

Louisiana Coastal Area (LCA) Ecosystem Restoration Program Strategy for Adaptive Management



**US Army Corps
of Engineers**
New Orleans District

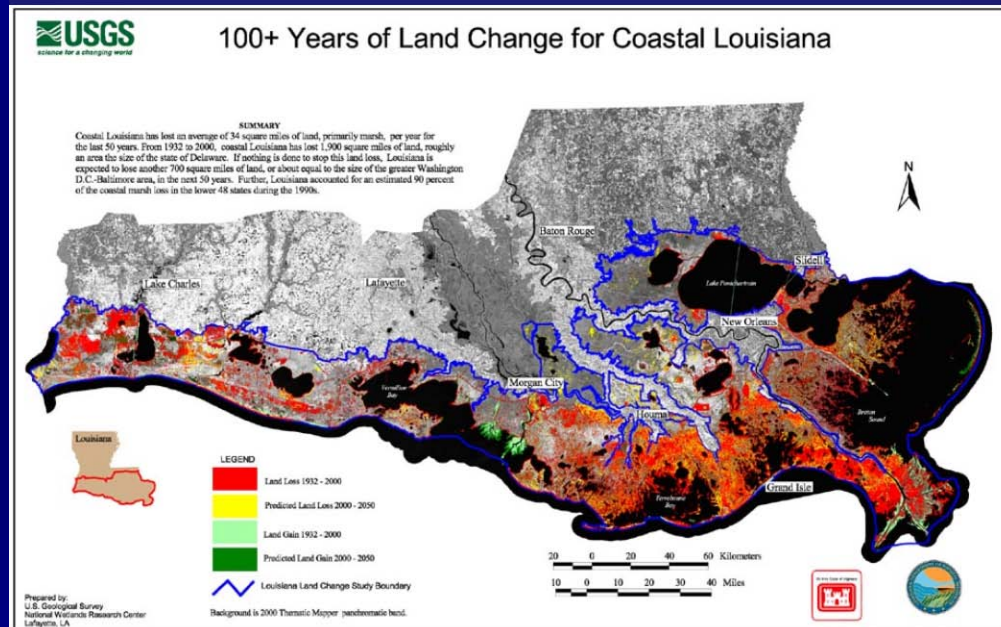


Lane Lefort

COASTAL LOUISIANA

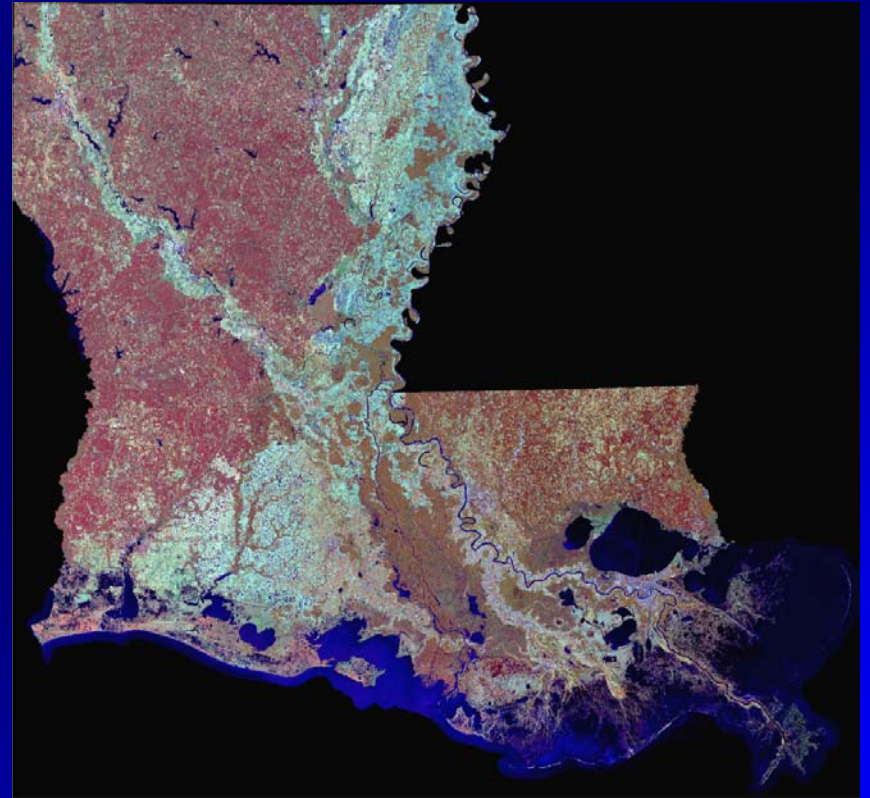
- Among the Nation's most productive and important natural assets:
 - Habitat
 - Diversity
 - Storm protection
 - Port commerce
 - Oil and gas production

- 90% of the Nations 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.

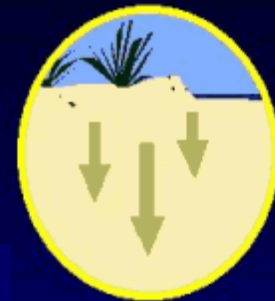
Total LCA Ecosystem Restoration \$1,996,500,000

ECOLOGICAL CHALLENGES AND UNCERTAINTIES

Barrier Island Degradation



Subsidence



Storms



Sea Level Rise



Salt Water Intrusion



Sediment Reduction



Canals



Oil & Gas Development



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

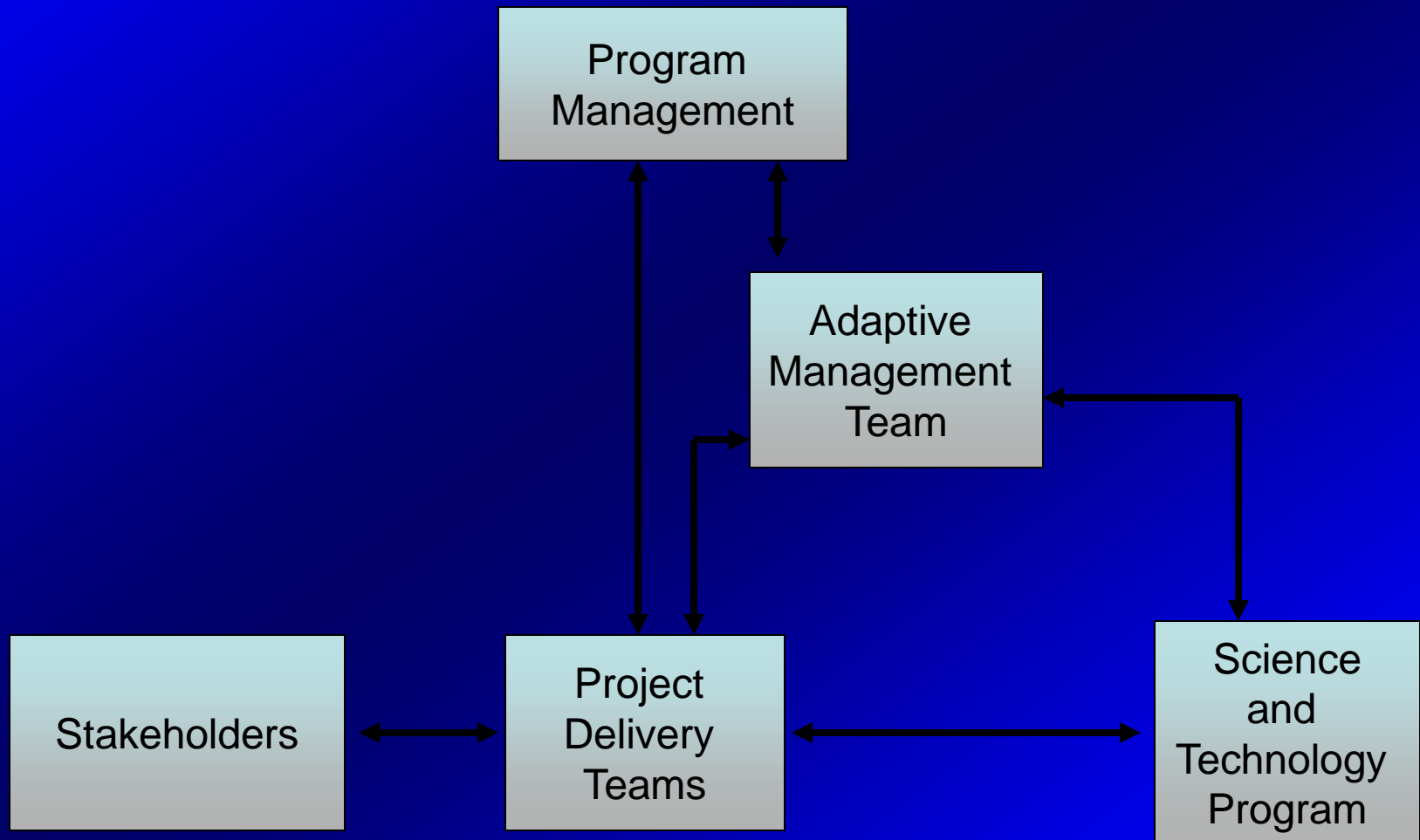
- to identify any uncertainty relating to the physical, chemical, geological, biological, & cultural baseline conditions in the coastal Louisiana ecosystem;
- to improve knowledge of the physical, chemical, geological, biological, & cultural baseline conditions in the coastal Louisiana ecosystem;
- to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

WRDA 2007 (section 7006)

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

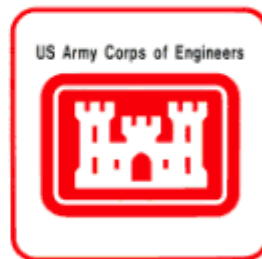
IMPLEMENTATION STRUCTURE FOR LCA ADAPTIVE MANAGEMENT

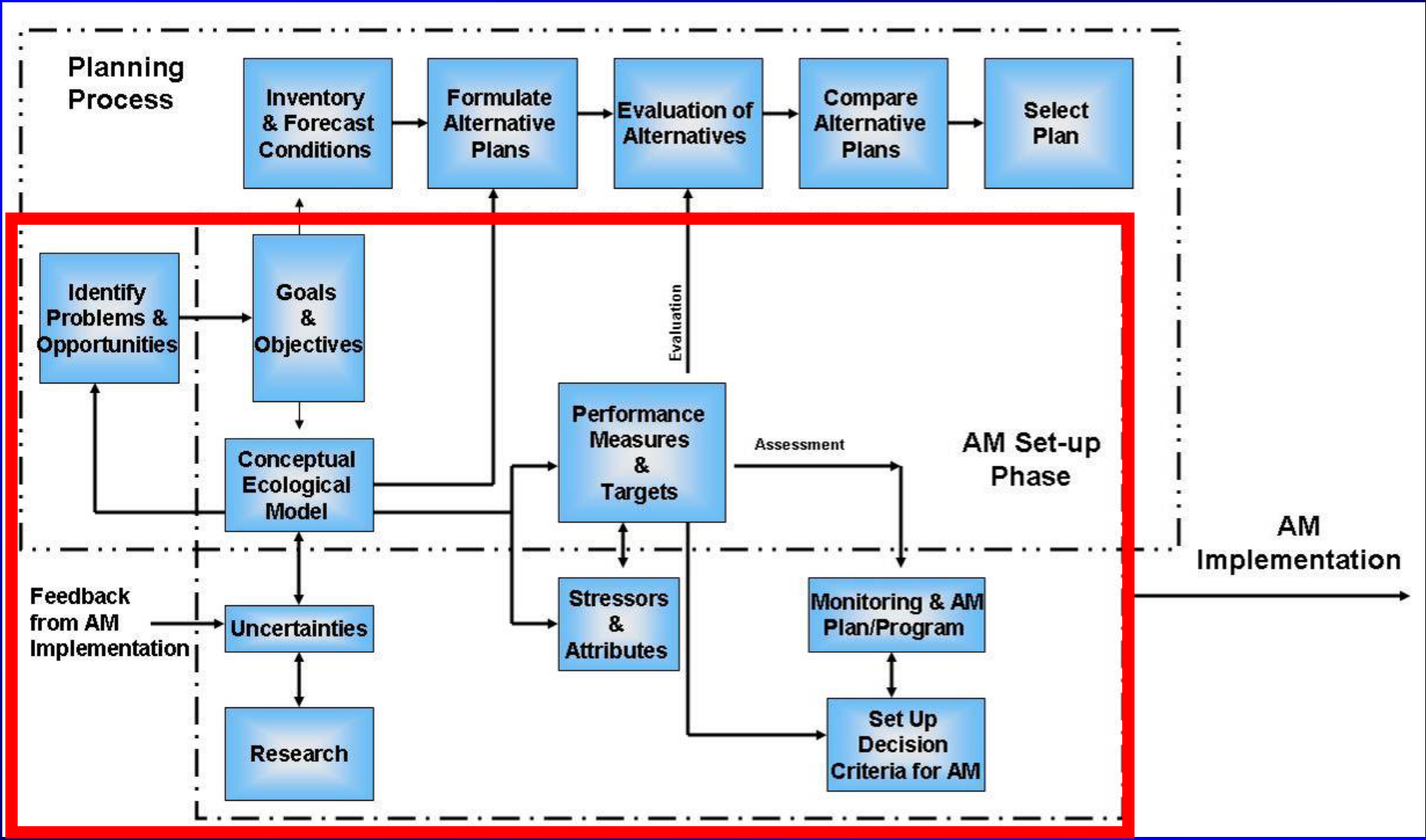


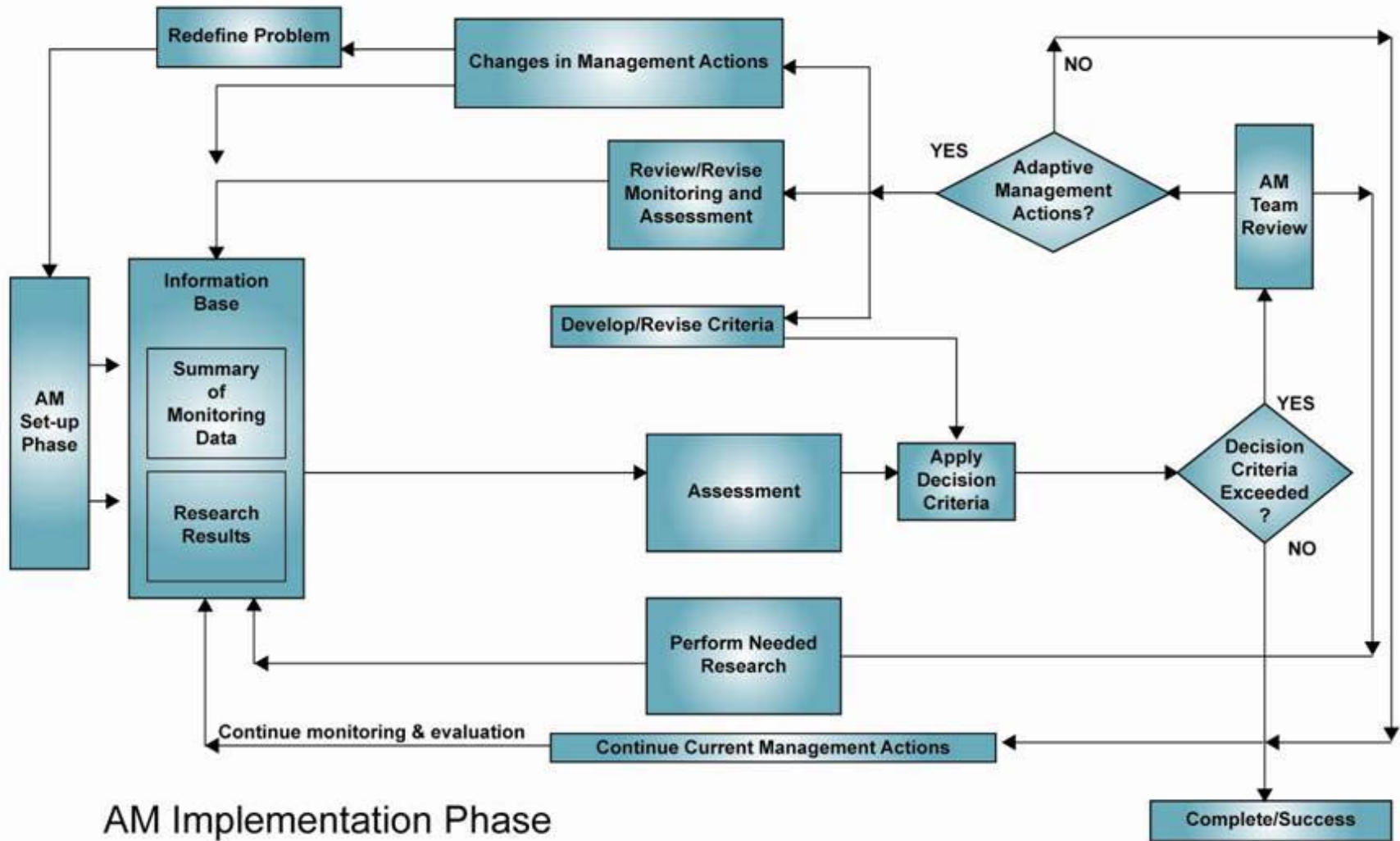
Collaboration/Partner Agencies



NATIONAL WETLANDS RESEARCH CENTER
SPATIAL ANALYSIS BRANCH
LAFAYETTE, LOUISIANA

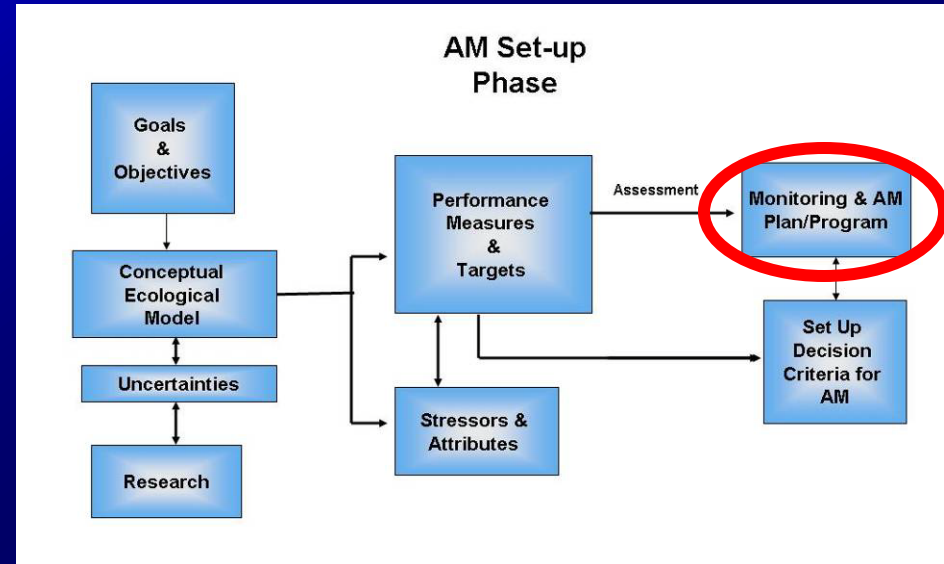






LCA AM Plans

- 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



LCA Adaptive Management Plan

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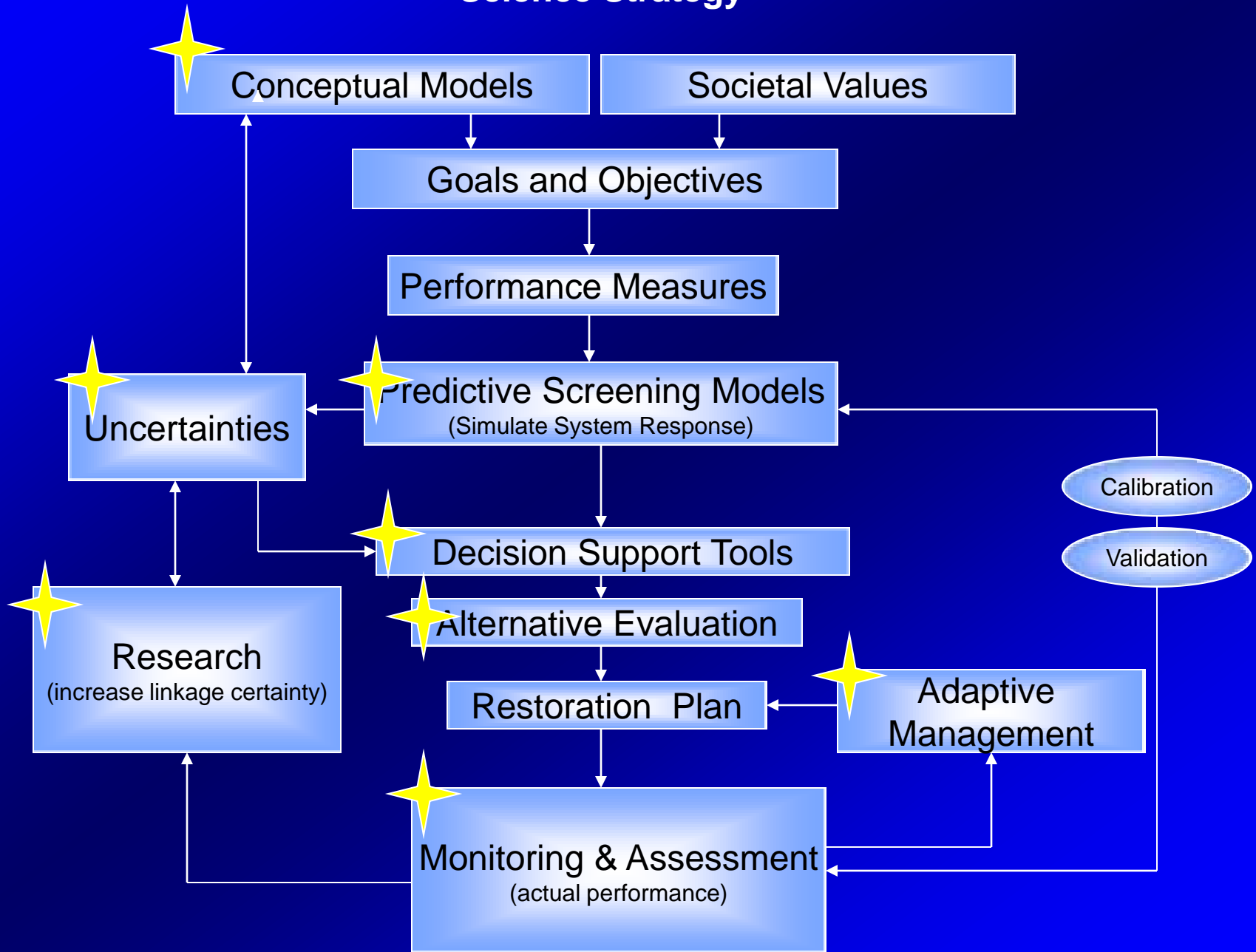
- 1.0 Introduction
 - 1.1 Authorization for Adaptive Management in the LCA Program
 - 1.2 Procedure for Drafting Adaptive Management Plans for LCA Projects
 - 1.3 LCA Communication Structure for Implementation of Adaptive Management
- 2.0 Project Adaptive Management Planning
 - 2.1 Project Goals and Objectives
 - 2.2 Management and Restoration Actions
 - 2.3 Conceptual Ecological Model for Monitoring and Adaptive Management
 - 2.4 Sources of Uncertainty
- 3.0 Rationale for Adaptive Management
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 - 5.1 Description and Location
 - 5.2 Data Storage and Retrieval
 - 5.3 Analysis, Summarizing, and Reporting
- 6.0 Assessment
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 - 6.2 Variances and Success
 - 6.3 Frequency of Assessments
 - 6.4 Documentation and Reporting
- 7.0 Decision-Making
 - 7.1 Decision Criteria
 - 7.2 Potential Adaptive Management Measures
 - 7.3 Project Close Out
- 8.0 Costs for Implementation of Monitoring and Adaptive Management Programs
 - 8.1 Costs for Implementation of Monitoring Program
 - 8.2 Costs for Implementation of Adaptive Management Program
- 9.0 References

AM Plan Uncertainties

- Exact project features or design
- Monitoring elements
- Adaptive management actions or costs

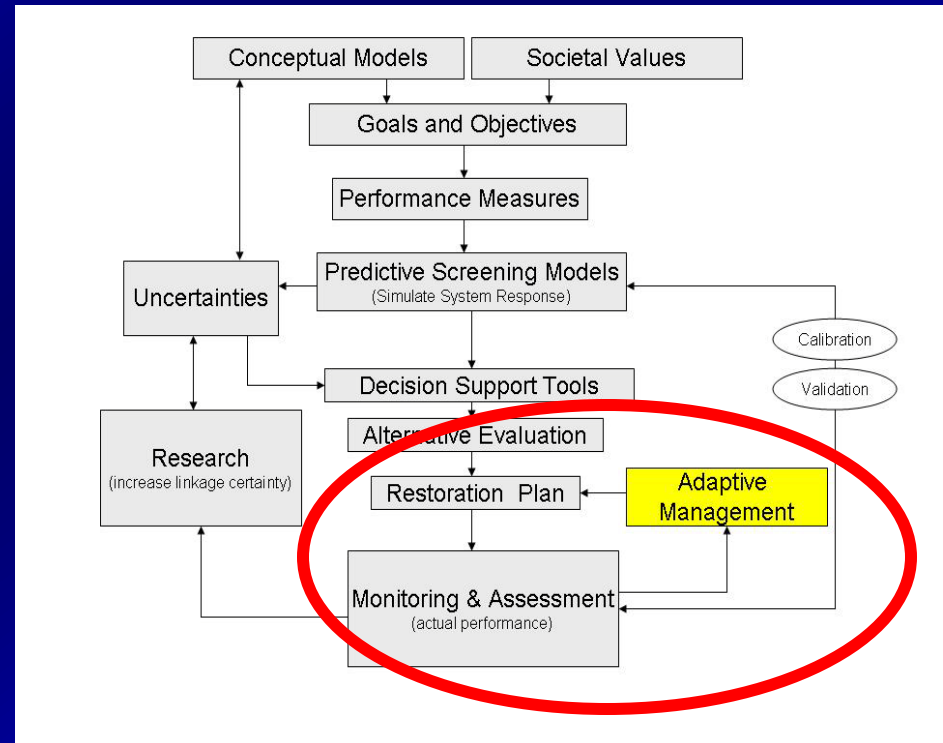
Uncertainties will be addressed in preconstruction, engineering, and design (PED) and a detailed monitoring and adaptive management plan, including a detailed cost breakdown, will be drafted as a component of the design document.

Science Strategy



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

