

**COMPLETE STATEMENT OF**

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**DEPARTMENT OF THE ARMY**

**BEFORE THE**

**Committee on Transportation and Infrastructure  
Subcommittee on Water Resources and Environment  
UNITED STATES HOUSE OF REPRESENTATIVES**

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**Introduction**

Mr. Chairman, Members of the Committee, I am Brigadier General Don T. Riley, Director of Civil Works, U.S. Army Corps of Engineers. I am pleased to be here today and to have the opportunity to speak to you on the Louisiana Coastal Area (LCA), Louisiana - Ecosystem Restoration Study. My testimony today will provide information on the background and progress made to date by the Corps of Engineers and the State of Louisiana in addressing the degradation of this nationally significant ecosystem. I will share with you some information on the problems and opportunities, the Tentatively Selected Plan restoration features, the estimated cost of the plan's components and the current study's status.

**Background**

The loss of Louisiana's coastal wetlands has been ongoing since at least the early 1900s with commensurate deleterious effects on the ecosystem. There have been several separate investigations of the problem and a number of projects constructed over the last 30 or so years that provide localized remedies. For example, under the Coastal Wetlands Planning, Protection, and Restoration Act, commonly known as the Breaux Act, Federal agencies and the State of Louisiana have created or restored an estimated 81.3 square miles of coastal wetlands since 1990. Under this Act, the principal Federal wetlands agencies and the State use a competitive process for

allocating funds to potential wetlands restoration projects. They select the best individual projects on the merits, but lack an overall strategy to identify integrated groups of projects that could yield greater environmental benefits by acting in concert on a watershed basis.

Two related activities, the Barataria Basin Wetland Creation and Restoration and the Barataria Basin Barrier Shoreline Restoration interim studies, were initiated under a feasibility cost sharing agreement (the Barataria Basin FSCA) signed between the Corps and the Louisiana Department of Natural Resources on behalf of the State of Louisiana in February 2000.

Given the magnitude of Louisiana's coastal land losses and ecosystem degradation, it has become apparent that a more systematic approach would be the best way to restore natural processes with a physical problem of such large proportions. In March 2000, Louisiana and the Corps jointly decided to undertake development of a comprehensive plan, and signed an amendment to the original Barataria Basin FSCA to initiate a broader ecosystem restoration study. Restoration strategies presented in the 1998 report entitled "Coast 2050: Toward a Sustainable Coastal Louisiana," which evolved into the 1999 Louisiana Coastal Area (LCA) 905(b) reconnaissance report, formed the initial basis for this broader-scale effort. Planning for this effort is now called the Louisiana Coastal Area Ecosystem Restoration Study (LCA Study).

The LCA Study team produced an internal, preliminary draft report in October 2003. Guidance from the Assistant Secretary of the Army (Civil Works) and in the President's fiscal year 2005 Budget identified the need to refocus this study's effort to address the most critical ecological needs of the Coastal Area over the next ten or so years. Since early this year, the Corps and the State have worked together to develop a proposed near-term action plan consistent with this guidance. The plan that we are developing will build upon progress made under the Breaux Act and is intended to guide the next phase of the restoration effort.

The change in focus of the LCA planning process, which began as a general description of a long-term coast-wide comprehensive effort but is now focused on identifying specific actions that can and should be initiated in the near-term, will enable us to take advantage of currently available science and technology, while recognizing that we still have much to learn. All of the ecosystem restoration measures under consideration for the near-term plan are based upon data from similar projects initiated in past years. Further detailed analysis and site design for these projects, after approval of the near-term plan, will ensure that these projects are highly cost-effective and begin to address the most critical ecological needs of the ecosystem. We are focusing our efforts on the parts of the ecosystem that require the most immediate attention, and will propose to address these needs through features that provide the highest return in net environmental and economic benefits per dollar of cost.

The Proposed Plan also contemplates studies of potentially promising, long-term ecosystem restoration concepts, with the objective of determining whether they would provide a highly cost-effective way to create coastal wetlands. Meanwhile, we also would pursue efforts to address the key scientific uncertainties and engineering

challenges associated with coastal restoration, and to improve the cost-effectiveness and likelihood of success of restoration efforts during, and beyond, the ten-year period that will be the focus of the near-term plan.

In addition to identifying the features and other program elements that are proposed to be included in a near-term plan of action, the draft report proposes several “programmatic authorizations” to facilitate their implementation. In some cases the proposed programmatic authorization would apply to new projects whose feasibility has been demonstrated by similar projects already constructed or is informed by feasibility-level studies already conducted. In other cases the programmatic authority would apply to small-scale modifications of existing structures, demonstration projects to prove new technologies, research programs to develop new technologies, and to the beneficial use of dredge material near by existing channels. The report proposes that any feature or program elements that are authorized programatically may be implemented only upon approval of the Secretary of the Army, and subject to Congressional appropriation.

After review of the public comments, our goal is to recommend the best restoration features and activities that can be implemented over the next ten years, the best way to sequence that work, and the best way to evaluate its success. The intent is to target restoration efforts to the parts of the ecosystem that require the most immediate attention, to improve our understanding of the needs of the ecosystem and our ability to meet them, and to otherwise make the best possible use of available funds, while continuing to pursue the further studies and planning needed to support current and future ecosystem restoration efforts.

## **Problems**

While Louisiana’s marine fisheries are still highly productive, vegetation and wetlands functions are on the decline. Without further action, Louisiana’s complex coastal ecosystem, composed of diverse habitats and wildlife, will continue to be threatened. Since the 1930s, coastal Louisiana has lost more than 1,875 square miles. The rate of loss from 1990 to 2000 was approximately 23.9 square miles per year, much of which was due to the residual effects of past human activity. It was estimated in 2000 that coastal Louisiana would continue to lose land at a rate of approximately 10.3 square miles per year over the next 50 years, resulting in an additional 513 square miles of net loss by the year 2050.

The combination of the past and continued loss of Louisiana’s coastal wetlands is having a discernable, serious adverse environmental impact. Although the rate of annual wetland loss is declining in acreage terms, it is possible that the decline of the natural ecosystem could accelerate if left unchecked. At a minimum, without further action we would expect to see a further decrease in various associated wetland functions and values, including corresponding diminished biological productivity and increased risk to critical habitat of threatened and endangered species.

## Opportunities

The sediment, nutrients, and fresh water of the Mississippi River system can contribute to the restoration of the coastal Louisiana ecosystem. The Federal Government and State of Louisiana have been conducting ecosystem restoration efforts for the past 14 years under the Breaux Act and other authorities. In addition, the scientific community in Louisiana is recognized internationally for their expertise in climate and wetland research. The lessons learned and experience gained from these past restoration and research efforts have been applied in the Louisiana Coastal Area Study in a systematic way to develop a proposed near-term plan for addressing the critical needs now facing coastal Louisiana. The potential near-term strategies for ecosystem restoration include:

- Freshwater and sediment re-introductions by diverting some of the flow of the Mississippi River into hydrologic basins;
- Barrier island restoration through placement of sand from offshore sources or the Mississippi River to sustain key geomorphic structures. This would help protect the ecology of estuarine bays and marshes by reducing gulf influences, as well as protect nationally important water bird nesting areas;
- Hydrologic modification to help restore salinity and marsh inundation patterns and provide fishery access in previously unavailable habitats, such as through projects designed to degrade excavated dredged material banks; and
- Creating a marsh platform in areas nearby existing navigation channels through the beneficial use of maintenance dredging material.

By applying ecologically sound principles and restoration methods developed in recent years, and through improved understanding of coastal system processes and ecosystem responses to restoration projects, there is an opportunity available for Louisiana and the Nation to move the LCA ecosystem toward a sustainable future.

## Current Status

On July 9, 2004, the Corps and the Louisiana Department of Natural Resources released the Draft Louisiana Coast Area Ecosystem Restoration Study report and Programmatic Environmental Impact Statement to the public. The public NEPA review and comment period will run from July 9 through August 23, 2004. The public comment period will include a series of public meetings conducted in late July through early August. The Corps and State will conduct these meetings in several locations in Louisiana, as well as in Beaumont, Texas, Bay St. Louis, Mississippi, and Memphis, Tennessee. The final study report is currently scheduled for completion in early December, with a Chief's Report expected in late December.

## Tentatively Selected Plan Restoration Features

The proposals in our Draft Report amount to a \$1.96 billion plan. This Proposed Plan includes 15 near-term restoration features that would have significant restoration benefits in the most critical areas of the coast, a Science and Technology program, Science and Technology demonstration projects, beneficial-use of dredged material, modifications to existing structures, and several long-term coastal restoration concepts that may warrant more detailed study.

The Draft Tentatively Selected Plan, which will hereinafter be referred to as the Proposed Plan, includes a proposal for:

- Accelerated implementation of five initial near-term restoration features, with an estimated cost of \$786 million. These five restoration features would address the most critical ecological needs of the coastal area in locations where delaying action could result in a “loss of opportunity” to achieve restoration and/or in much greater restoration costs. Each of these features also would help lay the groundwork for success in addressing the needs of the Louisiana coast beyond the scope of the ten-year plan. The benefits provided by these features include the sustainable reintroduction of riverine resources, rebuilding of wetlands in areas at high risk for future loss, the preservation and maintenance of critical coastal geomorphic structure, and perhaps most importantly, the preservation of critical areas within the coastal ecosystem so as to preserve the ability to successfully implement other potentially promising long-term restoration solutions that require further study.

The five restoration features proposed in our Draft Report under this component are:

- Mississippi River Gulf Outlet environmental restoration features
- Small diversion at Hope Canal
- Barataria Basin barrier shoreline restoration (Caminada Headland and Shell Island reaches)
- Small Bayou Lafourche reintroduction
- Medium diversion at Myrtle Grove with dedicated dredging

Except for the Mississippi River Gulf Outlet, these features already have initial design efforts in progress.

- A Science and Technology Program, which would provide the scientific data and technological tools needed to facilitate effective program design and implementation and to improve our overall understanding of coastal wetland ecosystem processes. The cost is \$100 million over the next ten years. While the LCA Plan is based upon the best currently available science and takes advantage of the experience gained from previous Louisiana coastal studies and restoration efforts, there remain significant scientific uncertainties and engineering challenges facing the effort to protect and restore the ecosystem.

The Science and Technology Program would aid in resolving these challenges and uncertainties. The program also would further our understanding of ecosystem needs; develop system-wide frameworks for modeling, monitoring, and evaluating restoration efforts based on the responses of the ecosystem and the incremental cost-effectiveness of restoration features; and address the most significant uncertainties affecting estimates of cost and effectiveness. To improve the prospects of success for our restoration efforts, we must ensure that the science and technology that we are using – both in the planning, design, construction, and operation of the near-term plan components and in future restoration efforts -- will steadily advance. We will integrate this proposed Science and Technology Program with research efforts conducted at universities and those sponsored by other Federal agencies, and to ensure that it encourages creativity and scientific collaboration while responding to the needs of the restoration program.

- Science and Technology Demonstration Projects to resolve critical scientific and engineering uncertainties. The estimated cost is \$175 million over the next ten years. Five initially identified candidate demonstration projects would serve to decrease critical uncertainties and provide valuable lessons learned to improve overall program performance. These first five candidate demonstration projects have an estimated total project cost of \$82.3 million. An additional five to 20 demonstration projects will be defined during implementation, bringing the total to \$175 million over ten years.

The first five proposed demonstration projects are:

- Wetland Creation in Vicinity of Barataria Chenier Unit (freshwater chenier restoration)
- Pipeline Conveyance of Sediment to Maintain Land Bridge
- Pipeline Canal Restoration (various methods and locations)
- Shoreline Erosion Protection Test Sections in the Vicinity of Rockefeller Refuge
- Barrier Island Sediment Sources Demonstration in Vicinity of Terrebonne Barrier Islands

These projects would examine the movement and application of available sediment resources throughout the system and the repair or prevention of widely spread wetland loss problems, and are also directed toward the development of large-scale solutions to broad systemic problems.

- Beneficial-Use of Dredged Material in areas nearby existing navigation channels to take advantage of ongoing maintenance dredging to restore geomorphic structure and in some cases supplement river water reintroductions. The estimated cost is \$100 million over the next ten years. This component of the Proposed Plan would take greater advantage of existing sediment resources

made available by maintenance activities to achieve restoration objectives and enhance the Proposed Plan's effectiveness. There is a potential to use up to an additional 30 million cubic yards of material annually. It is estimated that approximately 21,000 acres of newly created wetlands would result from the beneficial use of this quantity of material, over a ten-year period. Areas with that would be examined to determine whether additional beneficial use of material is warranted include:

- The bar channel of the Mississippi River Gulf Outlet, LA project
  - The bay reach of the Barataria Bay Waterway, LA project
  - The [lower] Mississippi Rivers & Tributaries project, Head of Passes and Southwest Pass
  - The bar channel of the Atchafalaya River and Bayous Chene, Boeuf, and Black, LA, project
  - The inland reach of the Calcasieu River and Pass, LA, project
- Modifications to Existing Structures to achieve cost-effective, expedited restoration benefits. The estimated cost is a total of \$10 million over ten years. As we learn more about the response of the ecosystem responds to restoration projects, we will need to modify or rehabilitate some of these projects. This component of the Proposed Plan would address relatively inexpensive changes to structures previously constructed, consistent with their authorized purpose and/or their existing operation management plans.
  - Ten additional near-term restoration features. The cost is \$730 million. The proposed restoration features employ a variety of restoration strategies, such as freshwater and sediment diversions; interior shoreline protection; barrier island and barrier headland protection; and use of dredged material for marsh restoration. Construction of these features could begin within the next ten years. The ten restoration features proposed in this category are:
    - Multi-purpose operation of the Houma Canal Lock;
    - Terrebonne Basin barrier-shoreline restoration, East Timbalier, Isle Dernieres;
    - Maintain land bridge between Caillou Lake and Gulf of Mexico;
    - Small diversion at Convent/Blind River;
    - Increase Amite River Diversion Canal influence by gapping banks;
    - Medium diversion at White's Ditch;
    - Stabilize gulf shoreline at Pointe Au Fer Island;
    - Convey Atachafalaya River water to northern Terrebonne marshes;
    - Re-Authorization of Caernarvon diversion – optimize for marsh creation; and
    - Re-Authorization of Davis Pond diversion – optimize for marsh creation.
  - A plan for assessing potentially promising large-scale restoration concepts. The cost is \$60 million. Several candidate large-scale and long-term concepts for potential incorporation into the Proposed Plan were identified during plan formulation. These restoration concepts may have significant potential to

contribute to achieving restoration objectives for Louisiana's coastal ecosystem. Accordingly, the corresponding benefits and costs for these potential plan features should be further analyzed and confirmed to determine how best to incorporate them, if at all, with other plan features.

The Proposed Plan specifies the initiation of feasibility studies of large-scale restoration concepts which, based on scope and/or complexity, will require more time and further study prior to implementation. The large-scale, long-term initiatives identified in the plan include:

- Mississippi River Hydrodynamic Model
- Mississippi River Delta Management Study
- Third Delta Study
- Upper Atchafalaya Basin Study (including evaluation of alternative operational schemes of Old River Control Structure funded under Mississippi Rivers & Tributaries)
- Chenier Plain Freshwater Management and Allocation Reassessment Study
- Acadiana Bay Estuarine Restoration Study

## Conclusion

The degrading Louisiana Coastal Area Ecosystem is an urgent, time sensitive issue:

- The five "most critical" proposed restoration features represent restoration opportunities where failure to act as soon as possible will significantly increase degradation and increase restoration costs.

This two-plus year Louisiana Coastal Area study effort is the result of a multidisciplinary, multiagency Federal-State partnership:

- Corps, Federal resource agencies, and State team have collaborated and built upon the Breaux Act and other restoration experience and collective expertise.

Public involvement has been growing since the late 1980s with the passage of the State's Act 6 (1989). Environmental stakeholders such as the Environmental Defense Fund, National Wildlife Federation, Nature Conservancy, Audubon Society, and the Coalition to Restore Coastal Louisiana, and others also have contributed input.

The near-term plan will be based upon the best available science:

- Leading academic and governmental scientists have been and will continue to be engaged in ecological modeling to forecast and monitor ecosystem response
- The Plan will incorporate the recommendations of a National Technical Review Committee, which is a forum through which noted scientists, having expertise in a broad array of fields, participate in discussions, exchanges and reviews of

information so that each scientist may more meaningfully give his or her own individual and independent advice or recommendations to the study team.

- The Science and Technology Program and Demonstration Project Program will aid in optimizing future implementation and help reduce uncertainty.
- The planned restoration activities will be sustainable and adaptively managed for maximum effectiveness:
  - Every effort has been made to determine solutions that not only aid in short-term restoration, but are also sustainable in the long-term: for example, projects that establish reconnections to the river sediment flows that built the coastal lands.
  - An adaptive environmental assessment and management framework is imbedded in LCA management and implementation to continuously apply lessons learned.

The Proposed Louisiana Coastal Area Ecosystem Restoration near-term Plan includes the highest priority actions and would begin to reverse the current trend of degradation of the coastal ecosystem. The plan maximizes use of restoration strategies that reintroduce historical flows of river water, nutrients, and sediments to coastal wetlands and maintain the structural integrity of the coastal ecosystem. Such a plan is the next logical step in the restoration effort, and would enable the State and the Nation to make significant progress towards protecting and rebuilding this nationally significant coastal ecosystem.

Mr. Chairman, that concludes my statement. Again, I appreciate the opportunity to testify today before the Committee. I would be pleased to answer any questions you or other members of the Committee may have.