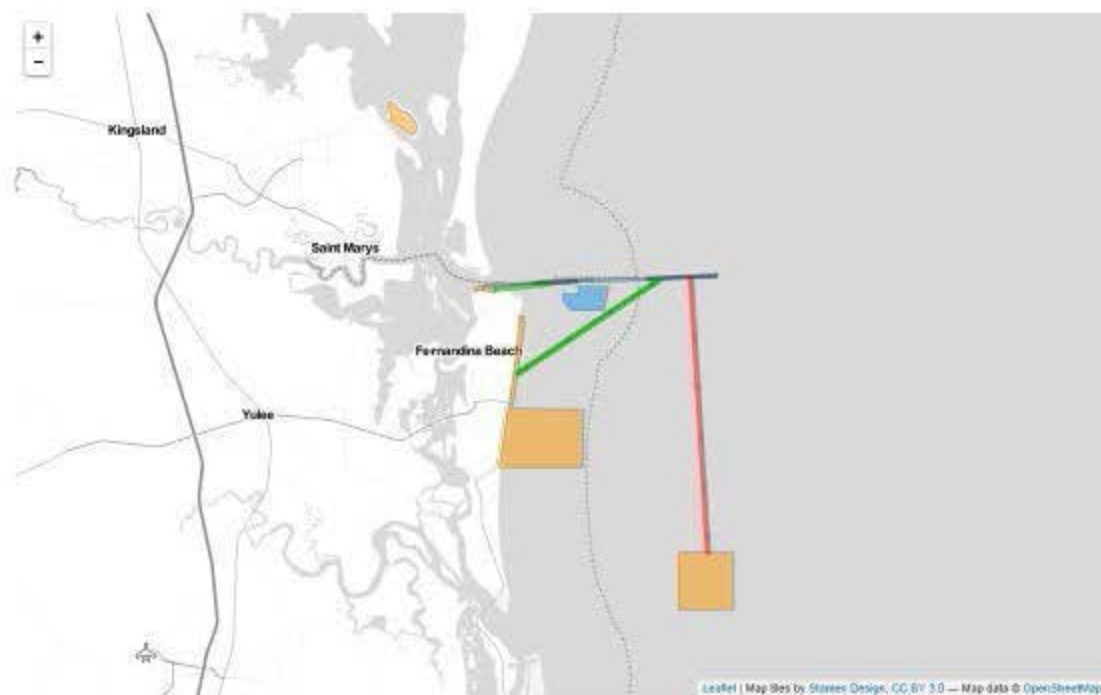
Linda.S.Lillycrop@usace.army.mil



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Summary		Beach Quality Material				Nearshore Quality Material		
Project Type	Source to Sink	Interval (Yr)	\$ (CY)	Volume (CY)	USACE Labor (\$ M)	Mobilization (\$ M)	Total Project Cost (\$ M)	Annualized Project Cost (\$ M)
NAV 1	Kings Bay to GOMS	7	\$14	237,000	\$1.7	\$1.1	\$6.5	\$6.5
SPP 1	Borrow Area to Nassau SPP	8	\$9	1,000,000	\$1.0	\$3.3	\$13.5	\$1.7
NON RSM 1	Combined Traditional NAV and SPP Projects				\$3.2	\$4.2	\$20.0	\$8.2
RSM 1	Kings Bay to Nassau SPP North	1	\$12	237,000	\$1.7	\$3.1	\$7.2	\$7.6
*RSM 2a	Kings Bay to Nassau SPP North	1	\$12	200,000	\$1.7	\$3.1	\$7.2	\$7.2
*RSM 2b	Kings Bay to Ft. Clinch	1	\$14	37,000		\$-	\$0.0	\$0.9
	Combined Nassau SPP and Ft. Clinch placement							\$7.7
RSM Value Strategy 1 and 2:								\$0.5-\$0.6
	NAV Benefit A	1	\$3	200,000			\$0.4	\$0.4
	OTHER Benefit A	1	\$9	28,000			\$0.3	\$0.3
TOTAL Combined RSM Value Strategies 1-2:								\$1.2-\$1.3

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Regional Sediment Management
PROJECT DASHBOARD

USACE / South Atlantic Division / Jacksonville District / Kings Bay - Nassau Co

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Summary
Beach Quality Material
Nearshore Quality Material
Selected Path

Kings Bay Beach Quality -> Nassau Beach SPP North

Engineering
Environmental

Engineering Data

Total CY	237,000
Contract Cost per CY	\$12
Mob/Demob	\$4,537,500
Total Contract Cost	\$11,253,246
Actual/Estimate	A
Dredge Type	
Assumptions	1: 2015 Cost Engineering Estimate



Environmental Data	
Shovel Ready	Y
Time to Shovel Ready	NA
Cost to Shovel Ready	NA
Restriction	No hopper Apr 1 thru Dec 15.
Year Permitted	2014
Year Expires	2029 (FDEP); 2024 (USACE).
Life Expectancy	15 (FDEP); 10 (USACE).
Notes	1: Volumes are material placed during FY15 dredging event. Placement area capacities vary each year. Material is always placed at the Nassau County SPP, but some material is also placed on Fort Clinch if requested by the NPS.
Remarks	1: DEP: 2029; SAS DA: 2024; SAJ DA: 2024; GaDNR: 2024 2: Hopper dredge during no dredge window requires SAD approval and notification to NMFS.