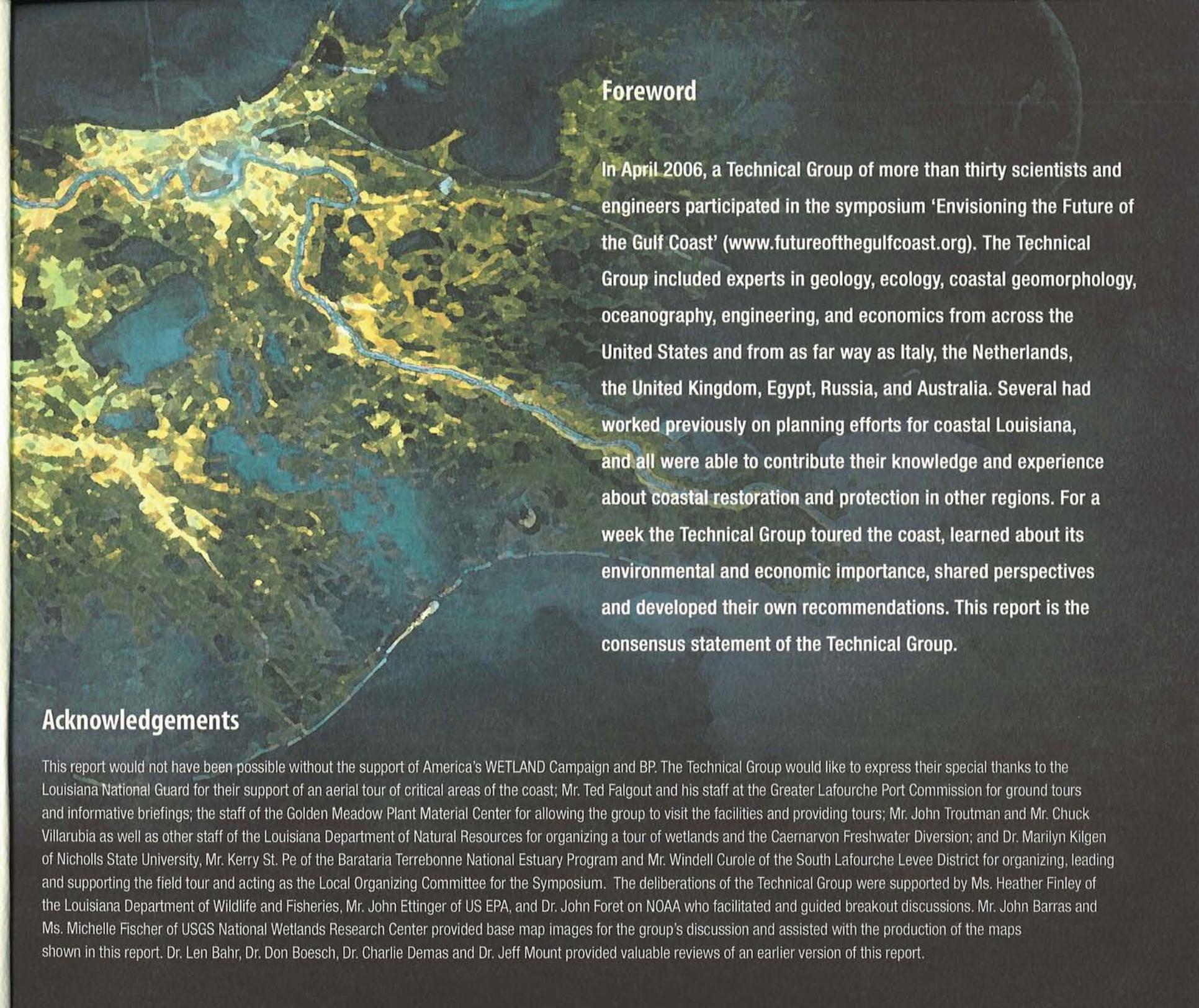


ENVISIONING

the future of the  
GULF COAST

**June 1, 2006**  
New Orleans, LA

**FINAL REPORT AND FINDINGS**  
From Technical Group  
Envisioning the Future of the Gulf Coast Conference



## Foreword

In April 2006, a Technical Group of more than thirty scientists and engineers participated in the symposium 'Envisioning the Future of the Gulf Coast' ([www.futureofthegulfcoast.org](http://www.futureofthegulfcoast.org)). The Technical Group included experts in geology, ecology, coastal geomorphology, oceanography, engineering, and economics from across the United States and from as far way as Italy, the Netherlands, the United Kingdom, Egypt, Russia, and Australia. Several had worked previously on planning efforts for coastal Louisiana, and all were able to contribute their knowledge and experience about coastal restoration and protection in other regions. For a week the Technical Group toured the coast, learned about its environmental and economic importance, shared perspectives and developed their own recommendations. This report is the consensus statement of the Technical Group.

## Acknowledgements

This report would not have been possible without the support of America's WETLAND Campaign and BP. The Technical Group would like to express their special thanks to the Louisiana National Guard for their support of an aerial tour of critical areas of the coast; Mr. Ted Falgout and his staff at the Greater Lafourche Port Commission for ground tours and informative briefings; the staff of the Golden Meadow Plant Material Center for allowing the group to visit the facilities and providing tours; Mr. John Troutman and Mr. Chuck Villarubia as well as other staff of the Louisiana Department of Natural Resources for organizing a tour of wetlands and the Caernarvon Freshwater Diversion; and Dr. Marilyn Kilgen of Nicholls State University, Mr. Kerry St. Pe of the Barataria Terrebonne National Estuary Program and Mr. Windell Curole of the South Lafourche Levee District for organizing, leading and supporting the field tour and acting as the Local Organizing Committee for the Symposium. The deliberations of the Technical Group were supported by Ms. Heather Finley of the Louisiana Department of Wildlife and Fisheries, Mr. John Ettinger of US EPA, and Dr. John Foret on NOAA who facilitated and guided breakout discussions. Mr. John Barras and Ms. Michelle Fischer of USGS National Wetlands Research Center provided base map images for the group's discussion and assisted with the production of the maps shown in this report. Dr. Len Bahr, Dr. Don Boesch, Dr. Charlie Demas and Dr. Jeff Mount provided valuable reviews of an earlier version of this report.

## Summary Findings

*Sustainable restoration of Louisiana's coast and all it supports can be achieved only by redirecting the freshwater and sediments of the Mississippi River onto the nearshore, stemming the direct loss of these valuable resources to the deep waters of the Gulf of Mexico.*

Aggressive action is needed to redirect all available renewable resources of the Mississippi River system to rebuild, replenish, and sustain coastal Louisiana. This area includes one of the most important wetland landscapes in North America, and it is now slipping away from us. Harnessing the resources of the Mississippi River is the only way to move towards a sustainable landscape in the face of continued subsidence, rising sea levels, and more frequent intense hurricanes.

Aggressive action is called for because the coast of Louisiana is also home to New Orleans, one of the world's great cities. In addition, coastal Louisiana supplies energy to the nation and hosts port facilities that link the heart of our country to the rest of the world. America's Wetland is now in peril. Only bold action taken now can rescue the ecosystem and thereby the economy, culture, and navigation systems it supports. A sustained effort is needed to restore the natural processes essential for the future of coastal Louisiana.

Under the best of circumstances the sustainable coast will likely be smaller than at present, but it could support the culture and economy unique to the region. Today's citizens must learn to live with their ever-changing environment, assess the risks involved, and take the necessary steps for future generations to be able to do the same.

Small-scale efforts such as sediment mining to construct marshes and barrier islands and diverting sediments and water from the Mississippi River may slow land loss locally and perhaps even reverse the loss for a short time. However, such measures will never achieve a sustainable coastal landscape for future generations. The available resources of the Mississippi and Atchafalaya Rivers will be needed to support the coastal system, as was typical over past millennia before engineered channels and levees began forcing sediment directly to the deep Gulf.

We believe this new approach to management of the Mississippi River and its resources can be compatible with the needs of navigation and the provision of freshwater for industries and residents. Most importantly, it will sustain a productive and extensive complex of wetlands and barrier islands along the coast and provide some protection for outlying communities during some storms.

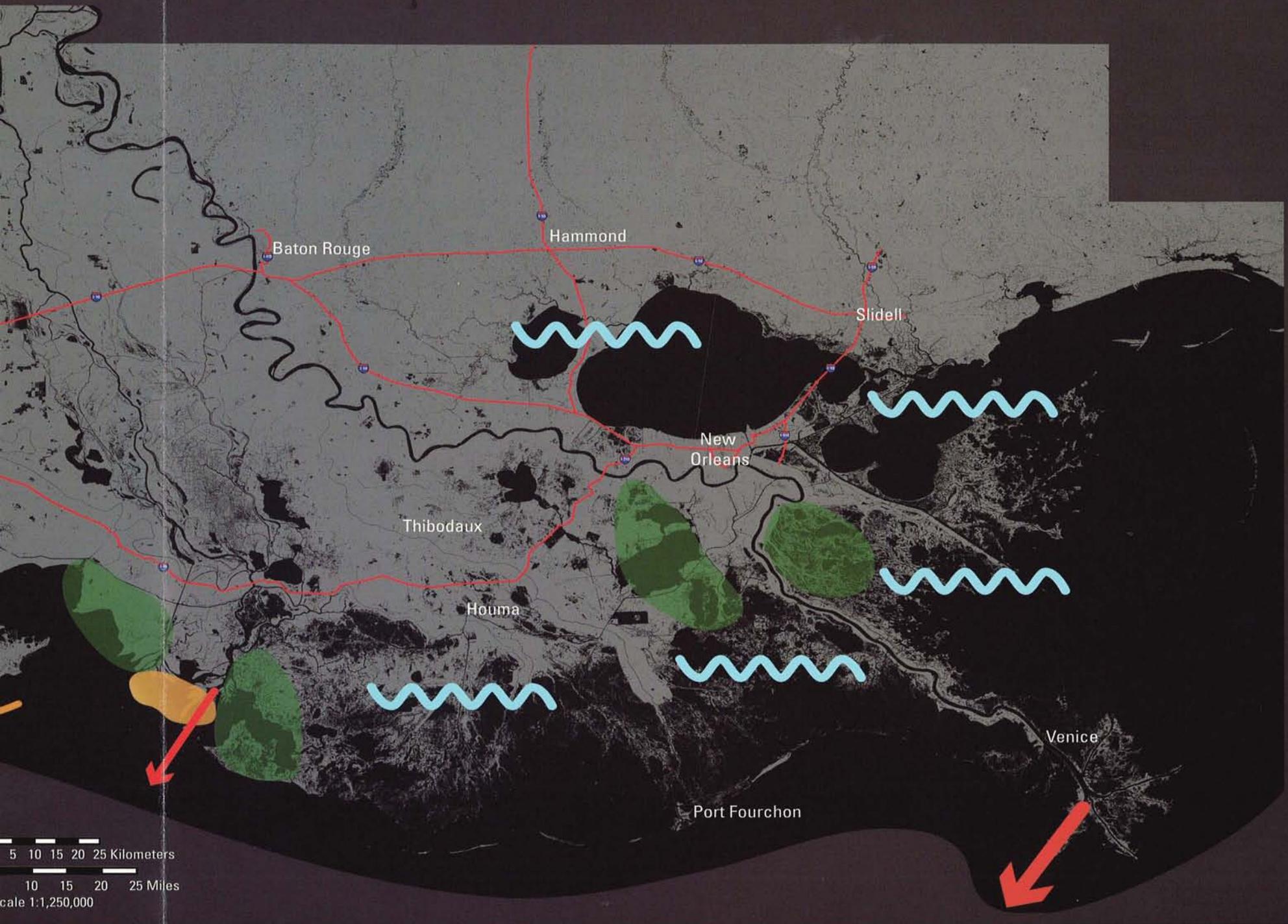
## Continuing Current Management

Since the 1930's, Louisiana has lost over 1,500 square miles of its coast. Scientists project that another 500 square miles will be lost by 2050 if no additional restoration is undertaken and current resource management practices continue. In the face of subsidence, sea-level rise, and the increased likelihood of intense hurricanes making landfall on the coast, we expect land loss to continue well beyond 2050. Even if populated areas can be protected from hurricanes with levees and floodgates, the continued loss of the coastal landscape will pose an increasing threat to the economic and environmental sustainability of the region

If current management practices continue, the consequences of subsidence, global climate change, long-term loss of river sediments, and continued degradation of the ecosystem are diverse:

- Land loss and flooding will become even more severe as sea-level rise accelerates and storms increase in intensity, results of the predicted rise in temperature of the atmosphere and ocean surface.
- Higher and wider levees will be required just to retain current levels of protection.
- Outlying communities and their evacuation routes will be flooded more frequently by daily tides, not only during storms.
- Increasing open water and rising sea level will intensify wave action, further eroding marshes, damaging infrastructure, and increasing maintenance costs for storm protection levees and floodgates.
- A haphazard retreat of people from the coast will continue. After each storm, a few more coastal residents and businesses will retreat inland, making services (e.g., roads, water supply, garbage collection, school bus routes) more expensive for the few that remain.
- More nursery grounds for fisheries will be lost, along with habitat for migratory waterfowl and Neotropical birds.
- More than 120 million tons of river sediment that could be used to sustain the coast will be lost to the Gulf of Mexico each year.

# Managing Current Management



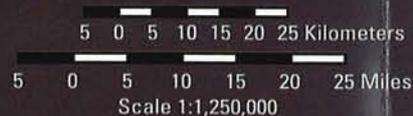
-  Water
-  Land
-  Reduced Land Loss
-  Land Building
-  Interstate Highway
-  River Sediment
-  Sediment Redistribution
-  Increased Water Levels



Land-Water Image provided by the USGS National Wetlands Research Center:

Land-Water Image Data Sources:  
 LCA 2000 Land-Water Mosaic, LCA 2050 Projected Land Loss/Gain  
 Trend Data and Fall 2005 Land-Water Data for Southeastern Louisiana

Map ID: 2006-11-0331  
 Map Date: May 25, 2006



## Achieving a Sustainable Louisiana

The most fundamental and essential action needed to achieve a sustainable coast is to reduce, to the greatest extent possible, the amount of Mississippi River sediment and freshwater flowing directly into the deep waters of the Gulf. These valuable resources, which originally built coastal Louisiana, can only benefit the coast if they are redirected to inshore and nearshore waters. This would occur naturally if the river were not artificially maintained for navigation along its present course into deep water. A new approach to managing the Mississippi River is the key to a sustainable society, economy, and environment in south Louisiana.

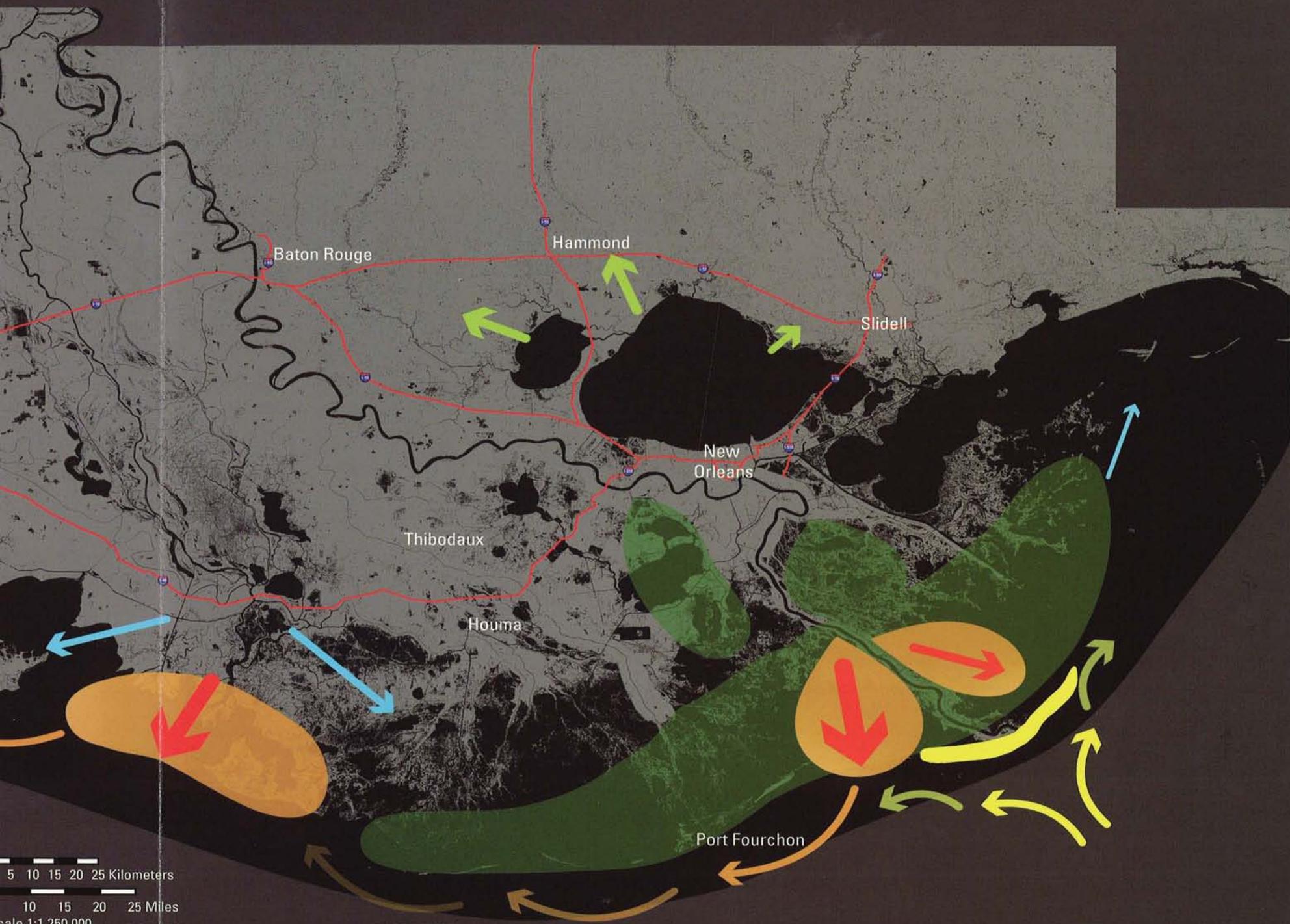
Achieving a sustainable coast will mean change. The sediments supplied by the Mississippi River are not sufficient to rebuild and maintain the entire coast. Thus a sustainable coast will be less extensive than at present, and retreat from some areas must be expected and planned for. Undeveloped areas will be needed to allow wetlands at the upland margin to migrate onshore as sea level rises. A culture of gradual change is needed that utilizes and maintains natural resources while adapting to the dynamic nature of the Mississippi River.

To achieving a sustainable coast it will be necessary to abandon the "Birdsfoot Delta" and create a **new river channel or channels** between Myrtle Grove and Venice. This will redirect the main flow of sediment and freshwater from the river to the nearshore and the upper continental shelf. Tides and waves will transport the sediments towards shore and rework them into a mosaic of wetlands, shallow bays and barrier islands. Breakup of the largely uninhabited Birdsfoot will supply sand and mud to the new coast and to the westward trending currents. Navigation from the Gulf to upstream port facilities can be accommodated either through a slack water channel and lock or by making a new navigable river channel that relies on dredging and beneficial use as well as river flow for maintenance.

Sustainability of Louisiana's coastal environment also requires management of the sediments and fresh water that are delivered to the coast via the **Old River Control Structure and Atchafalaya River**. Currently some of the same river management approaches that have led to the demise of southeast Louisiana are being replicated in the dredging and channelization of the Lower Atchafalaya River.



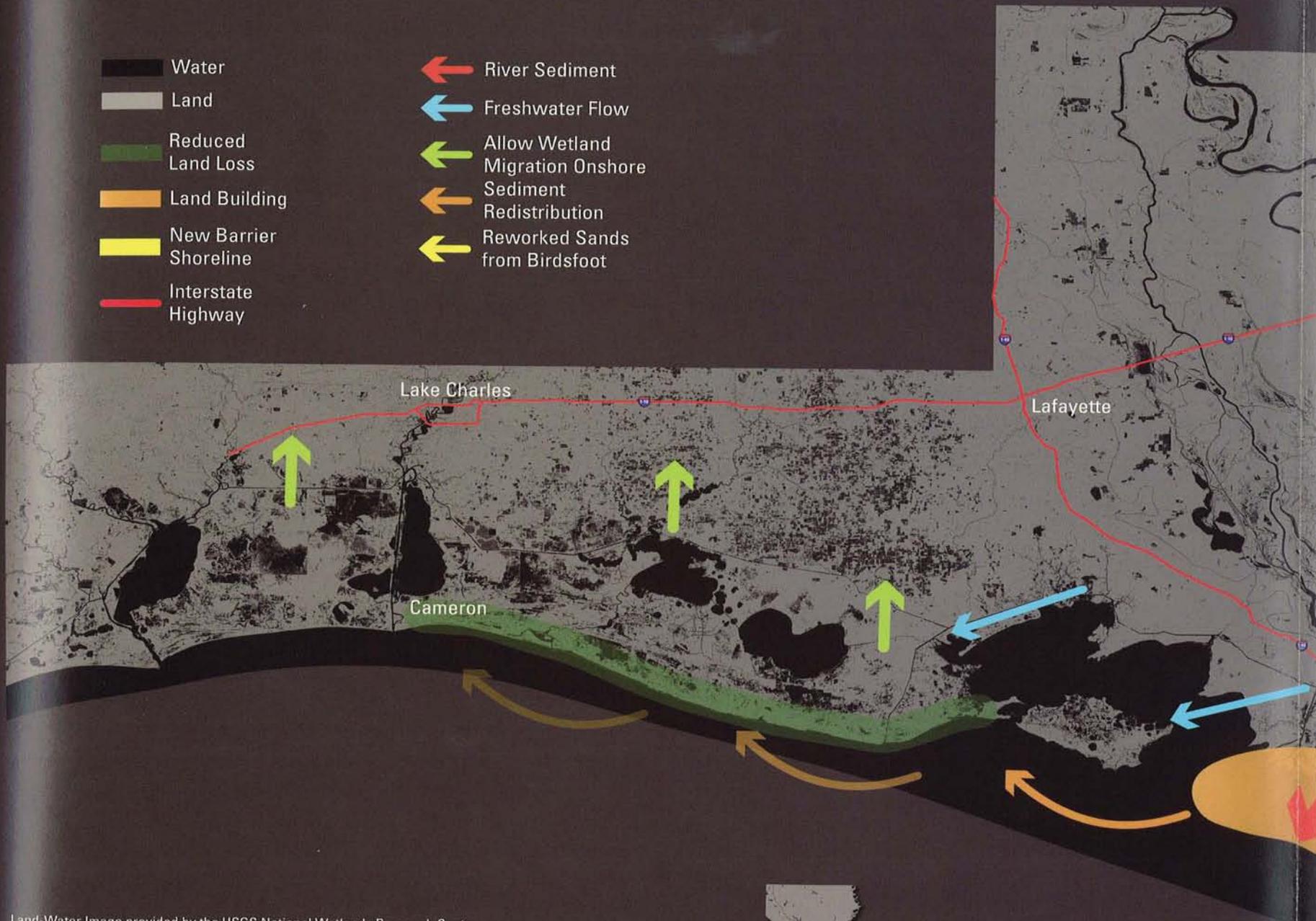
# Achieving Sustainability



5 10 15 20 25 Kilometers  
10 15 20 25 Miles  
Scale 1:1,250,000



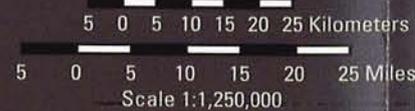
- Water
- Land
- Reduced Land Loss
- Land Building
- New Barrier Shoreline
- Interstate Highway
- River Sediment
- Freshwater Flow
- Allow Wetland Migration Onshore
- Sediment Redistribution
- Reworked Sands from Birdsfoot



Land-Water Image provided by the USGS National Wetlands Research Center:

Land-Water Image Data Sources:  
LCA 2000 Land-Water Mosaic, LCA 2050 Projected Land Loss/Gain  
Trend Data and Fall 2005 Land-Water Data for Southeastern Louisiana

Map ID: 2006-11-0334  
Map Date: May 25, 2006



## Achieving Sustainability and Addressing Local Restoration Needs

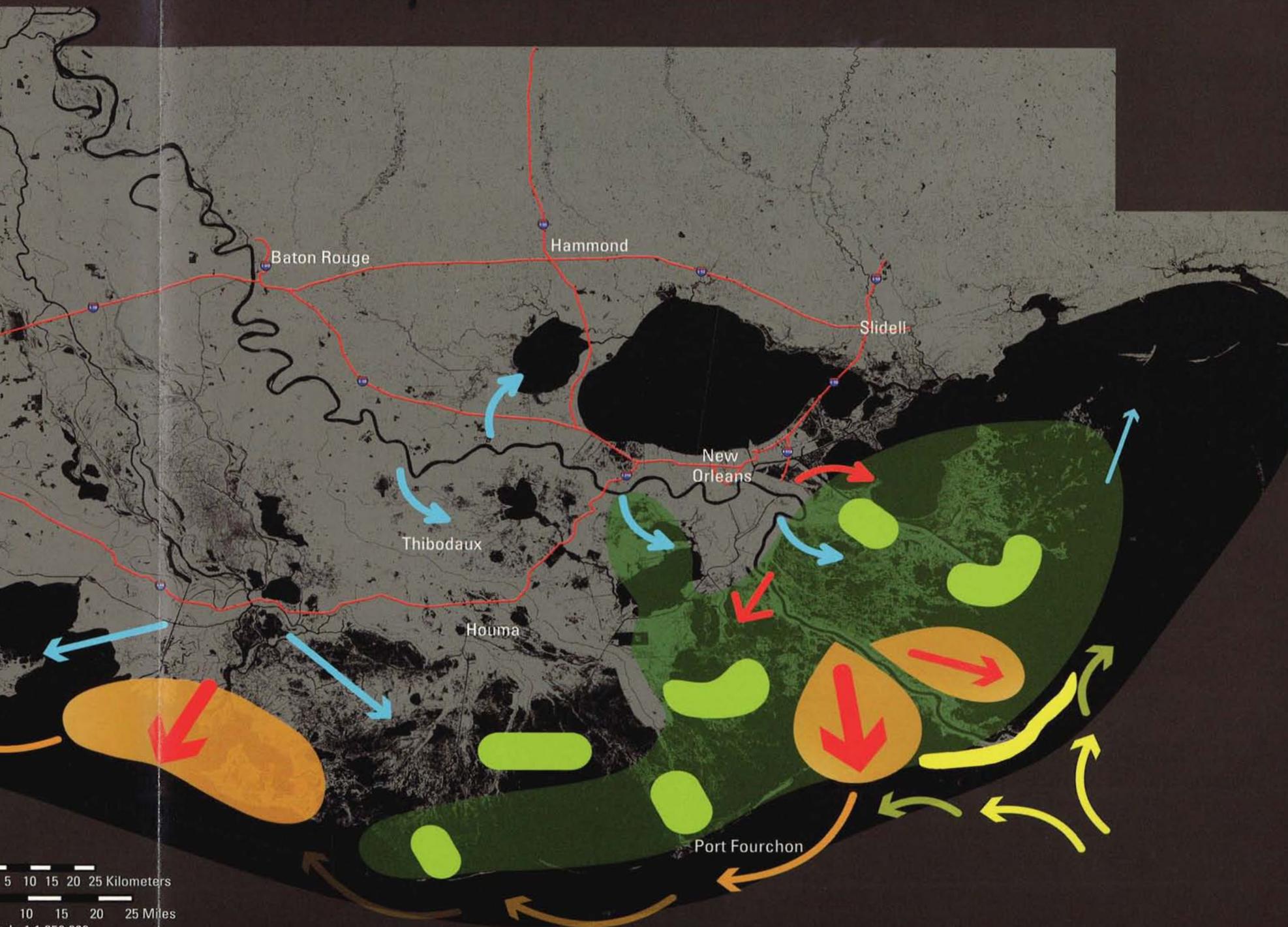
Sustainability of the Louisiana coast depends on ensuring that the sediment resources of the Mississippi River are redirected to inshore and nearshore coastal systems and that their benefits are distributed across the coast. With these fundamental changes in place, other actions can be taken to provide sustainable solutions to local problems. However, trying to maintain the existing or historical landscape is futile and would deny the inherently dynamic nature of the Mississippi Delta Plain and Chenier Plain. These systems were never static in the past, nor will they be in the future.

The existing plans for coastal restoration, such as those put forth in the Louisiana Coastal Area study, will rebuild some wetlands, protect others from erosive forces, and maintain parts of the landscape for a limited time. Modest freshwater and sediment diversions from the Mississippi make use of the river's renewable energy and sediment supply to renourish nearby wetlands. Mining sediments and transporting them to areas of need, although expensive, can rebuild local marshes and barrier islands at least in the short term.

However, the continued sinking of coastal Louisiana and rise in global sea-level throughout the 21st century will require that sediment be continually supplied to natural and constructed wetlands and barrier islands to maintain their integrity. In addition, the long-term energy cost of mining and pumping sediment is not sustainable. It will burden future generations and leave a legacy of depleted resources. To recreate a sustainable coast these types of restoration actions must be integrated with the retention of the river's freshwater and sediment resources in the nearshore.



# Priority and Addressing Local Restoration Needs



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10 15 20 25 Miles  
Scale 1:1,250,000



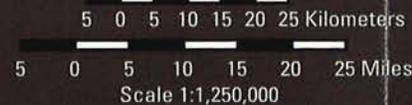
- |   |   |
|---|---|
|  Water                 |  River Sediment                |
|  Land                  |  Freshwater Flow               |
|  Reduced Land Loss     |  Sediment Redistribution       |
|  Land Building         |  Reworked Sands from Birdsfoot |
|  New Barrier Shoreline |  Local Marsh Creation          |
|  Interstate Highway    |   |



Land-Water Image provided by the USGS National Wetlands Research Center:

Land-Water Image Data Sources:  
LCA 2000 Land-Water Mosaic, LCA 2050 Projected Land Loss/Gain  
Trend Data and Fall 2005 Land-Water Data for Southeastern Louisiana

Map ID: 2006-11-0333  
Map Date: May 25, 2006



## Members of Technical Group that Participated in this Report

Dr. Mead Allison, Tulane University, New Orleans, LA

Dr. Richard Bernknopf, U.S. Geological Survey, Menlo Park, CA

Dr. Virginia Burkett, U.S. Geological Survey, Many, LA

Dr. Giovanni Cecconi, Consorzio Venezia Nouva, Venice, Italy

Dr. Ellis "Buddy" Clairain, Jr. US Army Corps of Engineers, Engineer Research  
& Development Center, Vicksburg, MS\*

Ms. Jane Da Mosto, The Venice in Peril Fund, Venice, Italy

Mr. Jos Dijkman, Delft Hydraulics, Delft, Netherlands

Dr. Katherine Ewel, Gainesville, FL

Dr. Jon French, University College, London, UK

Dr. Moustafa Gaweesh, National Water Research Center, Al-Quanater, Egypt

Mr. Joris Geurts van Kessel, Ministry of Transport, Public Works and Water  
Management, Rijkswaterstaat - National Institute for Coastal and  
Marine Management (RWS-RIKZ), The Netherlands

Dr. Charles "Chip" Groat\*, University of Texas, Austin, TX

Dr. Thomas Holzer, U.S. Geological Survey, Menlo Park, CA

Dr. Jörg Imberger, University of Western Australia, Perth, Australia

Dr. Joseph Kelley, University of Main, Orano, ME

Dr. Björn Kjerfve\*, Texas A&M University, College Station, TX

Dr. Jessica Lacy, U.S. Geological Survey, Santa Cruz, CA

Mr. Roy "Robin" Lewis III, Lewis Environmental Services, Inc., Salt Springs, FL

Dr. Ehab Meselhe\*, University of Louisiana, Lafayette, LA

Dr. James Morris, University of South Carolina, Columbia, SC

Dr. Vincent Neary, Tennessee Technological University, Cookeville, TN

Dr. Julian Orford, Queens University, Belfast, UK

Dr. Susan Peterson, Teal Partners, Rochester, MA.

Mr. Richard Raynie\*, Department of Natural Resources, Baton Rouge, LA

Dr. Denise Reed\*, University of New Orleans, New Orleans, LA

Dr. Lisa Robbins, U.S. Geological Survey, St. Petersburg, FL

Ms. Julie Rosati, US Army Corps of Engineers, Engineer Research &  
Development Center, Vicksburg, MS

Dr. Tom Spencer\*, University of Cambridge, UK

Dr. Bob Strader, U.S. Fish and Wildlife Service, Jackson, MS

Dr. Bill Streever, BP, Anchorage, AK

Dr. John M. Teal, Teal Partners, Rochester MA and Scientist Emeritus, Woods  
Hole Oceanographic Institution, Woods Hole, MA.

Dr. Robert Twilley\*, Louisiana State University, Baton Rouge, LA

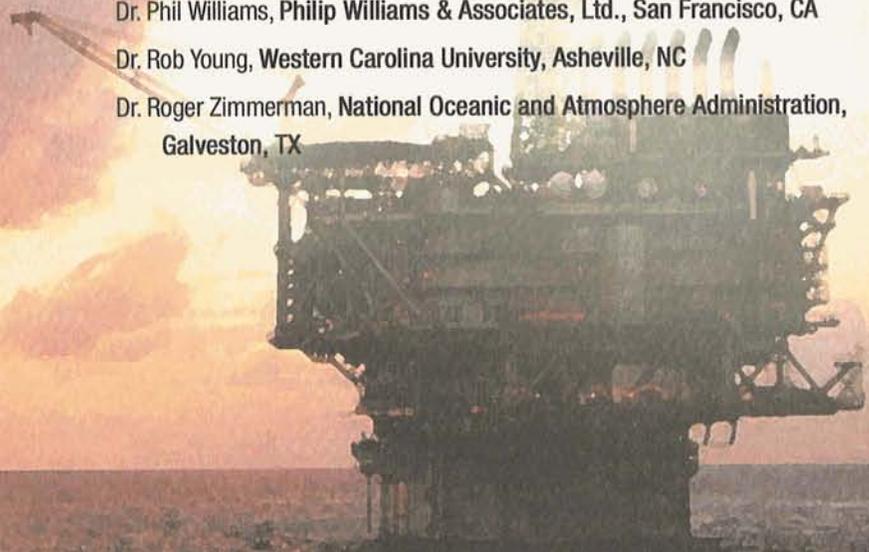
Dr. Hal Wanless, University of Miami, Miami, FL

Dr. Phil Williams, Philip Williams & Associates, Ltd., San Francisco, CA

Dr. Rob Young, Western Carolina University, Asheville, NC

Dr. Roger Zimmerman, National Oceanic and Atmosphere Administration,  
Galveston, TX

\*Indicates member of Technical Steering Committee





## A Symposium for Action

### Using Engineering and Science to Protect Communities, the Economy and the Ecosystem

was sponsored by BP in cooperation with America's WETLAND: Campaign to Save Coastal Louisiana

America's WETLAND: Campaign to Save Coastal Louisiana, the largest, most comprehensive public education campaign in the State's history, was launched to raise public awareness of the impact of Louisiana's wetland loss on the state, nation and world. The initiative is supported by a growing coalition of world, national and state conservation and environmental organizations and has drawn private support from businesses that see wetlands protection as a key to economic growth and sustainability.

To find out more about America's WETLAND: Campaign to Save Coastal Louisiana  
please visit [www.americaswetland.com](http://www.americaswetland.com)

