

MVN Regional Sediment Management

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US Army Corps of Engineers
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Outline

- **Louisiana's Need for Coastal Sediment Budgets - Barataria and Terrebonne Shorelines**
- **Phases of 2010/2011 Sediment Budget Work**
- **Work Completed and in Progress**
- **Gulf Coast Ecosystem Restoration Task Force**

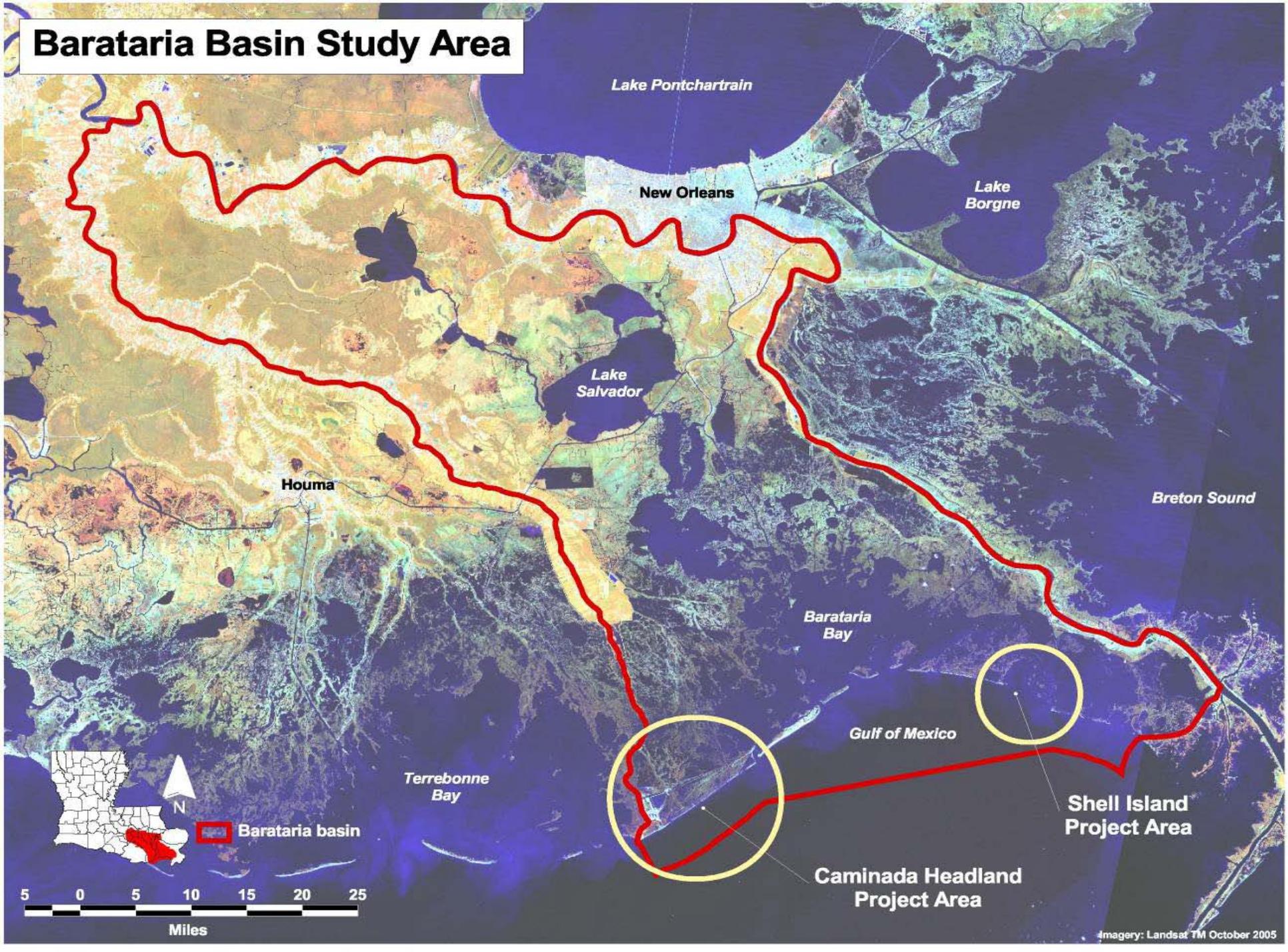


Louisiana's Need

- The Barataria Basin Barrier Shoreline Restoration project and the Terrebonne Basin Barrier Shoreline Restoration project were contingently authorized by Title VII of the Water Resources Act of 2007.
- Louisiana shoreline sediment movement is NOT dominated by wave induced transport but is associated with the abandonment phase of the delta cycle.
- Barrier shorelines in Louisiana separate the Gulf of Mexico from the interior estuaries and consist of three landforms: beaches, dunes, and marsh.



Barataria Basin Study Area

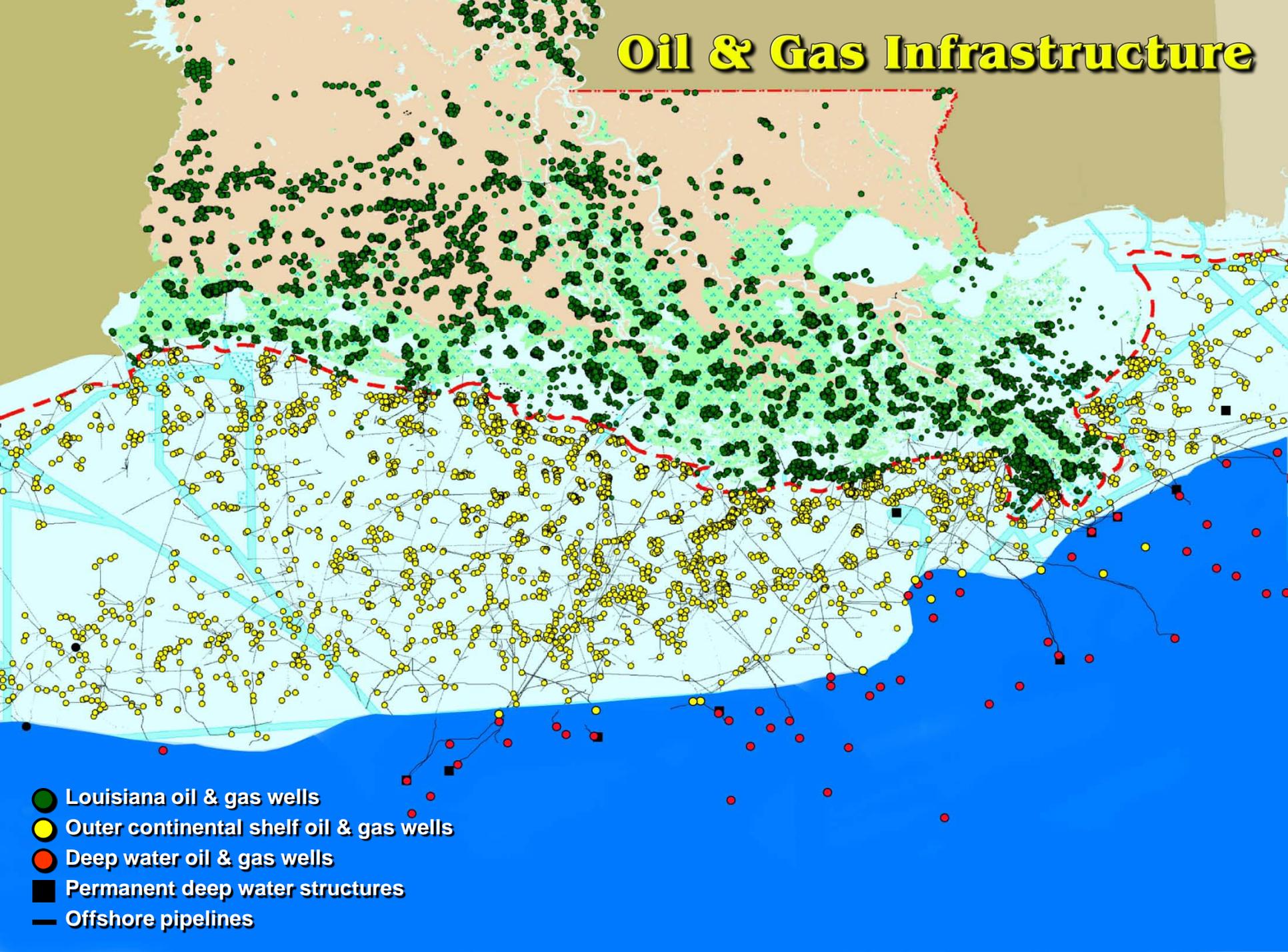


Louisiana's Need

- Ship Shoal, the nearest accessible sand source for much of the Barataria and Terrebonne basins, is 40 miles from the Caminada Headland.
- Thousands of Oil and Gas Wells and Pipelines Prevent Access to Other Shoals.
- An estimated 100 million cubic yards of material is required to construct and maintain these barrier shoreline projects over the 50 year period of analysis.



Oil & Gas Infrastructure



- Louisiana oil & gas wells
- Outer continental shelf oil & gas wells
- Deep water oil & gas wells
- Permanent deep water structures
- Offshore pipelines

Louisiana's Need

- Lack of Accessible, Suitable Sediment as well as the High Cost of Transporting Sediments Make Shoreline Restoration a Major Challenge.
- Sediment Budgets Combined with Numerical Modeling Can Provide Critical Understanding of the Estimated Volume of Sediment that will Remain in a System over a Period of Analysis for Different Alternatives, under Various Sea Level, Wave and Storm Conditions.

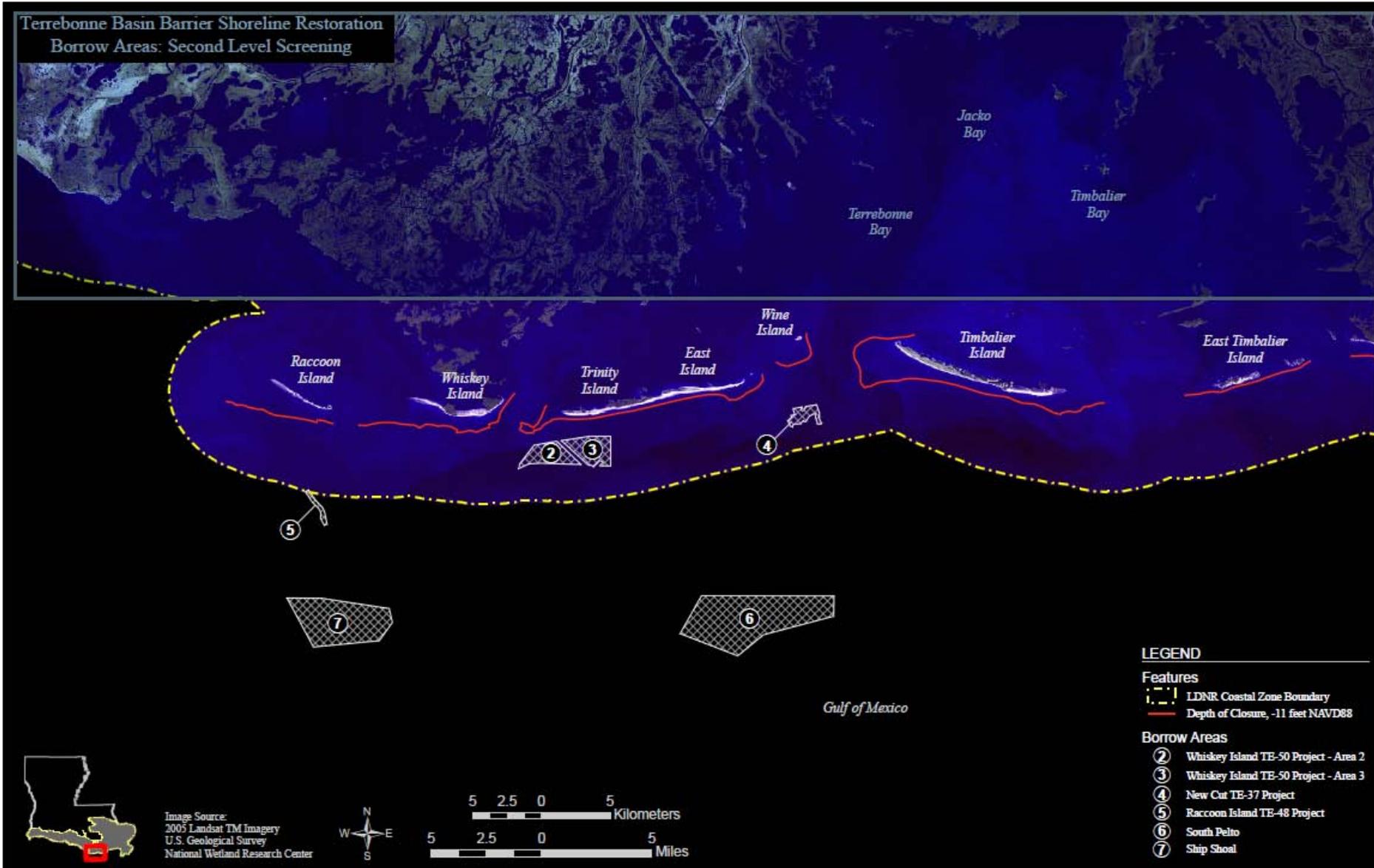


Louisiana's Need

- This Understanding is Required to Evaluate the Sustainability of Federal Ecosystem Benefits into the Future.
- Can Assist in Determining When or if Maintenance (Renourishment) is Required, along with an Estimated Quantity.
- Can Aid in Project Design by Showing if Containment or other Features to Retain Sediment are Required.



Louisiana's Need



Phases of 2010/2011 Sediment Budget Work

- Phase 1 – Develop Conceptual Sediment Budget
- Phase 2 – Develop Coastal Change Database
 - ▶ Import Coastal Sediment Data Into GIS and ID Data Gaps
 - ▶ Convert all Elevation Data to a Common Datum
 - ▶ Develop Geomorphic Units
 - ▶ Interpolate Data
 - ▶ Perform Sensitivity Analysis
 - ▶ Determine grain size, volume eroded and accreted
- Phase 3 – Apply Numerical Models to quantitatively investigate the relative impact of long-shore and cross-shore transport to barrier island evolution.
- Phase 4 – Refine Sediment Budget with Results from Phase 2-3. Conduct Future With and Without Project Analysis.



Work Completed and in Progress

- Conceptual Sediment Budget Developed for Coastal Louisiana (ERDC, funded by National RSM program, LCA S&T Office)
- Coastal Change Database Developed for Barataria Shoreline (University of New Orleans, funded by LCA S&T Office)
- Numerical Models (Coastal Modeling System) Under Development for Barataria Shoreline (ERDC and MVN)
- Coastal Change Database Under Development for Terrebonne Shoreline (ERDC and MVN)



Gulf Coast Ecosystem Restoration Task Force

- Presidential Executive Order after the Deepwater Horizon Oil Spill – Task Force chaired by EPA
- Restore and conserve Gulf ecosystems
- Develop Restoration Strategy by October 5, 2011
- 4 Goals
 - ▶ Conserve and Restore Habitat
 - Wise Use of Sediments in Conservation and Restoration
 - More Beneficial Use
 - Effective Mississippi River Strategies to Obtain Sediments
 - ▶ Restore Water Quality
 - ▶ Protect and Replenish living coastal and marine resources
 - ▶ Enhance Community Resilience

