USACE Regional Sediment Management Program

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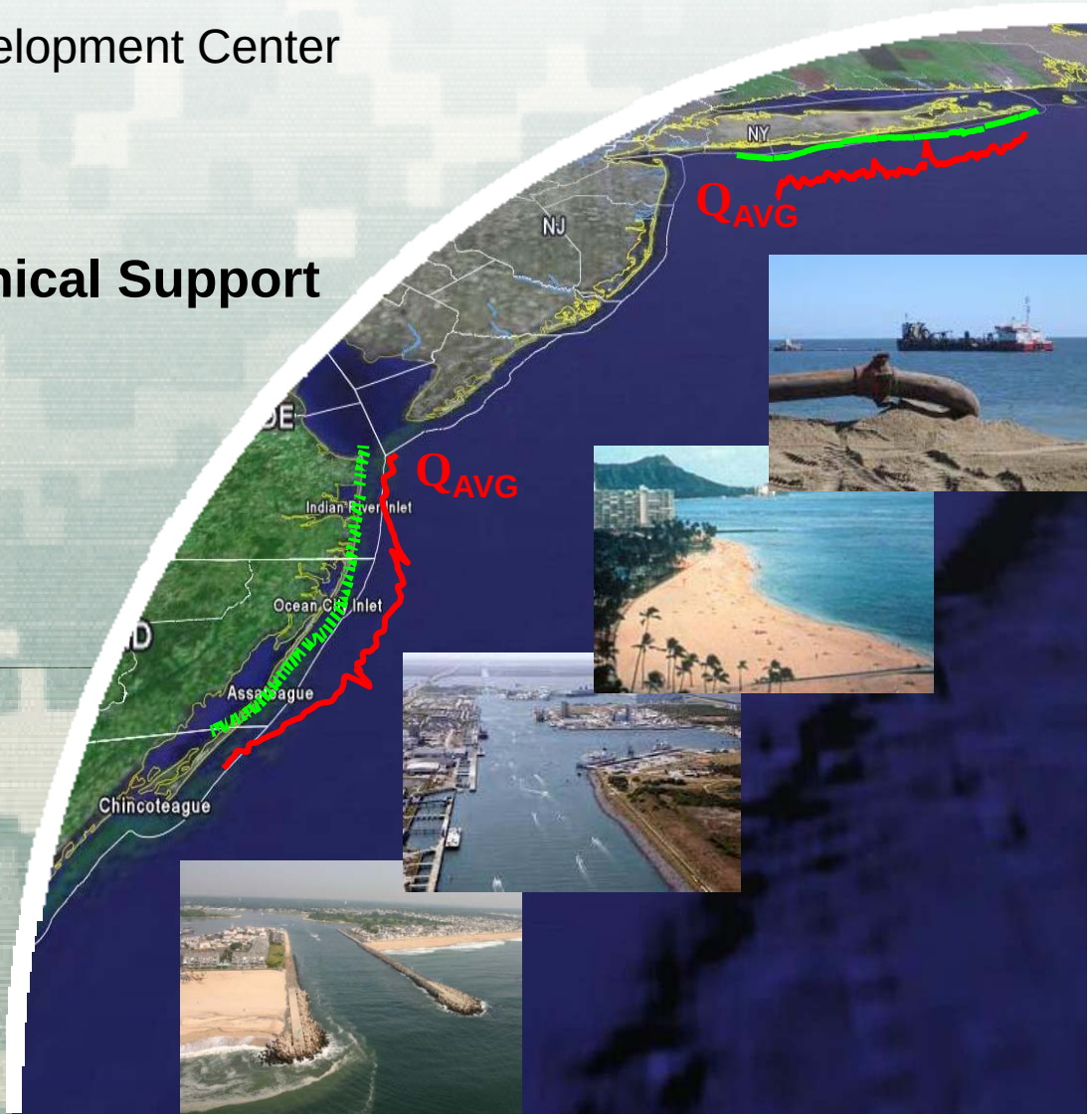
Coastal and Hydraulics Laboratory

Dredging Operations and Technical Support Webinar
25 June 2014

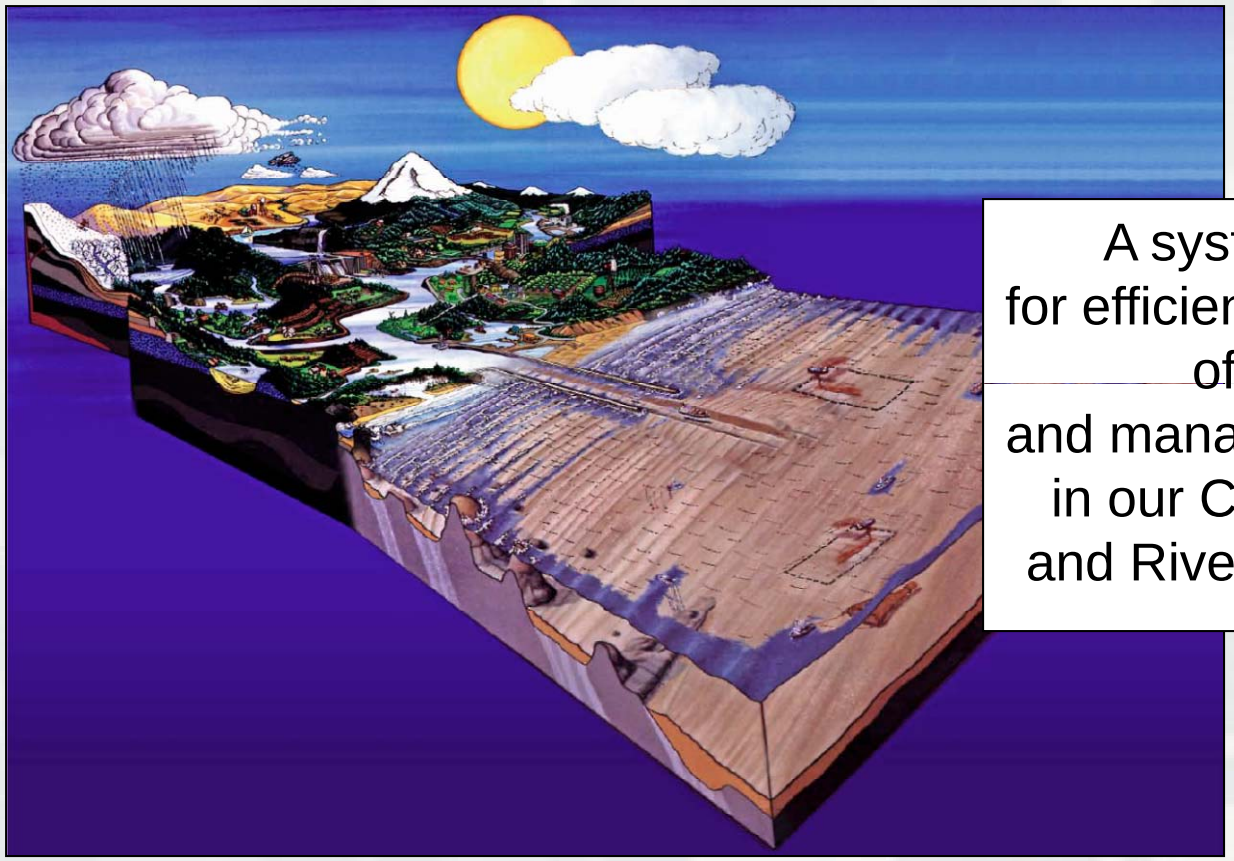


US Army Corps of Engineers
BUILDING STRONG®

Why RSM?


Gulf of Mexico
Tampa Bay
Tampa Bay Inlets
Anna Maria Island
Longboat Key
Big Sarasota Bay
Gulf of Mexico
Florida
Regional Coverage Area
Longboat Pass
New Pass
Big Pass
Venice Inlet

Regional Sediment Management



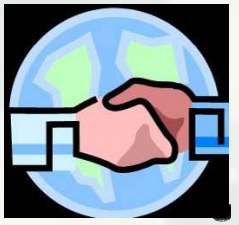
A systems approach
for efficient and effective use
of sediments
and management of projects
in our Coastal, Estuarine,
and Riverine environments

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



USACE RSM Participation (2000-2014)

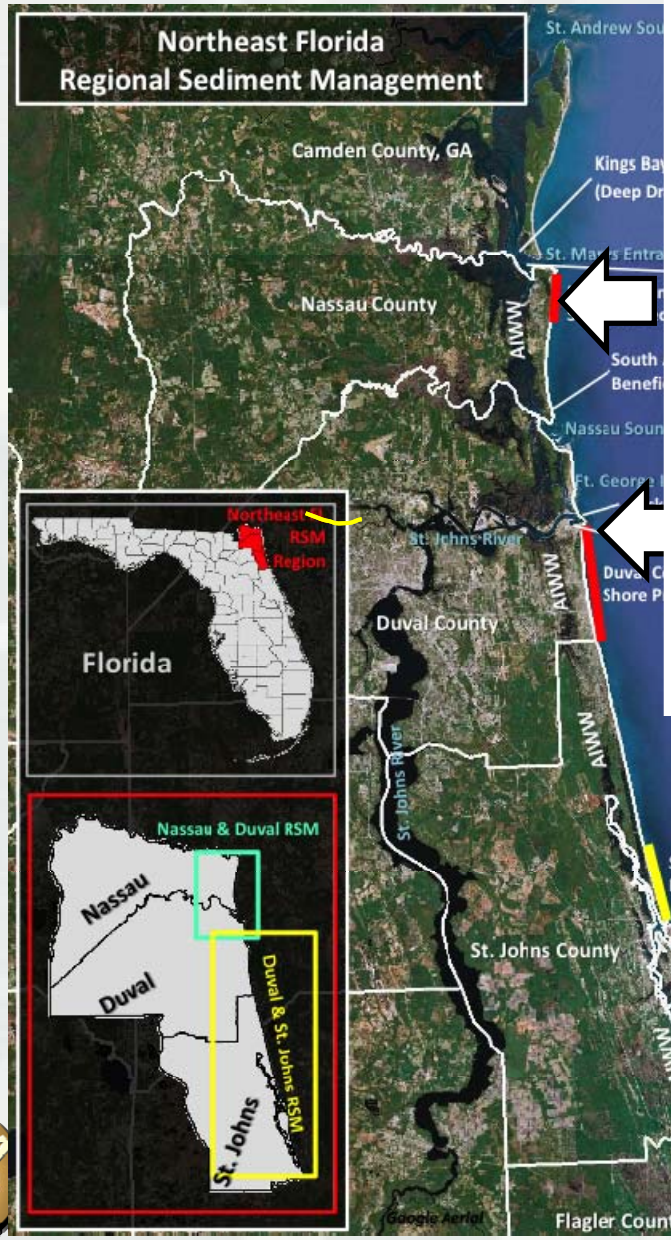
CODS/CFDC

NCDB

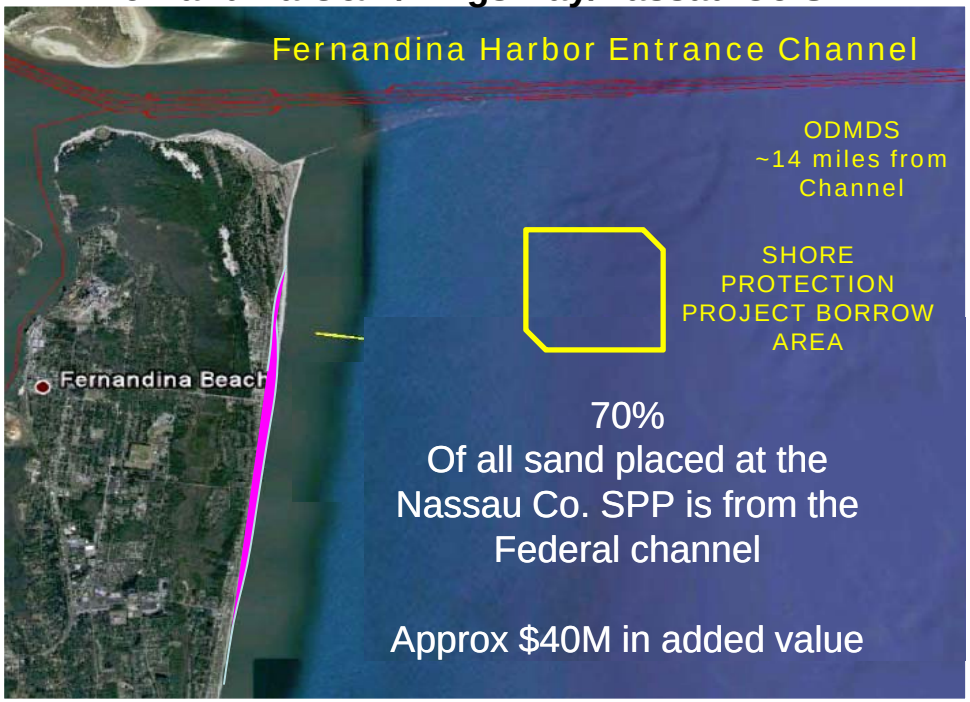
MCNP

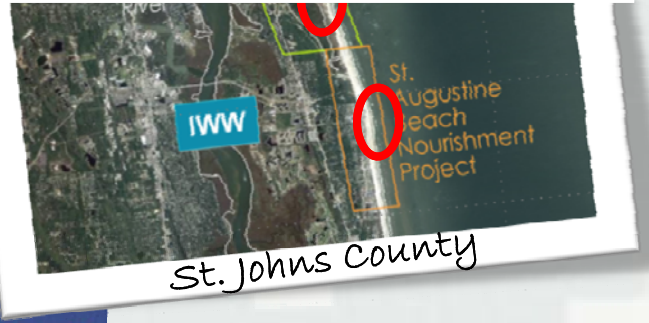
WOTS

Jacksonville District - St Johns, Duval, Nassau Counties



Fernandina O&M/Kings Bay/Nassau Co SPP

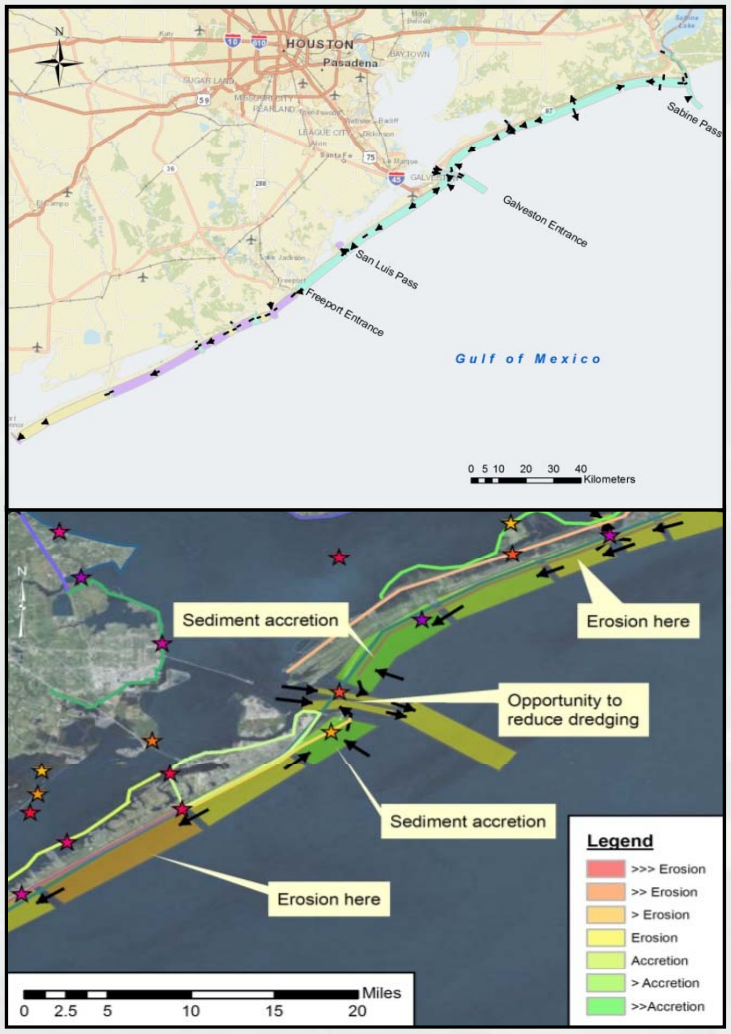




RSM Tools

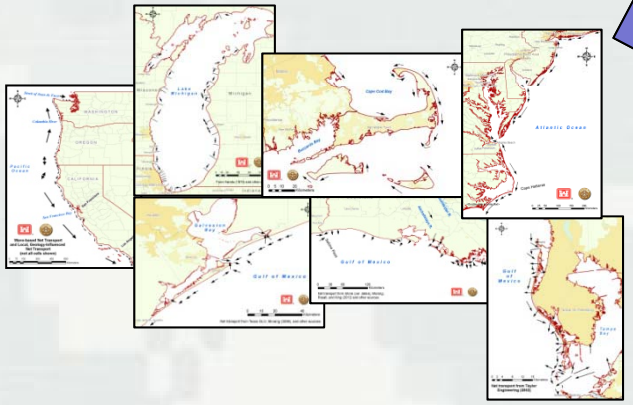
Sediment Budget Analysis System (SBAS)

Regional Sediment Budget



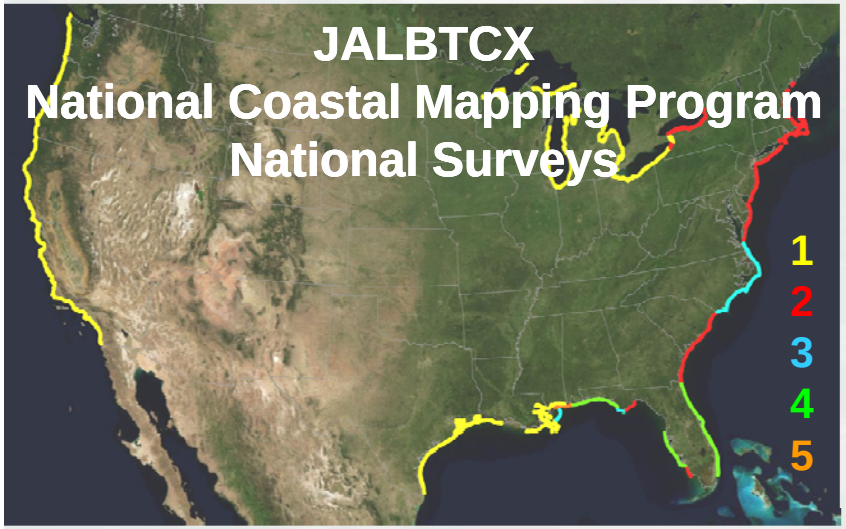
SBAS ArcMap

SBAS Web-Viewer



Sediment Budget Repository

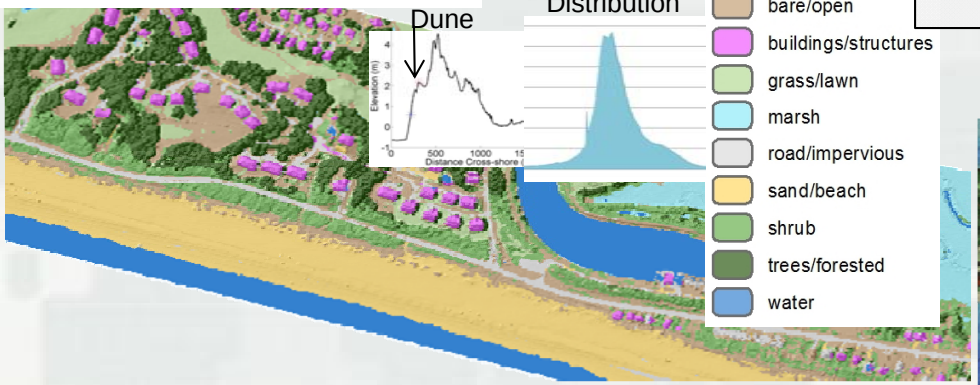
JALBTCX – National Coastal Mapping Program



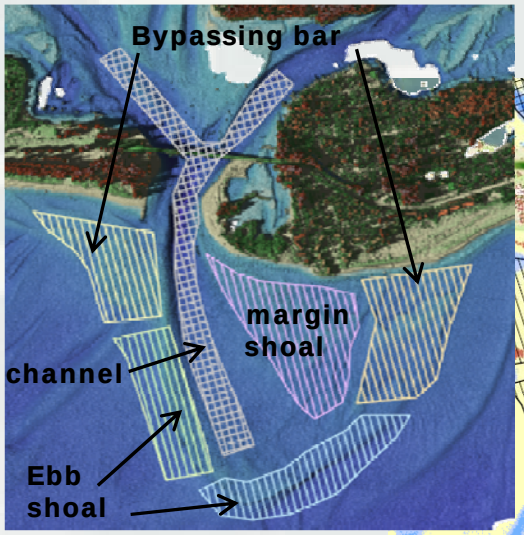
Regional Process and Analysis Tool (RPAT)

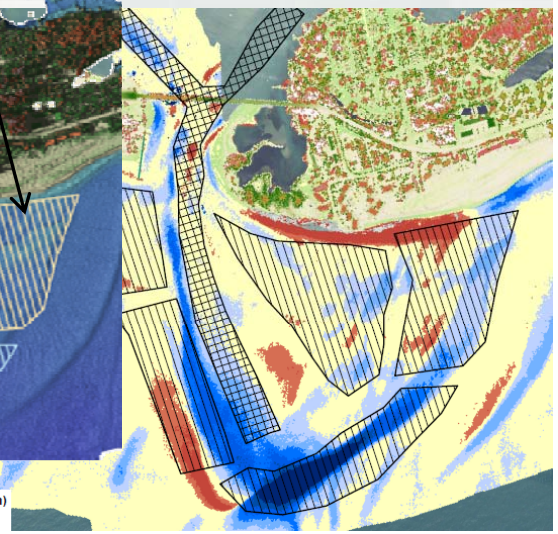
- Region delineation
- ID Morphologic features and feature extraction
- ID sediment transport pathways and fluxes
- Volume change
- Correlate meteorological & oceanographic info
- Reduce uncertainty in estimates & variability between Sediment Budgets

Coastal Land Cover

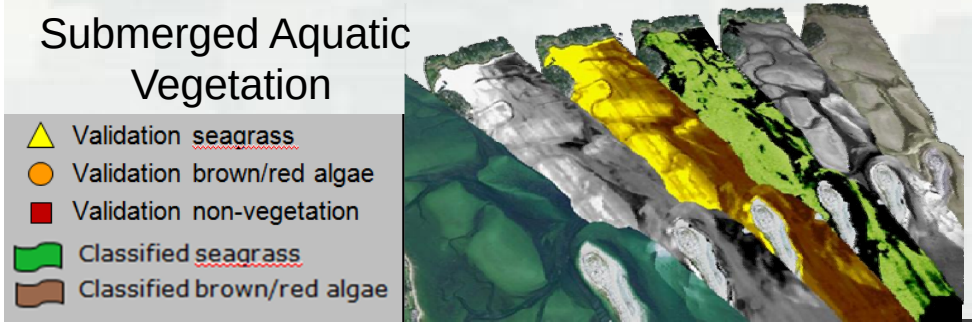


Sediment Budgets





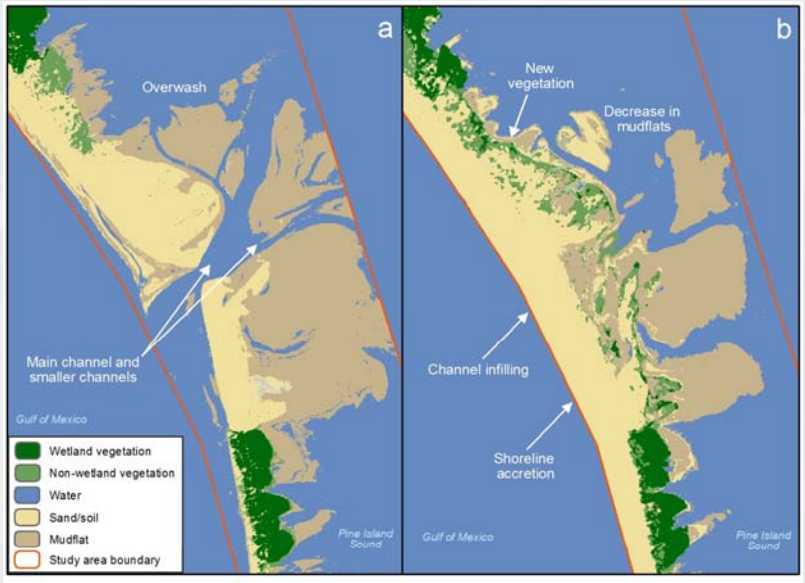
Submerged Aquatic Vegetation



Landscape Metrics

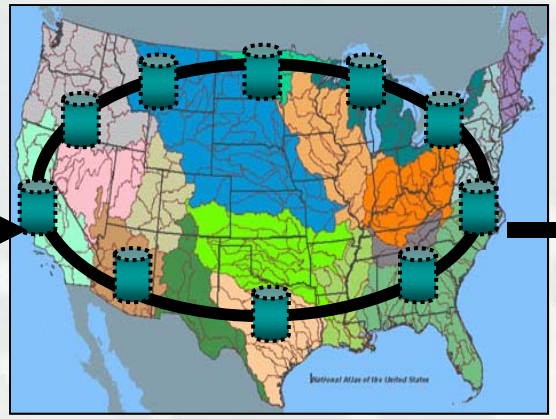
Understand How Long-term Ecosystem Functions are affected by our Projects & Actions

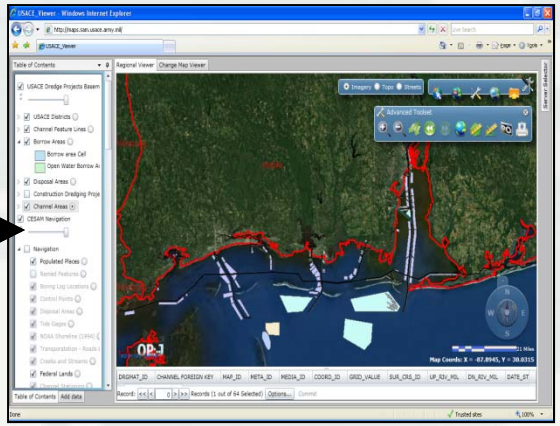
a) Landscape Patterns Overtime
b) Ecological Process
c) Develop Model to Predict Changes to Ecological Process and Landscape Patterns



CE-Dredge Data Management & GIS

- Data management, visualization, & analysis
- Regional sediment budgets
- Facilitate sharing data & tools
- Protect our investments
- Retain Institutional knowledge





CE-Dredge Map Gallery

CE DREDGE
US Army Corps of Engineers

CE-Dredge Viewer

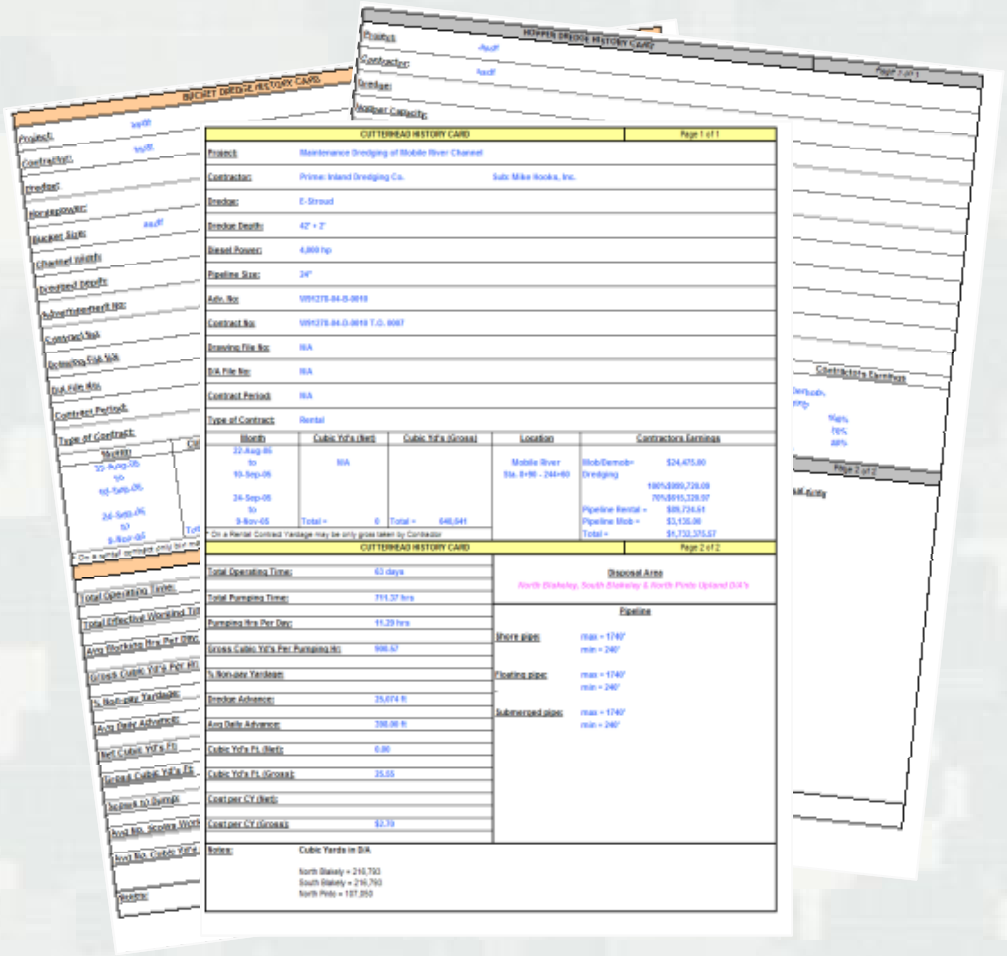
Dredging and Sediment Information Click here for editable version

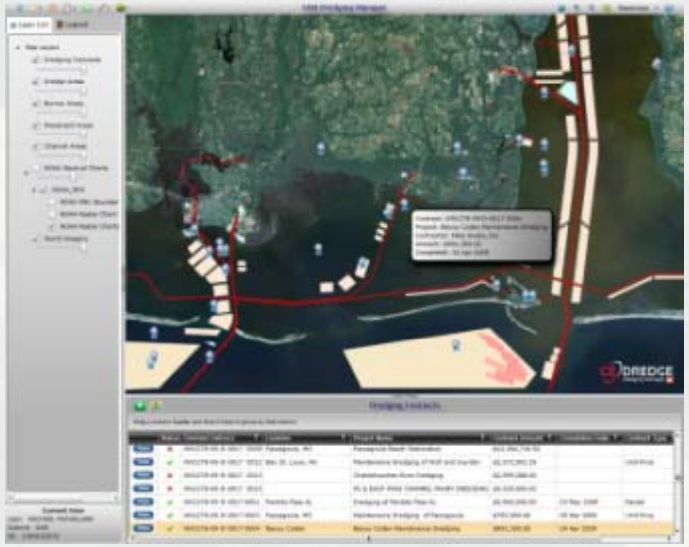
Locate an address

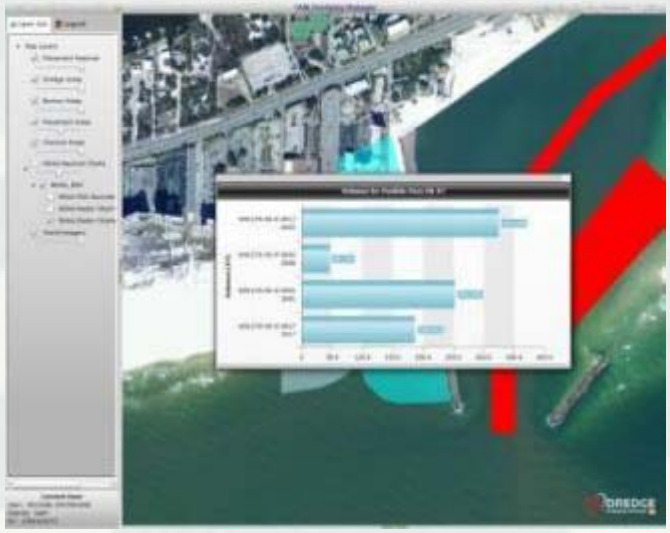
Legend | About

- [ ] Map Notes
- [ ] Map Notes - Issues
- [x] USACE_PlacementAreas
- [ ] Shoreline - Continually Updated (NOAA/JALBTCX/NGS)
- [ ] Waterway Projects - Rivers & Ports (NDC)
- [ ] 2012 Post Sandy differences (JALBTCX)
- [ ] 2012 PostSandy Volumes (JALBTCX)
- [ ] Engineering w/Nature Sites (USACE)
- [x] Placement Areas (USACE)
- [ ] ESI Shoreline - Most Sensitive (NOAA)
- [ ] Estuarine Bathymetry (NOAA)
- [ ] Medium Resolution Shoreline (NOAA)
- [ ] CSPI Projects (USACE)
- [x] Channel Boundaries (USACE)

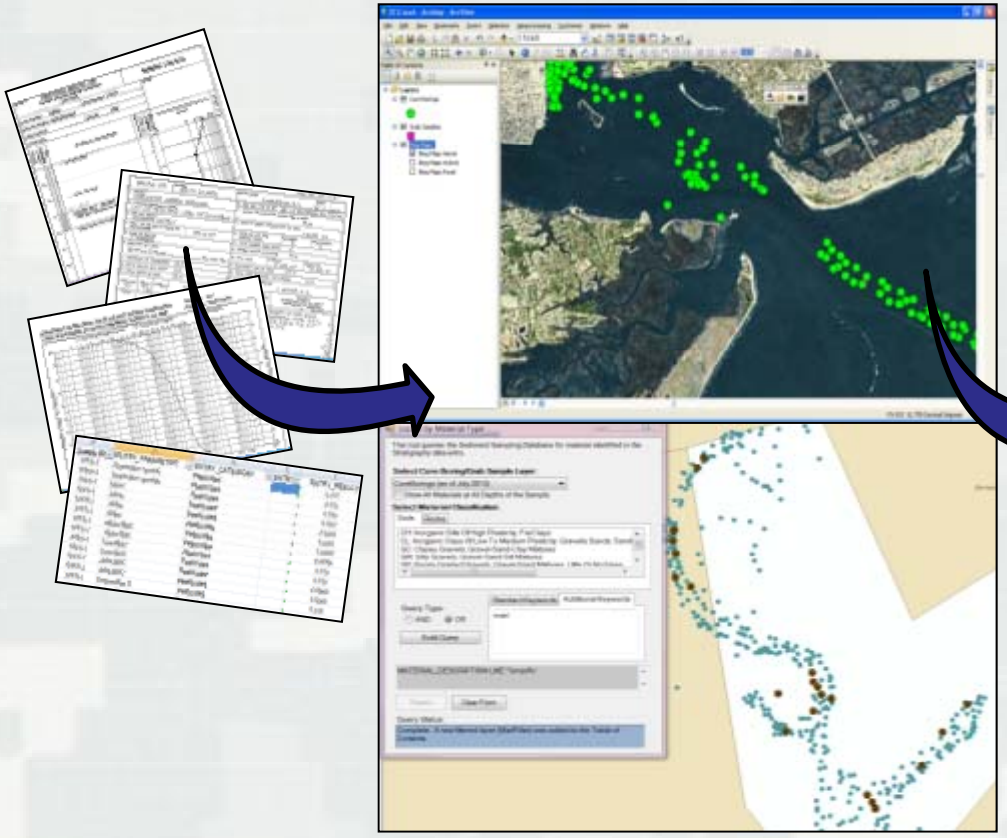
CE-Dredge Dredging Histories



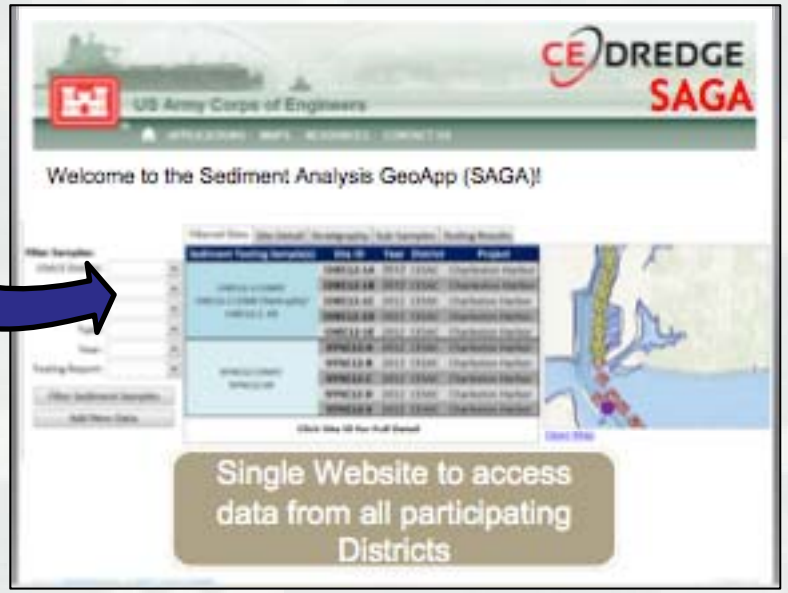




Sediment Database
Sediment Analysis Geo-App (SAGA)



Sediment Database & Desktop



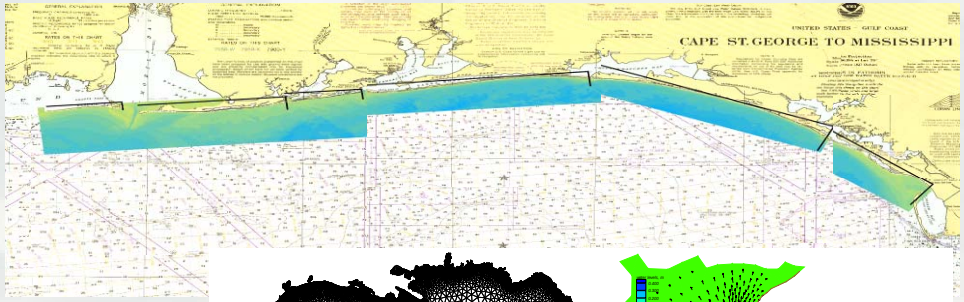
SAGA Web application

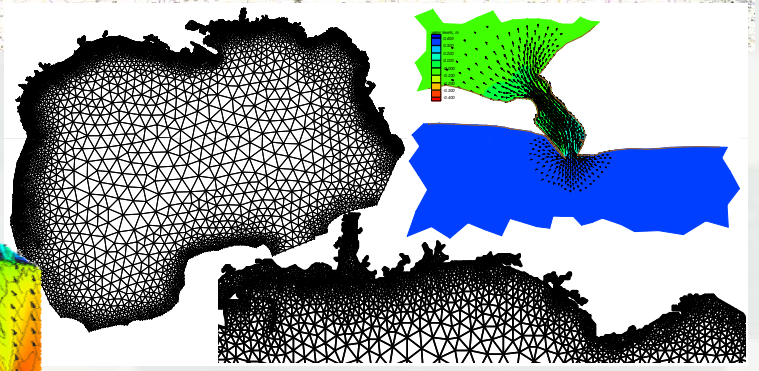
Model Enhancements for Regional Approaches

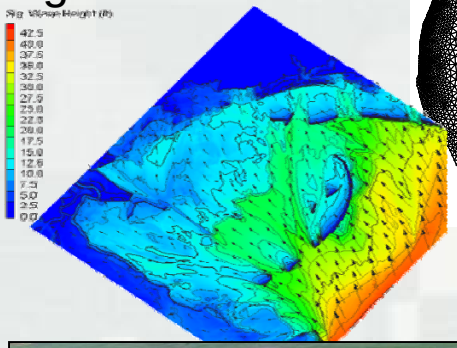
Waves, Circulation, Water levels, Sediment Transport, Shoreline Change

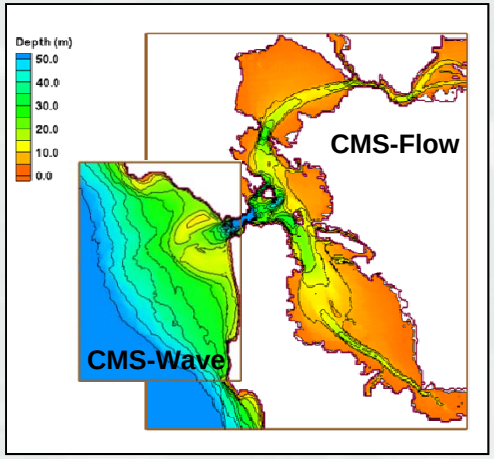
Complex to Adaptive Management

- Regional processes and trends
- Sediment sources & sinks
- Multiple interacting projects
- Connect beaches & inlets
- Navigation channel maintenance
- Evaluate local/regional Strategies









SedMan Decision Support Tool

Strategic Placement of Dredged Sediments

Example: Advancing Nearshore Berm Research, Guidance, & Tool Development

Objectives:

- Understand challenges/opportunities in placing NS Berms
- Tools to predict dispersion and movement of berms
- Tools to calculate benefits (economic, environmental, social)
- Guidance for plan, design, and construction in varying environments

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RSM Technical Notes, Reports, Manuals, Conference Papers

Tools and Data

Sediment Budget Analysis System (SBAS)
SEDiment MANagement Technologies
CE-Dredge Dredging Manager & Viewer
Models and Databases
Etc…

Thank you

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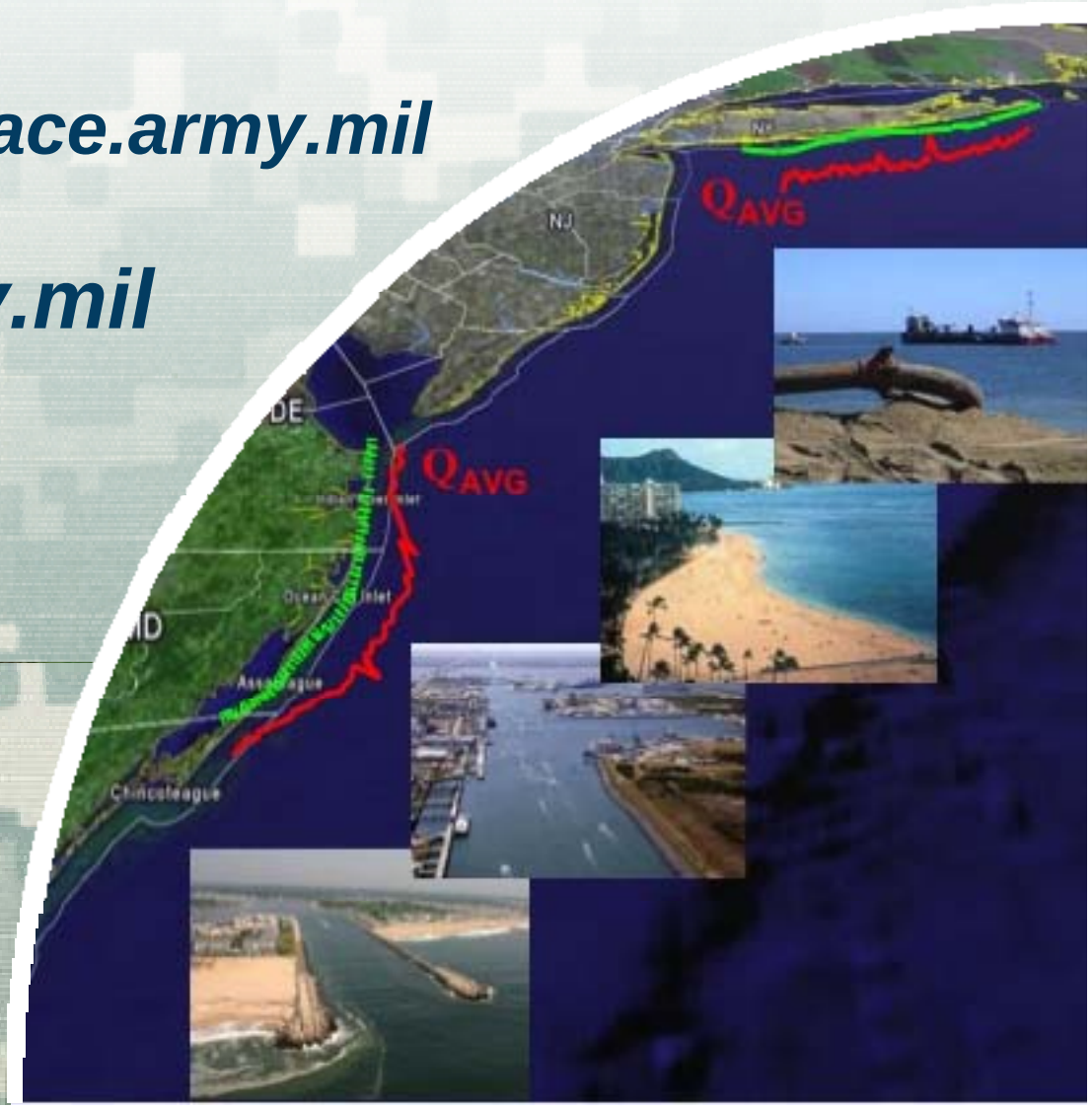

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