Among the Nation’s most productive and important natural assets:
- Habitat
- Diversity
- Storm protection
- Port commerce
- Oil and gas production

- 90% of the Nation’s total coastal marsh loss
- Accelerated by Hurricanes Katrina and Rita in 2005
- 2007 Congress authorized the Louisiana Coastal Area Program
LCA Program Objectives

- Increase sediment input
- Maintain or establish natural landscape features & hydrologic processes
- Establish dynamic salinity gradients
- Sustain productive & diverse fish and wildlife habitats
- Reduce nutrient delivery to the Continental Shelf
Authorized LCA Program Components
Water Resources Development Act of 2007

Sec. 7006(c)(1) - Five (5) near-term projects conditionally authorized for construction.

Sec. 7006(e)(1) - Four (4) addition projects contingently authorized, subject to feasibility studies.

Sec. 7006(e)(3) - Six (6) addition projects contingently authorized, subject to Chief of Engineers Report.

Four (4) other program elements
Sec. 7002 - Comprehensive Plan
Sec. 7005 - Modifications to Existing Projects
Sec. 7006(b)(1) - Demonstrations Projects
Sec. 7006(d) - Beneficial Use of Dredged Material

Sec. 7002 Investigations of other large scale concepts.

Total LCA Ecosystem Restoration $1,996,500,000
Critical restoration features:
1) Mississippi River Gulf Outlet Canal (MRGO) environmental restoration
2) Small Diversion at Hope Canal
3) Barataria Basin Barrier Shoreline Restoration
4) Small Bayou Lafourche reintroduction
5) Medium diversion at Myrtle Grove with dedicated dredging
6) Multipurpose operation of the Houma Navigation Lock
7) Terrebonne Basin Barrier Shoreline Restoration
8) Convey Atchafalaya River water to northern Terrebonne marshes
9) Small Diversion at Convent/Blind River
10) Amite River Diversion Canal Modification
11) Medium Diversion at White Ditch
12) Gulf Shoreline at Point Au Fer Island
13) Land bridge between Caillou Lake and the Gulf of Mexico
14) Modification to the Caernarvon diverion
15) Modification to Davis Pond diversion

Note:
Critical features 1-5 contingently authorized
Critical features 6-15 conditionally authorized
ECOLOGICAL CHALLENGES AND UNCERTAINTIES

- Barrier Island Degradation
- Storms
- Salt Water Intrusion
- Canals
- Oil & Gas Development
- Subsidence
- Sea Level Rise
- Sediment Reduction
- Levee System
“to ensure that LCA ecosystem restoration objectives are realized, monitoring and adaptive management must be a critical element of the LCA projects”

(LCA Chief’s Report 2005)
WRDA 2007 (section 7006)

Science and Technology Program

- to identify any uncertainty relating to the physical, chemical, geological, biological, & cultural baseline conditions in the coastal Louisiana ecosystem;
- to improve knowledge of the physical, chemical, geological, biological, & cultural baseline conditions in the coastal Louisiana ecosystem;
- to identify & develop technologies, models, and methods to carry out this subsection;
Demonstration Projects

- For the purpose of resolving critical areas of scientific or technological uncertainty related to the implementation of the comprehensive plan
- The total cost for planning, design, & construction of all projects shall not exceed $100 million
- The total cost of any single project under shall not exceed $25 million
IMPLEMENTATION STRUCTURE FOR LCA ADAPTIVE MANAGEMENT

Program Management

Adaptive Management Team

Project Delivery Teams

Science and Technology Program

Stakeholders
Collaboration/Partner Agencies
LCA AM Plans

- Feasibility level of detail
- Describes & justifies whether AM is needed
- Identifies how AM would be conducted
- Responsibility for AM
- What should be monitored
- Outlines how results of monitoring would be used to adaptively manage project
- Defines project success
- Estimates costs for Monitoring & AM program
Uncertainties will be addressed in preconstruction, engineering, and design (PED) and a detailed monitoring and adaptive management plan, including a detailed cost breakdown, will be drafted as a component of the design document.
Science Strategy

Conceptual Models

Societal Values

Goals and Objectives

Performance Measures

Predictive Screening Models
(Simulate System Response)

Decision Support Tools

Alternative Evaluation

Restoration Plan

Monitoring & Assessment
(actual performance)

Research
(increase linkage certainty)

Uncertainties

Calibration

Validation

Adaptive Management
Adaptive Management Feedback Loop

- Modify operations and/or project features
- Apply lessons learned from one project to another
- Halt project & work with scientists to take corrective actions
- Helps scientists & managers determine which programmatic concepts/techniques are best meeting goals
Adaptive Management Challenges

- Ability to understand the need & process for AM
- Formulating ecosystem restoration plans that focus more on restoration of the geomorphologic structure of the coast
- Ability to measure outputs in a meaningful/usable way
- Measuring success & communicating results
- Science available at the right times & in layman’s terms
- Developing & maintaining good science
- Integrating best science into project development, program implementation, & associated decision making
- Communication & feedback among program & project scientists and decision makers
Key Take-a-way Points

- A framework for AM has been created for the LCA Program
- Framework incorporates a strategy for involving scientists and incorporating the best science
- Feasibility-level plans have been created for 6 LCA Projects
- Multiple challenges associated with program/project AM implementation
QUESTIONS