

Regional Sediment Management

ERDC

Engineer Research and
Development Center

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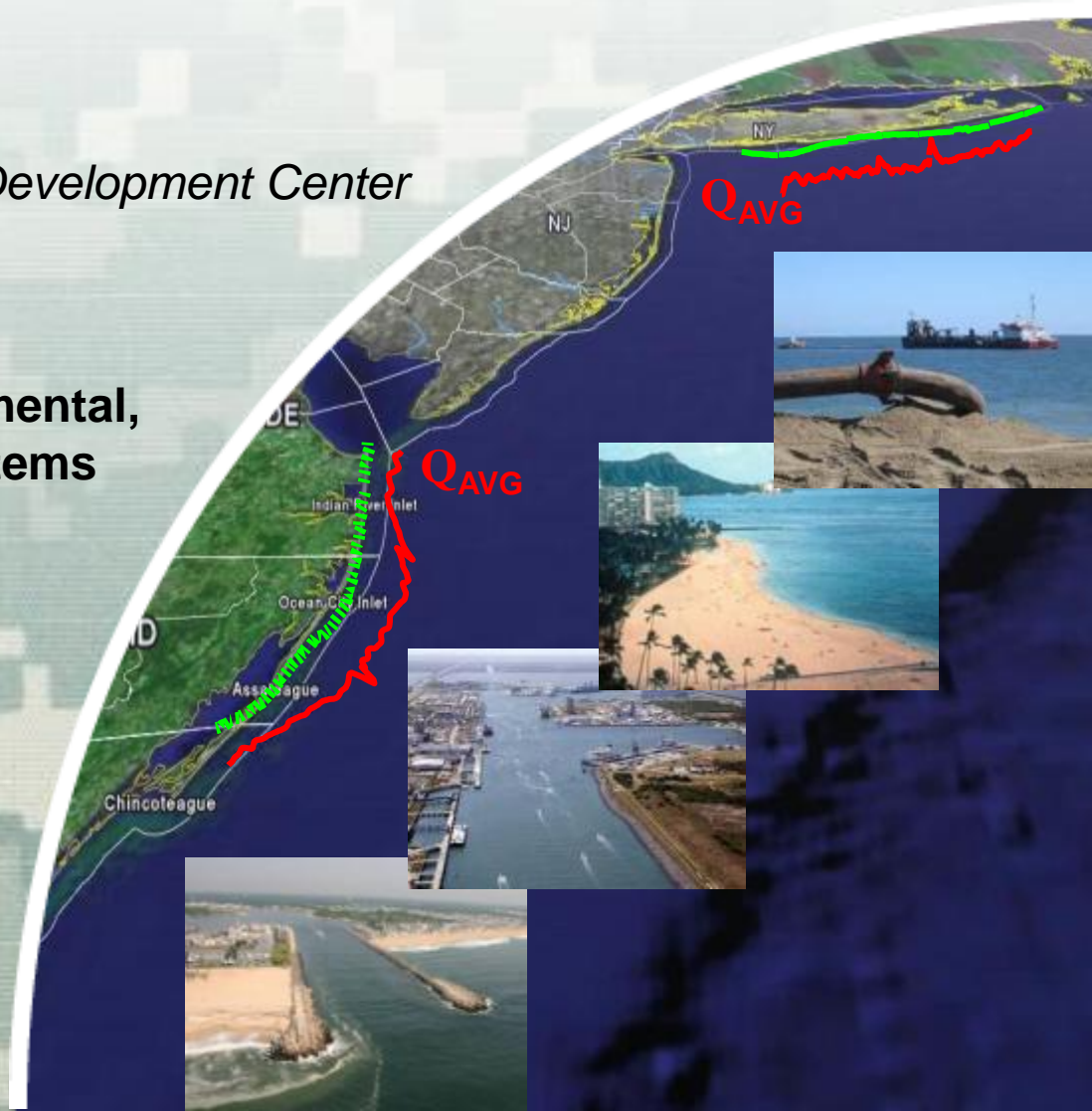
**Coastal Resilience: The Environmental,
Infrastructure, and Human Systems**

New Orleans, LA

21-23 May 2014



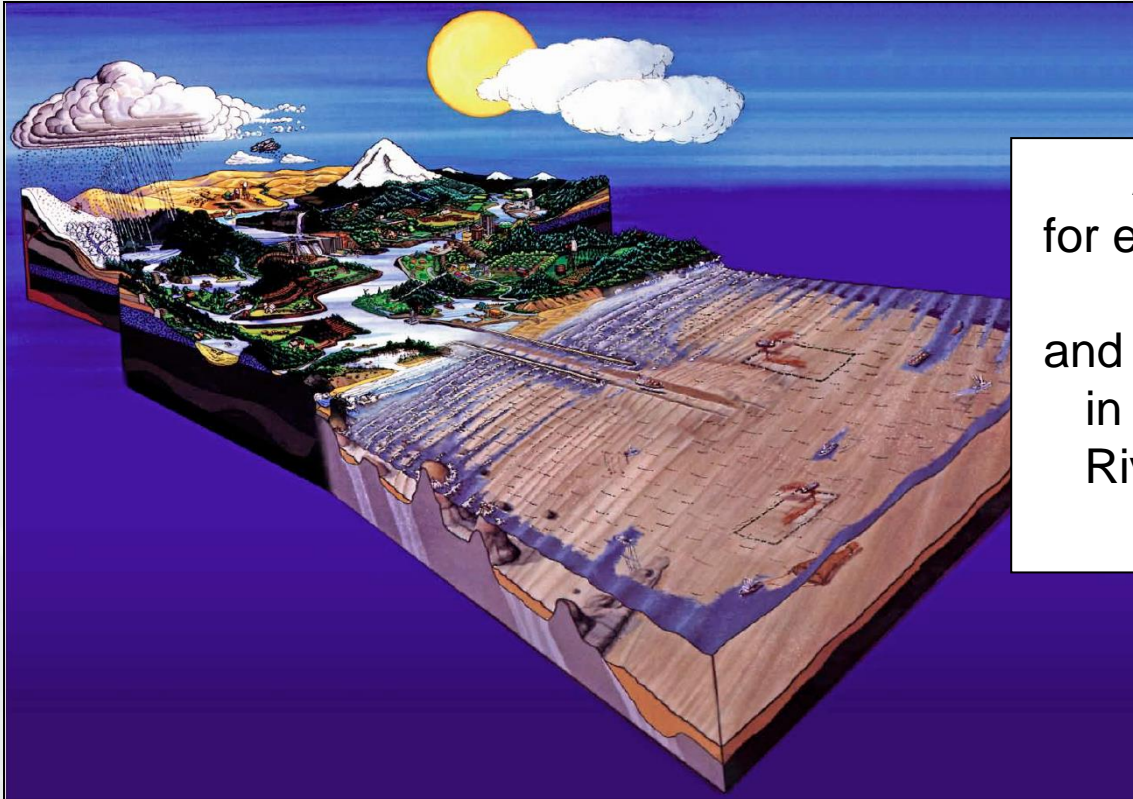
US Army Corps of Engineers
BUILDING STRONG®



Why RSM?



Regional Sediment Management



A systems approach
for efficient and effective use
of sediments
and management of projects
in our Coastal, Estuarine,
Riverine, and Watershed
environments



RSM = Sustainable Solutions for.....

Navigation/Dredging



Flood Risk Management



Environmental Restoration



RSM Operating Principles:

- Recognize sediments as a regional resource; prioritize use
- Link and leverage across multiple projects, business lines, authorities
- Improve operational efficiencies & natural exchange of sediments
- Economically viable, environmentally sustainable solutions
- Local sediment actions which benefit the region, consider regional impacts
- Enhance technical knowledge/tools for regional approaches
- Share information and data
- Communicate and collaborate – USACE, Stakeholders, Partners



RSM Process

Understand Region

- Sediment Budget
- Beach Morphology, Landcover & Environmental Resources
- Coastal Processes

Anticipate weak links in system

Identify Gaps/Improve Knowledge

Data Management/Regional Tools

Information accessible for decision-making

Identify/Evaluate Opportunities to Optimize Use of Sediments Across Multiple Projects

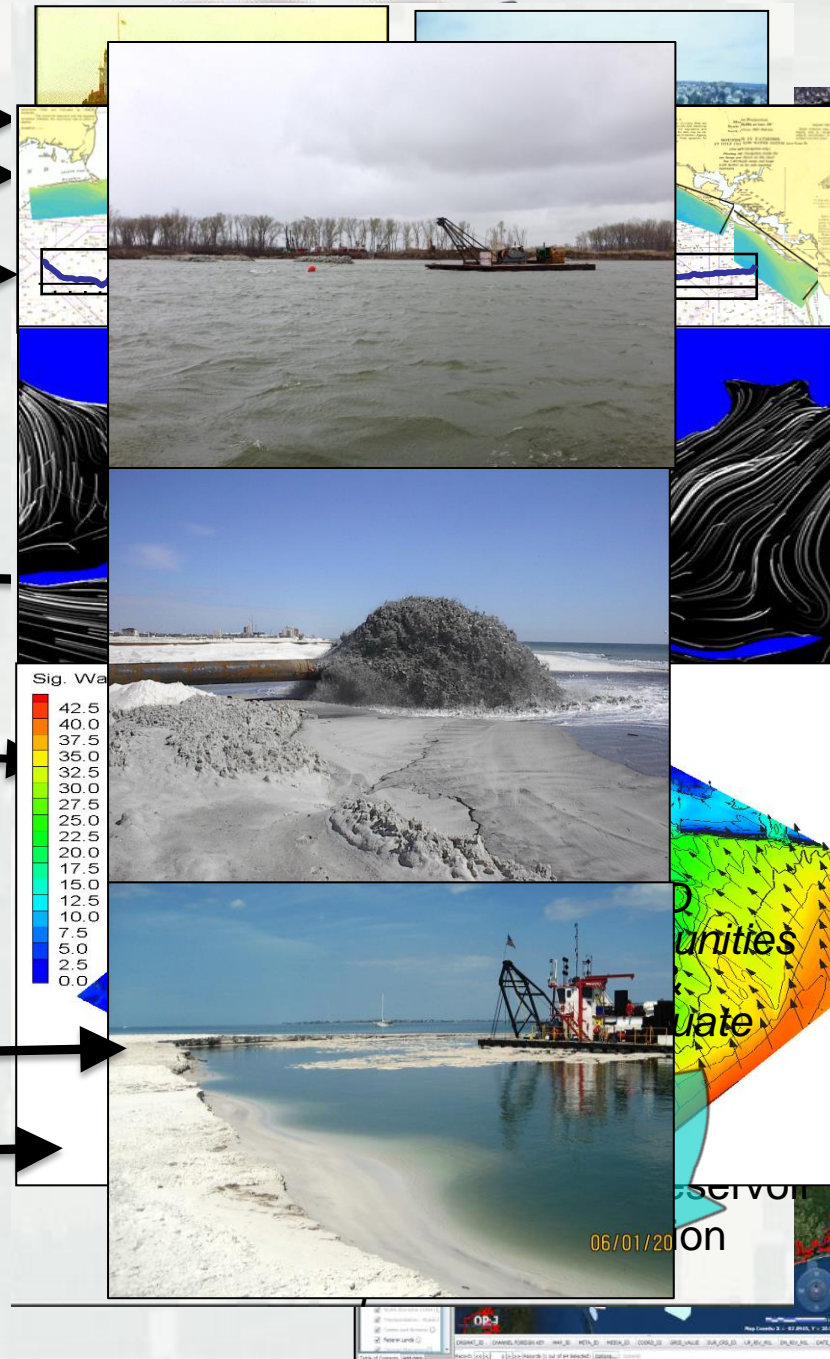
Modular networks – components are independent of, & complement each other

Take Action: Construct Pilot Projects

Monitor: Evaluate Performance

Incorporate Standard Practice

Provide diverse and redundant protection



USACE RSM Participation (2000-2014)



CODS/CFDC

NCDB

MCNP

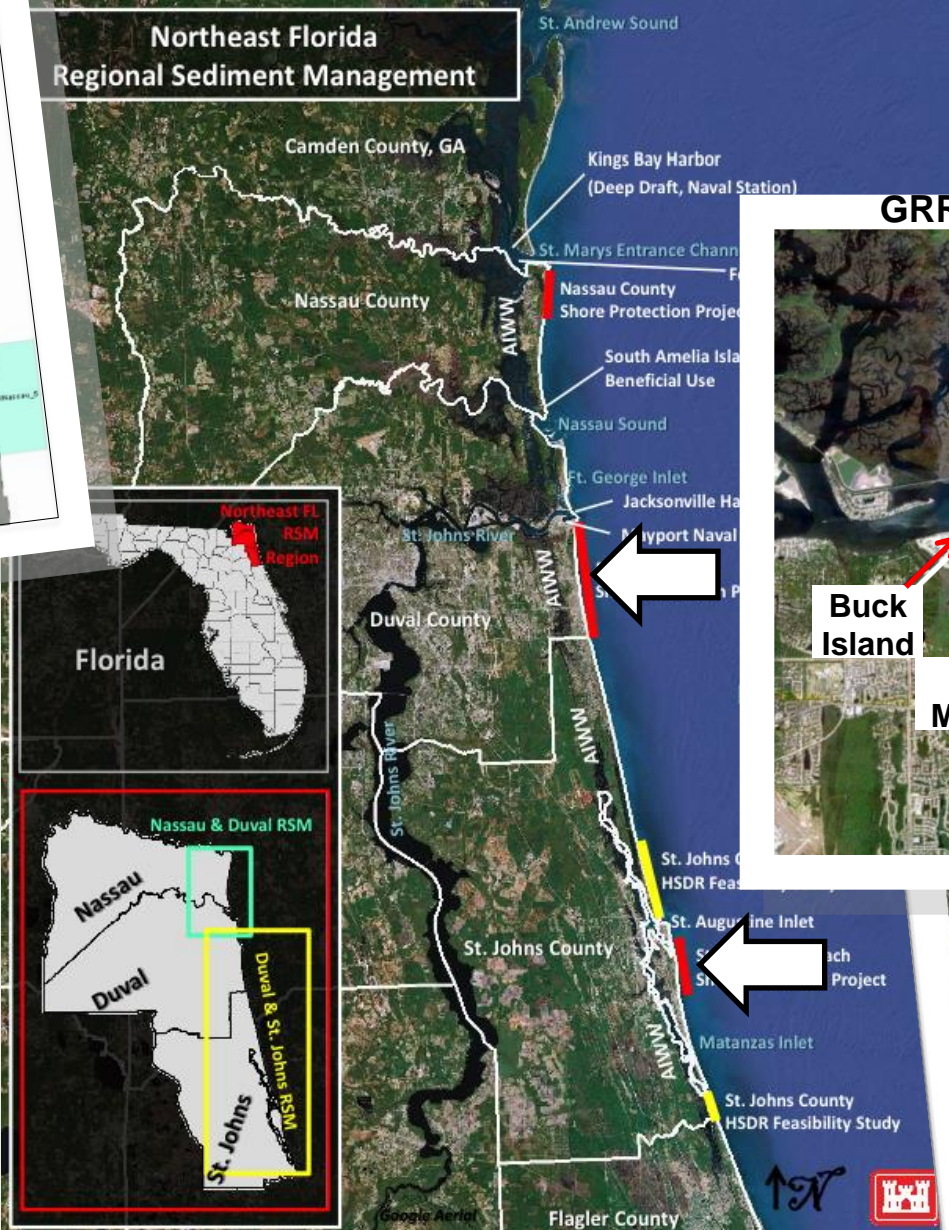
WOTS



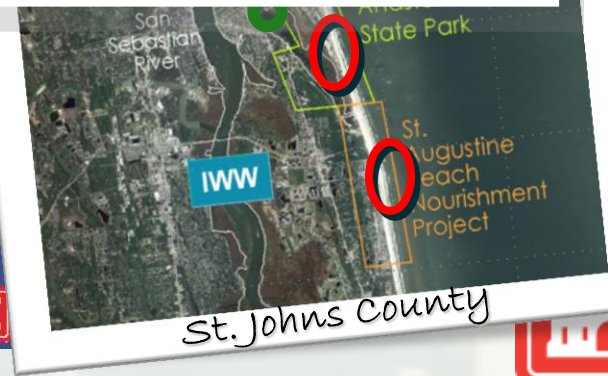
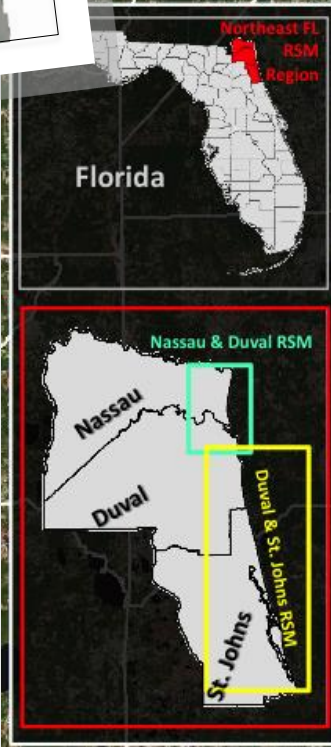
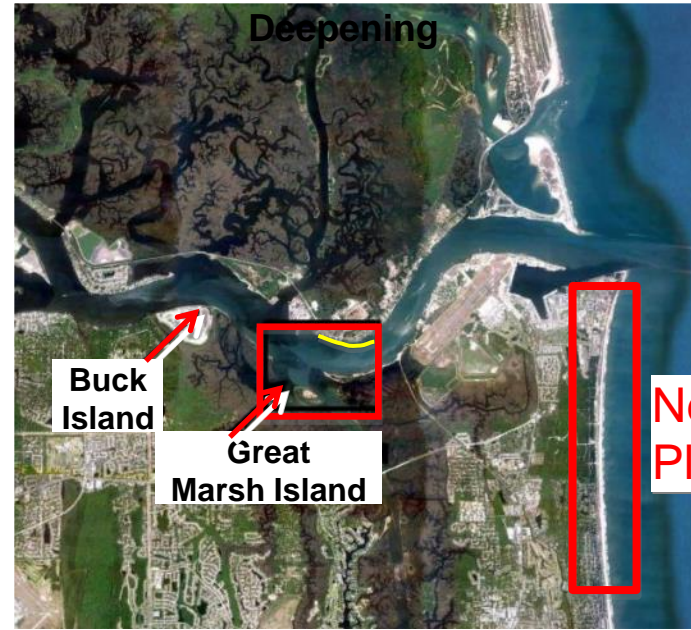
RSM and Resilience Successes



onville District - St Johns, Duval, Nassau Counties



GRR Jacksonville Harbor Deepening



Portland District - Mouth of the Columbia River, OR

Collaboration 2002:

District & Stakeholders

- Leverage:

Projects, Resources, Models,
Tools, Data Collection...

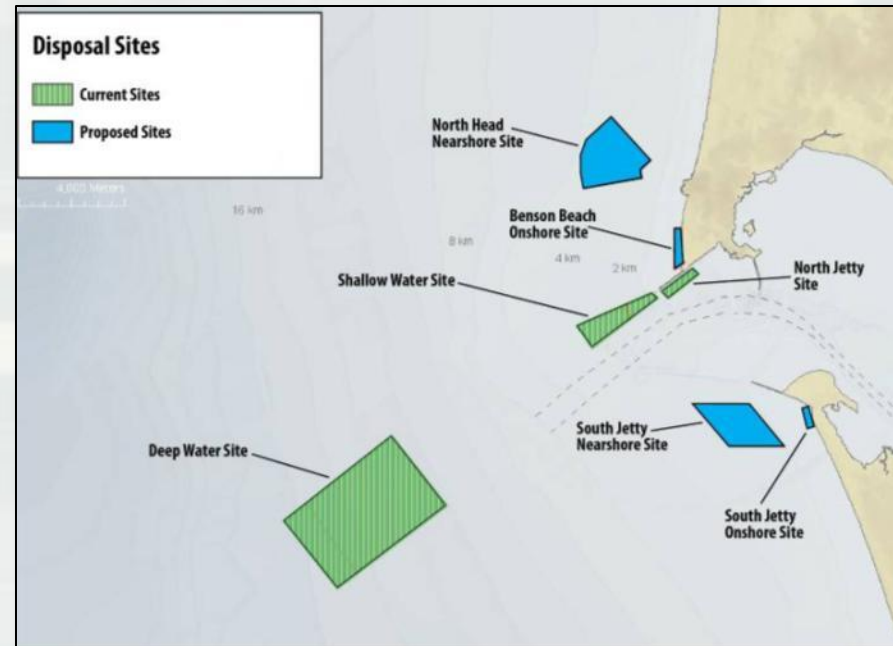
- Long-term strategy

- Construction 2012

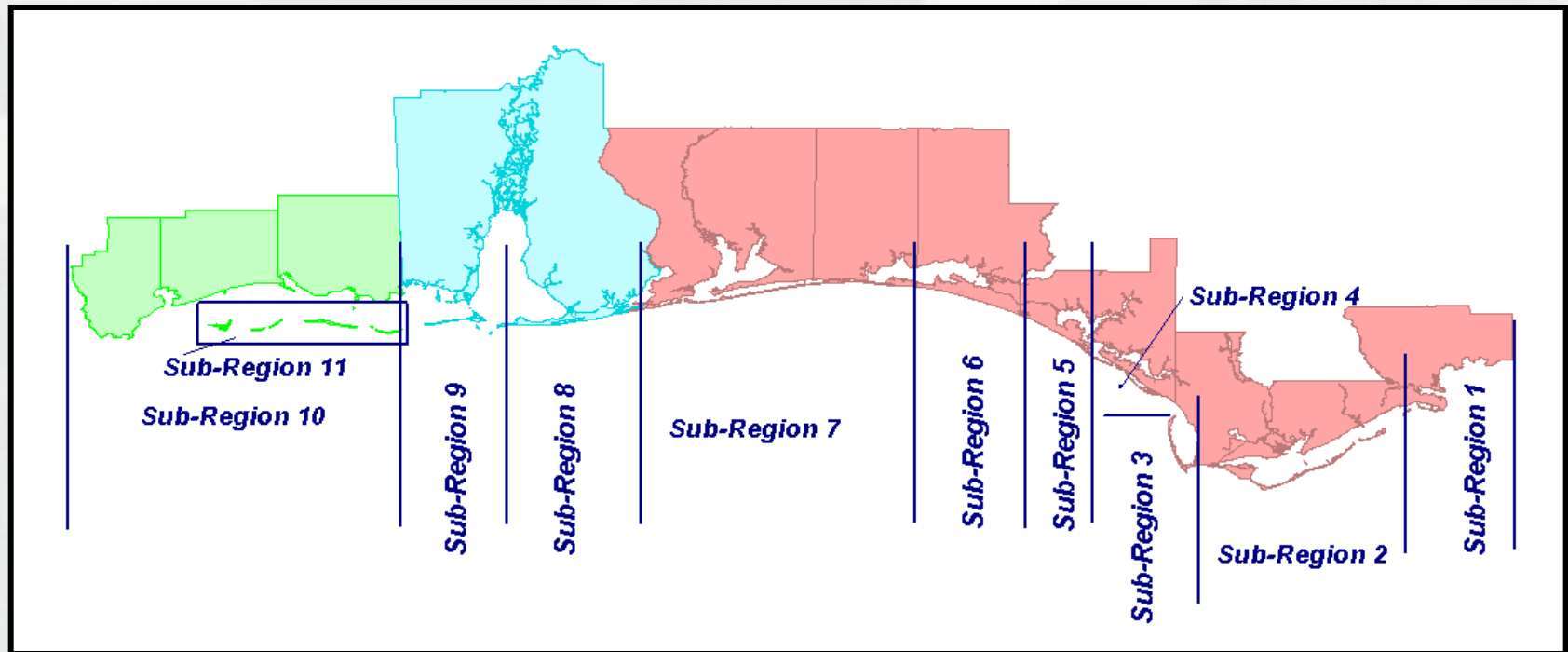
- Monitoring 2013-2014

Benefits

- 4 New nearshore BU sites
- Reduced dredging costs
- Protect navigation structures channel system
- Stabilize Inlet morphology
- Extend capital investments
- Reduce shoreline erosion
- Environmental habitat



Mobile District RSM Domain

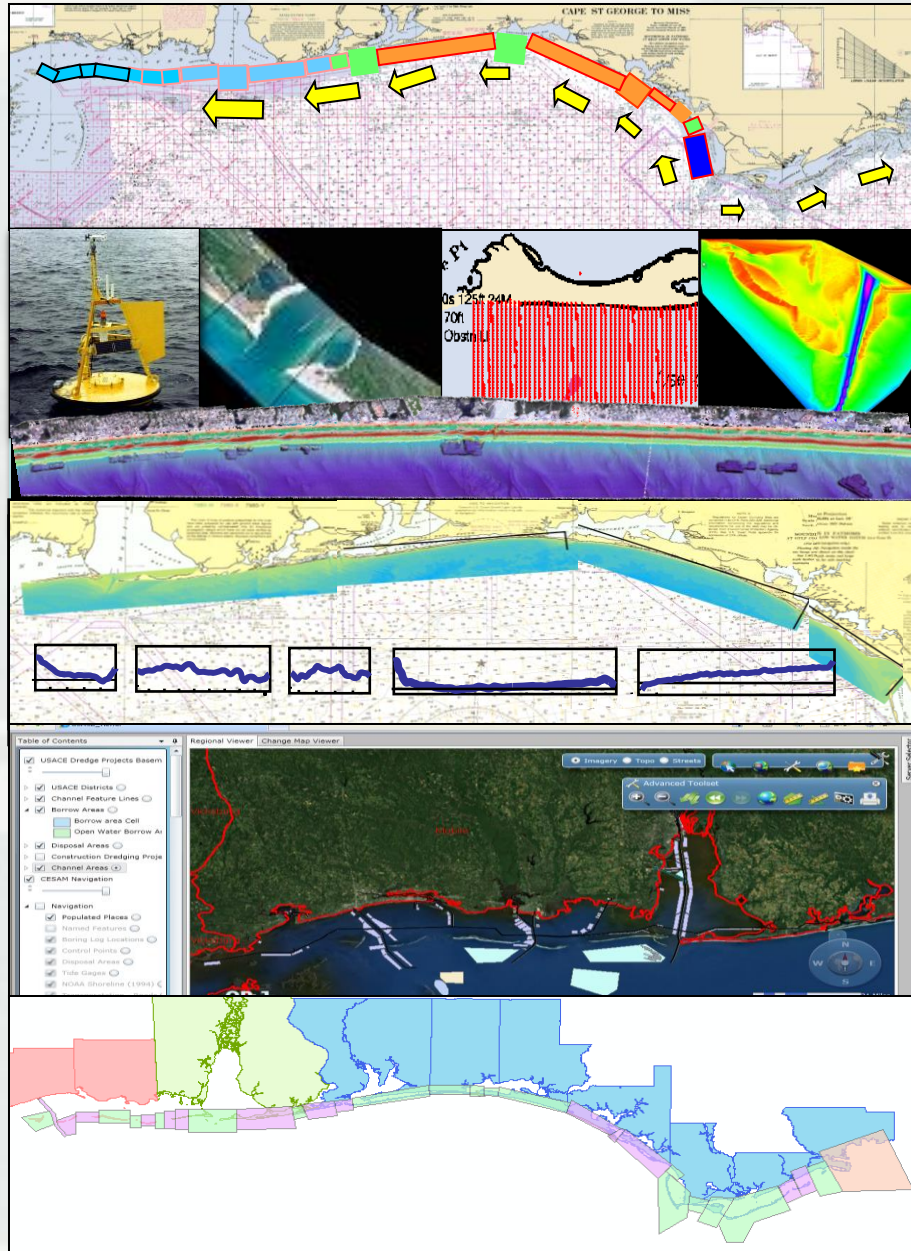


375-miles of Shoreline
21 Federal Projects
8 State Parks
7 Military Installations

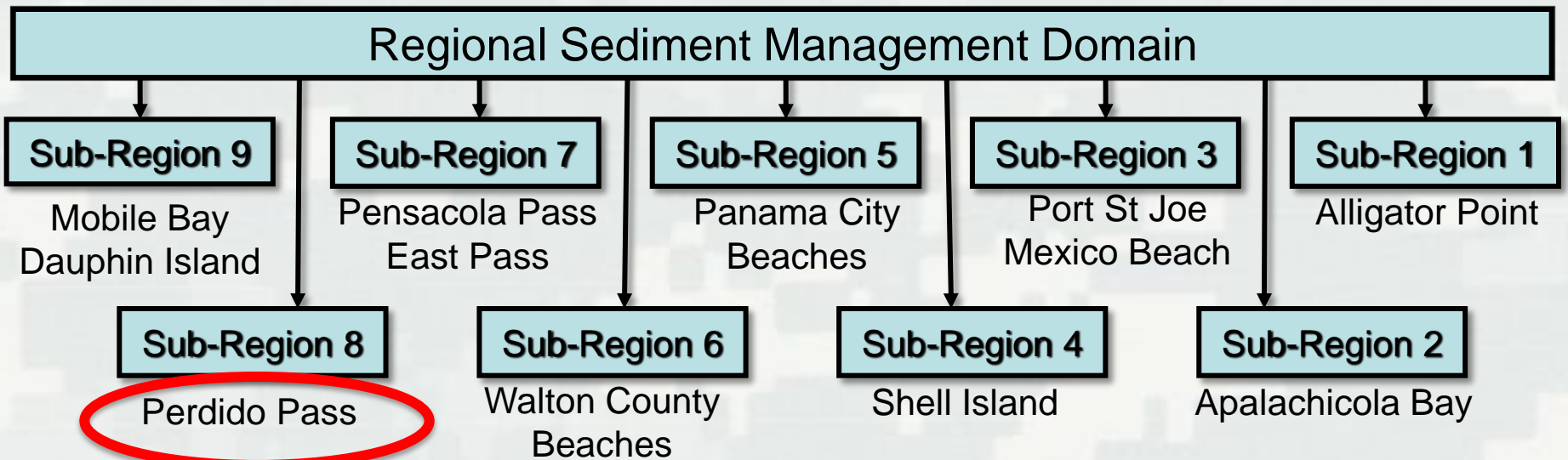
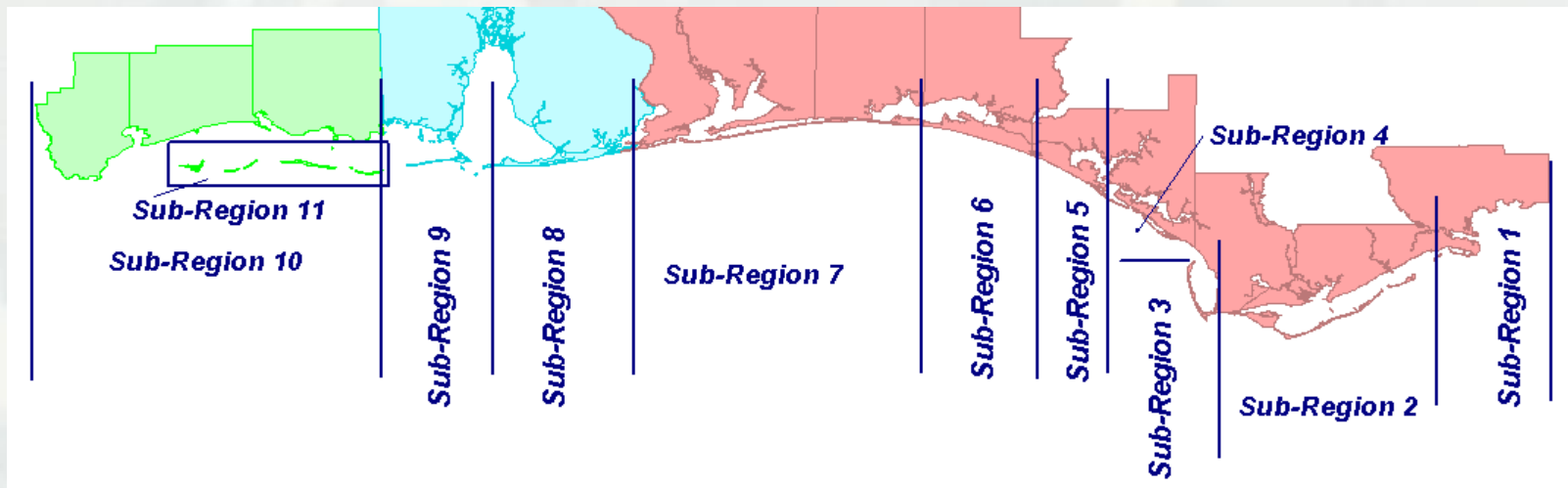
Gulf Islands National Seashore
Harrison County Beach Fill
Panama City Beach Fill
Local Projects



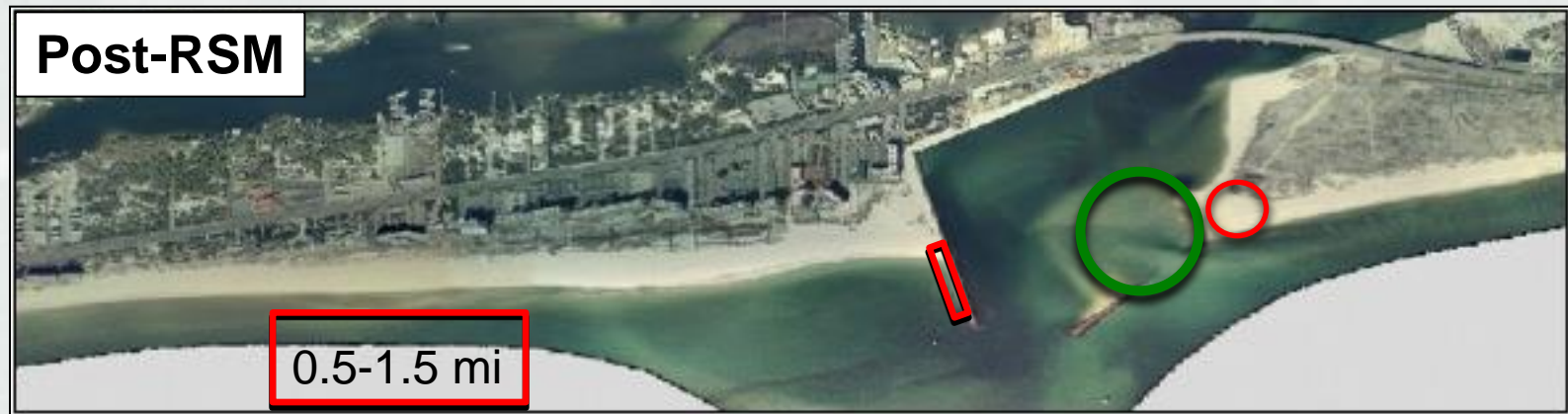
Mobile District RSM Demonstration 2000-2003



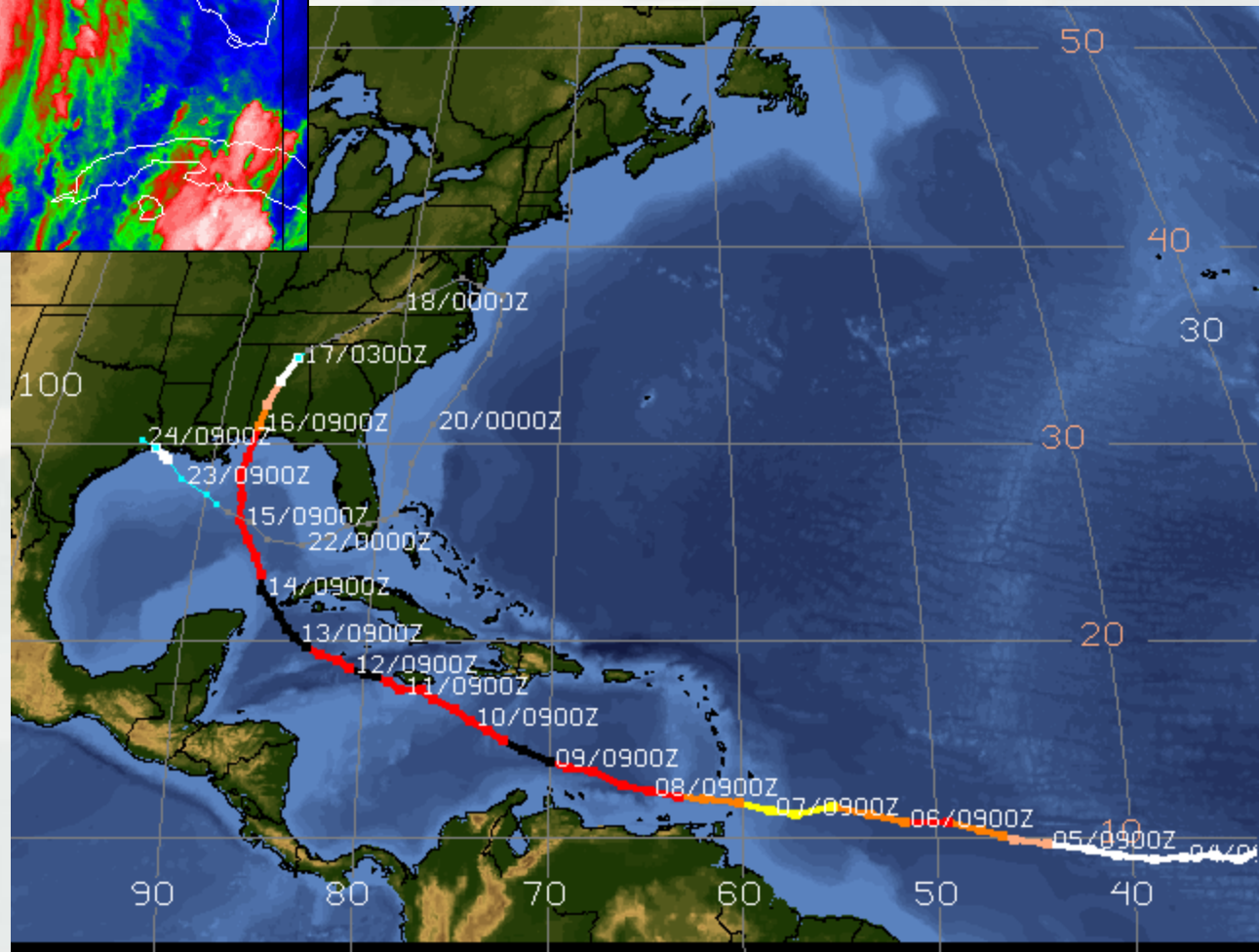
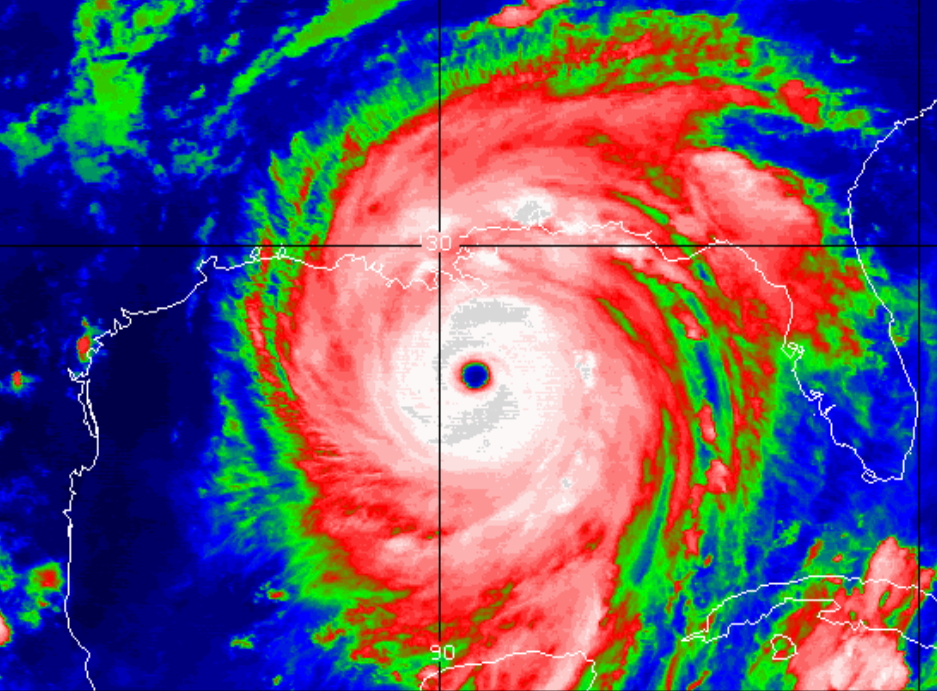
Regional to Local Opportunities



Perdido Pass, AL



Hurricane Ivan 2004



- Strong Cat. 3
- 130 mph winds
- + 14-foot surge





- East side of Pass: Gulf State Park, Florida Point
- Natural beach system, Wide beaches
- Developed dune fields - 15-foot crest elevations above MSL
- Abundantly vegetated with sea oats and other native plants
- Habitat for several listed species
 - ▶ Perdido Key beach mouse
 - ▶ Piping plovers
 - ▶ Least terns
 - ▶ Nesting sea turtles.





- West side of Pass: – infrastructure protected
- East side of Pass: X100,000s cubic yards of sand lost from beaches and dunes
 - ▶ Eroded into Pass
 - ▶ Overwashed into back-bay
 - ▶ Transported seaward
- 5 to 10 feet of elevation lost
- Leveled dune fields
- Major beach erosion
- Much of the critical habitat destroyed



Post Ivan Recovery:

Multi-agency effort to quickly develop & implement a restoration plan

- U.S. Fish and Wildlife Service
 - ▶ Restoration of critical habitat
 - ▶ Coordination for threatened and endangered species
 - ▶ Critical habitats
- Alabama Dept. of Conservation and Natural Resources
 - ▶ Use of state lands
- Alabama Dept. of Environmental Management
 - ▶ Water Quality Certification / Coastal Zone Consistency
- Gulf State Parks
 - ▶ Environmental coordination
- City of Orange Beach
 - ▶ Easements and right of ways
- USACE
 - ▶ Planning
 - ▶ Engineering
 - ▶ Operations







Post placement:

- 90 least tern nests
- 16 black skimmer nests
- 1 documented sea turtle nest
- Natural vegetation returning

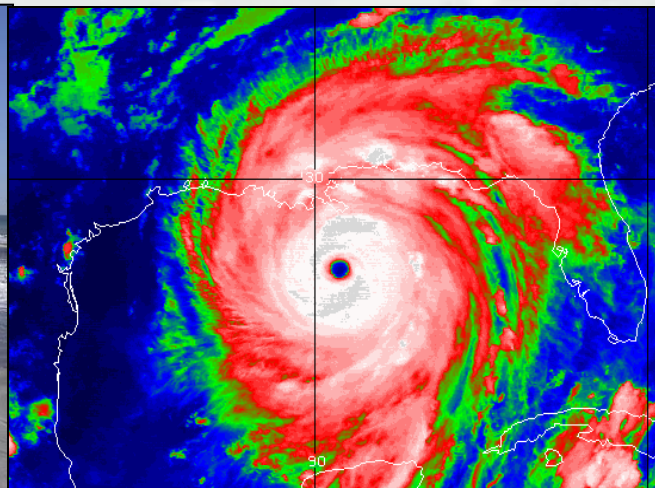
Perdido Pass – Resilience

- Prepare: Regional/local Understanding
Identify Opportunities
- Resist: RSM Sediment Optimization
- Recover: Partnerships, Coordination,
Post Dredging/Placement
- Adapt: Florida Point Restoration



Why RSM is Important & supports resilience

- Improve utilization of sediments - local & regional
- Link multiple projects, authorities, leverage funding, reduce timelines
- Improve channel availability, shoreline erosion, environmental habitat
- Increase benefits while reducing/maintaining costs
- Share data, tools, and capabilities
- Improve partnerships and collaboration



Regional Sediment Management (RSM) Program

Managing sediment to benefit a region potentially saves money, allows use of natural processes to solve engineering problems, and improves the environment. As a management method, RSM:

- Includes the entire environment, from the watershed to the sea
- Accounts for the effect of human activities on sediment erosion as well as its transport in streams, lakes, bays, and oceans
- Protects and enhances the nation's natural resources while balancing national security and economic needs

The Corps of Engineers holds in trust and manages lands and waterways across the U.S. Using regional sediment management concepts will significantly improve the Corps' mission accomplishment. The Corps' engineers and scientists develop new technologies through research to make management decisions more accurate and efficient. Simultaneously, they evaluate RSM concepts through projects that highlight and improve sediment management activities.

Partnering with EWN
ENGINEERING WITH NATURE

What's New?

- [RSM/EWN Inland Working Meeting](#)
- [RSM/EWN In-progress Review and working meeting](#)
- [USACE Navigation R&D Strategic Vision Document](#)
- [FY14 Request for Proposals](#)
- [RSM Successes](#)
- [Technical Notes](#)
- [District Project Templates:](#)
 - [Fact Sheets](#)
 - [Quarterly Reports](#)
- [SBAS for ArcGIS 10 Add-in \(.zip\)](#)
- [User's Guide \(.pdf\)](#)
- [RSM Calendar](#)

Footer:

- HQ USACE Oversight Navigation Business Line Manager: Jeffrey A. McKee
- Technical Director, Navigation R&D: Jeff Laythrop, ERDC-CHL
- RSM Program Manager: Linda Laythrop, ERDC-CHL

RSM Technical Notes, Reports, Manuals, Conference Papers



Tools and Data

Sediment Budget Analysis System (SBAS)
CE-Dredge-RSM Dredging Manager & Viewer
Models and Databases
Etc...

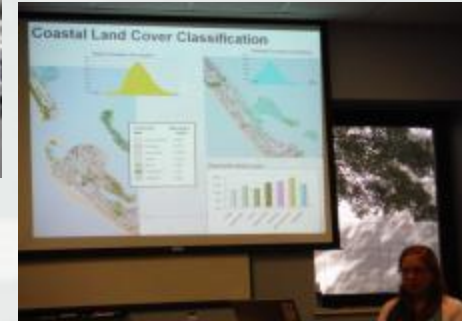


14th Annual RSM and EWN In-Progress-Review and Workshop

22-24 July 2014
Vicksburg, MS



2013 RSM and EWN IPR and Workshop
Coastal and Hydraulics Laboratory, Vicksburg



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