Regional Sediment Management

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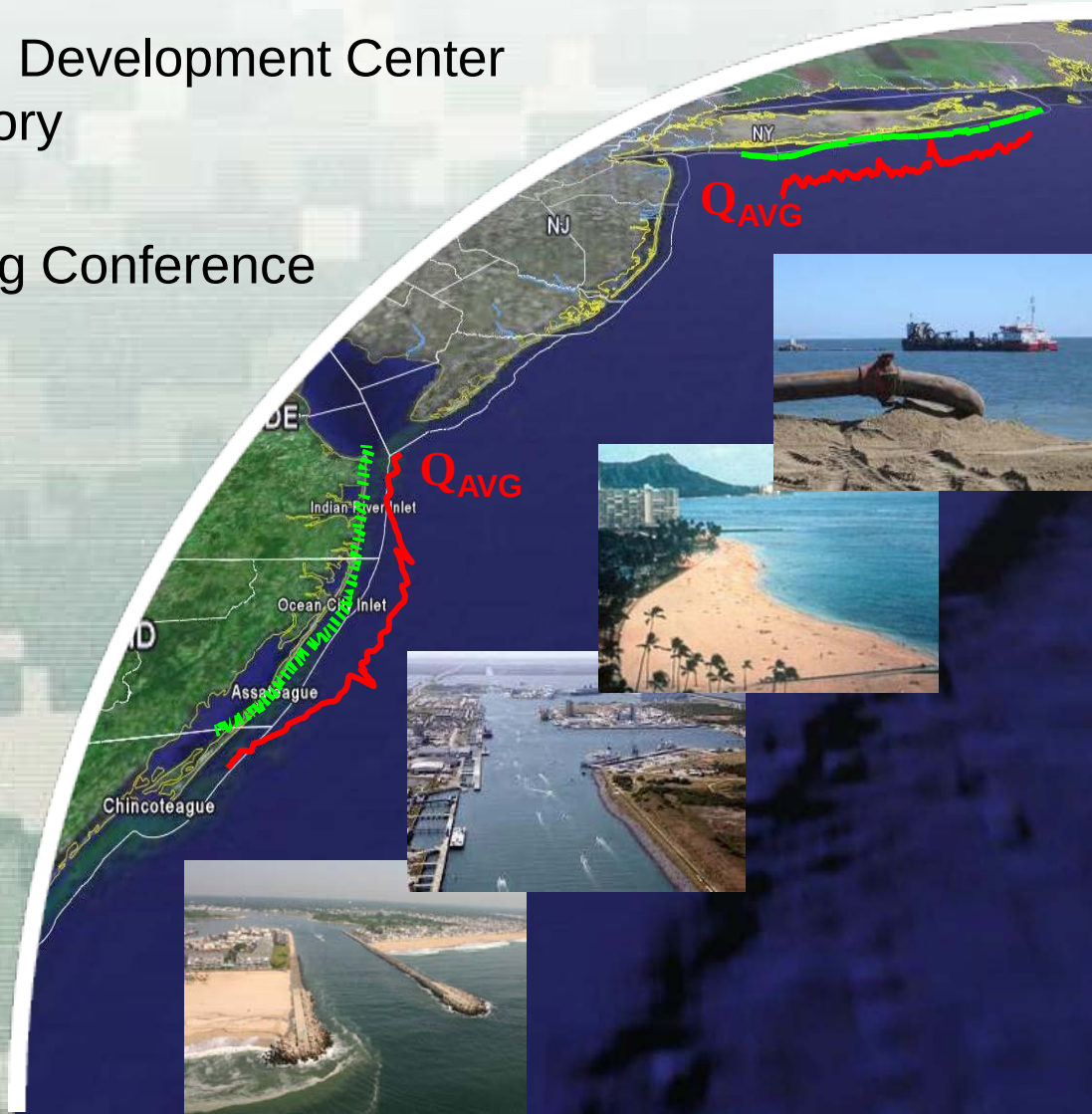
Coastal and Hydraulics Laboratory

2010 Galveston District Dredging Conference
27-28 October 2010
Galveston, TX



US Army Corps of Engineers
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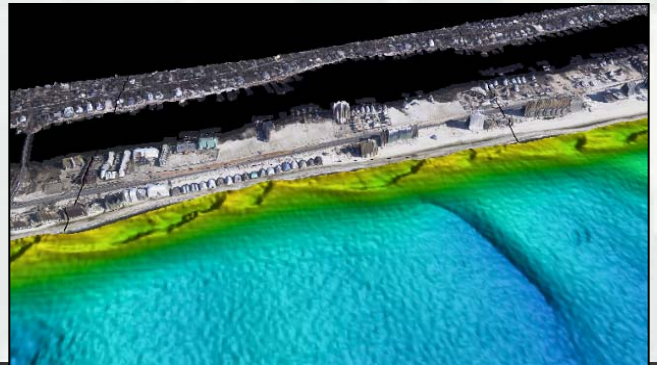
Presentation Outline

- **Why Regional Sediment Management ?**
  - What it is in the Corps
  - Why it’s important
- **Approach**
- **Tools for RSM**
- **RSM Opportunities for Adaptive Management**
- **FY11 Goals**

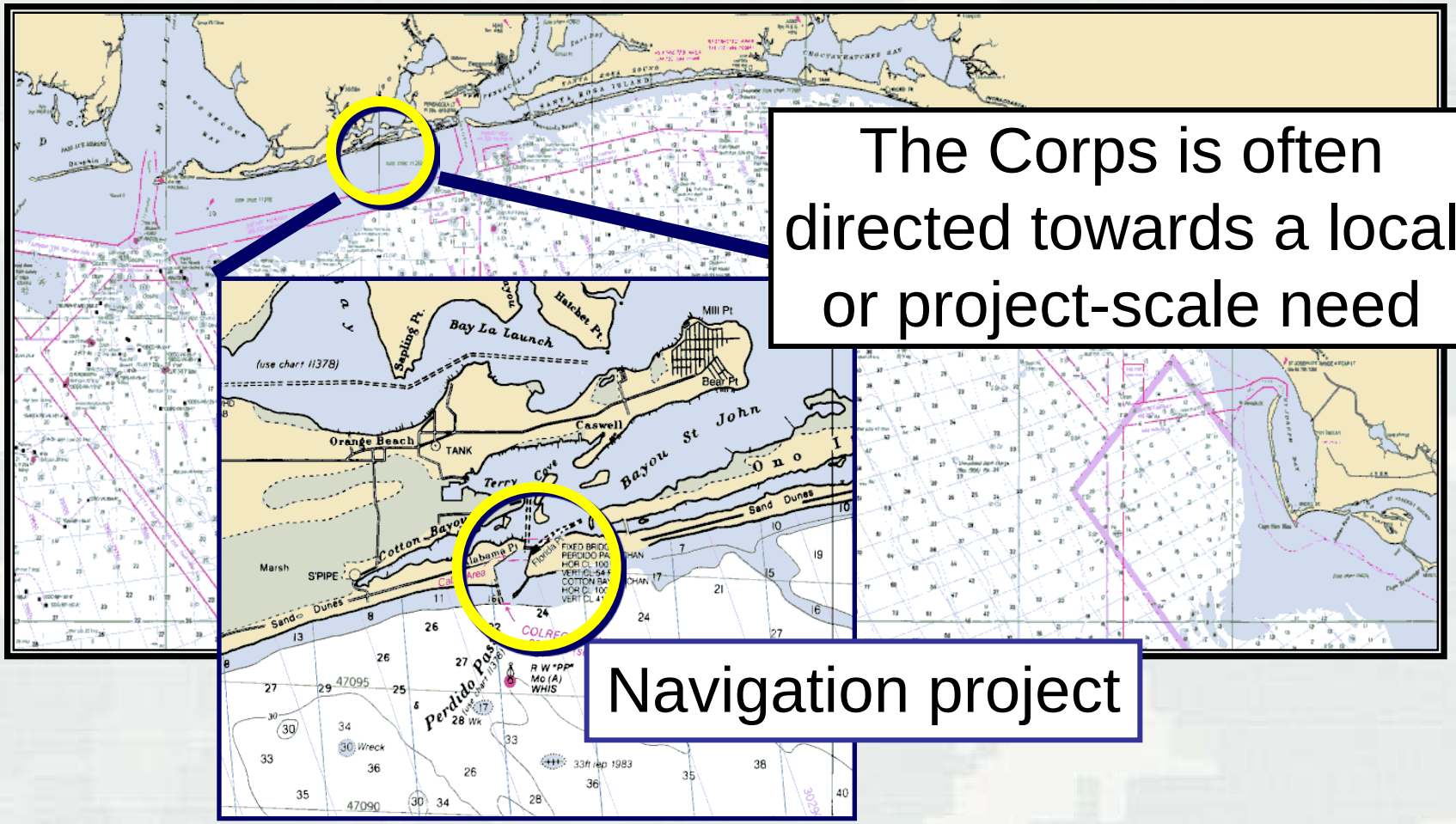


Why RSM?

…..Each year the Corps moves
250-350 Million cu yd of sediment

…At a cost of more than
$700 Million per year

Why RSM?



The Corps is often directed towards a local or project-scale need

Navigation project

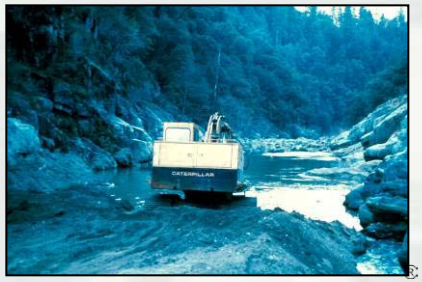
Regional Sediment Management is…

A systems-based approach for collaboratively solving sediment-related issues within a regional strategy

- Managing sediments and projects through a systems based approach
- Managing sediment resources as a regional scale resource
- Supporting sustainable navigation, flood, storm impacts, environmental stewardship, and dredging practices

RSM Operating Principles

- Recognize sediment as a ***resource***
- Evaluate use of all sediment resources
- Balanced, economic, environmentally **sustainable solns**
- Consider regional impacts
- Monitor to evaluate physical, environmental, social impacts
- Apply technical knowledge/tools to understand system
- **Coordinate/Communicate/Collaborate** with stakeholders, partners, sponsors to ID solutions & leverage resources



Regional Sediment Management PDT

Operations Division:

Chief, Technical Support Branch, Navigation Section: Mr. Paul Bradley

Chief, Coastal Branch: Mr. Nelson Sanchez

Chief, Spatial Data Branch: Mr. Jeff Lillycrop

Beneficial Uses Project Manager: Mr. Vern Gwin

Dredging Project Manager: Mr. Carl Dyess

Area Office Representative, Coastal: Mr. Steve Reid

Area Office Representative, Inland: Mr. Peter Grace

Engineering Division:

Chief, Hydrology & Hydraulics Branch: Mr. Douglas Otto

Coastal Engineer: Ms. Linda Lillycrop

Planning Division:

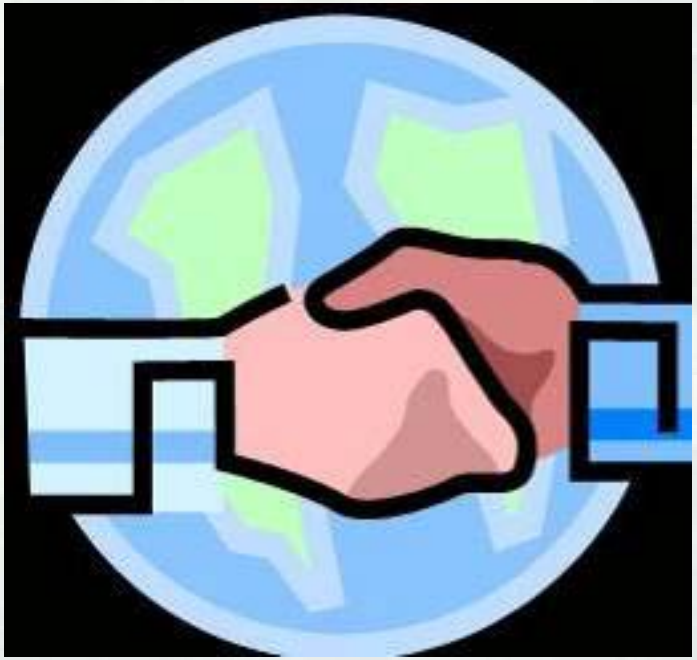
Physical Scientist, Coastal: Mr. Larry Parson

Physical Scientist, Coastal: Ms. Jennifer Jacobson

Inland Environment Team Leader: Ms. Diane Findley

Biologist, Inland: Ms. Joanne Brandt

Office of Counsel: Ms. Ann Taylor



Partners

Federal, State, Local, Academia, Others…..

Outreach/Workshops

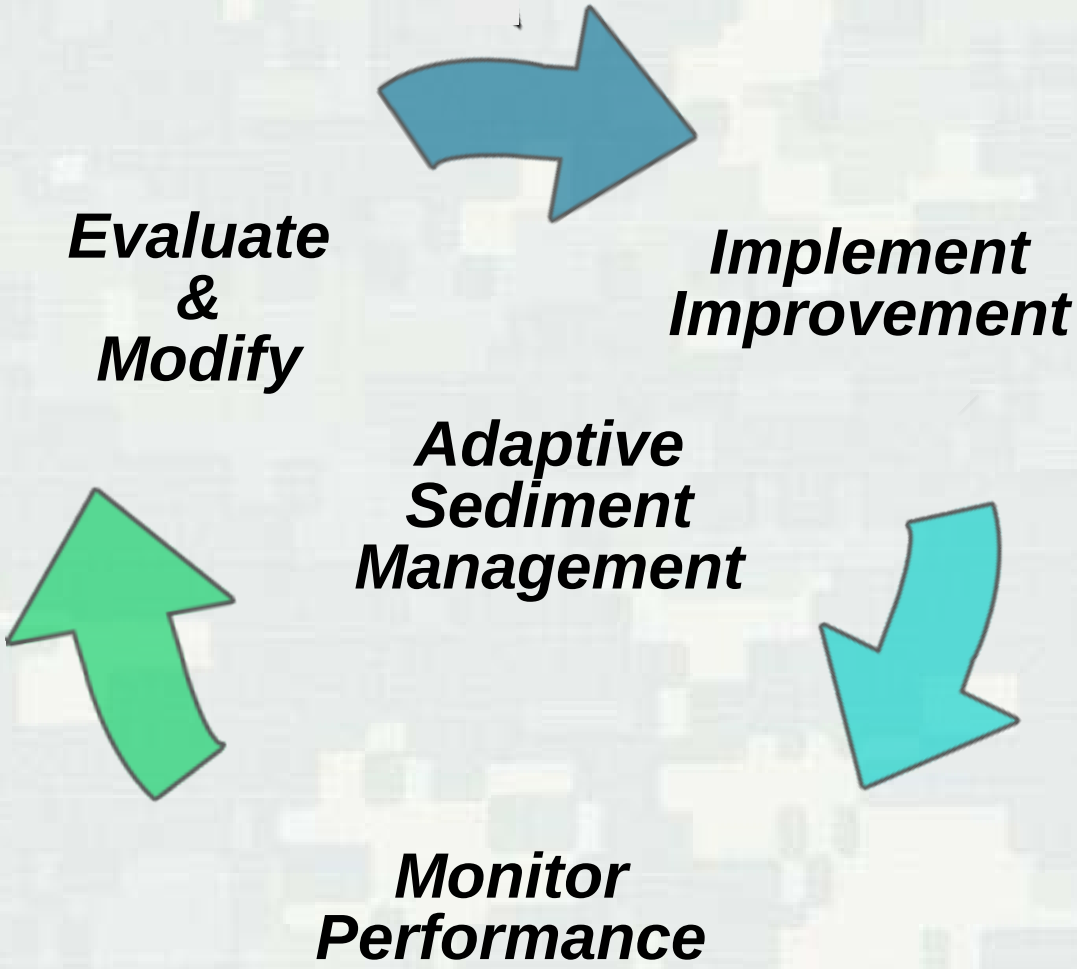
Identify Needs and Opportunities

Decision Making

RSM Initiatives

Sharing Technology and Data

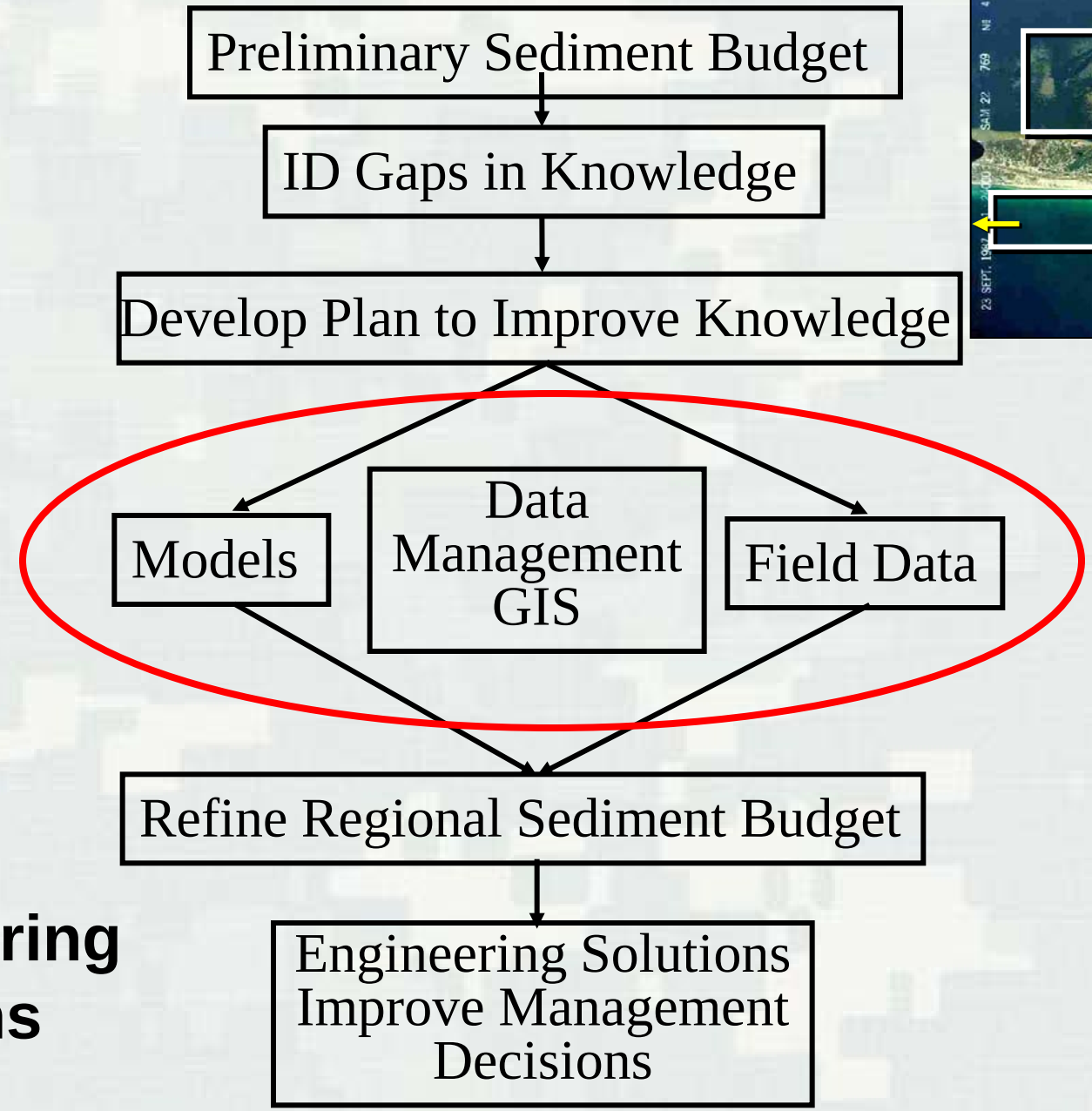
Regional Sediment Management Approach

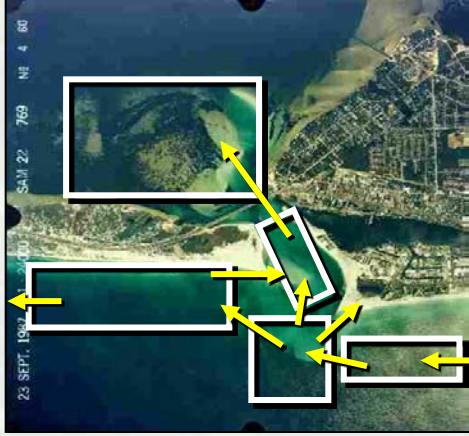


Process

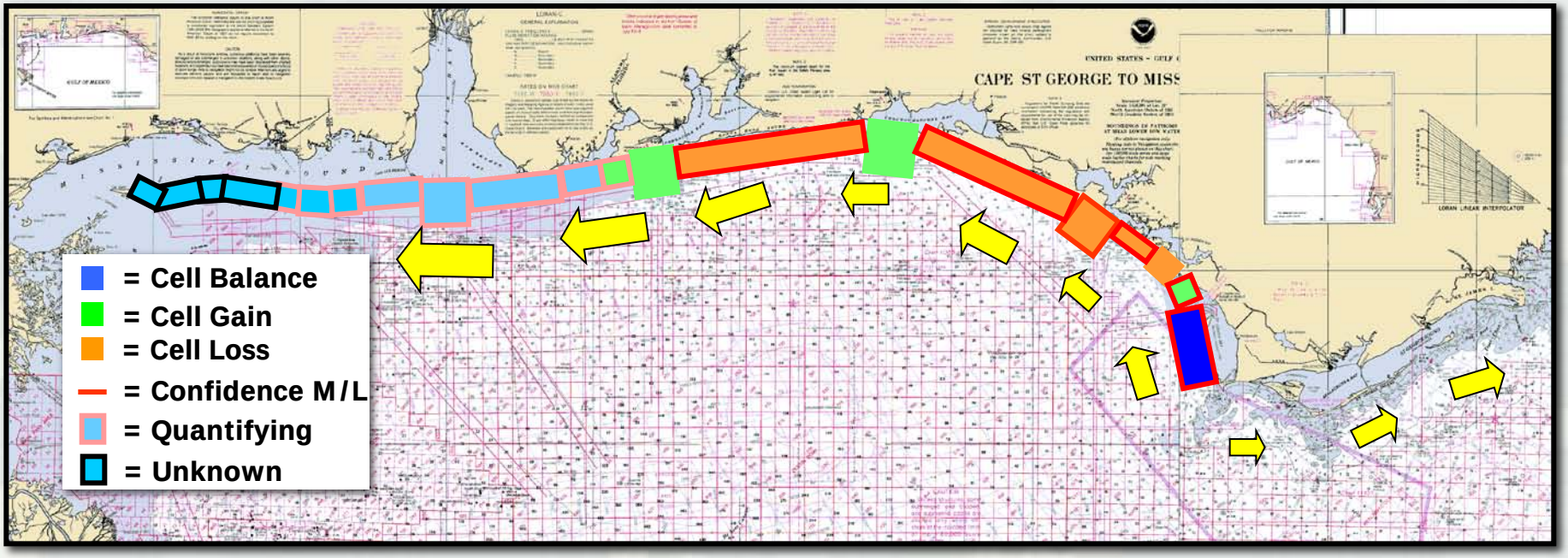
Tools

Engineering Solutions

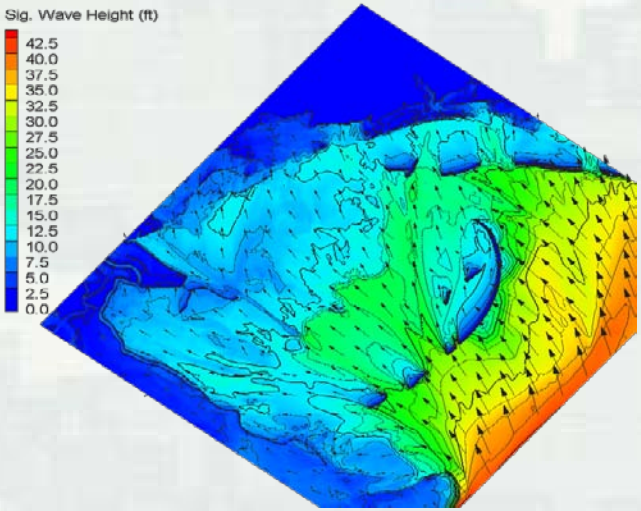


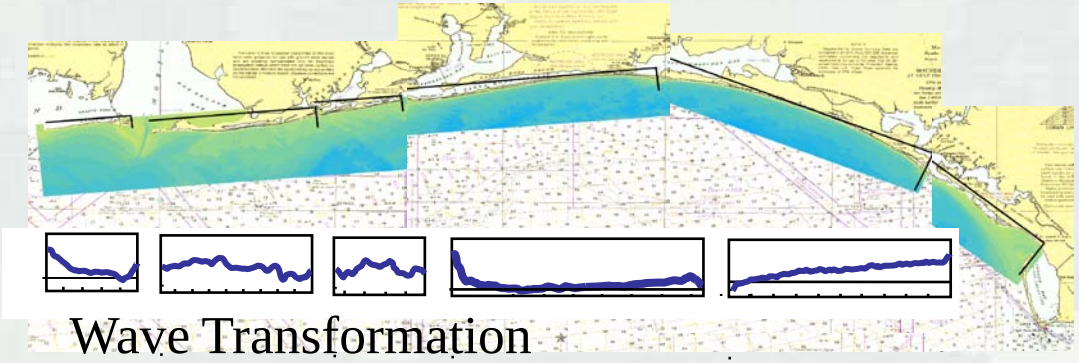


Preliminary
Regional Sediment Budget



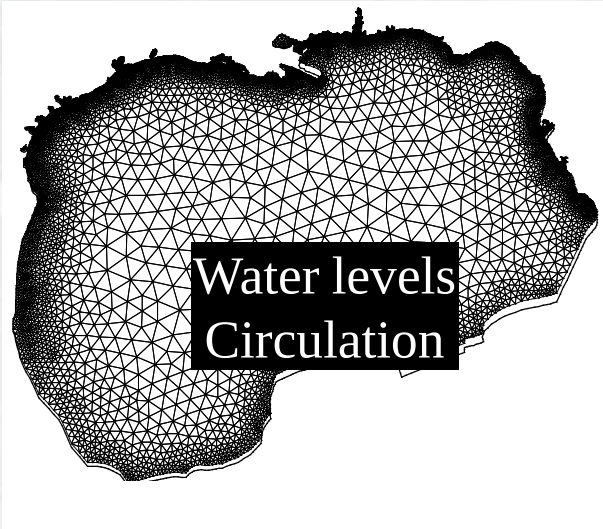
Waves, Circulation, Water levels, Sediment Transport, Shoreline Change



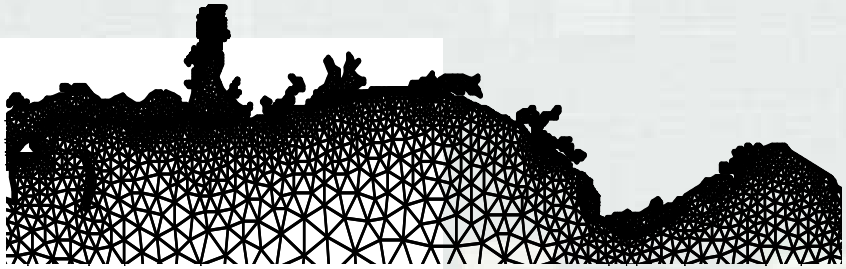


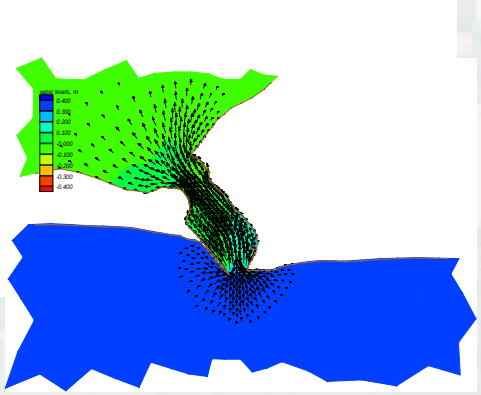
Wave Transformation

Shoreline Change/Sediment Transport



Water levels
Circulation



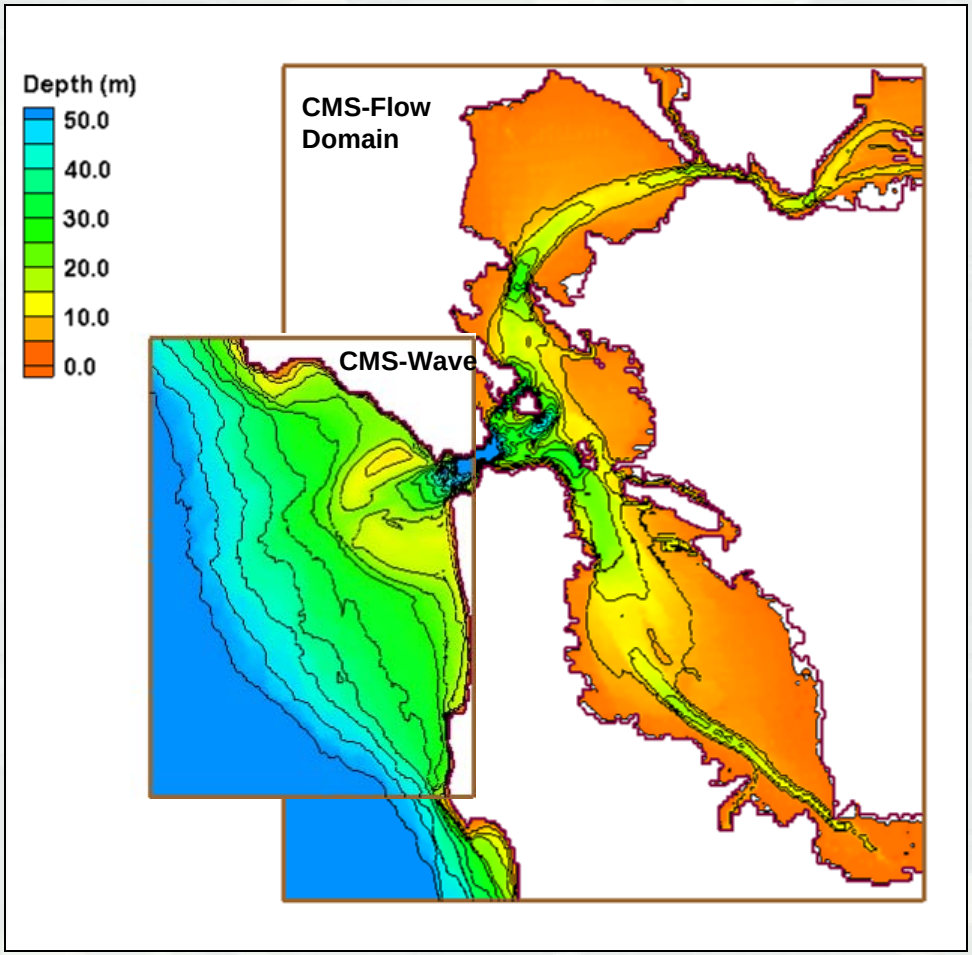


Coastal Modeling System (CMS) –

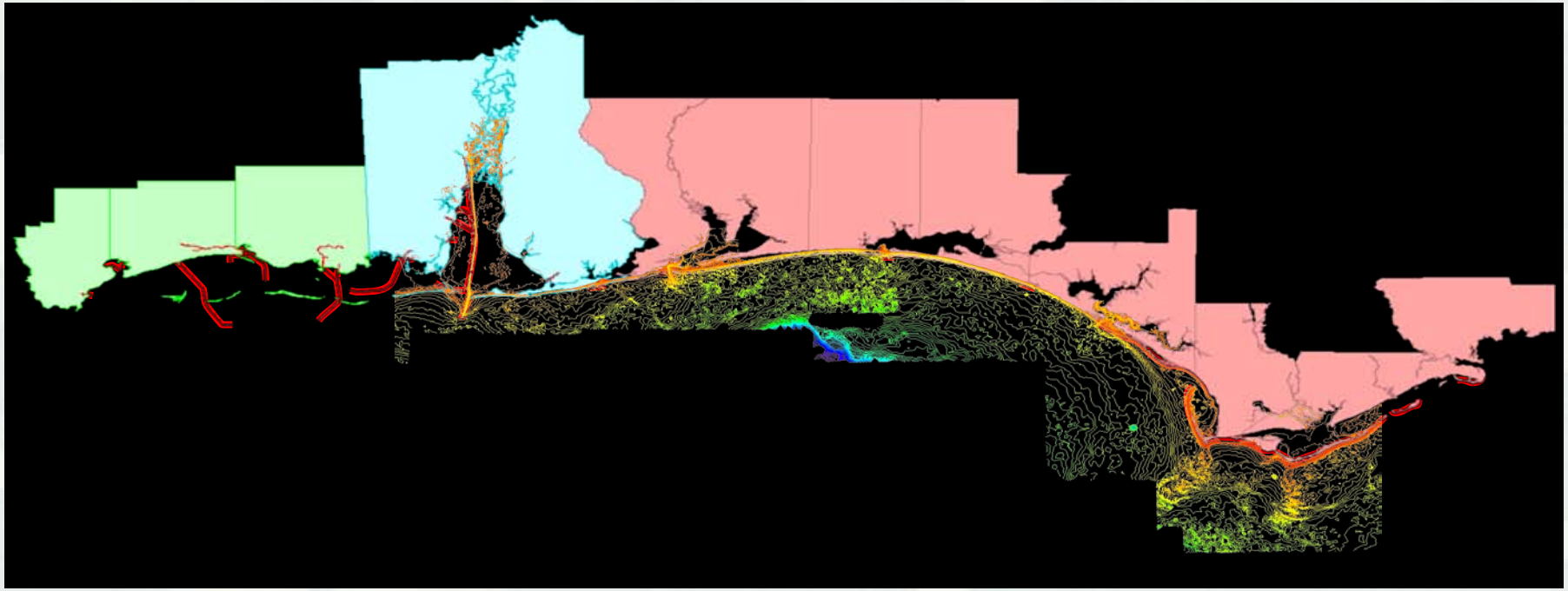
Shorter term decision support tools

Sediment exchanges (inlet and adjacent beaches)
Navigation channel performance
Adaptive management strategies

Integrated models:
waves
currents
water level
sediment transport
Morphology
Particle tracking



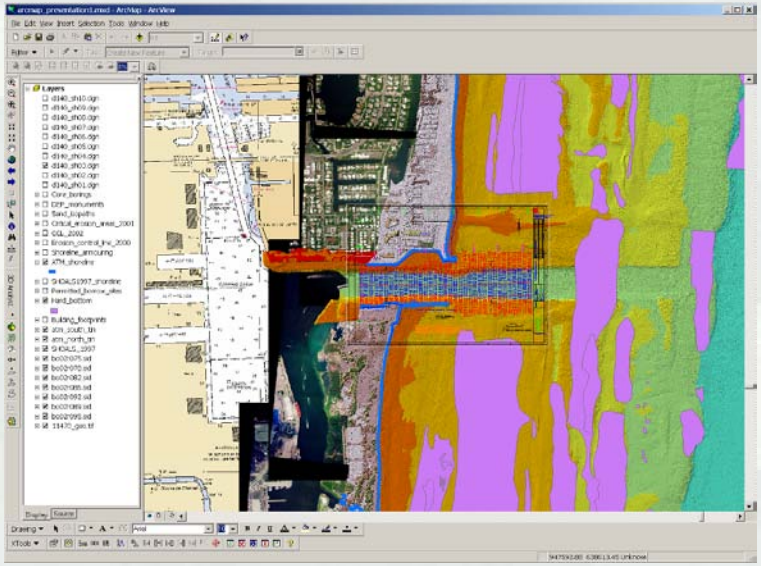
Data Management:
Data Prior to RSM 2000

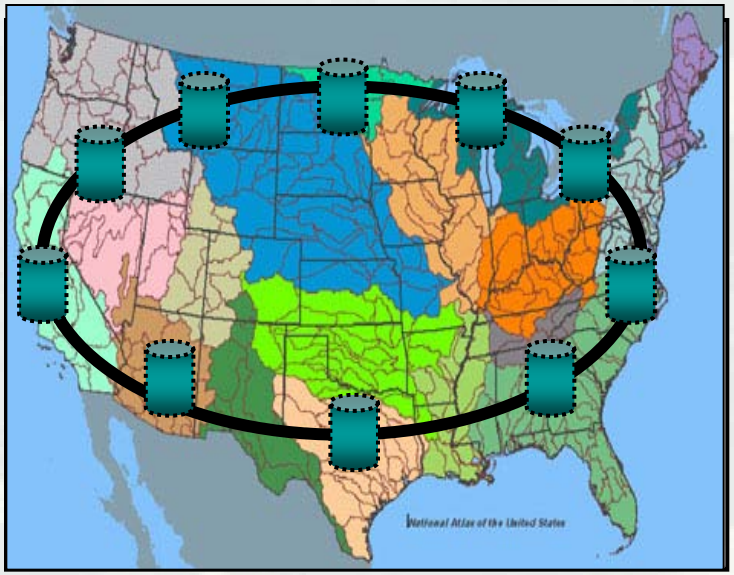


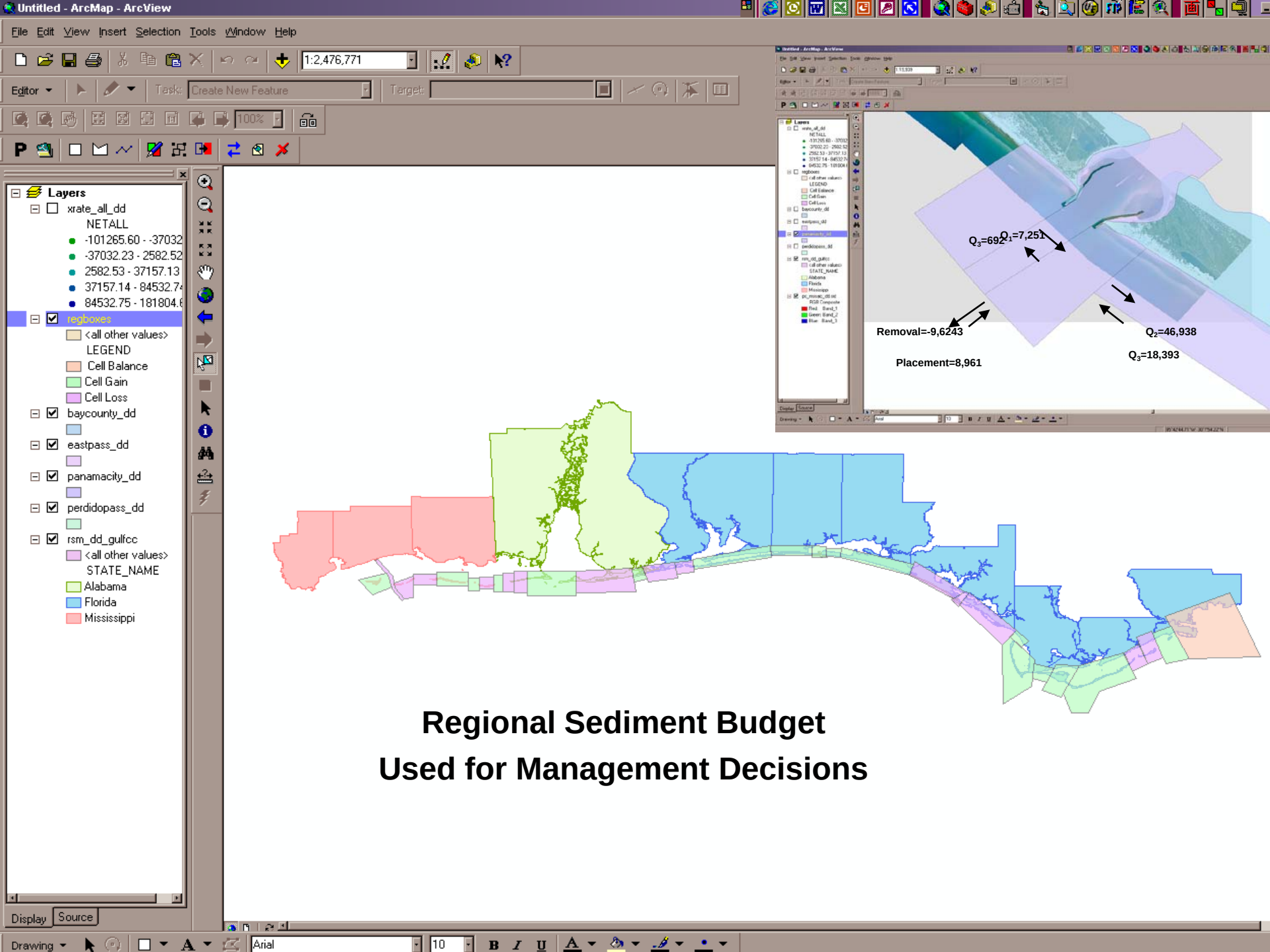
Federal, State, Local Partners, Academia, Other
Surveys
Imagery
Hydrodynamic data
Dredging Information
Sediment samples
Numerical models
Documents

eGIS/eCoastal: Data Management & GIS

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



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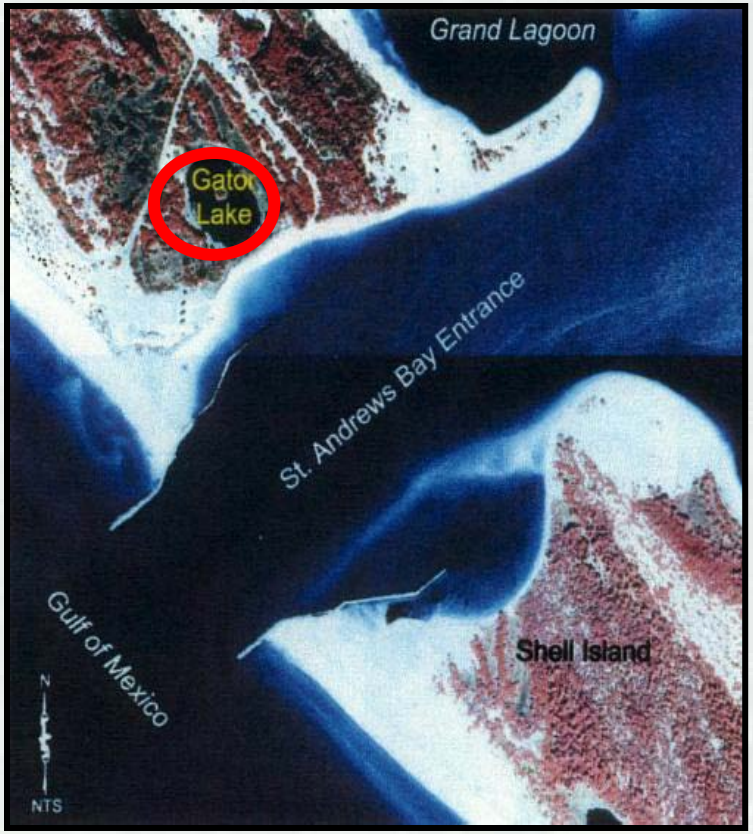
Regional Sediment Budget
Used for Management Decisions

RSM Opportunities

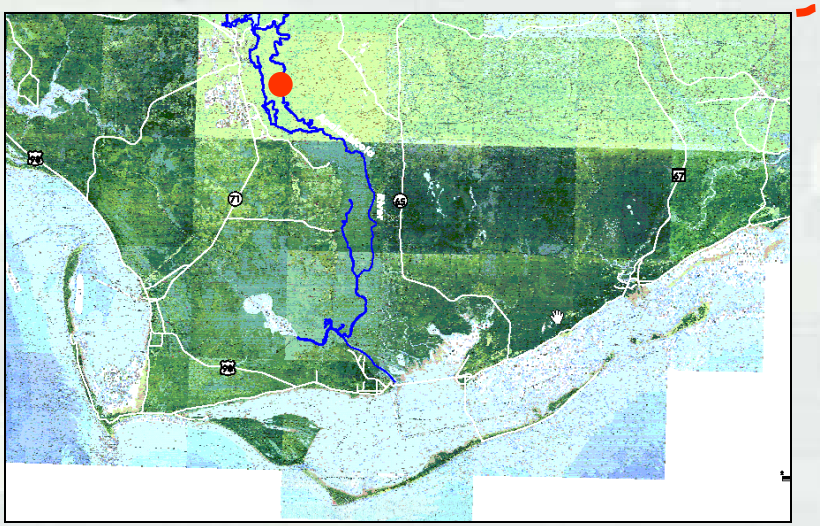
1. Perdido Pass Bypassing
2. Panama City, Gator Lake Breach
3. Apalachicola River Sand
4. East Pass Bypassing / Norriego Point
5. Mobile Pass, Sand Island Beneficial Uses
6. Deer Island, MS Marsh Creation

Gator Lake, Panama City, FL



Pensacola, FL

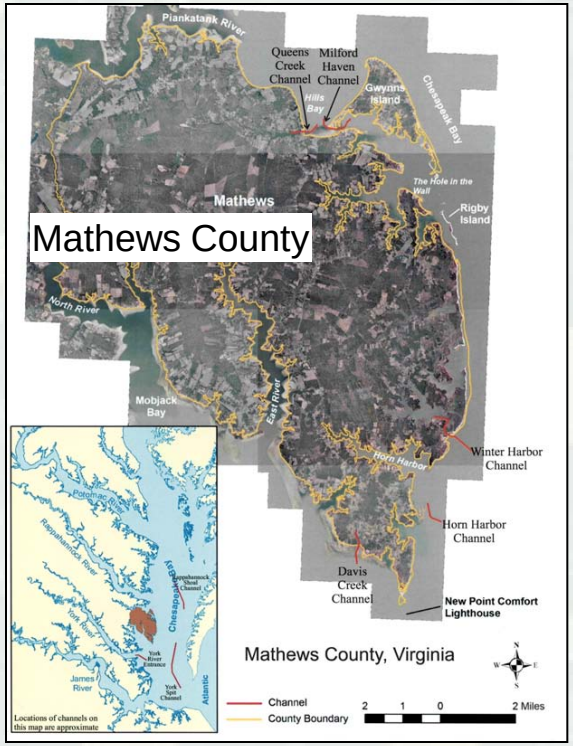
Apalachicola River Sand



Perdido Pass, AL

NAO Mathews County, VA RSM

RSM Region:
Western Shore Chesapeake Bay (200-mi shoreline)



Challenges

- 6 Federal navigation channels managed independently
- Long-term placement sites reaching capacity
- Acquiring new placements sites not possible on project-by-project basis
- Most severely eroding shorelines on Chesapeake Bay

Goals

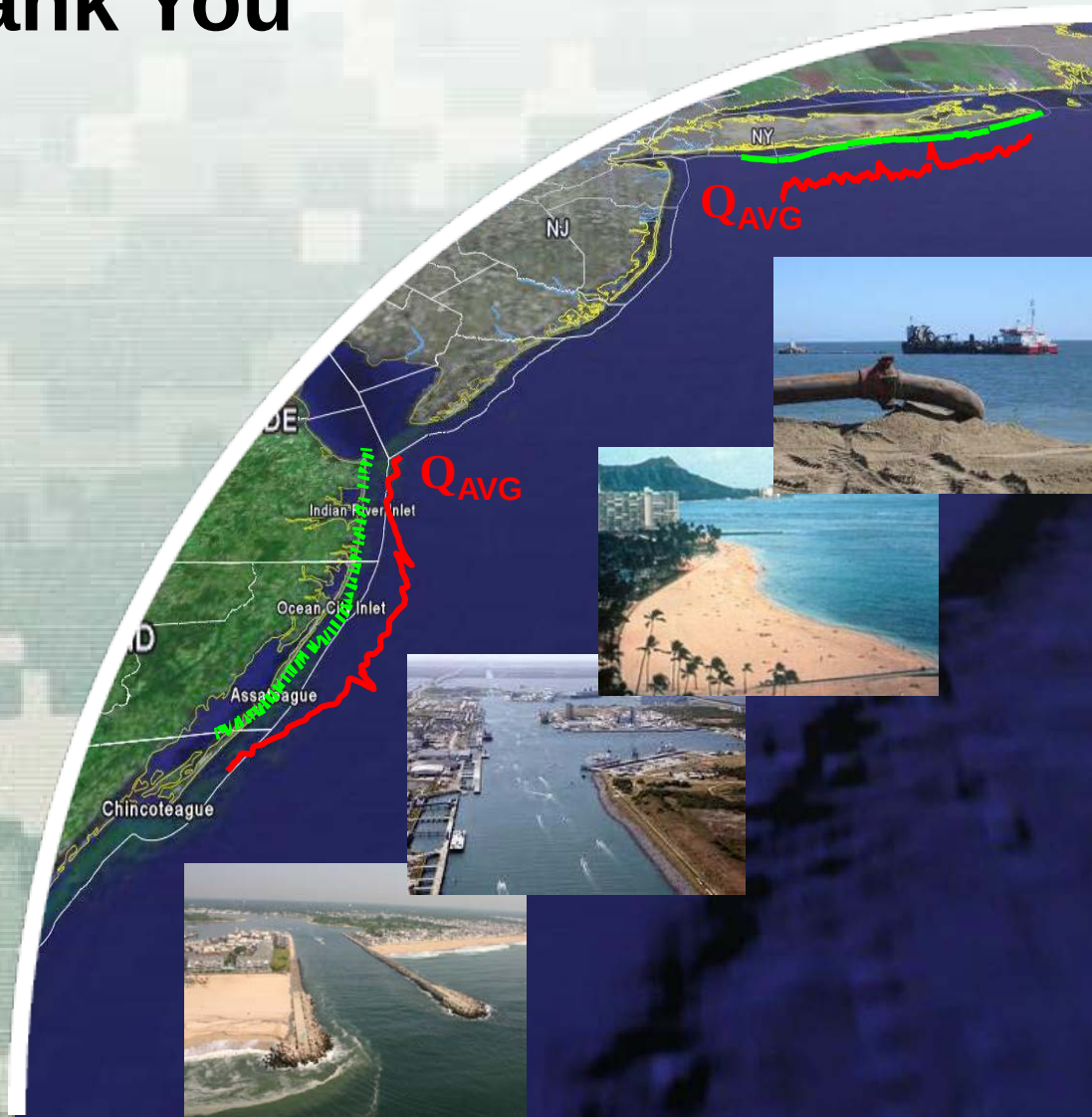
- Achieve regional, cross-mission benefits (navigation, shoreline erosion, ecosystem restoration)
- Extend maintenance cycles
- Reduce long-term O&M dredging costs per project
- Reduce shoreline erosion

Find solution or abandon maintenance of Federal Projects

FY11 Program Goals

- Balance Planning, Engineering, and Operations
- Focus on adaptive management
- Execute sediment management strategies
- Maximize benefits/minimize expenditures
- Leveraging and supplementing
- Build Corps capability
- Lessons learned

Thank You



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