



**Case Study on the Regional Sediment
Management Approach in the Northeastern
Gulf of Mexico
Perdido Pass, Alabama**

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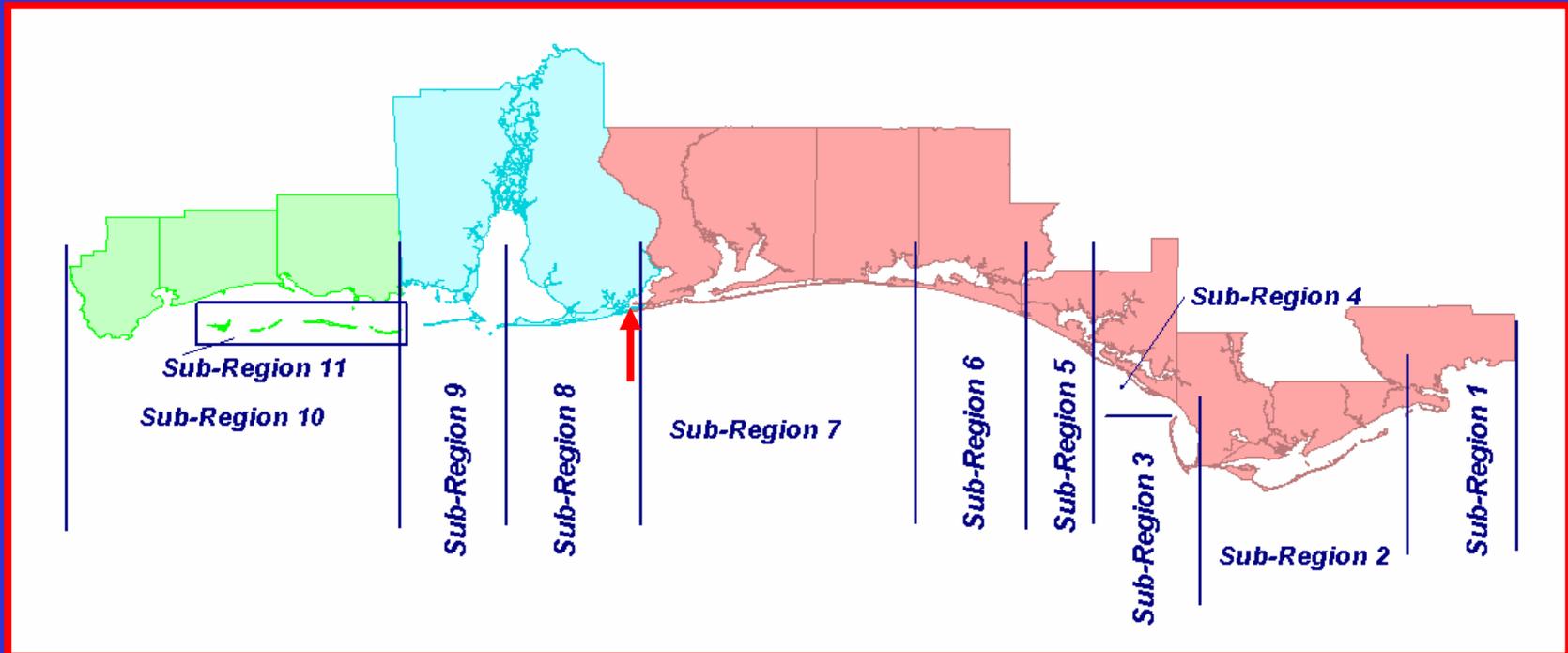
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**Conference on Managing Sediments in the Watershed
Portland, Oregon
August 29-31, 2006**



Mobile District

Northern Gulf of Mexico Regional Sediment Management Program



375-miles of Shoreline
Federal Projects
State Parks
Military Installations

Gulf Islands National Seashore
Panama City Beach
Local Projects



Approach

- **Change practice of project specific management**
- **Manage on a regional scale**
- **Stop managing project and manage the sand as a regional resource**
- **Informed management decisions**

Regional Sediment Management

Goal:

Maximize beneficial use of sediments;
Minimize environmental impacts;
Optimize Expenditures

Objectives:

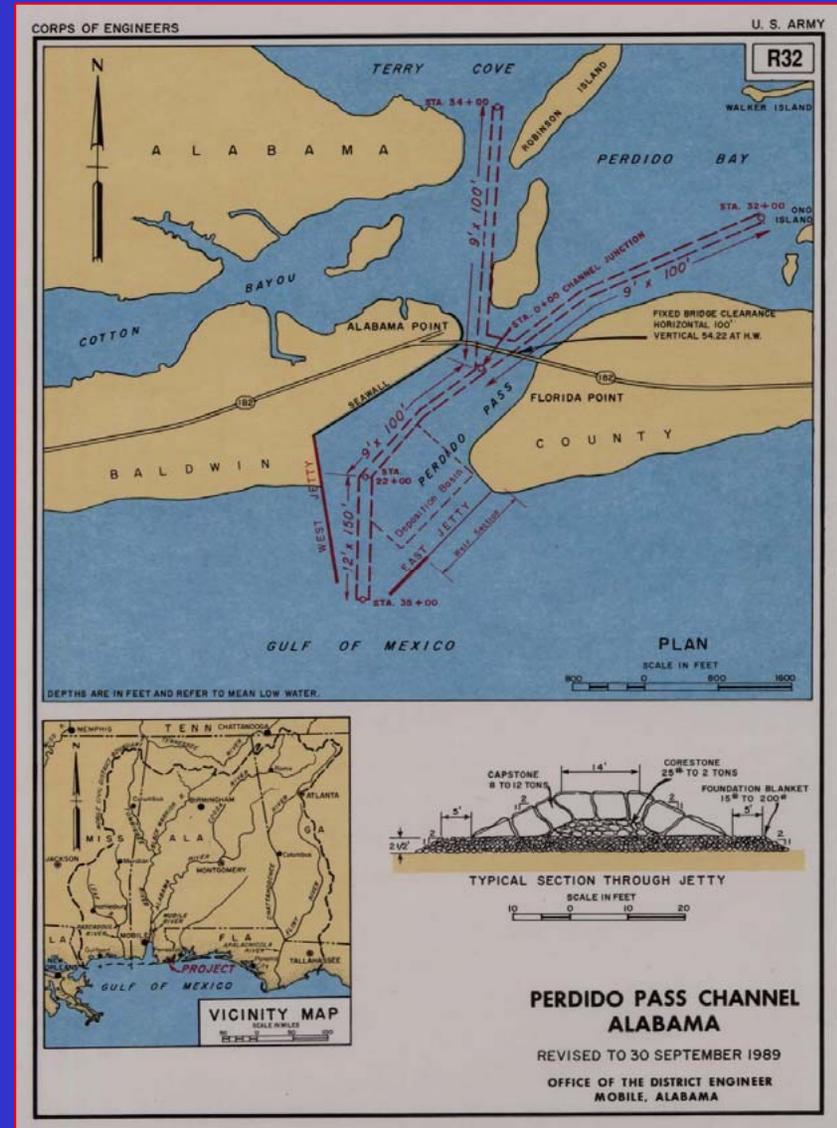
- Implement RSM practices in concert with environment
- Improve economic performance by linking projects
- Develop new engineering techniques to optimize/conservate sediment
- ID/overcome bureaucratic obstacles
- Establish partnerships



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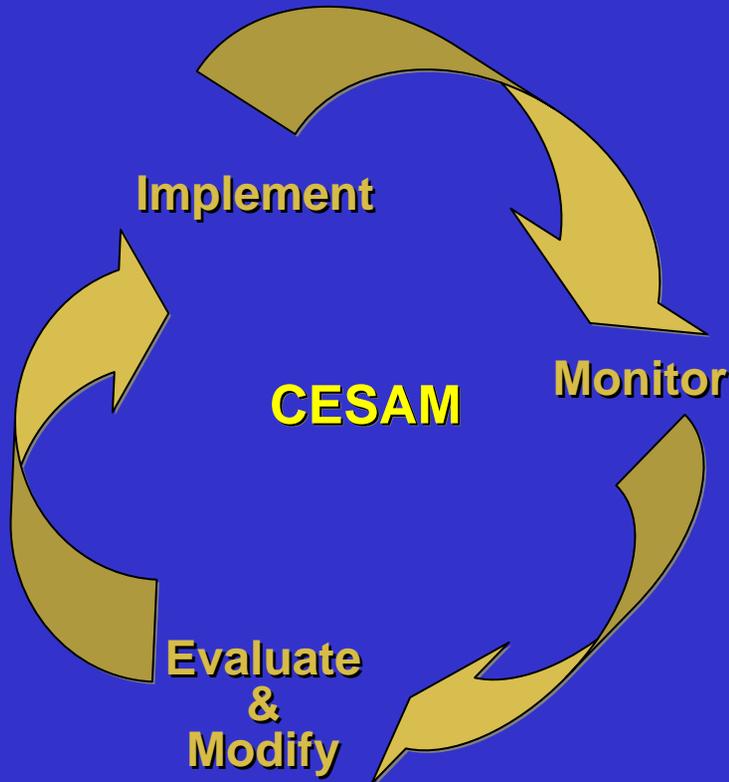
Perdido Pass

- Corps is responsible for maintaining navigation channels
 - channel 12 feet deep by 150 feet wide
 - channel 9 feet deep by 100 feet wide
 - impoundment basin
- Two jetties extending into the Gulf of Mexico spaced 600 feet apart at the seaward end.
 - six (6) feet mean low water (MLW)
 - low weir section to permit passage of littoral drift material



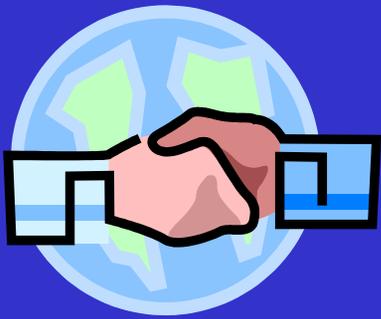
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RSM Cycle

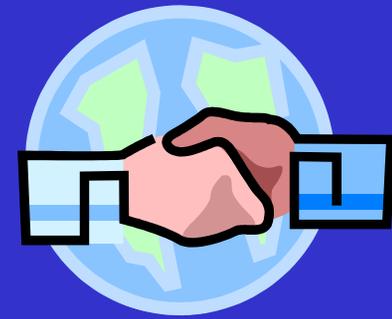


- Identify & implement demonstration initiatives
- Monitor for performance
- Evaluate & modify procedures
 - Document Lessons Learned
- Implement modified procedures





RSM Partners



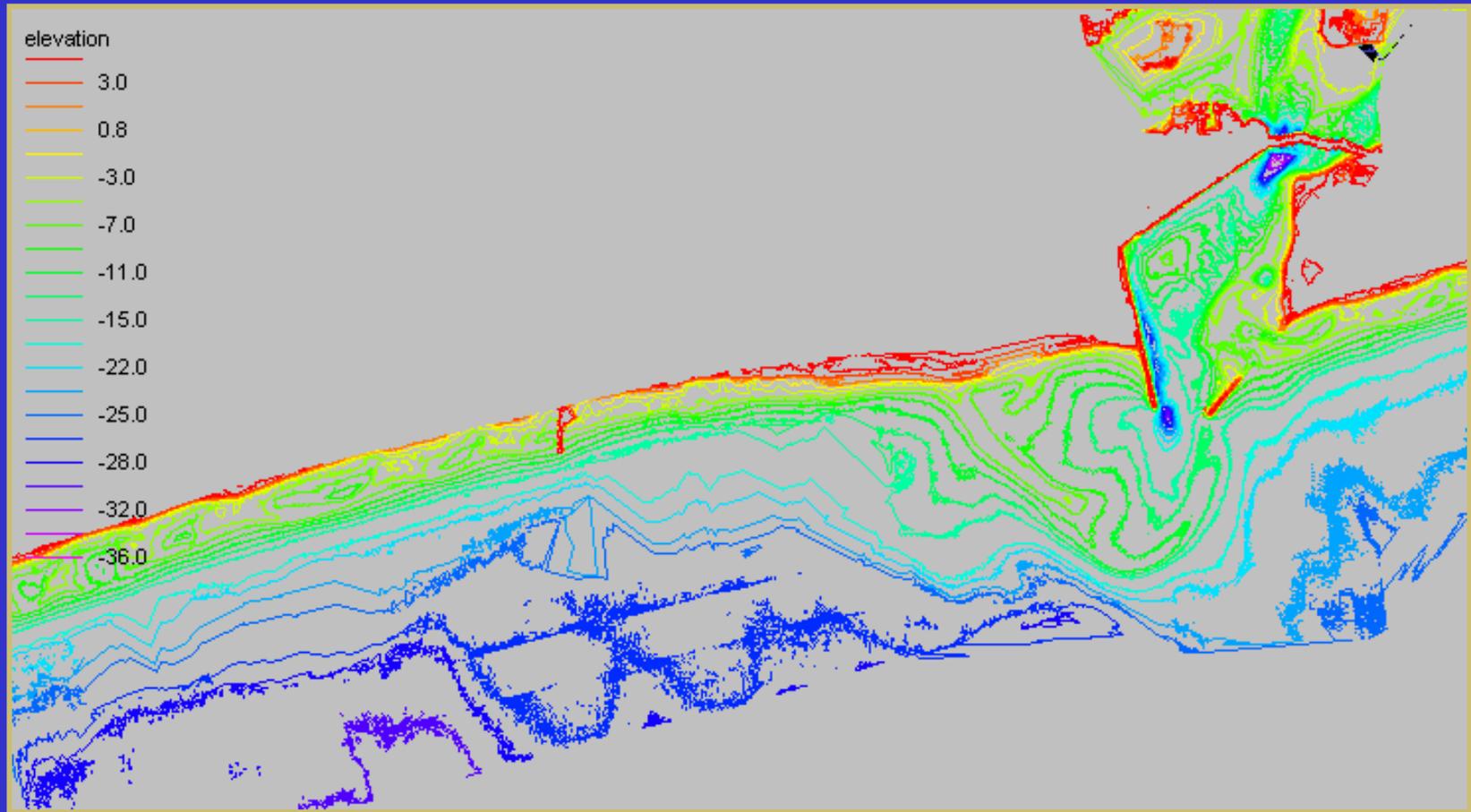
- Collaboration A Necessity
 - Identify problems & opportunities
 - Solutions towards improved management
 - Local involvement
- USACE Internal Partnerships
 - Information Sharing -Districts/Divisions
 - Within all elements of the District
Operations, Planning, Engineering, etc.
- External Partnerships
 - Federal, State, Local
 - Academia
 - Various other stakeholders

Disposal Areas

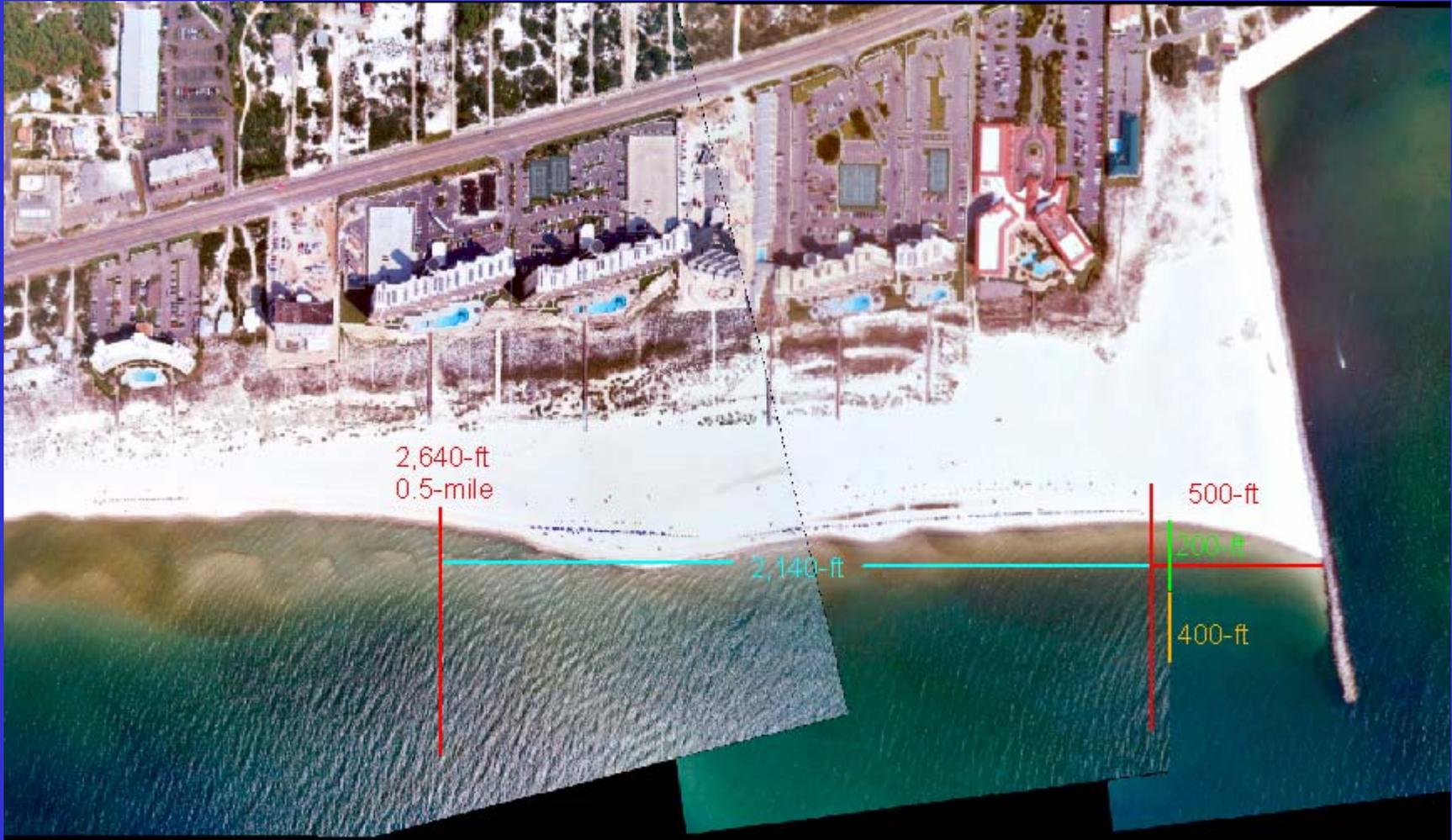


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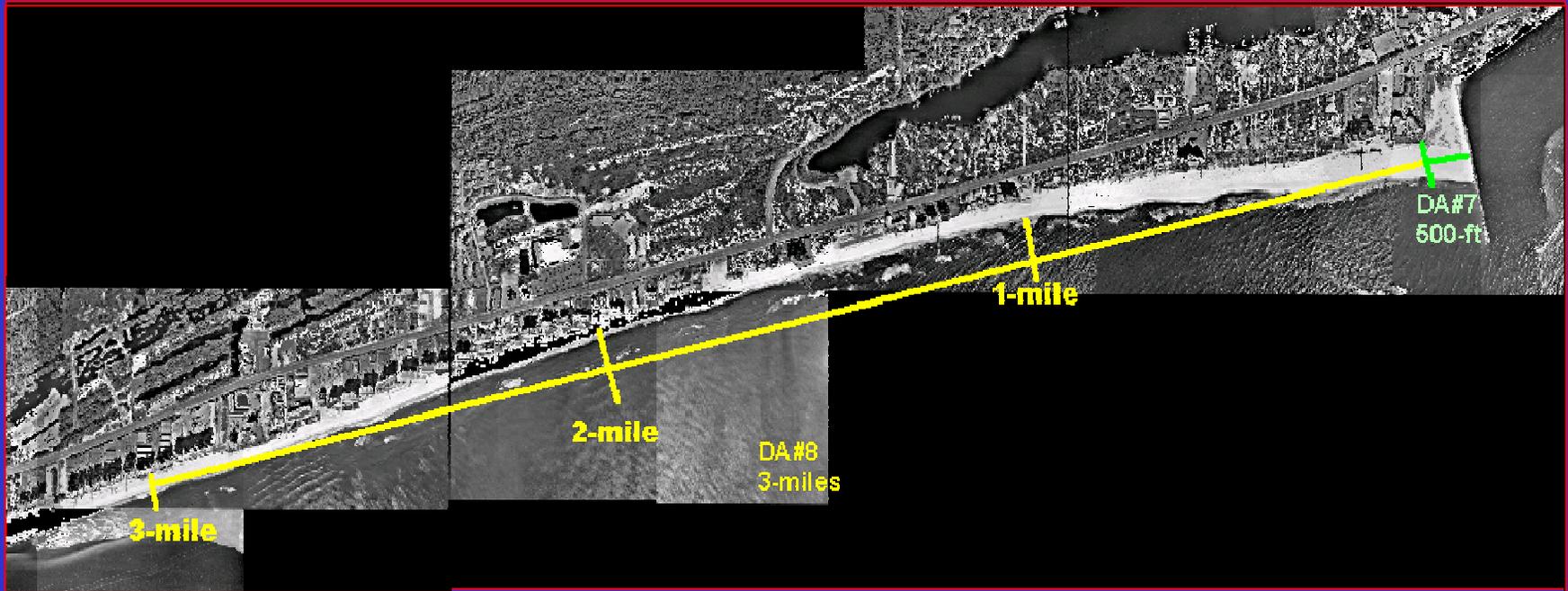
SHOALS Survey 2001



Mobile District



Perdido Pass - Alabama



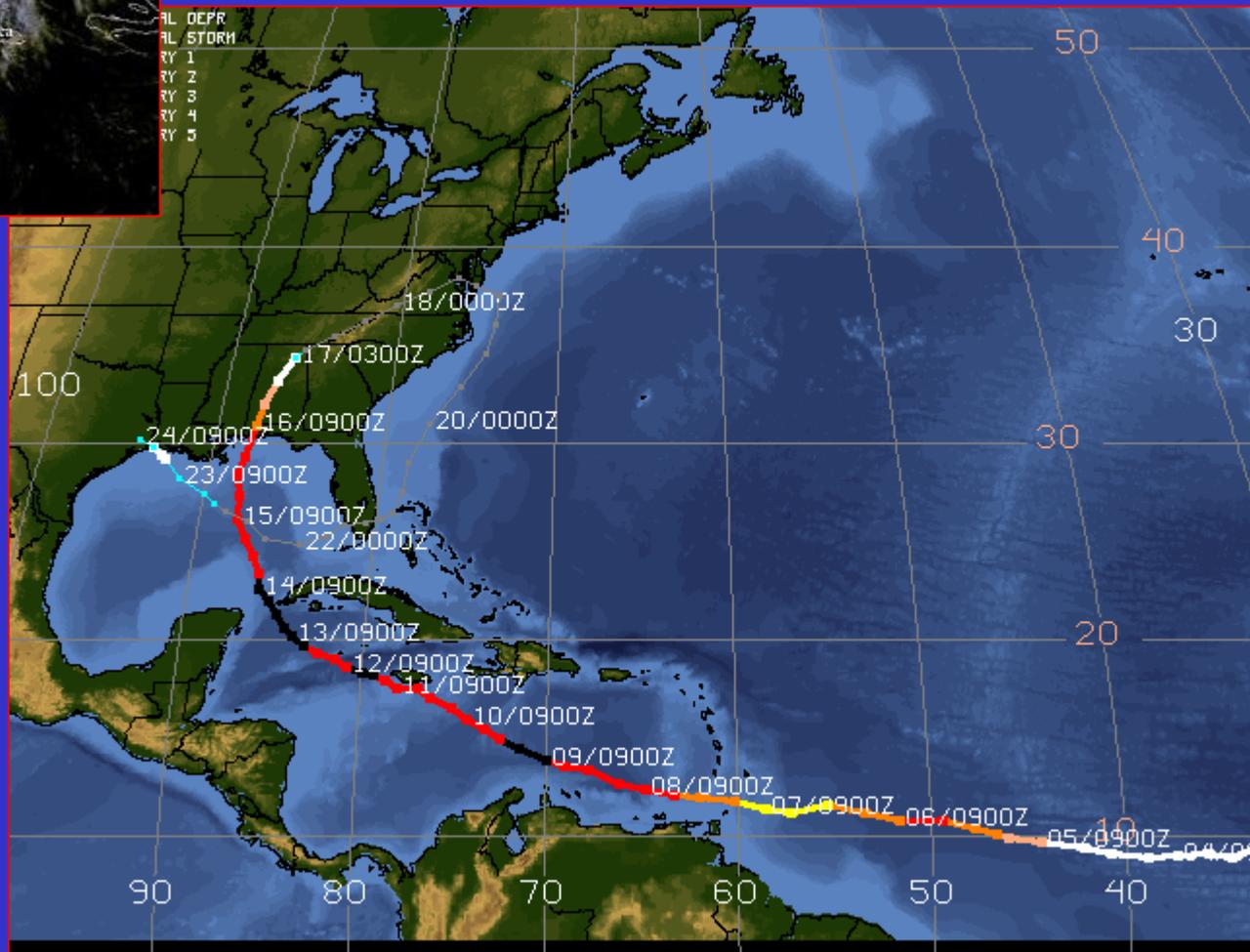
- Benefits
 - Effective use of modeling tools
 - More effective sand by-passing
 - Flexibility in disposal placement
 - Partnership with local government
 - Environmental



Hurricane Ivan

September 2004

HL DEPR
HL STORM
RY 1
RY 2
RY 3
RY 4
RY 5



- Strong Cat. 3
- 130 mph winds
- 14-foot surge +
- Large waves
- Extensive Erosion



- Gulf State Park, Florida Point Unit, east side of Perdido Pass
- Natural beach system
- Wide beaches
- Developed dune fields - 15-foot crest elevations above mean sea level.
- 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



- Hundreds of thousands of 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
- Much of the critical habitat destroyed
- Leveled dune fields
- Extensive shoreline recession

Emergency Action



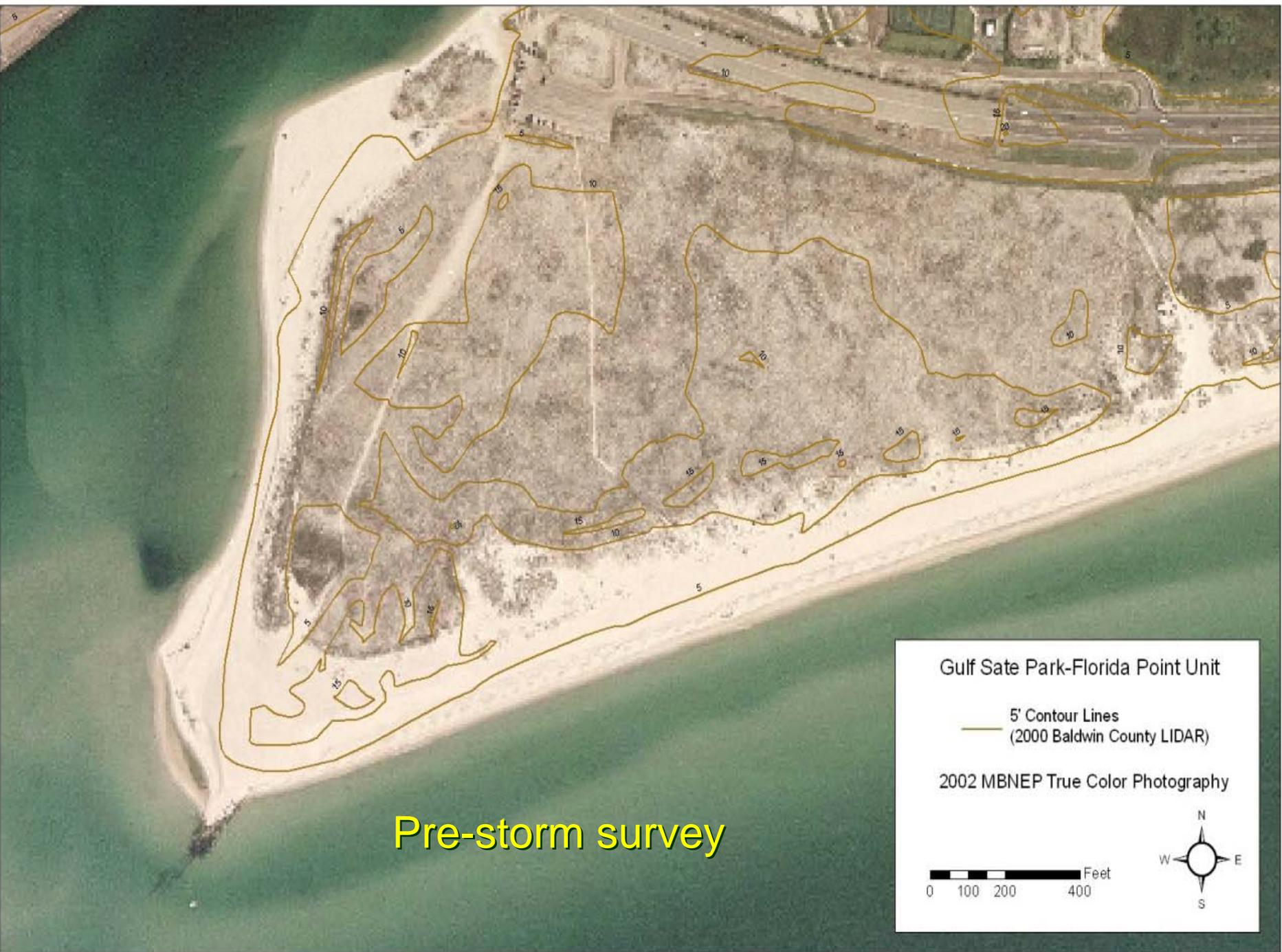
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- Emergency funding to restore navigation channel and sand impoundment basin
- Not enough disposal capacity
 - Permitting and environmental compliance issues
- Existing beach restoration project
- Minimal restoration to channel

Cooperative, multi-agency effort to quickly develop and 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





Pre-storm survey

Gulf Sate Park-Florida Point Unit

5' Contour Lines
(2000 Baldwin County LIDAR)

2002 MBNEP True Color Photography



Restoration Measures

- Restore base elevation on the east side of the Pass
 - Tie in to the remaining dune line at about the +10-foot elevation
 - Extend berm seaward sloping gradually to the water
 - Establish original position of shoreline
 - Gradual slope to prevent the formation of escarpments and maintain a beach that allows access for nesting sea turtles.
- Construction of dunes to mimic natural dune fields
 - Promote dune growth and formation
 - Dune stabilization measures
 - planting natural dune vegetation
 - placement of dune fencing
- Extend berm and dunes east within limits of State Park
 - Dependent upon volume of available material



- Pipeline dredge used to move material
- Dozer used to spread and shape
- Dredging began early February
- Dredging complete late March
- 560 thousand cubic yards restored





Pre-Ivan



Post-Ivan



Post-Ivan
Placement



- May 2004
- Least tern nests
- Black skimmer nests
- Documented sea turtle nest
- Natural vegetation returning
- Protection measures taken

Perdido Pass

Regional Sediment Management Conclusions

- **Benefits**

- Navigation
- Recreation
- Leveraging of funds
- Beneficial use
- Environmental
- Regional tools
- **Partnerships**



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